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Decentralization and Local Autonomy: Conditions for Achieving Sustainable Natural Resource Management

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ACRONYMS

NRM	natural resources management
NRMAA	Natural Resources Management Analytical Agenda
AFR/ARTS	Africa Bureau's Analysis, Research, and Technical Support Office
R&D/EID	Research and Development Bureau, Office of Economic and Institutional Development
OTA	U.S. Congress, Office of Technology Assessment
WRI	World Resources Institute
WWF	World Wildlife Fund
IAD	institutional analysis and design
NGO	nongovernmental organization
NNFC	Nyae Nyae Farmers Cooperative
RRA	rapid rural appraisal
PRA	participatory rural appraisal

PREFACE AND ACKNOWLEDGEMENTS

The following report was prepared under a work order issued by the Agency for International Development's (AID) Africa Bureau Office for Analysis, Research and Technical Support (AFR/ARTS) to the Decentralization· Finance and Management Project (DFM). It is the result of a research effort that included a literature review and field investigations in three Sub-Saharan African countries. The overall research objective assigned to DFM was to analyze the "strategies available to and utilized by local communities to mobilize people and resources" for sustainable management of natural resources.

To achieve this objective, this report describes examples of both successful and unsuccessful management of natural resources by local institutions Analysis of these cases focuses on several conditions that appear to increase the likelihood of sustainable management. General actions that may contribute to establishing the conditions are suggested The intent, however, is not to be prescriptive and propose how the conditions can or should be created in specific circumstances

What this report does attempt is to provide examples of what can happen with local management of natural resources under certain conditions By focusing on and explaining a set of conditions that promote sustainable resource management, this analysis helps to refine analytical and predictive capabilities, and evaluate resource management options. What will work in particular circumstances however is highly case specific Furthermore, these conditions should not be seen as the only factors that promote sustainable natural resource management They are, however, important ones

The report reflects an analytical approach to the problem of natural resources management that focuses on institutions, actors, and incentives That is, why people do what they do, and how institutions (i e sets of rules) dictate what those actions will be. The basic premise of this study is that local autonomy is a positive factor for the sustainable management of natural resources This premise is based on three assumptions· 1) because people rely for their survival on their natural resources they have a strong incentive to see that they are sustainably managed, 2) people have an intimate knowledge of the nature of their resources and how best to manage them, and, 3) experience shows that centralized regimes that try to control how resources are used at a local level are most often ineffective and may in fact create disincentives to sustainable resource management.

This discussion emphasizes the importance of governance arrangements to sustainable resource management. The emphasis on local institutions as sets of rules and the conditions which promote their success implicitly argues that resource management projects and programs cannot achieve sustainability through isolated community participation activities alone. Sustainability implies an ability to adapt over time to inevitable changes in circumstances. Therefore, in order for communities to make decisions that will result in sustainable resource management, an institutional framework and governance arrangements that allow for changes both within the community and in relation to external actors are

necessary. This means communities must have the voice and choice to make, implement and adapt their own rules. Adaptation is the result of learning through trial and error, success and failure, and changing the rules depending on what is learned. The ability to adapt over time is the essence of sustainability.

This volume synthesizes the results of a year-long study which included, in addition to secondary source research, field research in Uganda, Mali, and Namibia during the Spring of 1992. Members of the research team who participated in the research and field work, and who contributed to preparation of this report are: Megan Biesele, Tom Catterston, Cheibane Coulibaly, Steve Dennison, Ian Deshmukh, David Green, Bob Hitchcock, Scott McCormick, Rebecca McLain, David Miller, Alan Osborn, Tom Painter, Nadia Rabesahala, Louis Siegel, Jamie Thomson, and Mike Winter

Field reports and additional background information are included in Volume II.

The DFM Project's primary focus is the analysis of institutions that perform key funding, management, and maintenance functions in order to suggest ways in which these institutions can improve performance and establish policies which encourage sustainability The project provides research and technical assistance to AID field missions and central bureaus to help analyze institutional structures that support local autonomy and sustainable management of resources

The research team would like to thank and acknowledge the assistance provided for this study by AID missions in Bamako, Kampala, and Windhoek. We would also like to thank Mike McGahuey and Tony Pryor of AFR/ARTS for their continued support and assistance for all phases of this project

I. Executive Summary

A. Introduction

Among the research themes included for investigation in the Africa Bureau's Office of Analysis, Research and Technical Support (AFR/ARTS) Natural Resources Management Analytical Agenda is the relationship between decentralization, local autonomy, and sustainable natural resources management (NRM). This report presents the Decentralization: Finance and Management (DFM) project's findings from an analysis of these relationships, based on both secondary sources and on-site field investigations.

The analytical approach used for this research is based on the Institutional Analysis and Design (IAD) framework developed over many years by the Workshop in Political Theory and Policy Analysis at Indiana University. As applied by DFM to this research activity, the approach calls for an understanding of the incentives which determine the practices and strategies actors involved in a natural resources management situation adopt. It assumes that renewable natural resource problems are embedded in multi-level and complex systems of technical, economic, fiscal, legal and political relationships The incentives which determine what decisions are made are shaped by these relationships as well as by the attributes of the resource, the attributes of the actors and communities, and the rules affecting access, use and control of resources

Once factors affecting the behavior of resource users are understood, it may be possible to identify technologies and/or institutional reforms that can alter incentives and lead users to modify their strategies and adopt more sustainable practices.

B Institutional Conditions For Sustainable NRM Related to Decentralization and Local Autonomy; Findings and Analysis

To conduct the study, researchers formulated a set of interrelated conditions that favor adoption of sustainable resource management practices. Subsequently, field investigations assessed the strength of linkages between these conditions and sustainable NRM These conditions, while necessarily general in character, can serve as guidelines for the analysis of experience as well as for future research efforts, and for design and evaluation of NRM projects The conditions cannot be viewed in isolation from one another They coincide and cross-over No one condition in and of itself can be seen as the guarantor of success

For the most part the conditions concern governance arrangements, specifically as they relate to natural resources management In general these conditions tend to favor innovation and experimentation by local resource users The ability of resource users to innovate, adapt to changing conditions, and broker resource governance and management arrangements with other public and private institutions is a significant indicator of progess toward sustainable NRM Changes in the ordering of relationships in society that are implied by this perspective

should be viewed as long-term goals. The analysis here is therefore an incremental step towards refining our predictive capabilities, thereby increasing the likelihood that institutional changes and policy reforms will produce desired results.

Explication and Analysis of Conditions

1. Incentives for users to govern and manage natural resources sustainably are present, including a recognized capacity to control access and membership.

The existence for individuals and communities of incentives favoring NRM is the broadest of the six conditions Incentives are traditionally viewed as benefits or advantages associated with specific actions Positive incentives exist for individuals and communities when the benefits from sustainable NRM exceed the costs. However, dependent on the attributes of the resource in question and the institutional arrangements governing its management, incentives can be perceived by different individuals in different ways Incentives and disincentives will reflect the influence of community norms and practices and the influences of various institutional arrangements, as well as short- and longer-term economic benefits and costs.

2. Management of natural resources capitalizes on local knowledge, or an effective blend of scientific knowledge and local knowledge

To survive, people have had to develop adaptive strategies for dealing with their environment Most often they have intimate knowledge of the local ecology, its resource base, the utility of different plant species, their regenerative capabilities under a variety of conditions, the habitat and behavior patterns of wildlife, and how these various resources fit into and interact with local production systems This local knowledge is the basis for traditional resource management systems When external development efforts ignore and/or override local knowledge, sustainability is often compromised. The indigenous knowledge base offers the most appropriate starting point for identifying NRM problems and devising feasible solutions.

3 Self-governing institutions exist, and members have a voice in natural resource management decision making

Resource users must be organized to participate effectively in decision-making and/or to effectively control local resource utilization. Case studies on successful long-enduring common property management regimes provide empirical evidence on the value of indigenous institutional capital and the self-organizing capabilities of local communities A substantial degree of autonomy for locally constituted and governed NRM institutions is important for the long-term sustainability of resources Local institutions are most apt to have not only an intimate knowledge of the resource and its place in the environment, but also an understanding that resource use and access rules must be flexible in order to adapt management regimes under changing conditions, particularly in vulnerable environments.

Local institutions often face high transaction costs in their dealings with the public sector that discourage institution building and local governance and management of resources Governments can support local institutions through policies that lower such costs. Governments can also improve prospects for sustainable NRM by providing appropriate mechanisms which establish the legitimacy and tenurial rights and obligations of local institutions.

Successful resource management by local self-governing institutions does not argue for myopic support of local autonomy. In many instances natural resource management problems surpass a community's technical capacities or jurisdictional purview. Effective local government can provide essential services to assist indigenous institutions in addressing their resource management problems, and can act as a communication vehicle for designing and implementing national policies

4. Low-cost, fair mechanisms for conflict resolution are available.

Despite the clarity of rules either external or internal to a community or communities of users, ambiguity will always exist in their application and enforcement. Ambiguities can be expected to generate conflicts when demand for resources exceeds supply. Thus conflict resolution is an integral part of NRM Be they formal or informal, it is essential that conflict resolution institutions be accessible to all and perceived as fora in which objective and fair judgements are rendered

Community level conflict resolution mechanisms are critical for effective sustainable resource management They are a powerful means of reducing the transaction costs of resolving conflicts; enhancing the legitimacy of local renewable natural resources governance institutions; and, increasing the credibility and efficiency of locally-based NRM It will be difficult if not impossible for communities to exercise control over their natural resources without having a recognized institution for conflict resolution, supported and respected by local and national levels of government alike

Resolution of conflicts associated with access and membership are of primary importance for resource management. A fundamental, underlying principal found in all cases of successful resource management by local self-governing institutions is control over membership in the users' group as a means to control resource demand That is, local institutions must be able to establish both geographic and membership boundaries, and must have the legally recognized authority to enforce those boundaries, in order to sustainably manage resources

5. Resource governance and management institutions take account of diverse, legitimate interests.

Natural resources are used and valued differently by a wide array of actors. Complex institutional arrangements are required to account for the diverse, legitimate interests of the various parties and to reflect the attributes and scale of the resource, and the technologies available for management. Governance and management regimes that facilitate expression of diverse interests and provide an unbiased arena for negotiations to reconcile the needs and aspirations of involved parties have a greater likelihood of success over time.

In an effort to balance diverse interests it is important that local institutions have the support of over-lapping levels of government for the enforcement of decisions made at the community level; resolution of conflicts not appropriately adjudicated at a local level, and, technical and information support. These are important and legitimate supra-local government functions, but only as they support local mechanisms, not if they supplant or override them. As competition for resources increases and the need for sustainable resource management grows, there is probably an ever greater need for collaboration between governance institutions Local institutions will in fact seek collaboration for technical and institutional support, if the transaction costs and associated risks are manageable

6 National and regional policies and institutions create an enabling environment.

An enabling environment is a precondition for all the previously discussed conditions It is a result of cooperation between the various actors and institutions involved with management of natural resources or resolution of a specific natural resource issue. An enabling environment within which local self-governing institutions can manage their own natural resources requires, however, much more than the passive acquiescence of government bodies It requires active support for local self-governing institutions in terms of conflict resolution, enforcement, tenure and usufruct rights, and technical and informational assistance

The first enabling factor is a legal framework that authorizes upon the initiative of citizens the constitution of groups, associations, cooperatives, and other forms of organization The legal framework must also guarantee property rights, including land and tree tenure, and usufruct rights Rules governing organization and property rights, when articulated so that resource users understand them clearly, establish (with some degree of certainty) that users can reap the benefits of their own natural resource investment and management decisions. The transaction costs associated with policies and rules determine whether those policies and rules are in fact enabling, or constraining.

C Conclusions

Some of the examples of indigenous management regimes presented in this report identify a set of general, interrelated conditions that explain why some communities are successful in their efforts to sustainably manage natural resources. Others illustrate how, in

the absence of some or all of these conditions, institutional failure has occurred and has contributed to the dissolution of particular resource management regimes and the subsequent deterioration of the natural resource base. These examples bear testimony to the need for revitalizing indigenous institutions and establishing the conditions required to support the emergence of new community based institutions

The emphasis on local level management regimes is not intended to suggest that all NRM decisions be left to a multitude of disparate local institutions and that broader strategic concerns be ignored It does, however, argue for a fundamental reorientation of governance systems to assign formal legal status to a variety of community organizations, thus allowing them a voice in the decision making process.

Three key issues integrate and synthesize the analysis of the six conditions.

Preservation and promotion of indigenous social capital. Among indigenous peoples the rules governing resource management are integrated into a wider set of cultural norms and social values that determine behavior in relation to factors such as marriage, family and property rights These rule systems represent the social capital of a community and are commonly shared and well understood by all its members Utilizing this social capital can greatly enhance resource management potential

The legal status of community-based organizations. Local institutions need the legally recognized authority to make and apply rules; mobilize resources; constitute new special purpose jurisdictions; and, resolve disputes in light of local working rules

Decentralization of public authority. Devolution of decision making authority to decentralized government units is required to create an enabling environment that will encourage the autonomy of community based institutions Many NRM issues are complex and should be addressed through multi-level institutional arrangements Local user groups cannot reasonably be expected to govern and manage all large-scale natural resources involving multiple users from different communities, or valuable protected areas Local government should play an important role in this regard

Recommendations

The following suggest ways in which policies and programs can incorporate the key issues discussed above·

- investigate existing and former resource management institutional arrangements;
- avoid organizational blueprints;
- promote an enabling legal and policy framework;
- provide informational as well as technical support;
- integrate local knowledge into policies and programs;

- assure that community conflict resolution procedures are well understood and legitimized by public officials;
- help to keep transaction costs associated with conflict resolution low;
- support resource tenure policy reforms that are well-adapted to customary tenure systems,
- promote and support revenue and cost sharing with local communities;
- support development of an institutional database for research and analysis of case studies of natural resource management regimes;
- design action research programs as a component of all project and policy reform programs that concern NRM (these programs should be coordinated to provide data amenable to comparative analysis), and
- support efforts to use institutional analysis, participatory rural appraisal and rapid rural appraisal in combination - they can complement each other in diagnosing and supporting community based NRM institutions.

II. Introduction

A. Background and Scope of Work

Over the past several years the Agency for International Development's (AID) Africa Bureau has developed a comprehensive analytic framework to capitalize on a wealth of experience and knowledge in the area of natural resources The Natural Resources Management Analytical Agenda (NRMAA) is a systematic approach for evaluating actions and constraints to the promotion of sustainable use of natural resources

NRMAA is guided by the natural resources management (NRM) framework which organizes information into five interrelated levels The levels describe activities in terms of how they contribute to the overall goal of achieving "sustainable increases in income and productivity through better management of natural resources " Level V represents the actual goal of increased income or productivity Level IV refers to the biophysical changes that can lead to increases in income and productivity Level III includes the adoption of practices that have a potential to result in the desired biophysical changes Level II refers to the conditions that lead to the adoption of practices Level I encompasses the actions required to promote the establishment of Level II conditions (For further information on the NRM framework, see Appendix C in Volume II of this report.

In conjunction with the development of this framework, AFR/ARTS has initiated a number of research and development activities. Each activity is involved with research and analysis on a distinctive piece of the NRM puzzle The research attempts to identify effective actions, necessary and sufficient conditions, and sound technical practices that can lead to sustainable biophysical changes most likely to result in increased incomes and productivity for resource users The challenge is not only to identify these factors but also to provide evidence of the linkages between them As the measurement of biophysical changes and increased income and productivity is both a costly and a long-term endeavor, the majority of the ongoing effort focuses on Levels I, II, and III of the framework, assuming that impacts on Levels IV and V will result

Among the research themes included in the NRMAA is the relationship between decentralization, local autonomy, and sustainable NRM. This theme was assigned to the Research and Development Bureau, Office of Economic and Institutional Development (R&D/EID) sponsored DFM project under a work order funded by AFR/ARTS. The scope of work for these investigations summarizes the rationale for this theme

> A potentially promising approach toward addressing natural resource degradation is to facilitate and support the devolution of authority and responsibility for natural resource management to regional and local organizations, institutions and interest groups..... Research into the role that emerging local autonomy might play to encourage sustainable resource management is a promising avenue of inquiry.

This report presents the findings from an analysis of these relationships from both secondary sources and on-site field investigations. The first stage of this activity consisted of a literature/information search designed to identify examples of decentralized NRM and analyze this experience in terms of the basic issue stated above In a subsequent stage, field sites in South, East, and West African countries were visited to provide more evidence on these issues. This analysis is presented in the synthesis report that follows. Annotations from the literature review and case studies from the field visits are presented as appendices in a separate volume.

B. Definition of Terms

Several key concepts are used throughout this report and in the development literature in general They often lack operational meaning and are therefore subject to differing interpretations For purposes of clarifying these key concepts as used in the present analysis, a discussion of each is provided below.

Decentralization

Because the term *decentralization* has been used to indicate a variety of institutional and organizational arrangements, five subconcepts have been developed to provide more precise meaning to the more general term.

> *Deconcentration* has been most often used in the context of public administration. It denotes a transfer of administrative authority from the center to lower levels of governmental hierarchy *Delegation* is a similar term indicating transfer of authority, but may encompass transfer to extra-governmental entities such as parastatals. In both cases, there is an implied notion of revocability, the center of power has given authority for specific functions with well-defined limitations that may be rescinded by administrative act Although decentralization is associated with increased popular participation, deconcentration and delegation do not specifically address this issue. Deconcentration and delegation are the most frequent forms of decentralization in African countries.

Devolution has a more permanent connotation. Devolution connotes transfer of power and authority to local government units, special jurisdictions or other non-administrative public entities. When full decision-making authority, including revenue mobilization, is devolved to the local arena, it is more likely that local officials will encourage popular participation if they wish to be successful in solving local problems

Deregulation as a form of decentralization, has important implications for NRM It involves the elimination or reduction of governmental (administrative or legislative) controls over particular industries or sectors *Privatization* is often included under the decentralization rubric because it involves the transfer of ownership and management of government enterprises to the private sector.

Because of this multiplicity of definitions, the general term *decentralization* can be misleading. Therefore, attempts to identify conditions of decentralization and the actions that contribute to establishing those conditions should employ precise and analytically meaningful terminology

Autonomy

Autonomy is defined as the quality or state of being *self-governing*; self-governing is defined as the capacity to establish some of one's own rules These are important concepts for the basic question of these investigations There is a tendency to think of autonomous or self-governing bodies in absolute terms In relation to the management of natural resources it is useful to consider the existence of overlapping or nested autonomous institutions, each representing the interests of its members Autonomy is almost always subject to some limitations by a set of institutions that make decisions on constitutional, collective choice, or operational levels Furthermore there are arrays or degrees of autonomy fully autonomous institutions design all of their own rules, including their constitutional choice rules, less autonomous institutions may have a determined constitution but are free to make rules within it. These multiple levels of decision making are essential to the analysis of how relative degrees of autonomy affect the strategies individuals adopt in managing natural resources.

Participation

Although development practitioners and scholars have long recognized the need for direct involvement of beneficiaries in the development process, widespread consensus on a clear definition of *participation* continues to be the object of extensive debate Many feel that participation exists more in the rhetoric of development philosophy than as reality in actual projects and programs In many cases, participation is considered as another input or component of interventions that are basically conceived, funded, and implemented by external actors Cohen and Uphoff provide a more operational dimension to the term, suggesting that participation should be an integral part of decision making, implementation, benefits, and evaluation

For the purpose of analyzing the institutional dimensions of NRM, participation is taken as a process independent of specific development projects or interventions. *The process of participation involves the empowerment of resource users to devise and implement management systems individually or through locally determined organizational structures.* As in the discussion of *autonomy*, participation does not deny the need for varying degrees of involvement by outside governmental or nongovernmental agencies in cases where 1) the nature of the resource problem requires technical, financial, or human resources beyond those that are locally available, or 2) where the consequences of local management affect a broader public.

Governance

Broadly speaking, *governance* can be defined as the ordering of relationships in human society. Although often used solely in the context of the relationship between government and citizens, this broader concept of governance extends the analysis to the study of human interaction at all levels within a society.

Whereas management involves decision making of a technical and financial nature, the governance of natural resource systems refers to the distribution of power among actors who control access and use of the resource(s), who monitor and sanction use patterns, and who resolve conflicts among users

Sustainability

Several different definitions of sustainability exist. A comprehensive definition, however, must encompass the ecological, institutional/organizational, socioeconomic, and political aspects of sustainability OTA (1988) offers an integrated definition

> Sustainability is generally understood to mean that the project activity and/or its positive results will continue after the grant period ends It can be judged on several levels sustainability of the resource, of certain activities, of the project, of the local group/organization and/or intermediary organization Also, sustainability has economic, environmental, technical, and social elements, and policy factors can intervene Therefore, sustainability depends on many dimensions of an activity and failure in one area can jeopardize sustainability overall.

Institutions

Most often the term *institution* refers to a specific organization. In this report the term is used to describe the rules that individuals use to order specific relationships with one

another or with their physical environment. *An institution is simply the set of rules actually used by a set of individuals to organize activities that produce outcomes affecting those individuals and potentially affecting others*[1].

Private Goods

Natural resources can be classified as *private goods* when they are easily subject to exclusion and are separable and rivalrous in consumption. Deadwood suitable for fuel found on a tree growing close to a dwelling in an area where wood is scarce offers an example of a private good It is subject to exclusion by casual surveillance. Consumption is separable and rivalrous: wood used to cook food for one family cannot serve another family.

Public Goods

Natural resources classified as *public goods* are not easily subject to exclusion. Consumption is joint and non-rivalrous. Improved air quality associated with a well-vegetated and -forested environment illustrates the concept of a public good It is extremely difficult to exclude anyone in the area from breathing--and benefitting from--better quality air. At the same time, consumption is joint, not rivalrous: typically the supply of oxygen is adequate to meet the demand

Common Pool Resources

Common pool resources such as pastures, aquifers and many surface waters, watersheds, and fisheries and wildlife populations share with public goods the attribute of low excludability, and with private goods, separable or rivalrous consumption Typically, some set of people share access to the resource under a management regime comprised of accepted rules that determine harvesting technologies, and the quantities, and timing of offtake. The customary management regimes associated with common pool resources in most African settings are characterized by group ownership with management authority vested in the respective group or its leaders

Open Access Resources

In situations classified as *open access*, there is an absence of property rights. As with common property, open access resources can be pastures, fisheries, watersheds, etc. Open access results from the absence (or breakdown) of rules governing behavior among participants with respect to a natural resource. The failure of common property management institutions can result in the transformation of a managed resource to an unmanaged open access resource.

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[1] This definition of *institution* is taken from the work of Elinor Ostrom (1992).

C. Methodology

1. Literature Review and Field Investigations

This report was prepared by a multidisciplinary team of environmental scientists, foresters, resource economists, anthropologists, and institutional analysts. The team began with an extensive literature search using a key-word indicator list for computerized data base searches and less formal methods to identify documentation from the academic and development literature As a result of this effort, a number of articles, books, and unpublished materials have been annotated. More discussion on the methodology and outputs of the literature review is provided in Appendix B. Analysis of the secondary sources thus identified was the object of a first phase synthesis report prepared in December 1991.

In a subsequent phase, the team identified countries and specific field sites where successful local NRM is underway. This was accomplished through the team's own knowledge of the region and in consultation with AID technical staff and other AFR/ARTS cooperating institutions Final selection of study countries was based principally on the willingness of USAID missions to receive the team and participate in the study.

Following final selection and agreement by USAID missions, study teams were organized to undertake three-week missions to each country. In consultation with USAIDs and knowledgeable informants, specific sites were identified prior to the visits The visits provided an opportunity to gather additional information on the setting, as well as on the larger institutional framework in the country with respect to decentralization, local autonomy, and NRM.

The study derived substantial benefit from consultations with other groups conducting related efforts concerning NRM in Africa During the literature review and the selection of field sites, the study team held discussions with researchers from the Land Tenure Center, University of Wisconsin-Madison, the Center for International Development and Environment, World Resources Institute (WRI), and the Wildlands and Human Needs Program of the World Wildlife Fund (WWF) These organizations have been extremely cooperative and generous in supplying documentation and time Continued collaboration of this sort should be supported in order to optimize complementarity of research efforts and results which are meaningful to the AID NRM Framework

2. DFM Approach to the Analysis of Natural Resource Governance and Management Issues

The DFM project uses the institutional analysis and design (IAD) framework in the study of natural resource governance and management issues. This framework helps explain critical problems related to the allocation of power and authority to govern and manage natural resources, in light of technical, economic, legal and political factors. IAD is a diagnostic tool useful in understanding these problems and in guiding project design and program interventions.

IAD, developed gradually over the last quarter century by members of the Workshop in Political Theory and Policy Analysis, Indiana University at Bloomington, offers an approach, or framework, for analysis of policy problems. The framework is not a theory; rather, it is a vehicle allowing analysts from such varied disciplines as political science, anthropology, economics, rural sociology, irrigation engineering, forestry, law and public administration to use their own modes of analysis in a coordinated, interdisciplinary manner while working on a common problem Depending on the task at hand, the framework can be used to organize field data during rapid appraisals, as a design or evaluation tool when examining projects or programs (in somewhat more elaborate form), and as a highly sophisticated apparatus when engaging in long-term applied or theoretical research

IAD incorporates six categories for gathering and sorting information relevant to the analysis of incentives that determine the strategies and practices adopted by various actors. These categories are·

- classes of actors involved in natural resource use, management, and governance, and their characteristics;
- attributes of natural resources (first source of incentives);
- attributes of communities involved in using natural resources (second source of incentives),
- attributes of rules relevant to natural resource use and sustainability (third source of incentives);
- strategies that individual actors (and collective action units) adopt, in light of the foregoing sources of incentives, to obtain their preferences, and the interactions that result when these strategies are put into practice; and
- outcomes of these interactions in terms of natural resource sustainability, efficiency and equity of use.

The IAD framework assumes any renewable natural resource problem will be embedded in systems of technical, economic, fiscal, legal, and political relationships. Such systems tend to be multilevel and complex. They can be modified by the actors who operate within them. Modifications may flow from conscious efforts to modify incentives for relevant actors--policy changes, adoption of new technologies, creation of new markets, or social reorganization This occurs, for instance, when a legislative body modifies rules governing access to a fishery, pasture, or bush area. Modifications may also occur, however, as unintended consequences of actors' strategies, for example, when farmers' efforts to bring new land under agricultural production threaten the production systems of transhumant herders or destroy biological diversity by eliminating forest habitat for endangered species.

Furthermore, the IAD framework, along with economics and the related disciplines of political science and economic anthropology, assumes that human beings, including actors in NRM situations, are. self-interested, rational, in the sense that they can rank known alternatives in a consistent manner, have varying preferences; generally make decisions under conditions of risk or, more usually, uncertainty, fallible (rather than omniscient) and thus given to making mistakes, capable of learning over time, as mistakes and successes provide further information about the environment and consequences of strategies pursued within it. The framework also assumes that actors seek to maximize the values they want, but because of uncertain information and the costs of getting better information, tend to "satisfice," that is, take the best available option given what they know or can find out in a reasonable period.

AFR/ARTS, in developing its analytic agenda and NRM framework, is principally concerned with people-level impacts as they affect incomes and productivity Many actors influence the behavior of resources users and affect the ultimate productivity of a resource. Representative individuals, or actors, potentially affecting a problematic natural resource situation fall into several different categories:

- resource users, such as farmers, pastoralists, woodcutters, fishers, and hunters;
- resource controllers, such as foresters, village headmen, pastoralist leaders, fisher chiefs,
- political leaders--national leaders and their supporters and opponents at local, intermediate, and national levels, such as party members, legislators, and council members;
- government officials, such as government financial officers and public administrators;
- judicial officials, such as justices of the peace, Islamic *shari'a law cadis*, village elders, pastoral group mediators, and supreme court justices;

- technicians, such as agricultural extension agents, foresters, and fisheries specialists, and

- private sector entrepreneurs, such as sawmill operators, truckers and traders.

The range of preferences and levels of information about a problematic situation that one might expect to find among actors from these different categories will vary dramatically Those with extensive experience with a problematic situation will have detailed time and place information about the target goods and services, as well as about other relevant characteristics or attributes of the setting. Others will dispose of considerably less time and place information as is often the case with outside technicians, administrators, and politicians On the other hand, these actors may have technical and scientific information that is highly useful in facilitating better natural resource governance and management when melded with local time and place information--or highly destructive when applied to a problematic situation without regard to what local users know about a resource

IAD analyzes the incentives these different classes of actors face. Incentives are shaped by·

- the attributes of the target natural resources;

- the attributes of the actors and community(ies) involved; and

- the attributes of the rules affecting access, use, and control of natural resources.[2]

How the attributes of a natural resource create incentives leading to behavior patterns among the various classes of actors stems from their characteristics as economic goods (i.e, private goods, public goods, common property resources, and open access resources).

Communities have special attributes or characteristics that also create incentives for actors involved in governing, managing, or exploiting renewable natural resources These attributes include the degree of social and economic homogeneity or heterogeneity, gender variations, and the number and character of collective choice organizations within the community Each of these factors can potentially affect the extent to which people who live or operate in close proximity can reach agreement on appropriate patterns of behavior, organize appropriate monitoring mechanisms, disseminate information about relevant behavior, and resolve disputes expeditiously, objectively, and fairly.

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[2] For a more complete discussion of how these attributes create incentives for natural resource governance and management, see Thomson et al, 1989.

Rules are the third source of incentives. Resource users' knowledge and perception of rules governing NRM are critical to the choices they make as individuals and as communities. Rules constitute the design elements of institutions. They range from the common operational understandings related to access, control, and use of natural resources within a community to formal public sector policies. Rules must be well adapted to the attributes of the resource and compatible with the characteristic of the community or communities. Rules that fail to account for these factors strongly risk generating perverse outcomes or being ignored.

When natural resource users lack a semi-autonomous capability to make and apply rules concerning the resources they use, risks are great that governance and management systems will·

- fail to take advantage of users' local time and place knowledge;
- will make and impose ill-advised decisions tending to undercut natural resource sustainability, and,
- will generate conflicts within and among communities, thus making it more difficult for users to coordinate their behavior in ways that enhance the productivity and value of a target natural resource.

IAD is a useful tool for organizing information about a particular problem situation and thereby gaining an understanding of the principal factors affecting the behavior of resource users Once those factors are clearly understood, it may be possible to identify changes in the nature of goods--through modification of technologies--or in the attributes of communities or rule systems that will change incentives for specific classes of actors and lead them to modify their strategies and adopt new practices favoring sustainable NRM. The analysis of experience presented in this report is intended in part to further our understanding of how rules and the incentives they shape are the key determinates of the outcomes affecting natural resource sustainability

D. Organization of the Report

In keeping with the NRM framework, this study identifies (from an institutional perspective) the conditions that are most likely to affect the adoption of sustainable resource management strategies and practices As such, Section III of the report presents an explication of six general conditions that study researchers hypothesize to be significant in this regard Section IV organizes the study's findings and analysis around these six conditions, providing illustrations from the literature review and field-level investigations to further demonstrate their significance Under each condition a set of recommended actions suggest policy measures and programmatic initiatives that can be instrumental in establishing the various conditions. The concluding section outlines the implications of the report's

findings for an institutional environment that promotes sustainable NRM through policies of decentralization and increased local autonomy. An agenda for future research and experimentation is also presented

Volume II of the report contains a set of appendices: one includes the three field reports from Uganda, Mali, and Namibia; the second includes various annotations of selected documents consulted during the literature search; the third is a summary explanation of the AFR/ARTS natural resources analytic agenda; and the fourth summarizes the presentations and discussions from a seminar at which this report was presented.

III. Institutional Conditions for Sustainable NRM Related to Decentralization and Local Autonomy

A Introduction

1. Six Conditions for Sustainable NRM

Drawing on a literature review and previous work on community-based NRM, study researchers first generated a set of key interrelated conditions favoring adoption of sustainable NRM practices by users Several of these are well-accepted principles among development practitioners Subsequently, field investigations assessed the strength of linkages between these conditions and sustainable NRM These conditions, while necessarily general in character, serve as guidelines for the analysis of experience as well as for future research efforts and for design and evaluation of NRM projects The six conditions which foster sustainable NRM are as follows

- Incentives for users to govern and manage natural resources sustainably are present, including a recognized capacity to control access and membership;
- Management of natural resources capitalizes on local knowledge, or an effective blend of scientific knowledge and local knowledge;
- Self-governing institutions exist and members have a voice in natural resource management decision making;
- Low-cost, fair mechanisms for conflict resolution are available,
- Resource governance and management institutions take account of diverse, legitimate interests; and
- National and regional policies and institutions create an enabling environment.

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This section examines these six conditions in detail[3]. With reference to the Africa Bureau's NRMAA, they constitute the Level II conditions identified as critical to the adoption of improved NRM practices Underlying these conditions is the assumption that willing, sustained, popular participation in control of resource use is indispensable for effective management. Producers must want to support resource use rules, suggest improvements in management systems and work for their introduction, bear their fair share of the costs of management operations, and reap the benefits that accrue from sustained use practices.

The conditions described here cannot be viewed in isolation from one another. They coincide and crossover, for example, a condition associated with incentives and self-governing institutions is directly related to one concerned with an enabling environment. For analytic purposes the conditions have been isolated, but should be viewed as a whole. No one condition in and of itself can be the guarantor of success.

No formulas or recipes for success are implied by the conditions discussed in this report. For the most part, the conditions focus on the governance dimension of NRM that cannot be conveniently distinguished from the governance arrangements in a polity as a whole Changes in the ordering of relationships in society that are implied by this perspective should be viewed as long-term goals Users' behavior will ultimately determine whether natural resources are managed sustainably or not. The challenge then becomes how to induce incremental changes that help to create an environment within which individuals and communities make judicious decisions about how their resources should be managed.

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[3] In the development of the NRM framework, the following conditions have previously been identified as important for the adoption of sustainable NRM practices ("An Impact Indicator Framework for Target 1 of DFA Strategic Objective 3," 1990)

- increased use rights to products/benefits of better management,
- reduction of financial risks,
- increased access to technologies that increase efficiency and/or reduce labor constraints; and
- broadened local representation and participation in government, affecting decisions on investments and service delivery

The six conditions defined and described in this report expand on the four listed above by focusing principally on empowerment of resource users, devolution of authority to the local level; recognition of indigenous social capital and technical know-how, requirements for complex, non hierarchical institutional arrangements, and rule-based governance and management systems

The two sets of conditions are by no means mutually exclusive

The six conditions are not exhaustive. However, they are fundamental to the underlying theme of this research--the relationships between decentralization, local autonomy, and sustainable natural resource management.

2. Linking Actions and Conditions with Management Improvements

A perhaps infinite number of policies and institutional reforms potentially affect local-level natural resources governance and management. DFM's investigations focus on those policies and institutional reforms related to decentralization and autonomous natural resources governance and management activities by local resource users. The modalities through which such rules are formulated, implemented, enforced, and modified are key elements for analyzing the feasibility and impacts of decentralizing NRM

Examples of such national policies include:

- tenure laws concerning ownership of and access to land and woodstock resources;
- policies and regulations pertaining to tree cutting permits;
- water rights legislation and regulations;
- pricing and marketing policies for agricultural products and those harvested from the natural environment;
- regulations related to fishing and hunting/capture of wild animals;
- pay scales and merit systems for public employees;
- organization of dispute resolutions procedures; and
- the degree to which national regulations allow local groups and communities to create their own natural resource governance and management rules.

The specific practices individuals and communities use to manage natural resources are very site, resource, and time specific and are the result of a diversity of factors Some of these factors include the physical characteristics of the resource, its relation to the area's production systems, the attributes of the community of users, historical events, and public policies, as well as governance and institutional arrangements These and other factors constitute a complex array of variables all influencing to varying degrees the technologies and management strategies of resource users Variations also occur among individuals within the same community It is therefore extremely problematic to attribute the adoption of sustainable management practices to a specific factor or factors, or to assign a predominant

causal relationship between several factors. Nonetheless, as described in the previous section of this report, several general conditions appear to be fundamental requirements for effective governance and sustainable management of resources in a variety of situations.

Establishing linkages between actions, conditions, and adoption (NRM framework Levels I, II, and III) is a difficult and complex task in a world where an infinite number of intervening variables may influence anticipated outcomes The analysis here is an incremental contribution to the goal of refining our predictive capabilities and thereby increasing the likelihood that institutional changes and policy reforms will produce desired results. Drawing on a body of theory about human interactions and collective choice, as well as evidence from a variety of methodologically disparate case studies, the analysis in this report suggests linkages between specific reforms and sustainable NRM.

In the WRI review of the NRM framework prepared by Fred Weber in 1991 the problem of linking Level II changes in policies and institutional reforms is discussed in the following terms.

> Policy, institutional and economic changes plus the introduction and demonstration of new techniques and approaches should result in people adopting new and different practices But will they?
>
> The evidence, non-scientific as it may be, is rapidly mounting in reports, publications and literature in general, that they are, not across the board, but in an overwhelming number of cases ..
>
> The reason for this change is the simplistically modest expression "if it makes sense to local people". The difficulty starts when one analyzes more closely what this means Included in the term are considerations spanning technical, economic, social administrative/policy aspects, all interwoven into the decision-making process of local people. The art, obviously is to be able to predict what makes sense to people; that would guarantee that the linkage is perfect As a rough, first approximation one can attempt to find, somewhere in the multitude of case studies, a level II element that contributed to achieving level III However, the number of variables involved between these two levels is so great and the number of combinations so large that the formula for a rigorous solution would be so complex it would have no practical meaning Therefore, while the issue is far from being resolved, it seems to be of little value to pursue the theory behind it any further at this time

What Weber tells us here is that attempting to generalize about a set of actions to create certain conditions that are reasonably sure to result in the adoption of improved management practices is somewhat premature This study has arrived at a similar conclusion. Nonetheless within the limitations of our understanding it is useful to identify a set of general conditions that are conducive to innovation and experimentation by local resource users and that can serve as guidelines for future research, project design, and evaluation The ability of

resource users to innovate, adapt to changing conditions, and broker resource governance and management arrangements with other public and private institutions is a significant indicator of progress toward sustainable NRM. perhaps even more significant than is adoption of a management practice at one point in time. The former reveals a dynamic, institutionally based and buffered ability to learn and change over time, while the latter marks a single instance of technological change. When the conditions described in this report exist, there is a greater likelihood that communities will make decisions that lead to sustainable natural resource management.

B. Explication of the Conditions

1. *Incentives for users to govern and manage natural resources sustainably are present, including a recognized capacity to control access and membership.*

The existence for individuals and communities of incentives favoring NRM is the broadest of the six conditions Incentives are traditionally viewed as benefits or advantages associated with specific actions Positive incentives exist for individuals and communities when the benefits from sustainable NRM exceed the costs However, depending on the attributes of the resource in question and the institutional arrangements governing its management, incentives can be perceived by different individuals in different ways

In cases of open access resources where no effective control mechanisms exist to prevent free-for-all exploitation of resources, most users have a powerful incentive to maximize their benefits in the short-run, rather than to stand by and allow others to extract benefits That is, from the individual user's perspective if uncontrolled exploitation is leading to the destruction of an open access resource, it is better to "get while the getting is good" than to individually exercise self-control in order to reduce demand and prolong the life of the resource By contrast, powerful incentives for sustainable management result when common property resources are governed by a user-designed management regime employing rules that are respected and enforced

In the case of private goods, when an individual can obtain discernable benefits through application of certain management practices, it is likely that those practices will be adopted (if adoption costs are manageable) Public goods associated as by-products of adequately governed and managed renewable natural resources, such as maintenance of environmental quality or preservation of biodiversity, are unlikely to be produced by private efforts alone Governments at various levels, starting from the local level, will almost certainly have to take a hand in organizing provision of environmental public goods All that might be required of a government might be providing a favorable environment for sustainable management of private and common pool natural resources

In resources management much depends on the time frame within which benefits and costs are evaluated When survival pressures are so severe that users can only afford to evaluate benefits and costs from a short-term perspective, overexploitation and depletion of natural resources become highly probable. This is a pervasive issue in subsistence production systems in which population pressure is rising and the resource base is under threat. If preservation of the resource is a "good" valued only by external actors (not by the local community), subsidies in support of resource conservation may be justified to offset the short-term losses of local residents

2. ***Management of natural resources capitalizes on local knowledge, or an effective blend of scientific knowledge and local knowledge***

The importance of community-based knowledge about natural resources cannot be overemphasized. To survive, local people have had to develop adaptive strategies for dealing with their environment. Most often they have intimate knowledge of the local ecology, its resource base, the utility of different plant species, their regenerative capabilities under a variety of conditions, the habitat and behavior patterns of wildlife, and how these various resources fit into and interact with local production systems. Moreover, people know more about their own local communities--the problems different classes of residents face and the capabilities they can bring to bear in dealing with such problems--than outsiders ever will

This indigenous knowledge base offers the most appropriate starting point for identifying NRM problems and devising feasible solutions Modern scientific and technical knowledge can be coupled with local knowledge to identify feasible improvements in management regimes and appropriate methods for putting them in place If local people are involved as full partners in this process on an ongoing basis (i e with enough control over outcomes so it is worth their while to participate[4], given both the difficulties and risks they confront in using and controlling political power, and the technical constraints they face), solutions will be more rapidly devised They are also likely to be more acceptable to local people and therefore more durable

3. ***Self-governing institutions exist and members have a voice in natural resource management decision making.***

For complex, multi-level institutional arrangements to work efficiently, resource users must be organized to participate effectively in decision making and/or to effectively control local resource utilization. The foundations for this conjecture stem from a body of literature on self-governing institutions for common property resources Case studies on successful long-enduring common property management regimes provide empirical evidence about the

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[4]For example, they have authority to veto a proposal or activity they consider more trouble than it is worth, if not a clear menace to their survival.

value of indigenous institutional capital and the self-organizing capabilities of local communities (Ostrom 1990 and 1992). Projects and programs supported by governments and international organizations all too frequently ignore the existence and capabilities of these local institutions.

Local management institutions should be empowered to make, alter, and enforce their own rules within negotiated and unambiguous limits and to have a substantial voice in brokering management arrangements with other local institutions and/or overlapping governmental bodies The legal status of local self-governing institutions is critical to their participation in broader decision-making arenas. In many cases where indigenous self-governing capabilities exist, they do not have the formal status and thus the relative power and authority required to influence decisions that affect resource management regimes. In such circumstances, local resource users will be less likely to undertake innovative organizational, management, and technological experiments. Citizens at the local level should also be empowered to organize new jurisdictions designed to facilitate NRM, in addition to their own existing institutions

Nongovernmental organizations (NGOs) as formal entities are increasingly assuming the role of intermediary organizations representing the interests of local communities in dealings with the public sector and thereby serving as a proxy in this specific function for legally recognized local institutions NGOs cannot, however, substitute effectively for governance jurisdictions at various local levels simply because they are voluntary organizations and cannot enforce NRM rules against non-members, cannot raise taxes, etc.

Resource user groups can only attain legal status as duly constituted local government units from government authorities through an often complex, hierarchical, and time-consuming process that discourages these groups from seeking formal recognition In many African countries, formal local organizations are based on models designed by national governments and imposed on rural communities Even when incentives such as access to credit and technical assistance are offered to these groups implanted from the outside, a lack of flexibility to allow different forms of organization based on local needs reduces the viability and sustainability of these arrangements

4 ***Low-cost, fair mechanisms for conflict resolution are available.***

Despite the clarity of rules, either external or internal to a community or communities of users, ambiguity will always exist in their application and enforcement. Ambiguities can be expected to generate conflicts when demand for resources exceeds supply. Thus, conflict resolution is an integral part of NRM. If rules are to be respected by all concerned parties over a long period of time, there must be mechanisms for resolving disputes over rule infractions Conflicts may be limited to a single community where informal arrangements for resolving disputes may be appropriate In larger areas involving a number of communities, perhaps of different ethnic origins, more formal mechanisms may be necessary Whether formal or informal, it is essential that conflict resolution institutions be accessible to all and

be perceived as fora in which objective and fair judgements are rendered. If the transaction costs of obtaining impartial dispute resolution are excessive, the results will be the same as if no such mechanism existed at all, resource users will have no confidence in this form of adjudication and rule systems will rapidly break down.

5. ***Resource governance and management institutions take account of diverse, legitimate interests.***

As discussed earlier, complex institutional arrangements for NRM are often required to reflect the attributes and scale of the resource, and the technologies available for management Similarly, natural resources are used and valued differently by a wide array of actors, from those whose livelihood depends directly on harvesting the resource to those whose interests relate to the general economic welfare of a country, to others concerned about preserving the environment and biodiversity. Interests may also vary within communities when individuals and groups have different and possibly divergent interests. Complex institutional arrangements are therefore required to account for the diverse, legitimate interests of these various parties

These values and interests may be either competing or complementary and may have varying degrees of legitimacy among different groups and communities. Governance and management regimes that facilitate expression of diverse interests and provide an unbiased arena for negotiations to reconcile the needs and aspirations of involved parties have a greater likelihood of success over time.

6 ***National and regional policies and institutions create an enabling environment***

Creation of an enabling environment that provides incentives for decentralization and local self-organization is considered crucial in solving NRM problems What constitutes this enabling environment? This study has continually stressed the need for viable, formally recognized institutions at the local level Therefore, the first enabling factor is a legal framework that, at the initiative of citizens, authorizes the creation of groups, associations, cooperatives, and other forms of organization The creation of community groups, larger federations, national-level interest groups and other NGOs must be facilitated by minimizing transaction costs to obtain legal recognition and must not be constrained by the imposition of standardized organizational models.

The enabling environment should also include a legal framework governing property regimes, including land and tree tenure and usufruct rights. Tenure rules and usufruct rights specify.

- who is permitted access to a resource;
- how title can be transferred (in the case of land);

- who can authorize resource harvesting, fix times at which various products can be harvested and allocate harvested products.

These types of rules, when articulated so that resource users understand them clearly, establish (with some degree of certainty) that users can reap the benefits of their own natural resource investment and management decisions.

The transaction costs associated with policies and rules determine whether those policies and rules are enabling or constraining Certainly some overall policy framework at the national level is necessary in any country. The degree to which national governments devolve decision making to local government units or authorize decisions by resource users within that framework will tend to reduce transaction costs and therefore encourage experimentation with institutional arrangements, management regimes, and technologies.

IV. Findings and Analysis

A. Introduction

This section, through analysis and illustrations drawn from field observation and secondary source research, further describes the six conditions introduced and defined in Section II The analysis discusses why the conditions are important, and how they contribute to sustainable resource management. The illustrations provide evidence of the linkages between the observed resource management practices and the conditions Furthermore, actions that may lead to establishment of the conditions and that can be supported by donors and governments, are recommended Again, as the strength of the linkages in particular circumstances is highly dependent on a wide variety of variables, causal relationships remain largely conjectural

The terms *actions, conditions and practices* are used here as they relate to Levels I, II and III of the NRM framework Within this framework, the analysis focuses on the conditions (Level II) that appear significant to the adoption of improved natural resource management practices (Level III) Recommended actions can be the basis on which specific activities supported by donors, governments, and development organizations are designed to trigger the establishment of conditions, which in turn promote improved management practices

In adherence to the principle of extreme variability among different circumstances, the recommended actions accompanying the discussion of each condition remain general. Furthermore, they should be viewed in the same light as the conditions no one, in and of itself, should be expected to provide a definitive solution to a resource sustainability problem

There are many ways to resolve resource management problems Which ones work best in a given setting depends on the attributes of the resource, the community or communities, the rule structures, and the governance arrangements Admittedly, while the permutations are not infinite, they are sufficiently plentiful to be mind-boggling In an operational sense then, what can be done with the information presented here about communities and how they manage natural resources? The goal of this report is to analyze some of the conditions required for successful natural resource management so that policy analysts, project designers, and evaluators can target generic problem areas The generic problem areas can serve as the foci for data collection, and for orienting discussions of options with both local people and outsiders

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The findings presented here contribute to an understanding of how and under what conditions communities mobilize for sustainable management of natural resources. Knowledge gained about those practices and conditions can be used to:

- improve the policy environment for natural resources governance and management;
- broaden general understanding of the problems confronting resource users seeking to protect and enrich resources and build political support for their efforts;
- support more effective training; and,
- assist technicians and researchers to work more effectively with natural resource users

B Conditions

Condition 1: Incentives for users to govern and manage natural resources sustainably are present, including a recognized capacity to control access and membership.

Recommended Actions

- Involve individuals and communities in the entire project cycle, from the point of inception, through all design phases (with power to veto proposals and elements they consider unworkable), and throughout project implementation
- Analyze the institutional arrangements (i e , the structures of rules) associated with governance and management of a specific natural resource to determine whether they create incentives for sustainable management of that resource or instead generate disincentives discouraging efforts at sustainable management Analysis of incentives should focus on resource users as well as other actors who play a significant role in shaping NRM decision making
- Make land tenure, usufruct rights, or guaranteed rights of access to resources a primary focus of incentives These factors are most often prerequisites for the success of an incentives package
- Get a commitment from individuals affected that they will invest their own time and effort if money from outside of the community is invested in a project.

Discussion

The presence of positive incentives for resource users may well be the most fundamental and overriding of all the conditions that encourage sustainable management of natural resources. Many analysts view incentives from a limited financial or economic perspective Research demonstrates, however, that incentives are more complex than what is revealed by the analysis of costs and benefits alone. Resources are sustainably managed for a variety of economic and other reasons. The significance of economic incentives is not in question Nonetheless, a caution is in order· incentives and disincentives will reflect the influence of community norms and practices and the influences of various institutional arrangements as well as short- and longer-term economic benefits and costs.

In project design, it is well-advised to consider culturally based incentives as well as financial ones to achieve efficient and sustainable NRM. In Namibia, the tourist program designed by the people of Purros in collaboration with an NGO, the Integrated Rural Development and Nature Conservation (IRDNC), and a commercial tour operator, levies a fee on every tourist brought through the area The tour operator pays the fee to the community The program ensures that community members recoup their "investment" in protecting and managing wildlife through the fee and craft sales to tourists The fee provides an incentive for the people living in the several communities collectively known as Purros to welcome tourists and to protect the game that tourists come to see The program also helps the community mitigate some negative social and environmental impacts of tourism (creation of dependency, increased amounts of trash, and use of firewood by tour operators) by opening a dialogue between the community, the tour operator, and the tourists (Namibia field study, Appendix A)

The project would likely not have succeeded, however, if the Himba and Herero people (as they stated) did not traditionally associate abundant wildlife populations with a healthy environment Because of this predisposition, they enthusiastically supported establishing a community game guard program (also in collaboration with the IRDNC) There are now 50 game guards covering 95,000 square kilometers in the Kaokoland region of Namibia (including the Purros area) Individual game guards, selected by their communities, receive payment and rations Their entire communities, however, consider themselves better off because of the increase in the wildlife populations, even in those communities (the vast majority) which do not have tourist levy programs Just having abundant animal populations,

and being able to participate in the stewardship of an environment which was formerly considered the sole responsibility of the wildlife conservation ministry, constitutes a strong incentive for Herero and Himba peoples to actively conserve wildlife[5].

Other tourism and wildlife management schemes which involve local populations in park management and use revenue sharing as an incentive to promote tourism have had a degree of success similar to that found in Purros In Amboseli in Kenya, the Maasai have been involved in park management and revenue sharing through an association of Maasai land owners and through the local government council. Success can be measured by a decrease in poaching and a corresponding increase in wildlife populations in the park that has occurred following Maasai involvement (Western, 1976 and 1984; see also Appendix B of this report, Annotation 8)

Wildlife management programs that use revenue sharing as an incentive can evidently change attitudes toward the value of wildlife When residents share in the profits that result from greater game populations and increased tourism, the incentives to conserve become greater than the incentives to hunt. In Zambia, the Lupande Development Project focused on involvement of local people in wildlife management through training and employment of game scouts, sharing of hunting revenues and trophy item sales The incentives associated with this project were directly related to revenue sharing and employment and succeeded in decreasing poaching and promoting tourism (Lewis et al , 1990, see also Appendix B of this report, Annotation 12)

These wildlife preservation programs are successful in part because they recognize the fundamental role incentives play in the relationship between people and resources. That is, though preservation of biodiversity depends on the involvement of the affected communities, those communities will not necessarily preserve resources just because outside influences determine those resources should be conserved People living in vulnerable environments are primarily interested in their own survival They are concerned with preservation of biodiversity to the extent that it can improve their welfare.

As the number of initial successes with tourism revenue sharing schemes increases, there is a growing tendency to assume that this formula is replicable. Policies and biodiversity conservation programs are too often designed without sufficient analysis to

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[5]The Kaokoland game guard program has been able to reduce poaching in a very efficient manner, and wildlife populations have multiplied At times, the game guards specifically decide to take game scouting trips Most of the time, however, they conduct their scouting activities while they are herding their animals. Rainfall patterns in Kaokoland are stochastic, herders move their cattle depending on where grass and water can be found. At the same time, they observe the movements of the wild animals that are also searching the area for food and water, and note evidence of outsiders traveling through who may be poaching Once a month, technical staff from IRDNC help the guards prepare reports on what they have seen In this way, the community is directly involved in management of the resource, biodiversity is preserved, and economic benefits are accruing, all at very low cost.

determine the feasibility of revenue sharing and without consultation with affected communities Although a promising area for economic development and biodiversity conservation, ecotourism is by no means a panacea for these problems In Uganda, conservation education programs include discussions of monetary benefits for local residents as a result of tourism even before adequate infrastructure has been created. Local people are informed about the plans for tourism in protected areas rather than consulted on or involved in the process (see Uganda field study, Appendix A).

When policies create incentives, those incentives may have both positive and negative implications In Uganda, a government policy authorizing leasing of public lands resulted in individuals and organizations establishing leaseholds on former common property lands The enactment of this policy seriously jeopardized traditional tenure systems At the same time, however, the policy did provide incentives for local organizational initiatives and collective action For example, several men who recognized that valuable land in their area might now be leased and that their access to it would be restricted, formed the Ndeego Growers Cooperative Society The cooperative organized itself with little or no external assistance and leased and drained 120 hectares of swamp for vegetable production Several years were required to secure the lease and to drain the swamp The effort was considered worthwhile despite the high transactions costs involved because the Cooperative recognized that it could have a secure right to the benefit of its work and could at the same time eliminate the threat of outsiders gaining title to local land (see Uganda field study, Appendix A)

In many cases, secure rights to land and resources is the fundamental prerequisite for other incentives to improve management and adopt sustained use technologies In other words, incentives may not be sufficient if they are not guaranteed by a reasonable degree of tenure, or guaranteed access Rochette's work in the Sahel suggests that the absence of clear tenure and use rights acts as a severe constraint to resource management and recommends legislative reform to give full property rights to local communities so they can make decisions about collectively held land (Rochette, 1988, see also Appendix B of this report, Annotation 28).

Overly centralized hierarchical governance systems are an impediment for local resource users to gain access to decision-makers. The lack of effective decentralized local government in turn further reduces incentives for local initiative and the ability of communities and local organizations to effect resource management policies The atmosphere of ambiguity created by a political vacuum at the local level is a disincentive to making decisions about natural resource management and implementing sustainable NRM policies. In Namibia, the inability of the new government to either make decisions about allocation of former communal land (which existed as apartheid territories under the South African regime) or to establish operating local governments has created a free-for-all atmosphere. The policy vacuum creates a disincentive for sustainable management. Various groups are vying with one another for valuable land not necessarily with the goal of establishing sustainable

management practices, but rather with the intention of securing the rights to exploit it (see Namibia field study Appendix A). A similar situation exists in Uganda (Uganda field study, Appendix A).

It is also important to note the cultural specificity that shapes incentives in different environments. For example, hunting and gathering populations consider some of the side effects of settlement a disincentive sufficient to outweigh the benefits and incentives others associate with a sedentary life (McDowell, 1981, see also Appendix B of this report, Annotation 10) One therefore cannot assume the utility of a resource management or any other development scheme, incentives have to be provided for acceptance and success, and it appears essential that the people who are the targets of the project have a voice in determining what those incentives are.

Condition 2: Management of natural resources capitalizes on local knowledge, or an effective blend of scientific knowledge and local knowledge.

Recommended Actions

- Ensure a full understanding of local NRM knowledge and practices before developing new initiatives or interventions and build upon them wherever possible.

- Where new institutions or technologies are desirable (and acceptable to communities), integrate them into existing knowledge systems.

- Make extension (or similar) services responsive to requests by resource users for appropriate information and technologies which enhance the local knowledge base This requires that extension workers and researchers develop a thorough familiarity with indigenous local knowledge.

Discussion

Local communities generally have substantial knowledge about the natural resources they depend on Exceptions may occur when communities have recently moved (or been moved) to an unfamiliar environment or where lengthy disruption through famine, drought, disease or conflict has prevented the transfer of knowledge between generations. In most cases, where appropriate information is available, using such knowledge in solving NRM problems is critical to sustainability Conversely, when external development efforts ignore and/or override local knowledge, sustainability is often compromised A similar overall conclusion was arrived at by Shaikh et al, (1988) in a study of Sahelian sustainable natural resources management (see also Appendix B of this report, Annotation 29).

Local knowledge of the environment and natural resources is the basis for traditional management systems, whether they be farming, pastoral, foraging, or fishing. Specific types of information may be known to most people in a community, to one gender, or to a few individuals It is important to be aware of these diverse sources when assessing local knowledge For example, men are more likely to know about fishing techniques, women may have a keener knowledge of fuelwood availability, and one or two individuals may be knowledgeable about medicinal plants. Recognizing the special knowledge of individuals can make the difference between project success and failure.

Most studies of traditional foraging and pastoral societies emphasize the sophisticated knowledge those societies have of resource diversity, distribution, and abundance, and how resources can be managed within the limits of available technology. In many cases, the authors attribute degradation of resources to the failure of development interventions to recognize and build on local knowledge For example, Yellen (1974, see also Appendix B of this report, Annotation 15) discusses how changes in land tenure in Botswana ignored the resource knowledge of the !Kung bushmen Though the !Kung were granted recognized resource rights, their knowledge of resource sustainability was largely ignored. Traditional methods of resource conservation through local institutions governing access to resources were abandoned. The !Kung now find it difficult to obtain sufficient food in their territory because even though their rights are preserved, they have no authority to exclude other competing users.

Mobilization of local knowledge is often important where conservation of biological resources is a major objective In situations where poaching or vegetation destruction is a threat, local people are more likely to know who is responsible than game guards or wardens supplied by central government. In Namibia, election of local community game guards in Kaokoland facilitated very effective protection of wildlife populations (see Namibia field study, Appendix A) Effective community policing by Amba villagers in Mali was made possible by their knowledge of intruders This was important for restricting access to the Bore woodlands and assuring their conservation prior to 1970 (Mali field study, Appendix A). Rules based on knowledge of the resource, administered by the village council, controlled harvesting of forest products to sustainable levels Imposition of Forest Service regulations in 1970, which overrode traditional practices, has contributed to serious degradation of the forest

Community resource management skills and knowledge can be enhanced through judicious technical assistance that builds upon those skills, as demonstrated by several case studies Thompson (1991; see Appendix B of this report, Annotation 3) describes such a combination of local knowledge and technical assistance as applied to development of an irrigation and village water supply system in highland Kenya A similar situation was observed in Rukwa District, Tanzania (Mascarenhas, forthcoming, see Appendix B of this report, Annotation 9) In both cases, the wealth of local knowledge and skills was enhanced by extension (and other) service agents who complemented, rather than superseded, indigenous management practices

Instances exist in which changing conditions or new uses of natural resources make it imperative for users to acquire new knowledge and skills if they are to preserve those resources It is important that technical assistance provides knowledge and skills enhancement compatible with the community's needs For example, development of a community-level natural silk collecting industry in Botswana will require new skills (Bailey and Ashby, 1982; see Appendix B of this report, Annotation 20), as will development of tourist controls, services, and facilities by local communities becoming involved in wildlife conservation (Namibia field study, Appendix A, and Lewis et al , 1990; see also Appendix B of this report, Annotation 12). Additionally, formalization of local NRM institutions, required to obtain funding from government, NGO, or donor agencies, necessitates assistance to develop skills for preparing organizational charters and maintaining records of meetings and finances

Condition 3: Self-governing institutions exist and members have a voice in natural resources management decision making.

Recommended Actions

- Identify and promote existing NRM institutions.
- Build upon existing institutions wherever possible.
- Where effective institutional arrangements are absent, design new ones with the full participation of local users.
- Ensure that appropriate government support is available for local NRM institutions.

Discussion

A substantial degree of autonomy for locally constituted and governed NRM institutions is important for the long-term sustainability of resources. With adequate financial and human resources, it is possible in the short to medium term to impose resource management practices by coercion from the outside, but long-term degradation is likely when involvement of local institutions is absent Local institutions are most apt to have not only an intimate knowledge of the resource and its place in the environment, but also an understanding that resource use and access rules must be flexible in order to adapt management regimes under changing conditions particularly in vulnerable environments This is not to say that local institutions always exist, or that they always practice sustainable management Nonetheless, it is important that support for natural resources management at least begins with an investigation of local institutional arrangements relevant to governance and management of resources

Examples of traditional resource management systems illustrate how local communities can craft social institutions and devise technologies over time to achieve sustainability. For example, the Borana of southern Ethiopia and northern Kenya developed complex social rules regarding marriage designed to regulate population (Helland, 1980; see Appendix B of this report, Annotation 4). They also crafted sophisticated rules governing water resources, specifically wells and the organization and operation of the well councils responsible for well repair, maintenance, and use In combination, the systems of population regulation and water resource management ensured the long-term viability of Borana human and livestock populations

In the past, the availability of water and social regulations controlling access to and use of water ensured that overgrazing was not a serious problem for the Borana More recently, however, ecological pressures, development projects aimed at improving livestock quality and the sale of excess stock, and a decline in the importance of customary rules have impaired the ability of Borana to manage their water and grazing resources. The Borana's delicate ecological and social balance has been disrupted

Many examples in the literature illustrate the consequences of central government or projects weakening or ignoring local institutions, with subsequent reduction in effective NRM The clash between traditional resource management rules and the realities of modern existence (and the subsequent weakening of traditional management institutions) are perhaps most clearly exhibited when traditional pastoralism is affected by policies and technologies promoting sedentary communities Seasonal mobility is an important adaptive social technology, and as a management strategy it reflects the vulnerable nature of an environment and the resources within it. Government policies regulating grazing and hunting have an enormous impact on freedom of mobility (Yellen, 1974, see Appendix B of this report, Annotation 15) Boreholes and other water resource technologies can promote permanent settlement in addition to providing water and therefore also have a significant impact on patterns of mobility, resource use, and resource rules

Swift (1977) and Helland (1980) (see Appendix B of this report, Annotations 2 and 4) both point to degradation of pastoral lands through use of improved technology (e g , water development) that ignores the regulatory functions of traditional institutions governing resource use In many regions of Africa, the approximate balance between livestock numbers, pasture, and water sources was mediated traditionally through social institutions Government actions have weakened these structures by increasing water supplies, which in turn increases local grazing pressure by removing an effective natural constraint to overexploitation of pastures Furthermore, by assuming that "free grass and free water" are preferable to grass and water managed by local regulations, government-imposed rules often convert managed common property pasture and water resources into open access resources.

The Uganda field study (Appendix A) identifies the breakdown of traditional institutions as a contributing factor in resource degradation. The study also illustrates how local institutions (cooperatives) can be effective in development of resources (bottomland swamps)[6]. Governments can improve prospects for sustainable NRM by providing appropriate mechanisms which establish the legitimacy and tenurial rights and obligations of local institutions As previously discussed, the Ndeego Growers Cooperative formed specifically to gain control of the swampland, has turned the area into a productive resource.

Local institutions often face high transaction costs in their dealings with the public sector that discourage institution building and local governance and management of natural resources. Governments can support local institutions through policies that lower such costs In Uganda, obtaining formal recognition for a local institution and its resource tenure rights is a lengthy and involved process The Ndeego Growers Cooperative was organized in 1977, but did not receive a lease on the swampland until 1983, six years later. It was only because the members of the Cooperative recognized the potential payoff from leasing the swamp that they were not dissuaded by the legal process (and the associated high transaction costs) required to get it

Farmer-managed irrigation systems are also generally more successful than those under government control The religious community at Mubarak, for example, was almost completely autonomous and highly effective at controlling access to land and water, despite strong competing traditional ethnic affiliations that might have introduced insurmountable scissions within the community A powerful religious leader was influential enough to establish *de facto* controls despite a highly centralized government that asserted *de jure* claims over all natural resources (Seger, 1986, see Appendix B of this report, Annotation 1).

Hogg's comparison of two irrigation schemes in northern Kenya also illustrates the importance of local control The government project at Malka Dakaa failed economically and socially According to Hogg, the externally controlled management structure ignored local desires and practices A nongovernment scheme at Gafarsa, initiated, managed, and operated by local people, was much more successful The Gafarsa system has attracted additional farmers and some government and donor support, but is still controlled by the local governing committee (Hogg, 1983, see Appendix B of this report, Annotation 5).

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[6]Swamp drainage can be a questionable practice from a resource conservation perspective However, in the specific conditions of the hill country in southwestern Uganda, little evidence exists to prove that draining the swamp will have deleterious effects on the hydrological balance of the region With proper management, the swamp drainage area may be maintained as a productive resource Rather than condemning the practice of swamp drainage *a priori*, the benefits for local residents of productive bottomlands should be weighed against the costs of continued pressure on hillside agriculture and encroachment into the adjacent protected area of Bwindi Forest

Successful resource management by local self-governing institutions does not necessarily argue for myopic support of local autonomy. In many instances, natural resource management problems surpass a community's technical capacities or jurisdictional purview. Effective local government can provide essential services to assist indigenous institutions in addressing their resource management problems and can act as a communications vehicle for designing and implementing national policies

Government agencies and technicians can also support local initiatives by legitimizing the authority of local institutions to exercise governance prerogatives. Such institutions include:

- general purpose local governments;

- formal or informal special districts such as the irrigation systems mentioned above; and,

- local associations such as user groups and cooperatives which, under the umbrella of national enabling legislation, can exercise prerogatives that are typically the purview of the government (i.e , establishing and enforcing rules to control access to and harvesting of natural resources)

NGOs can provide assistance to local institutions either to complete existing government services or to provide a substitute source of services when government efforts are nonexistent or inadequate The capacity of formal local government to provide services is negligible at the field study sites in Namibia (Namibia field study, Appendix A) Both the Nyae Nyae Development Foundation of Namibia and the IRDNC have supplied important assistance to communities for environmental and wildlife management How these communities, NGOs, and newly evolving local government agencies interact in the future is crucial to sustainable NRM

The character of relationships between these three sets of actors (communities, NGOs, and local government) is a key governance issue, with powerful implications for natural resources management If mutually supportive activities occur among the three, the cumulative effect will radically enhance management potential On the other hand, if turf wars erupt and local government agencies seek to drive out NGOs or to suppress community-level organizations, that same management potential will be greatly undermined Once undermined, it is difficult for local institutions to regain the stature required to (1) maintain respect for rules that limit access to resources (for example, to hunting/gathering preserves) and (2) continue effective management of common areas as common property resources

The role of local institutions in common property management is essential. The consequence of converting properly managed private and common property resources to unmanaged open access resources, in a situation where uncontrolled demand exceeds supply, is quite predictable Resource degradation and destruction must be expected, with a terminal loss of biodiversity and a marked drop in living standards

An important overall conclusion is that the appropriate type of institution is case-specific, though all require some degree of decision-making autonomy. Successful NRM institutions range from families to clans; from religious communities to cooperatives; from government-recognized or -sponsored units to traditional or newly formed grassroots organizations

Condition 4: Low-cost, fair mechanisms for conflict resolution are available.

Recommended Actions

- Actively support, promote, or develop community-level conflict resolution institutions.
- Ensure that regional and national conflict resolution systems support and complement traditional and local systems, as opposed to supplanting and suppressing them
- Establish mechanisms for appeal of local dispute resolution decisions
- Ensure that conflict resolution procedures controlled at levels removed from the community are transparent and understood by those they most affect.

Discussion

Community-level conflict resolution mechanisms are critical for effective sustainable resource management. They are a powerful means of.

- reducing the transaction costs of resolving conflicts;
- enhancing the legitimacy of local renewable natural resources governance institutions; and
- increasing the credibility and efficiency of locally-based NRM.

As described in relation to the Sahel (Saikh et al., 1988; see Appendix B of this report, Annotation 29), conflict resolution is becoming more important because of increasing competition for ever fewer resources. At the local level, it will be difficult, if not impossible,

for communities to exercise control over their natural resources without having a recognized institution for conflict resolution, which is supported and respected by local and national levels of government alike.

It is important to recognize that conflict is probably inevitable, and that because it expresses contrary but often legitimate resource needs, it is not necessarily to be avoided. The appearance of conflict should not be suppressed, but must be managed as an integral aspect of governance. Viable resource management is impossible without the ability to resolve conflicts and enforce the decisions made as a result of the resolution process Enforcement requires systems of sanctions, which are typically a fundamental part of a resource management institution's set of rules A local self-governing institution's set of rules, including those dealing with conflict, enforcement, and sanctioning, must be respected and supported by government in order for that institution to sustainably govern and manage natural resources

The potential for exploitation exists at all levels, from the local to the national, and within governmental and nongovernmental arenas Therefore, viable appeal mechanisms are required to reduce temptations leaders might have to abuse their powers Overlapping systems of conflict resolution and sanctioning are typically required, but they should build from the local to the national Although the literature search conducted for this study showed little discussion of local conflict resolution mechanisms per se, there was significant evidence of the importance of institutional rules and the negative consequences of central authorities ignoring or overriding local prerogatives and rule systems

Until recently, the national Forestry Code in Mali authorized severe penalties for infractions and by law provided commissions for informers, field foresters, and all the hierarchical supervisors, including the national director, based on the number of fines levied. These commissions were designed to serve as incentives to motivate officials to apply the Forestry Code aggressively The system invited the abuse of power, justified either as the application of the code to individuals engaged in destructive natural resources behavior, or as a merciful bribe-bargained reduction of the full weight of penalties provided by the law. The Forestry Code was never translated into national languages As a result, foresters had great leeway to interpret and enforce the law as they saw fit Collective fines were frequently and legally, by Code terms, levied on entire communities when guilty individuals could not be identified (Mali field study, Appendix A)

Unfortunately, these policies undercut and then extinguished local systems of natural resource management, including conflict resolution and sanctioning powers. As described in the Mali field study, the village of Amba enforced its own rules regulating forest access and use up to the imposition of the Forestry Code in 1973 Thereafter, the local institution was overruled by the national forestry laws Foresters, however, could never mobilize sufficient manpower to implement viable access and harvesting controls The village's forest therefore did not become part of a larger, managed common property, as envisaged in the preamble to

the Forestry Code. Instead, it was degraded to the status of an open access resource because, in practical terms, no institution now controlled access and exploitation. As an open access resource, the forest was exposed to the demands imposed on it by a much larger group of users.

The imposition of centrally designed institutions that include new conflict resolution mechanisms can be devastating for the social as well as the physical environment. In Tanzania, neither national wildlife protection policies that promote proliferations of herds, nor arable agriculture policies that have pushed agriculture into the semi-arid zone, have promoted sustainable use of the grassland and wildlife resources They have also undermined the Maasai culture and its traditional systems of resolving conflicts over access to range land Efforts to resolve issues through new institutions have met with only mixed success, and the survival of Maasai traditional institutions now appears to be at the mercy of the state (Parkipuny, 1989, see Appendix B of this report, Annotation 11).

In contrast, locally managed systems of sanctions and conflict resolution seem to be sustainable and to meet the varied needs of the community. The villagers of Tibouki (Mali field study, Appendix A) conduct their own forest patrols and implement a locally developed system of sanctions Prior to the 1991 Mali coup, the system operated in spite of the Forestry Department, since the coup, it operates in the absence of any national oversight The patrol system includes fines for infractions, and negotiation of disputes No offender has ever been taken to a higher authority. The system has been in operation for as long as any current villagers can remember, and those interviewed affirmed satisfaction both with the system and with its success in improving production of trees for poles and fallen leaves for feed

Though the overall success of the Village Reforestation Project in Mali is in doubt, it did eventually recognize the importance of local resolution of forest resource conflicts The project eliminated fines for infractions of the national forest code in all locations where the project was active Conflicts over access to the land in those areas were resolved at the community level (McLain et al , 1991, see Appendix B of this report, Annotation 27).

A fundamental, underlying principal found in all cases of successful resource management by local self-governing institutions is control over membership in the users' group; that is, local institutions must be able to establish and enforce both geographic and membership boundaries Control over access to the resource is of prime importance for any resource management institution. As with rules for conflict resolution and sanctions for infractions, decisions regarding membership and access are best made by the users who are closest to the resource. Conflicts over such decisions can be expected, and provisions for appeal must be made to resolve them However, NRM efforts cannot be successful without the ability to regulate demand of a desired resource (through control of membership and access) once it exceeds supply Under those circumstances, undoing locally devised access-regulating rules and institutions in order to ensure open access for all is not an enlightened and equitable policy, but is rather a recipe for technical and social disaster

Condition 5: Resource governance and management institutions take account of diverse, legitimate interests.

Recommended Actions

- Use traditional institutions, which reflect the complex resources and the vulnerable environments within which they are found, as foundations upon which to build current management solutions.

- Support the efforts of local organizations to adapt to modern exigencies and to respond to complicated resource issues.

- Promote forums for developing, articulating, and discussing management options that reflect the diverse and legitimate interests of various parties.

- Promote mechanisms through which governments and communities work together to resolve conflicts, enforce decisions; and respond to technical and informational needs.

- Design programs that recognize the need for diverse institutional structures able to respond flexibly to specific resource issues; i.e., avoid blueprints.

Discussion

Different groups often have legitimate interests in management of a given natural resource This is an important starting point for discussing, negotiating, and designing NRM institutional arrangements Sustainable natural resources governance and management systems may well have to be complex in many situations, rather than simple, to account for the diverse interests of the various parties As a result, the combination of local and overlapping supra-local or central controls probably must be negotiated on a case-by-case basis

It is important that local institutions have the support of overlapping levels of government for the enforcement of decisions made at the community level, for resolution of conflicts not appropriately adjudicated at a local level, for technical support, and for information support These are important and legitimate supra-local government functions, but only as they support local mechanisms, not if they supplant or override them. As competition for resources increases and the need for sustainable resource management grows, there is probably an ever greater need for collaboration between governance institutions. Local institutions will in fact seek collaboration for technical and institutional support, if the transaction costs and associated risks are manageable.

Governments and donors alike must accept the need for diverse forms of organization and organizational relationships to respond to particular collective action and natural resources problems. As Rochette (1989, see Appendix B of this report, Annotation 28) notes in reference to the Sahel, successful blueprints for village organization do not exist. Standardized, "turnkey" models for local organizations, imposed by governments and donors, typically fail.

Traditionally, complex rules were required to address the intricate nature of the resources and the vulnerable environments within which they were found. As a result, people developed sophisticated institutions The Turkana, for example, have a variety of social controls governing access to and use of such natural resources as water, grazing land, and trees Their resource use and management strategies include the exploitation of extensive areas, relatively high mobility, use of wild food resources, and economic diversification (including field agriculture) The rules, particularly those for trees, are flexible to allow for ongoing adaptation to environmental changes (Barrow, 1990, see Appendix B of this report, Annotation 7)

These various strategies have traditionally enabled the Turkana to use their resources sustainably Recently, however, agricultural and irrigation development projects in the Turkana's area have been undertaken without regard to traditional resource use patterns and property rights Trees have been cleared without authorization from traditional users and owners. Not surprisingly, disputes and conflicts over resource access have escalated.

As with the Turkana, the !Kung of Botswana have developed sophisticated social and resource rules to address the problems posed by their difficult environment (Yellen, 1974; see Appendix B of this report, Annotation 15). !Kung social bands are composite in nature Exclusive territorial rights are not recognized, boundaries are not defended, and some areas, especially those around permanent water points, are shared by more than one group The system of bands has sufficient flexibility to permit population concentrations in especially bad years when some water holes run dry Individuals do talk about ownership and about who has rights in certain areas These rights, however, are seen as flexible, which is crucial to accommodate sharing and to avoid risks in the highly unpredictable environment of the Kalahari

To respond to current resource management issues, modern institutions must reflect the complexities of the resource and the environment, as have many traditional institutions. In addition, resource management institutions must be able to balance the often competing interests of the multiple parties vying for resources and must reflect the changing social environments within which resource use occurs The Nyae Nyae Farmers Cooperative, in its effort to become a representative organ for the traditionally non-hierarchical, consensual Bushmen of Namibia (Namibia field study, Appendix A) illustrates a social order that has adapted to changing circumstances, largely to ensure continued control over resource management.

Resource management rules must be flexible and adaptive to changes in the physical and social environment in order to endure. The N!ore laws of the Bushmen of the Nyae Nyae area of Namibia (Namibia field study, Appendix A) provide a flexible and generally consensual method for adapting socially to make good use of resources. The rights of N!ore owners include respected claims to permanent, exclusive possession of some parcels and wildlife living thereon, supplemented by institutional arrangements promoting regulated resource sharing among neighbors In addition to the parcels reserved for specific families, Nyae Nyae Bushmen collectively maintain common areas in which all people are allowed to hunt and gather food These rights can be modified depending on environmental conditions For example, though family groups have exclusive rights to specified parcels of land, if one family's area is not productive at a specific time members of that family can move to a kin's area The move is undertaken with the unstated understanding that there will be reciprocity should the host ever have to temporarily relocate sometime in the future.

The Nyae Nyae Farmers Cooperative (NNFC) is attempting to adapt the historic rules governing land allocation and use, and access to and use of resources, to current circumstances Part of this adaptation includes use and management of new technologies such as solar-powered water pumps Social technologies are also being adapted The traditionally consensual and non-hierarchical Bushmen formed the NNFC largely because they recognized the need to develop a social structure that would allow them to exercise their claim to their land and its resources in the face of pressure from other groups (Namibia field study, Appendix A, and Marshall, 1989, see also Appendix B of this report, Annotation 23)

One way to achieve the sophistication required of institutions that must manage competing demands in a sensitive environment is to have overlapping systems, such as those of the community game guard system in Kaokoland in Namibia (Namibia field study, Appendix A). The system operates with the joint support of the communities, which appoint the guards for their areas, the NGO, which assists with program management and payment for the guards; and the government, which provides enforcement support when violators are found This complementary system has drastically reduced poaching in the area and reflects the fact that wildlife is a complex good, it therefore requires complex management institutions and rules.

Buffer zones around protected areas also represent an effort to deal with the complexity of wildlife resource management. Areas designated as buffer zones have become a major focus of natural resources management activities Wildlife proponents now recognize that people living adjacent to protected areas often depend on the resources therein for an important part of their livelihood Emphasis is being placed on how residents use or abuse natural resources in and around protected areas and how to devise strategies to address both human production system needs and the conservation of biodiversity. Management plans that integrate elements such as users rights to forest products, protection of food crops from wildlife pests, and traditional hunting and gathering practices are becoming increasingly important.

Current circumstances in Uganda reflect the competition that can occur around protected areas (Uganda field study, Appendix A). Land scarcity and government policy have led to establishment of settlements in gazetted areas throughout the country. For the past several years, the government has systematically evicted thousands of people from these areas, with little attempt to discuss co-management and limited use rights schemes. At the same time, the government has embarked on efforts to improve welfare and productivity in buffer zones in order to compensate residents for refraining from using or limiting their use of resources These efforts, however, fail to recognize the fundamental economic tradeoffs farmers must make before agreeing to forego the use of certain natural resources. Without a willingness to share authority with users or to consider the various costs and benefits associated with policy decisions, sustainable management is unlikely

Typically, development projects that rely on coercive approaches dictated by central government agencies are justified on the grounds that environmental systems are under pressure This is often an accurate statement. What is often inaccurate is the nonsequitorial conclusion that the central government must therefore intervene to save the threatened resource, in the interests of all An alternative and potentially far more effective approach is to discuss traditional rules with local people and design policies with them to support those rules and rectify weaknesses where necessary

What is required, and what government and donors could provide valuable assistance with, is discussion and elaboration of management options, with communities playing a fundamental role in the institutional design process. When given the opportunity, communities such as Amba in Mali (Mali field study, Appendix A) are able to articulate options that meet both their own and the central government's needs, with the goal of achieving sustainable management of the resource

The Village Reforestation Project in Mali (McLain et al, 1991; see Appendix B of this report, Annotation 27) attempted to understand the complexity that results from competition for resources within a setting of multiple traditional and modern ownership and use rules The government Forestry Code tried to summarily suppress these underlying tensions through a repressive enforcement system (which also created the essential conditions for a lucrative "racket" run by forestry agents) The Village Reforestation Project instead recognized that the tensions demonstrated a need to manage the interests of various diverse parties The project tried to create mechanisms to manage these diverse interests by (1) allowing communities to resolve conflicts, (2) eliminating fines for forest code violations, and (3) training forest agents to act more as extension agents than as enforcement agents. The project's mixed success in achieving its goals highlights the difficulty associated with achieving such a complex balance.

Condition 6: National and regional policies and institutions create an enabling environment.

Recommended Actions

- Identify, promote, and support local self-governing institutions that can work with governments, donors, and NGOs for the sustainable management of natural resources.

- Promote and support government efforts to work with these self-governing institutions.

- Promote clarification of tenure rules for land and other resources, and communicate what those rights are.

- Reduce transaction costs for formation of resource user organizations; for example, reduce registration costs.

- Make government agents more supportive of providing assistance, and technical and management support.

- Support efforts to share revenues that accrue as a result of sustainable resource management.

Discussion

An enabling environment is a pre-condition for all the previously discussed conditions. It is a result of cooperation between the various actors and institutions involved with management of natural resources or resolution of a specific natural resource issue An enabling environment within which local self-governing institutions can sustainably manage their own natural resources, however, requires much more than the passive acquiescence of government bodies It requires active support for local self-governing institutions in terms of conflict resolution, enforcement, tenure and usufruct rights, and technical and informational assistance

As previously stated, an ambiguous environment regarding tenure and local government acts as a severe disincentive for sustainable resource management. The current political situation in Namibia (Namibia field study, Appendix A) demonstrates the difference between a passive institutional environment and a proactive enabling environment With the implementation and form of local government still in doubt, a major question continues to be whether the new Namibian local government system will create an enabling environment or not

Clear tenure rules are crucial for creating an enabling environment and for the deliberate promotion of local self-governing institutions and their management of natural resources (see Rochette, 1989, Marshall 1989; and Appendix B, Annotations 28 and 23 respectively; and the Namibia field study, Appendix A). In the Nyae Nyae area of Namibia, the Nyae Nyae Farmers Cooperative is attempting to achieve a sustainable mixed economy which includes traditional hunting and gathering, agriculture, and pastoralism, supported by modern technology (wind- and solar-powered pumps). Their efforts are occurring, however, despite uncertain land tenure rights. The authority and powers of the Cooperative as a local self-governing institution which represents the people of the area (in essence a *de facto* government) have been tested on many occasions by other people who have tried to herd cattle in Nyae Nyae On one occasion, the government, through the police department, supported the Cooperative and had the cattle and the herders removed It remains to be seen, however, whether official government policy will recognize the Cooperative's tenure. Until such time as a tenure ruling is made, actions are taken in an atmosphere of uncertainty, thereby impeding sustainable long-term decision making

Policies that favor local autonomy and local self-governance do not stop at the national level In addition to national-level enabling legislation, rules that promote sustainable resource management must include recognition of and support for local-level conflict resolution and enforcement, and location specific education and extension support Furthermore, for national-level policies to have positive implications at the local-level, they must be accessible and transparent and implementable at a low-cost This is an important role of local government.

Without the support of local government for local institutions and without clear tenure decisions regarding former communal territories, a free-for-all atmosphere may develop, as in Namibia There are in essence no rules. Various communities are trying to grab land, and perhaps will not focus on its sustainable management

Programs that promote sustainable resource management--the community game guard system in Kaokoland, for example--merit a supportive government environment. The decrease in poaching, occasioned at least in part by community involvement in game scouting, has resulted in a marked increase in wildlife and tourism Currently, however, the revenue the government makes from tourism is not shared directly with the communities Continuing development and success of the program may very well hinge on communities obtaining an assured share of the tourist revenues An effort to involve communities in management and sharing of the revenues from Nature Conservancy Areas, as is being discussed in Namibia, might achieve the desired goal.

Creating an enabling environment does not necessarily represent a drain on government financial resources In fact, an enabling policy environment can result in the creation of productive enterprises that will generate public revenues. Innovative programs that involve communities in natural resources management and revenue sharing can be self-sustaining if they operate within a supportive environment For example, to make the Purros

tourist levy program work in other locations and to assure that communities get a share of the tourist money, the program should be promoted and legitimized Just such an effort is currently underway in Namibia. Though the current program is successful in the communities in which it is implemented, there are no legal requirements that tour operators adhere to it As it now stands, new operators could decide to ignore the arrangement forged between the communities and the current operator Policies that legitimize such programs and guarantee that arrangements between communities and other parties (private and public) are binding would prompt other communities to develop similar activities

In addition to supporting specific programs, government policies can be enabling by generally promoting institutional development. In Uganda, the government's cooperative law and land leasing policy (though controversial in terms of its impact on traditional tenure) together created incentives and opportunities for forming institutions (Uganda field study, Appendix A) The cooperative law enables creation of cooperatives, gives cooperatives access to credit, and provides cooperatives with technical and management assistance. The leasehold legislation, as previously discussed, created an incentive for formation of the cooperative Though the cooperative's sustainable management of its cleared land has yet to be proven, as an institution it could potentially serve as the catalyst for additional development activities Its function as a self governing local institution, formed as the result of official policies, may in the long-term prove to be its most valuable contribution to local development

C Summary

This section has further elaborated on the six conditions for sustainable management of natural resources by providing examples from secondary sources and field investigations Some are illustrative of the linkages between local autonomy and sustainable management. Others show how the absence of certain conditions has led to unsustainable practices and resource degradation Several actions are recommended as measures likely to establish each condition

It is important to reiterate that the conditions described here are not exhaustive, nor should they be taken in isolation. They are interrelated, and only as part of an integrated approach do they offer a basis for addressing complex resource management problems Each condition is necessary, but none is sufficient alone as a guarantor of success.

V. Conclusions

A. Introduction

The analysis of indigenous management regimes presented in this report identifies a set of general, interrelated conditions which explain why some communities are successful in their efforts to sustainably manage natural resources Other examples illustrate how, in the absence of some or all of these conditions, institutional failure has occurred and has contributed to the dissolution of particular resource management regimes These examples bear testimony to the need for revitalizing existing institutions and for establishing the conditions required for the emergence of new community-based institutions The set of conditions include several well-established principles generally accepted by development analysts, as well as some innovative approaches and concepts The conditions should be viewed as an ensemble where all factors are essential for desired outcomes

The emphasis on local-level management regimes is not intended to suggest that all NRM decisions be left to a multitude of disparate local institutions and that broader strategic concerns be ignored It does, however, argue for a fundamental reorientation of governance systems to assign formal legal status to a variety of community organizations, thus allowing them a voice in the decision-making process In order to attain legal status and be effective participants in NRM decisions, these organizations must have access to and receive services from a variety of regional and subregional government agencies Therefore, efforts to enhance the status and effectiveness of community-based management and governance regimes should be accompanied by increased decentralization of public authority

The relationship between local autonomy and sustainable NRM is demonstrated by the discussion and illustrations presented in the preceding sections The management systems studied have evolved and endured, some in relative autonomy within supportive institutional environments, others simply left to their own due to lack of public sector resources Whatever the circumstances, local autonomy has allowed users to devise their own self-governing institutions and to provide incentives to conserve resources by enforcing rules governing access and control that are based on indigenous knowledge Other systems have degenerated when autonomy was denied and traditional rules were overridden by government policies or coercive actions

Diverse and conflicting interests among users and public authorities, and the added dimension of international attention on global resource conservation and the preservation of biodiversity, have made it increasingly difficult to address and solve natural resource problems Growing pressures and competing demands on the natural resource base as a result of population growth, resource degradation, and socioeconomic differentiation and stratification have contributed to what has become an extremely complex management environment

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To this morass, the crisis in African governance must be added as a significant factor impeding the sustainable management of natural resources. The problems of resource degradation in Africa have been exacerbated by the dissolution of local-level institutional arrangements whose purpose was to monitor and enforce locally determined management systems Why have so many formerly successful local NRM institutions lost the ability to control access and use of natural resources and maintain sustained yield practices? Public policies have been based on the conviction that only governmental control and the application of "scientific" management can provide effective solutions to NRM problems For this reason, many traditional institutions have been effectively eliminated African governments, however, have not succeeded in creating viable alternatives to the former community-based resource management regimes Furthermore, the hierarchical, state-dominated governance systems that characterize African societies have used coercive strategies for enforcing these policies In addition to ignoring indigenous property rights and management regimes, these systems create incentives for opportunistic behavior by government officials and elites, further alienating and undermining the capacities of local institutions Because of the generally poor development of local government in most African nations, the responsibility for implementation of government policies and management strategies has tended to reside with central government agencies, making the role of indigenous resource management institutions even more tenuous

An increased capacity to exercise local governance, prompted in part through the conditions described in this report, necessitates greater decentralization and local autonomy. The conditions described herein improve opportunities for local governance, management, and autonomy, thereby turning the focus for resource management solutions on to the local resource users whose technical practices and management strategies will ultimately determine resource sustainability.

B. Key Issues

The discussion above points to three key issues that integrate the analysis of the six conditions They are the critical action areas required to support establishment of the conditions. The key issues are:

- the preservation and promotion of indigenous social capital;
- the legal status of community-based organizations; and
- decentralization of public authority.

1. Preservation and Promotion of Indigenous Social Capital

Overwhelming evidence confirms the wealth of social capital found in a variety of community-based NRM institutions, as demonstrated in this report as well as in a number of related volumes (Thomson et al., 1991, Ostrom, 1990, National Academy of Sciences, 1986). This expanding cumulative knowledge and experience demonstrates the value of local rule systems and institutional mechanisms by which local people have devised NRM regimes that have the capacity to adapt to changing situations and endure the test of time

Examples also illustrate how changing conditions have led to governmental policies and actions that destroy local institutional capital and the rule systems that maintain resources. In many cases, these policies have converted managed common property resources to unmanaged open access resources with a corresponding acceleration of resource degradation

In attempting to address multiple, complex problems in a variety of changing environments, national governments have tended to adopt NRM policies that lack flexibility and are over-simplified. In most cases, successful resource management regimes devised by local users reflect the inherent complexity of their physical and social environments The rules governing resource management among indigenous peoples are integrated into a wider set of cultural norms and social values that determine behavior in relation to factors such as marriage, family, and property rights These rule systems represent the social capital of a community and are commonly shared and well understood by all its members The working rules of most communities provide for monitoring and sanctioning as enforcement mechanisms At the same time, these rules are flexible enough to accommodate overriding exigencies often found in vulnerable environments

The extreme variability of physical environments, as well as socioeconomic, and cultural factors argue for local solutions to NRM problems. Technical and managerial problems may require outside expertise, but ultimately intimate knowledge of a local environment, especially under changing conditions (seasonality of resource abundance, migrations, etc), is required to accommodate rule adaptations and to ensure effective monitoring and enforcement Local understanding of technical resource issues, as well as the investments communities have made over time to solve these issues, is manifest as the community's social capital Natural resource problems would more likely be solved if existing social capital is harnessed rather than ignored

2. Legal Status of Community-Based Organizations

We have argued that the issues surrounding natural resources are becoming increasingly complex because of a number of factors, including competing diverse interests If resource users are to become responsible for governing and managing local-level natural resources and have a significant voice in decisions of concern to others outside the community, they must have legally recognized authority

- to make and apply rules governing access, membership, harvesting, and investment;

- to mobilize resources to finance governance and management activities, including taxing themselves at their own initiative and committing themselves to repay loans obtained to finance such activities;

- to constitute new special purpose jurisdictions or associations, as they determine the need, to govern problems that exceed the boundaries of a single community, and,

- to resolve disputes in light of local working rules, whether "traditional," newly fashioned by local governance units, or an amalgam of the two.

Without autonomous capacity to obtain formal legal recognition of their authority and to constitute new units when they find it useful, the efforts of local institutions remain inherently fragile That very fragility exacerbates insecurity and discourages initiatives by local people to improve natural resource governance and management

Providing formal legal status for resource user organizations is critical to establishing the legitimacy of their interests and autonomy This requires an enabling policy environment that encourages diverse forms of organization and minimizes the transaction costs of legal recognition The pitfall of designing mandated organizational blueprints should be avoided As reforms of this nature represent the empowerment of new forces in society, they will invariably threaten the position of the status quo and may therefore encounter significant resistance Potential loss of status and power must be addressed through additional institutional reforms to create positive incentives for those whose interests are threatened.

3 Decentralization of Public Authority

Local autonomy is a necessary but insufficient requirement for addressing contemporary NRM problems Although local communities possess intimate familiarity with the natural resources upon which their production systems depend, they often lack critical technical or scientific knowledge As previously indicated, they also confront governance and management problems that concern a broader set of actors outside the immediate community Thus, allocating responsibility outside of the community for dealing with discrete aspects of any problematic natural resource situation makes good sense A government service may provide back-up enforcement power or extension advice, and formal adjudication or mediation services when conflicts surpass the capacity of indigenous mechanisms This is where decentralization becomes a critical factor in the relationship between local autonomy and sustainable NRM

Devolution of decision-making authority concerning NRM to decentralized government units is required as part of the enabling environment encouraging the autonomous status of community-based institutions. Many NRM issues are complex and should be addressed through multi-level institutional arrangements. Local user groups cannot reasonably be expected to govern and manage all large-scale natural resources involving multiple users from different communities or valuable protected areas Local government should play a significant role in this regard

The importance of resource tenure security has been emphasized in this and other studies as an essential incentive for investments in sustainable management of natural resources. Although flexible and equitable resource tenure policies must be established at the national level, implementation of these policies and administration of the laws can only be handled effectively by local jurisdictions If devolution of the functions associated with the administration of resource tenure regulations is to be effective, substantial investments in human and material resources will be required. In addition to the technical and administrative functions associated with resource tenure, local-level adjudication bodies and resource-use conflict resolution mechanisms are also required to support local autonomy

C Recommendations

The following set of recommendations suggests ways in which policies and programs can incorporate the key issues discussed above.

1. NRM program and project developers should systematically investigate existing and former resource management institutional arrangements before designing new ones

2. Government planners and policymakers should avoid organizational blueprints and allow local institutions to take various forms as determined by their members

3. Donors should promote the establishment of an enabling legal and policy framework in support of local self-governing NRM institutions. Additional informational and technical support should be also be provided to these emerging institutions.

4. Mechanisms should be established to integrate local knowledge of NRM in the development of policies and programs Researchers and extension workers should attempt to fully understand the origin and rationale behind the management practices used by local people.

5. Community conflict resolution procedures and mechanisms must be well understood by public officials. In adapting formal adjudication and mediation services to local needs, public officials must take into account these local

mechanisms and ensure that transaction costs are minimized for community user organizations to use these fora for disputes that surpass their jurisdictional purview.

6. Donors should support resource tenure policy reforms that are well adapted to customary tenure systems. Financial and technical resources should be provided to assist in policy implementation and the administration of resource tenure regulations

7. Donors should promote and support revenue and cost sharing with local communities to provide incentives for sustainable management of resources and preservation of biodiversity In cases where household subsistence is threatened by limiting or totally preventing access to valued resources local residents should be directly compensated for their protection and conservation efforts.

D. Recommended Areas for Future Research

The present report, related studies, and the development literature in general all confirm that community participation in the development process is a necessary ingredient for sustainability Increasing evidence is also available to indicate that seemingly wanton destruction of natural resources is more a result of inappropriate public policies and institutional failure than of irrational behavior on the part of rural producers bent on maximizing short-term benefits

In emphasizing the importance of indigenous management systems, local knowledge, property rights, diverse interests, conflict, and the need to give voice to local resource users through formal recognition and legal status of their institutions, we are in essence suggesting that fundamental changes in the governance of natural resources are critical to sustainability Affecting the ordering of human relations in a society and the relative balance of power among a broad range of actors is a somewhat daunting challenge, particularly in Africa where public sector and elitist biases have long dominated these relationships

Clearly, there is no formula or recipe for systematically affecting the governance systems within a society However, it is reasonable to assume that a number of catalysts, when properly conceived and implemented will have varying impacts on this long-term evolutionary process. How can future applied research contribute to our understanding of this process, and inform political leaders, policy analysts, development agents, and international development agencies of the most beneficial actions to take? The following are some suggested areas for future research that will contribute to our analytic capabilities and to identifying ways to affect positive change

1. Institutional Database

Much of the available knowledge on local-level resource management systems has been developed through case study methodology. Although this work has significantly contributed to our understanding of these systems and their implications for the preservation of natural resources, there are obvious shortcomings to the rigors of case study analysis. More methodologically sound research and analysis would greatly contribute to the relevance of local experience for policymakers Therefore, the development of an institutional data base for case studies of natural resource management regimes is a promising research and development activity.

This effort could be modeled after the Nepal Irrigation Institutions and Systems Database developed by the Workshop in Political Theory and Policy Analysis at Indiana University This relational data base allows for the organization, retrieval, and analysis of a wide range of physical, institutional, and policy related variables. This tool represents a unique effort to organize data across a variety of methodologically disparate case studies, thereby allowing comparative analysis and the identification of key variables

A program is already underway to develop a data base for forest resource management institutions This and other efforts to organize data on other types of natural resources should be supported and encouraged

2 Action Research and Experimentation

Efforts should be made to design action research programs as a component of all projects and policy reform programs that concern NRM. These programs should be coordinated to provide data amenable to comparative analysis and should seek to answer the following questions:

- What specific policy measures are most appropriate for supporting the emergence of empowered, local, resource user organizations?

- What additional forms of assistance (e g , training, financing, information dissemination) are needed for successful operations of user associations?

- What level of authority should be devolved to local government units for effective support to NRM problem solving?

- What specific measures are most effective in creating positive incentives for cooperation among resource users?

- What specific measures are most effective in creating positive incentives for public officials and technical personnel to be supportive of semi-autonomous resource user associations?

- What types of dispute resolution mechanisms are most appropriate for mediating conflict between competing resource users?

- What should be the relationships between national planning and policy efforts, such as environmental action plans and local government institutions, and communities of users?

Data generated through this type of monitoring and applied research can be used in the context of ongoing projects and programs to identify and alleviate constraints and to design new policies and interventions. Using the NRM framework or other organizing framework, all of the data from these activities should be collected in a central location and used to analyze the generalized lessons of experience. Over time, the analysis of lessons learned will be invaluable for the design of future policies, projects, and other program assistance

3. PRA/RRA and IAD

Rapid rural appraisal (RRA) is widely employed as a useful diagnostic tool in assessing constraints and identifying potential interventions. *Participatory rural appraisal* (PRA) is an evolving technique that allows for local communities to constructively interact with outside technical personnel in developing strategies and plans for collective action. Both methodologies address a wide range of factors, but do not explicitly examine in any depth (or in any systematic fashion) the sets of rules governing community interactions or the incentives they create for individual behavior PRA/RRA provides the mechanism for collecting diagnostic information and interactive planning with communities Institutional analysis and design (IAD) and PRA/RRA can complement each other in diagnosing and supporting community-based NRM institutions Actively using these techniques in an integrated manner deserves more attention within existing and future NRM project activities.

As the IAD framework is specifically designed to study rule systems in relation to the physical world and how those rules shape incentives, much can be gained in our understanding of the dynamics of a rural community through this manner of inquiry. Introducing the concepts from IAD into PRA/RRA methodologies could be quite useful in this regard It would also add a new emphasis on developing rules as the basis for locally designed management plans.

Some initial efforts to bring experts of PRA/RRA together with the developers of the IAD framework are already underway through the initiatives of the Ford Foundation in India. More field-level collaborative activities of this nature should be supported as a means to develop new approaches to study and effect change at the level of local resource users.

BIBLIOGRAPHY

Anderson, Dennis (1987) The Economics of Afforestation: A Case Study in Africa. The World Bank Occasional Paper Number 1/New Series. Baltimore: The John Hopkins University Press.

Bailey, Geoffrey L. and A.M. Ashby (1982) Pilot Project on Silk Production in Botswana. Report to the Ministry of Commerce and Industry, Gaborone, Botswana. Tshwaragano Brigade Trust, Gabane, Botswana.

Barker, Jonathan (1989) Rural Communities Under Stress: Peasant Farmers and the State in Africa Cambridge: The Cambridge University Press.

Barrow, Edmund G.C. (1990) "Usufruct Rights in Trees: The Role of Ekwar in Dryland Central Turkana, Kenya." Human Ecology 18 (2):163-176.

Berkes, Fikret, editor (1989) Common Property Resources: Ecology and Community-Based Sustainable Development London Belhaven Press.

Berry, Sara (1989) "Access, Control and Use of Resources in African Agriculture. An Introduction" Africa 59 (1). 1-5.

Berry, Sara (1989) "Social Institutions and Access to Resources" Africa 59 (1): 41-55.

Berry, Sara (1984) "The Food Crisis and Agrarian Change in Africa: A Review Essay" Africa 27 (2): 59-112

Blackwell, Jonathan, Roger Goodwillie, and Richard Webb (1991) Environment and Development in Africa: Selected Case Studies. Economic Development Institute of the World Bank Policy Case Series, Analytical Case Studies, No. 6. Washington, D.C.: The World Bank

Blaikie, Piers (1989) "Environment and Access to Resources in Africa" Africa 59 (1): 18-40.

Blurton Jones, Nicholas and Melvin Konner (1989) "!Kung Knowledge of Animal Behavior." In Traditional Knowledge: A Collection of Essays, edited by Robert Johannes, 21-30. Cambridge: IUCN Publications Services.

Bromley, Daniel and Michael Cernea (1989) The Management of Common Property Natural Resources: Some Conceptual and Operational Fallacies. Discussion Paper 57. Washington, D.C.: The World Bank

Cernea, Michael (1987) "Farmer Organizations and Institution Building for Sustainable Development" Regional Development Dialogue 8 (2): 1-18.

Cernea, Michael editor (1985) Putting People First: Sociological Variables in Rural Development. Oxford: Oxford University Press.

Challinor, David and Margaret Hardt Frondorf, editors (1991) Social Forestry· Communal and Private Management Strategies Compared. Washington, D.C.: Program on Social Change and Development, The Paul Nitze School of Advanced International Studies, The John Hopkins University.

Chopra, K. (1990) Participatory Development· People and Common Property Resources Sage Publications.

DeValk, P. and K Wekwete, editors (1990) Decentralizing for Participatory Planning? Comparing the Experiences of Zimbabwe and other Anglophone Countries in Eastern and Southern Africa Brookfield, VT: Gower Publishing Co.

Diop, Modou (1990) Contribution a la mise en place d'un nouveau systeme de credit rural Banh, Burkina Faso, Memoire de Diplome d'Ingenieur d'Agronomie Tropical, Ecole Superieure d'Agronomie Tropicale, 2 Vols , Dakar, Senegal, pp 1-18.

Dorm-Adzobu, Clement, Okyeame Ampadu-Agyei, and Peter Veit (1991) Religious Beliefs and Environmental Protection The Malshegu Grove in Northern Ghana. From the Ground Up Case Study Series - No 4 Washington, D.C.: World Resources Institute and Nairobi. Acts Press, African Centre for Technology Series

Dorm-Adzobu, Clement, Okeyeame Ampadu-Agyei, and Peter Veit (1991). Community Institutions in Resource Management. Agroforestry by Mobisquads in Ghana From the Ground Up Case Study Series - No. 3, Washington, D C · Center for International Development and Environment, World Resources Institute (WRI)

Drakensberg/Maluti Mountain Catchment Conservation Program (1989) Fire and Grazing Project Drakensburg/Maluti Mountain Catchment conservation Program, Document 4. Westville, Natal, South Africa University of Durban, Westville.

Elbow, Kent and Alain Rochegude (1990) A Layperson's Guide to the Forest Codes of Mali, Niger and Senegal Land Tenure Center Paper 139 Madison· Land Tenure Center, University of Wisconsin-Madison

Gilmore, K S. (1979) "An Investigation into the Decline of the Yambezi Fisherman's Co-operative Society " Botswana Notes and Records 11·97-102

Grove, Thurman (1989) African Development Through Sustained Use of Natural Resources (A Draft Report). Washington, D.C : U.S. Agency for International Development.

Hancock, Peter (1990) "The Contribution of Small Reserves to Conservation, Environmental Education and Tourism." Paper presented at the Symposium on Tourism in Botswana, 15-19 October, 1990.

Helland, Johann (1980) "Social Organization and Water Control among the Borana." In Five Essays on the Study of Pastoralists and the Development of Pastoralism by Johann Helland. Occasional Paper No. 20. Bergen: Institute of Social Anthropology. Pp.4775.

Hitchcock, Robert K. (in press) "Socioeconomic and Environmental Impacts of International Tourism among Kalahari San." In International Tourism and Cultural Geography, a special issue of Journal of Cultural Geography, Geoffrey Wall and Klaus Meyer-Arendt, eds.

Hitchcock, Robert (1990) "Wildlife Conservation and Development Among Rural Populations in Southern Africa" International Third World Studies Journal 2 (1): 225-232.

Hogg, Richard (1983) "Irrigation Agriculture and Pastoral Development: A Lesson from Kenya." Development and Change 14:577-591.

Home Economics Section, Ministry of Agriculture and Cooperatives, Kingdom of Swaziland (1987) Rural Swazi Women in Development: A Report on the Zenzele Women's Project Survey Mbabane, Swaziland. Ministry of Agriculture and Cooperatives.

Ichikawa, Mitsuo (1985). "A Comparison of Fishing Strategies in the Bangweulu Swamps" African Studies monographs 4.25-48

"An Impact Indicator Framework for Target 3.1 of Strategic Objective 3" adapted from N.R. office's September 14, 1990 memo to the AFR/TR division chiefs, USAID.

International Union for Conservation of Nature and Natural Resources (1989) The IUCN Sahel Studies - 1989 Nairobi. IUCN Regional Office for Eastern Africa

Kiss, Agnes, editor (1990) Living with Wildlife: Wildlife Resource Management with Local Participation in Africa. World Bank Technical Paper No. 130. Washington, D.C.: The World Bank.

Korten, David and R. Klauss, editors (1984) People Centered Development: Contributions Toward Theory and Planning Frameworks. W. Hartford: Kumarian Press.

Larfield, Geoffrey and David Lowe (1991) Guardians of the Forest -Pilot Study #1 - The Nkebotok of Southern Turkana Nairobi: National Museums of Kenya.

Lawry, Steven (1989) Tenure Policy and Natural Resource Management in Sahelian West Africa Land Tenure Center Paper 130. Madison: Land Tenure Center, University of Wisconsin-Madison.

Lawry, Steven (1990) "Tenure Policy Toward Common Property Natural Resources in Sub-Saharan Africa" Natural Resources Journal 30 (Spring): 403-422.

Le Bris, Emile, Etienne Le Roy, and Paul Mathieu (1991) L'Appropriation de la Terre en Afrique Noire. Paris: Editions Karthala.

Lewis, Dale, Gilson R. Kaweche, and Ackim Mwenya (1990) "Wildlife Conservation Outside Protected Areas -- Lessons from an Experiment in Zambia." Conservation Biology 4(2):171-180.

Lillywhite, Malcolm and Lynda Lillywhite (1990) "Low Impact Tourism. Sustaining Indigenous Natural Resource Management and Diversifying Economic Development in Botswana." Paper presented at the Symposium on Tourism in Botswana, 15-19 October, 1990.

Marks, Stuart A. (1984) The Imperial Lion. Human Dimensions of Wildlife Management in Central Africa Boulder, Colorado, Westview Press.

Marshall, John (1989) The Constitution and Communal Lands in Namibia Land Rights and Local Governments Helping 33,000 People Classified as "Bushmen": The Ju/wa Case. Windhoek, Namibia. Nyae Nyae Development Foundation.

Martin, Fenton (1992) Common-Pool Resources and Collective Action· A Bibliography Bloomington. Workshop in Political Theory and Policy Analysis, Indiana University

Mascarenhas, O. (in press) Traditional Water Management and Irrigation Systems in Tanzania Case Study of Msanzi Village, Rukwa Region From the Ground Up Case Study Series" (Forthcoming) Nairobi World Resources Institute

McDowell, William (1981) Hadza Traditional Economy and Its Prospects for Development and A Brief History of Mangola Hadza Reports to the Rift Valley Project, Ministry of Information and Culture, Division of Research, Government of Tanzania and District Development Directorate, Mbulu District, Arushu Region, Mbulu, Tanzania pp 35 and pp 14

McLain, R , B Ba, and M. Koloma (1991) Report 5· Community Woodlot Study Land Tenure Project Mopti, Mali Madison, WI Land Tenure Center. University of Wisconsin-Madison.

McNeely, Jeffrey et al (1990) Conserving the World's Biological Diversity. Gland: IUCN; Washington, D.C.: WRI, CI, WWF-US, and the World Bank

National Academy Press (1985) Proceedings of the Conference on Common Property Resource Management Washington, D.C : National Academy Press.

Natural Resources Management Project (1991) A Review of the Western Ngwaketse Wildlife Utilization Project Gaborone, Botswana: Department of Wildlife and National Parks.

Oakley, Peter et al (1991) Projects with People: The Practice of Participation in Rural Development. Geneva: International Labour Organization

Ostrom, Elinor (1977) "Collective Action and the Tragedy of the Commons" in Managing the Commons edited by Garrett Hardin and John Baden, 173-181. San Francisco: W.H. Freeman and Company.

Ostrom, Elinor (1990) Governing the Commons· The Evolution of Institutions for Collective Action. New York. Cambridge University Press.

Ostrom, Elinor (1992) Crafting Institutions for Self-Governing Irrigation Systems. San Francisco: Institute for Contemporary Studies Press.

Ostrom, Elinor and Vincent Ostrom (1977) "A Theory for Institutional Analysis of Common Pool Problems" in Managing the Commons edited by Garrett Hardin and John Baden, 157-172. San Francisco: W.H. Freeman and Company.

Owen-Smith, Garth and Margaret Jacobsohn (1989) "Involving a Local Community in Wildlife Conservation A Pilot Project at Purros, Southwestern Kaokoland, SWA/Namibia." Quagga 27·21-28.

Painter, Thomas (1991) Approaches to Improving the Use of Natural Resources for Agriculture in Sahelian West Africa. New York: CARE International.

Parkipuny, M L. (1989) Pastoralism, Conservation, and Development in the Greater Serengeti Region Occasional Paper No 1 Ngorongoro Conservation and Development Project (Tanzania)

Private Agencies Collaborating Together (1990) "Partnership and Popular Participation in Natural Resource Management in the Sahel" English Translation of an abridged report on a conference held at Levis, Quebec 13-16 November, 1990

PVO-NGO/NRMS Project (1990) "Buffer Zone Management in Africa" Report of the Workshop held at Mweya Lodge, Queen Elizabeth National Park, Uganda, 5-11 October, 1990.

Quinlan, T (1989) The Livestock Economy in the Mountain Zone of Lesotho. Drakensberg/Maluti Mountain Catchment Conservation Program, Socio-Economic Project, Document 6. Westville, Natal, South Africa. University of Durban, Westville.

Rochette, Rene Marceau (1989) Le Sahel en Lutte Contre la Desertification - Lecons d'Experiences CILSS/PAC, Weikersheim: Magraf.

Seger, N. (1986) "Organization of the irrigated agricultural economy amongst the small farmers of the Mubaarak/Lower Shabelle region " In P. Conze and T. Labahn (eds) Somalia. Agriculture in the Winds of Change, pp 153-163. Saarbrucken-Schafbrucke: epi Verlag GmbH.

Shaikh, Asif, Eric Arnold, Kjell Christopherson, Roy Hagen, Joseph Tabor and Peter Warshall (1988) Opportunities for Sustained Development - Successful Natural Resources Management in the Sahel Washington, D C.· U.S Agency for International Development.

Skjonsberg, Else and Yvonne Merafe (1987) The Okavango Fisheries Socio-Economic Study. Report to the Ministry of Agriculture, Gaborone, Botswana and the Ministry of Development Cooperation, Oslo, Norway 69 pp.

Swallow, Brent (1990) Strategies and Tenure in African Livestock Development. Land Tenure Center Paper 140. Madison: Land Tenure Center, University of Wisconsin-Madison.

Swift, Jeremy (1977) "Pastoral Development in Somalia: Herding Cooperatives as a Strategy Against Desertification and Famine " In Desertification: Environmental Degradation in and Around Arid Lands, Michael H Glantz, ed Boulder, Colorado. Westview Press. pp. 275-305

Thomas-Slayter, B., C. Kabutha, and R. Ford (1991) Traditional Village Institutions in Environmental Management. From the Ground Up Case Study Series" No. 1. Nairobi: World Resources Institute.

Thompson, J (1991) Combining Local Knowledge and Expert Assistance in Natural Resource Management: Small-scale Irrigation in Kenya. From the Ground Up Case Study Series No. 2 Nairobi. World Resources Institute

Thomson, James, Alfred Waldstein, Sheldon Gellar, and Jerry Miner (1989) Options for Promoting User-Based Governance of Sahelian Renewable Natural Resources Burlington: Associates in Rural Development, Inc.

Thomson, James and Maitre Mountaga Tall (1991) Non-Centralized Provision of Public Services and Governance and Management of Renewable Natural Resources in Contemporary Mali Burlington: Associates in Rural Development, Inc

Thomson, James, Hadiza Djibo, Cheibane Coulibaly and Paul Marko (1991) Decentralization, Governance and Management of Renewable Natural Resources: Local Options in the Republic of Mali Burlington Associates in Rural Development, Inc

Uphoff, Norman (1986) Local Institutional Development. An Analytical Sourcebook with Cases. W Hartford Kumarian Press.

U.S. Congr Office of Technology Assessment (OTA) (1988), "Grassroots Development: The African Development Foundation " Report #OTA-F-378, Washington, D.C.: U S Government Printing Office

Warren, Lally (1990) "The Impact of Tourism at the Local Level The Local People's View." Paper presented at the Symposium on Tourism in Botswana, 15-19 October, 1990.

Webber, Fred (1991) "NRM Framework Review." Washington, D.C.: World Resources Institute, Center for International Development and Environment.

Wells, Michael, Katrina Brandon and Lee Hannah (1990) People and Parks: Linking Protected Area Management with Local Communities (Draft Report) Washington, D.C.: The World Bank, World Wildlife Fund - USA, and U.S. Agency for International Development.

Western, David (1976) "A New Approach to Amboseli." Parks 1(2):1-4

Western, David (1984) "Amboseli National Park: Human Values and the Conservation of a Savanna Ecosystem." In National Parks Conservation, and Development The Role of Protected Areas in Sustaining society, Jeffrey A McNeely and Kenton R. Miller, eds. Washington, D.C.: Smithsonian Institution Press pp 93-100.

World Bank and Instituto Italo-Africano (1989) Strengthening Local Government in Sub-Saharan Africa. Washington, D.C.: The World Bank.

Yellen, John E. (1974) The 'Kung Settlement Pattern: An Archaeological Perspective. Ph.D. Dissertation, Harvard University, Cambridge, Massachusetts.

Decentralization and Local Autonomy: Conditions for Achieving Sustainable Natural Resource Management

Volume II - Appendices

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Appendix A: Field Reports

Uganda Field Report

LOCAL ORGANIZATIONS AND NATURAL RESOURCE MANAGEMENT IN UGANDA

Prepared by: Louis Siegel
Thomas Catterson

June 1992

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1. Introduction

The purpose of the DFM/NRMS investigations in Uganda was to 1) assess trends in government policy and how they relate to the management of natural resources at the local level; and 2) study specific examples of successful community level NRM. At the request of the USAID/Uganda Mission, the team also provided some review and feedback on on-going and up-coming natural resources management project activities

The general assumption applied to these investigations is that policies that promote decentralized control and user-based governance of local area natural resources can, under certain conditions, lead to sustainable use patterns The study is therefore an attempt to analyze the relationship between the occurrence (or absence) of sound NRM practices and the efforts of communities to solve NRM problems with government policies.

As is the case in many African nations, Uganda has to a large extent pursued policies that limit ownership and control of natural resources by rural people and place this responsibility with the central government Much of the official government policy has been aimed at enforcing certain NRM practices, and in restricting access and use of natural resources located in "protected" areas Legislation governing NRM practices for soil and water conservation, land use, forest management, etc through local authorities including several semi-autonomous kingdoms originated under the colonial regime and continued after independence The Local Administration Act of 1967 empowers local authorities to make by-laws to regulate NRM practices This system of by-laws on practices such as terracing and bunding for the prevention of soil erosion has been a local government (district-level) responsibility since colonial times. By-laws were enforced through coercion and repression, within an authoritarian system of governance

In the early years following independence the system of semi-autonomous kingdoms and local government jurisdictions resulted in numerous political and administrative conflicts between central and local government authorities This lead to the 1966 constitutional crisis and the adoption of a new constitution in 1967 The new constitution curtailed the power of local district governments and revoked the autonomous status of the kingdoms This was an important beginning of a trend toward consolidating the control of the central government and limiting decentralization in the country.

During two decades of political chaos under the Amin and Obote regimes this tendency continued as demonstrated by the Land Reform Decree of 1975 Prior to the enactment of this decree, district authorities could issue land titles, but with the new regulations the National Land Commission became the sole authority to approve land titles and leaseholds

This trend toward centralized control over natural resources was accompanied by government policies to increase agricultural production by allowing unrestricted settlement on "unused" lands Some of the uncontrolled migrations and settlement patterns that occurred during this time have contributed to the severe problem of massive encroachment on gazetted lands.

2. Local Institutions and Decentralization

In comparison to many African countries one is struck by the dearth of indigenous NRM institutions in Uganda This impression of the study team was corroborated by a number of people, both expatriate and Ugandan alike [1] Many factors may have contributed to this situation, the breakdown in much of the traditional authority during the colonial period, the limitations on the autonomy of the kingdoms in the post colonial era, the massive movement of populations both within the country as well as in-migration from neighboring countries, and other internal socio-cultural factors

One important factor explaining the absence of local organization is the breakdown of the indigenous political structure. The British appointed the local chiefs in many areas of the country as part of a strategy to maintain their authority and control over the population Although some traditional local leadership remained in place, their role was largely ineffective due to the domination by the British administration and the placement of outside chiefs by the colonial administration Over the years, the system of traditional chiefs in many areas of the country was lost completely as an institution

The evolution toward the indigenous institutional void that exists today was reinforced during the Amin regime from 1971 to 1979 when chiefs were recruited from the army and among party officials As pawns of the power base in Kampala their comportment was largely abusive and further undermined the credibility of the local leadership.

In 1986 Uganda began to emerge from a devastating period of political chaos and upheaval with the assumption of political power by the National Resistance Movement (NRM). Since that time the regime has developed and put in place a system of representative bodies known as Resistance Councils (RC) The RC system is based on a five-tiered arrangement of locally elected councilors, village level (RC I), parish (RC II), sub county (RC III), county (RC IV) and district (RC V) The National Resistance Council, at the summit of this structure is in principle the supreme legislative body of the country

The RC system appears to be evolving according to design and in the process gaining credibility and support from the general population Most all activity of public concern involves to some degree the RCs at various levels RCs are taking a more and more important role in addressing and resolving local problems and conflicts Although no specific research effort was directed to determining how effective and equitable RC intervention in local NRM problem solving has been, a number of interviewees referred to the important role of the RC's in mediating land disputes

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[1] Dr Eldad Tukahirwa of the Institute for Environment and Natural Resources of Makerere University told us it took him two years to identify three localities where communities were taking initiatives to organize around natural resource problems in developing case studies for the World Resources Institute "From the Ground Up" case study series

RCs are directly implicated in the formulation of district by-laws including those related to natural resources. It is the RC V that presents new proposed by-laws to the Ministry of Local Government (MLG) The MLG coordinates review and approval by other relevant ministries and by the Attorney General's office depending on the nature of the proposed by-laws. Obviously the system remains highly centralized At the national level a large backlog of by-laws pending approval by various authorities in Kampala attests to the problems of over-centralization It is difficult, however, to determine how the lack of autonomy constitutes a disincentive for local initiatives to regulate NRM practices through the enactment of district by-laws

The RC system is apparently having some impact with regard to the transparency of public decision making and accountability of government officials RCs have made formal grievances against public officials, particularly on financial matters[2], some of which have resulted in reassignment No information was available regarding direct sanctions taken against these officials. The separation of the RCs from the government administrative and technical services allows these political bodies to serve as monitors of public sector activity. Unfortunately, the NRM has decided to combine the functions of district administrator (DA) and RC V chairman Although some advantages could result from the DA being an elected official, this new arrangement may limit the watchdog function developing among the RCs

Some caution should be observed within the development community in harnessing all efforts in communication and local participation through the Resistance Councils Although our experience in Uganda has been relatively brief, key informants tell us that it would appear the fledgling RC system is overextended in having to deal with a wide range of political, economic, and social matters Nonetheless, their role in local conflict resolution is providing positive reinforcement and contributing to building a sense of self-reliance among rural people, particularly at the RC I, II and III levels.

The RC system is a model somewhat unique to Uganda and the NRM However, analogous institutional arrangements have been promoted under the guise of popular participation and democratic governance in other African countries with the intention of establishing regime legitimacy and control at the grassroots level[3] In consideration of the recent history of Uganda and the divisiveness that has characterized the country's political development, it would not be unreasonable to assume that the NRM is seeking stability and a control mechanism through the RC system rather than the emergence of local autonomy and a system of decentralized democratic governance

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[2] Implausibly low government salaries for civil servants (eg. U.S. $2 per month is the median salary) almost obligates these individuals to seek other avenues, often corrupt ones, to obtain the income necessary to sustain their families

[3] One example is the Development Society in Niger A series of development councils has been organized from the village to the national level with the stated objective of promoting popular participation in the development process. Analysts have described the development councils as a means for central authorities to communicate political information and central government policy directives and to ratify policy decisions made by State officials

Among the global objectives of the NRM is to strengthen decentralized political and administrative authority. In conjunction with the establishment of the resistance councils, concrete steps such as increasing the number of districts in an effort to improve management efficiency and make district government more responsive to local needs have been taken by the Ministry of Local Government (MLG) However, the chaotic events of the past twenty years have severely degraded public sector capacity to carry out even the most basic government functions This reality suggests that decentralization will remain an illusive objective until such time as substantial human, material, and financial resources are made available to district authorities

Based on policy directives from the NRM, the MLG has attempted to foster greater citizen participation in political and economic development, and the promotion of viable, self-sustaining democratic local government institutions capable of providing essential public services Our observations in the field indicate that these efforts are largely a matter of public discourse rather than action

For example, they must be contrasted with the firm resolve and actions of the Government, reportedly with the support of the District Administrators and local RC officers to remove encroachers from the existing forest reserves Since the inception of this program, it is estimated that approximately one hundred thousand people have been removed from forest reserves around the country It would appear that in part this heavy handed tactic is tolerated because it is being carried out as part of the law and order campaign for which there is general sympathy throughout the country after the long years of turmoil and demagoguery

As in many developing countries decentralization initiatives in Uganda have initially focused on local and regional level planning processes Assistance from the EEC has been provided in this area and three pilot training and planning exercises have been conducted. Although district planning commissions are in place and have been given an increasing role in defining development priorities and programming investments, the resources for carrying out any of the proposed plans remain largely centralized through the system of international development assistance It is difficult to envision sustained progress in strengthening local planning and management capabilities when more self reliant strategies are not followed

3. Key NRM Issues

Natural resources in Uganda are the center of substantial controversy involving a multitude of actors from international conservationists to rural populations From a global perspective, international conservation organizations place high value on the preservation of the country's unique biodiversity The efforts of these organizations have largely influenced the strategies and programs of the bilateral and multilateral funding institutions who are supporting policy reforms and providing resources to ensure the protection and conservation of wildlife and their habitat Thousands of rural people who depend to varying degrees on natural resources for

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their livelihood have been affected by these policies. They have had little involvement in the decisions that often prevent their access to and use of certain land and natural resources.

There is obvious divergence in how rural Ugandans and the international conservation community value natural resources Although the conservation of biodiversity may be a critical factor in sustainable development, the short-run needs of subsistence farmers are often in conflict with long-term preservation of many wild plant and animal species Until recently, international environmental groups have promoted a strategy of extreme protectionism wherein harvesting of natural resources by local people within protected areas was strictly prohibited With the realization that absolute protectionism is not a feasible strategy has come the recognition that efforts to insure long-term sustainability of biodiversity must involve the human inhabitants in and around the protected areas.

In the middle of the debate is the Ugandan government. Growing pressure from the international community and the ever increasing importance and focus on environmental protection worldwide has placed natural resources policy high on the government's agenda The government is in the process of preparing a National Environmental Action Plan with support from USAID and the World Bank and has taken a number of measures to demonstrate its commitment to biodiversity conservation There are difficult tradeoffs to make when weighing the social, political, and economic costs and benefits of policies designed to conserve natural resources at the immediate expense of rural people

The issue of popular participation in NRM for biodiversity conservation and sustainable agriculture is the object of much attention A number of fora have been organized to discuss strategies and share the lessons of experience both from a national and international perspective These efforts have been led by the aid agencies and the international conservationist organizations in collaboration with Ugandan institutions, both governmental and academic Although local resource users have participated in the debates, they do not come necessarily as representatives of organized communities of resource users Juxtaposed with the international experts and the official Ugandan community, the popular voice is largely unorganized and as such does not constitute a countervailing legitimate source of power and influence.

There are a number of key issues and problems related to the conservation of natural resources and sustainable agriculture on the policy agenda in Uganda today. Among those most relevant to this study and that are included in USAID's agriculture and natural resources strategy are environmental policy and legal reforms, conservation of protected areas and buffer zone management, soil erosion control, and deforestation. These strategic components form the basis for the USAID funded Action Program for the Environment (APE) designed to provide support on broad policy issues through the preparation of a National Environmental Action Plan, as well as field level interventions centered mainly in and around protected areas Because of this focus and the principal interests of USAID/Uganda, our study team, concerned with the relationship between local autonomy and sustainable NRM, concentrated its field work in locations adjacent to several gazetted national parks and forest reserves

The areas designated as "buffer zones" have become a major focus of NRM activities due to the recognition that people living adjacent to protected areas often depend on the natural resources therein for an important part of their livelihoods. Emphasis is shifting from the study of the ecosystems within which wild plants and animals live to concerns for how area residents use or abuse natural resources in and around protected areas and how to devise strategies to address both human production system needs and the conservation of biodiversity Management plans that integrate elements such as user rights for forests, protection of food crops from wildlife pests, traditional hunting and gathering practices, etc are increasingly becoming the focus of greater attention

Long-term conservation of biodiversity is largely an economic question In Uganda, poverty is a principal cause of environmental degradation As demographic factors increase pressure on land in certain areas, particularly those with hilly and sloping terrain, farming even with improved technology, will present only limited opportunities for rural people to improve their welfare Natural resources have and will continue to offer a base for economically viable activities for these people Therefore, they must be allowed and encouraged to participate in the design and planning of sustainable management systems which integrate, where feasible, both production and protection of biodiversity objectives Simple exclusion from traditional usage rights in these areas will raise local tensions and foster a climate in which the government is obliged to use costly and inefficient protection measures to ensure conservation

Part of the strategy currently being widely discussed and promoted in Uganda focuses on the local spin-off of economic resources, ancillary services and job opportunities derived from tourism interested in viewing the wildlife and wildlands This strategy has worked elsewhere, albeit to a limited extent [4]

4. Principal Findings

The following points represent the team's principal findings based on our review of relevant documentation on NRM in Uganda, as well as direct observation and primary data collected principally through interviews in the field with key informants. The sites visited include Lake Mburo National Park, Development Through Conservation Project area and Bwindi

[4] Those interested in eco-tourism and the generation of local resources would be well advised to review the experience in the neighboring country of Kenya. Despite the importance of the wildlife based tourism industry there and the mandated direct inclusion of the county councils in distributing the resources flowing from park fees and tourism earnings, few local communities have felt the impact of these benefits In Uganda, one would be hard put to point to benefits flowing to local communities adjacent to the premier Queen Elizabeth National Park Indeed, a realistic examination of international experience would probably demonstrate that there are few national parks worldwide which are self-sustaining from fees and visitor services Central governments have traditionally funded the costs of establishment and management of such parks as part of their national social and environmental goals and programs Where local economies have benefitted, it has mostly been through the provision through private enterprise of accomodation, restaurants and other services directed at the tourists

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Forest in Kabale district, Queen Elizabeth National Park, Ruwenzori National Park, Kabarole District including several sites adjacent to the Kibale Forest Reserve.

- The combined effects of land scarcity and government policy have resulted in the establishment of human settlements in gazetted areas throughout the country. Over the past several years the government has proceeded with the systematic eviction of thousands of people, from gazetted areas around the country causing severe hardship Although firm application of the regulations is necessary to reestablish a sense of the rule of law following years of arbitrary and chaotic political leadership, the unwillingness of the present regime to broker arrangements with "encroachers" for co-management schemes and limited use rights in some of the protected areas only serves to exacerbate an already intractable problem

- In the case of Lake Mburo, the indecisiveness of government authorities in evicting the encroaching cattle herders demonstrates how organized groups can effectively lobby and wield political power to protect vested interests

- Strategies for gaining acceptance of local populations for the conservation of protected areas through promises of benefits and revenue sharing from the proceeds of tourism are not based on realistic assessments of the revenue potential and the recurrent cost burdens engendered by tourism infrastructure

- Privatization of existing or potential national park concessions is a laudable policy initiative However, these arrangements present opportunities for rent seeking that may mitigate the advantages of more efficiently run private concerns and the possibilities for generating resources for local development efforts

- Many efforts to improve welfare and productivity in buffer zones in order to compensate local residents for refraining from or limiting their utilization of areas set aside for the conservation of biodiversity resources are destined to failure because they often do not recognize the fundamental economic tradeoffs and benefit cost calculations that farmers must make to forego the use of certain natural resources.

- Channeling all development activities through a single general purpose local representative institution (i.e. the RCs) may inhibit the establishment of a more competitive institutional environment and the creation of special purpose development oriented local institutions that can be more responsive to the interests of specific groups or communities

- The status of certain local organizations (i.e. cooperatives) as legal entities representing the more progressive elements within the community enhances the

potential for constructive dialogue and equal partnership with promoters of local area development activities.

5. Case Study

As stated previously, several areas of interest to USAID were visited during a two-week field trip to the Southwest and Western regions of Uganda A great deal of ground was covered during this period and although useful information was obtained at each site, the time spent in only one area was sufficient to develop a brief case study The context of the team's visit to the Kabale district was the Development Through Conservation project (DTC). Five days were spent interviewing district administrative and technical staff, DTC project personnel, and local area residents

The most extensive investigations were conducted on the operations of a local area cooperative. The cooperative has its activities within the DTC project zone, but has little to no relationship to the project. Much of what was learned about local organization and its relation to sustainable NRM was through our discussions with the membership of the cooperative The case is significant in that the accomplishments of the cooperative are an indication that local people are organizing themselves to solve problems even when faced with the high transactions costs imposed by government, and the fundamental constraints of a shrinking resource base The case also shows that local people can be responsive to policy measures in order to benefit from opportunities available to them

From the point of view of development strategy, this particular case has merit because it demonstrates that NGOs are not necessarily the only vehicle for promoting participatory natural resources management. It is vitally important that in the course of a purposeful mobilization period for a project like DTC, taking a broad integrated approach to area development, that part of the start-up efforts include an assessment of potential institutional partners In many cases, new project efforts at NRM act as if there were in an institutional void at the local level simply because there is no readily identifiable partner organization

The following section begins with a brief introduction to the DTC project followed by a description of the physical setting and land use patterns in Kashasha parish A review of the background history and accomplishments of the Ndeego Growers Cooperative Society is then presented

5.1 Development Through Conservation Project

The Development Through Conservation Project (DTC) implemented by CARE with funding from USAID was initiated in 1988. Project activities are integrated with the pre existing World Wildlife Fund U S Impenetrable Forest Conservation Project. The project's primary goal is to enhance the environmental quality of life for approximately 86,500 subsistence farmers in Southwest Uganda through a program designed to protect the biological diversity of Afro-montane forests and promote environmental awareness and sustainable agricultural production

on adjacent land The project is centered around the important biodiversity resources of the Bwindi Forest. The Mountain Gorillas resident there, estimated at 300 or one-half the known world population, may constitute one of the most important gene pools of direct interest to man in the world As such it is an excellent, high stakes example of the challenge of preserving biodiversity while continuing to promote local development The project is in the process of developing a model that will link natural resource management with human needs to ensure that soil, water and species diversity and forests are conserved

A principal project component concerns conservation education activities aimed at community mobilization and citizen involvement Activities in this area center on collecting baseline information, technical training of field staff, and networking with local groups, and producing training and extension materials The project has trained and established a network of Conservation Extension Assistants whose role it is to organize Community Advisory Committees in each of the project's 26 targeted parishes In addition to improving community awareness, it was envisioned that these committees would be instrumental in preparing community land use plans

5.2 Kashasha Parish

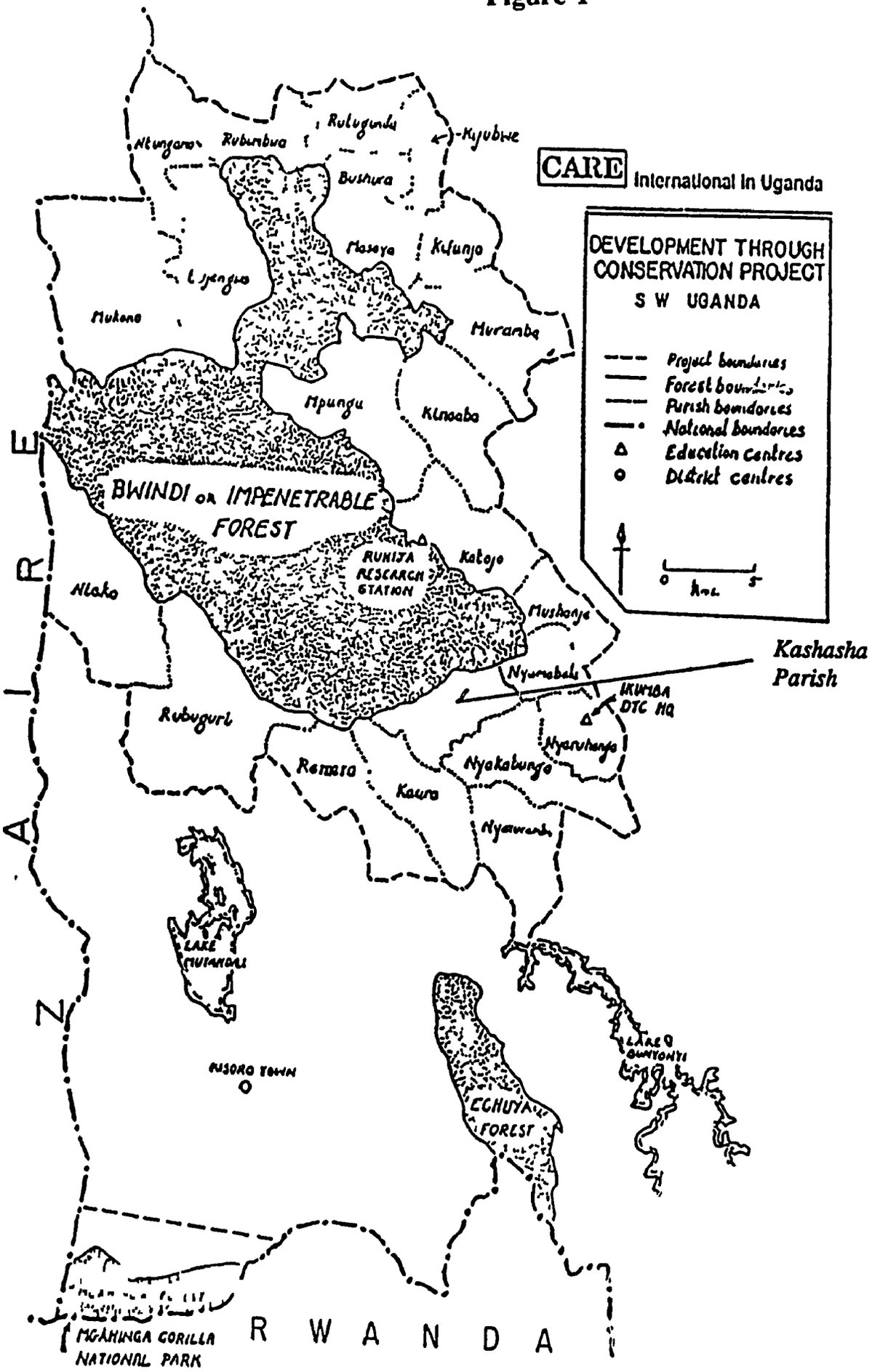
Kashasha Parish is one of the target parishes within the DTC project area bordering the Bwindi Forest. Field investigations were carried out through direct observations of the physical setting and agricultural practices, and extensive interviews conducted with local leaders, groups and farmers through the intermediary of one of the project Community Extension Advisors assigned to the parish The following section describes the physical attributes of the area with regard to agriculture, natural resources, and general land use patterns It is followed by a discussion of a local farmers' cooperative in the project zone and its efforts to manage swampland for agricultural production

5 2.1 The Physical Setting and Principal Land-Use Patterns

Kashasha Parish is one of the twenty-three parishes forming the buffer zone established around the Bwindi or Impenetrable Forest (See Figure 1). Located in the extreme southwest of Uganda, Kashasha Parish is part of Ikumba sub-county in Kabale District. The parish lies along the southeastern boundary of the Bwindi Forest and shares its access with the Bwindi Forest road for part of its route

The terrain within the parish is typical of this part of Uganda- almost entirely hilly with the only flat areas being the swamps and occasional very small river terraces along the valley bottoms Elevations vary from about 6,000 ft. at swamp level rising to 7,000 to 7,500 ft. above sea level along the ridgetop boundary of the forest. The slopes are generally steep with intermediate ranges of 30% to 60% sometimes increasing to 80% or more upslope. This area is part of the western extreme of the Rift Valley Soils in general are considered relatively fertile.

Figure 1


CARE International in Uganda
DEVELOPMENT THROUGH CONSERVATION PROJECT
S W UGANDA
Project boundaries
Forest boundaries
Parish boundaries
National boundaries
Education centres
District centres
0 km 5
Rulugundu
Kyubwe
Ntungamo
Rubumbwa
Bushura
Masaya
Kufunjo
Ujengwa
Mukono
Muramba
Mpungu
Kinoaba
BWINDI OR IMPENETRABLE FOREST
RUKIJA RESEARCH STATION
Katoja
Nlako
Mushanje
Kashasha Parish
Nyamabali
IKUMBA DTC HQ
Rubuguri
Nyaruhanga
Nyakabungo
Remara
Kaura
Nyamwamb
LAKE MUTANDALI
LAKE GUNTONYI
RUSORO TOWN
ECHUYA FOREST
MGAHINGA GORILLA NATIONAL PARK
R W A N D A
Z A I R E

The climate is characterized by a bimodal rainfall pattern typical of the East African highlands. The two dry seasons occur from December to January and from July through August Average rainfall, much dependent on altitude, ranges from 990 mm to 1,540 mm Local people report that the climate has changed considerably and that they are "suffering from too much sunshine" It is also reported that Kabale was formerly cooler and there was more mist, attributing the perceived climate change to tree-cutting and swamp drainage Although the present dry season (91/92) has as yet to be broken by sustained rains, weather data collected over the last few years suggests that there has in fact been no significant change in the rainfall pattern nor intensity despite these local beliefs Micro-climatic impacts attributable to the removal of vegetative cover are, however, both possible and probable This may explain the local perception that it is generally becoming hotter and drier Average year-round temperatures are a moderate 14 to 16 degrees C with daily temperature variations depending on the seasons from 10 to 23 degrees C

Outside the Bwindi Forest, there is little remaining of the original vegetation as this area is densely populated and almost entirely cultivated, despite the steepness of the terrain. The tree cover that does exist is almost entirely the result of man-made plantations of exotic species in the form of small woodlots, occupying perhaps 10 to 15% of the area On better sites along the lower to middle ranges of the slopes, the plantations are *Eucalyptus grandis* established for the production of poles and firewood and managed on a coppice rotation basis Higher on the slopes, occupying more marginal soils and rocky areas are extensive areas of Black Wattle (*Acacia mearnsii*), reportedly established by direct seeding Black Wattle is a prolific seeder and also known for its ability to send up root suckers which explains the dense thickets proliferating where allowed to do so throughout the area The tree makes excellent firewood and charcoal, its generally poor form, however, provides few poles It is also a well-known source of tannin for the leather industry and indeed was established in East Africa with that specific purpose in mind

These plantations are now heavily used for the production of firewood, both for domestic use and for sale Before Bwindi Forest was changed from a Forest Reserve to a National Park in 1991, area residents were reportedly able to obtain permits to collect firewood in the forest (see discussion below on multi-purpose use of the Bwindi Forest). It is reported that as a result of the strict enforcement of the Park conservation regulations, even small farmers are being forced to buy firewood from their neighbors' woodlots

Despite the rugged terrain, Kashasha Parish must be one of the most extensively cultivated areas on earth Small farm plots extend from the margins of the swamp up the slopes to the ridge lines and hilltops The patchwork of small plots interlaced with contour bunds at approximately 16 meter intervals (following the practices imposed by soil conservation by-laws; see discussion below) and divided vertically among farmers, covers the slope from top to bottom.

The small size and apparent fragmentation of the cultivated fields is explained by a number of factors The rural population is primarily of the Bakiga ethnic group which originally settled in the area and who are agriculture-oriented According to local informants, every Bakiga

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aspires to have at least some land, if only the piece on which the home is constructed. Without one's own land, it is impossible to build a home. Consequently, families almost always divide their land as the sons marry, passing on ever diminishing farm plots While a good deal of out-migration from the Kabale area has taken place over the years, doing so is resisted because of the well-known reticence about immigrating to an area dominated by another ethnic group This strong sense of tribe and home has acted to keep people in the area often to the point where their overall holdings may not really be adequate for subsistence

Successful farmers also seek to acquire additional holdings as these become available through death and out-migration Although all land is held under customary tenure, sales and acquisition of farm plots is apparently both common and acceptable In acquiring a new plot, a farmer may as often as not deliberately chose to vary the type of land held by the family The strategy is to obtain land at lower, middle and upper slopes so as to diversify the production base and avoid the inherent risks of being too dependent on one type of crop scheme practiced on one part of the slope A typical family may have 5 to 6 plots of land totalling less than 1 5 hectares, spread around the area and sometimes quite distant one from the other

The type of crops raised depends on the location of the plot on the slope and its proximity to the homestead On the lower slopes, around the homes, complex gardens with matoke (cooking banana- the Ugandan staple), fruit trees particularly pawpaw, and a variety of vegetables, are common Irish potatoes, sweet potatoes, cassava, corn and beans, the latter often inter-cropped, are typical of lower level plots away from the compound The middle slopes are planted in beans followed by a 7 to 10 month crop of sweet potatoes On the middle to higher elevation sites, farmers plant a crop of peas in September, followed by a crop of sorghum planted after the pea harvest and dependent on residual moisture at these higher cooler elevations On better sites, or along the more fertile lower portions of the plots, corn may substitute for sorghum Winter wheat is found on some of the higher elevation plots between the pea seasons.

Few households have many animals as there is little grazing land owing to the population density Often there are a couple of goats or perhaps a cow, and maybe some chickens As mentioned above, the better off farmers may chose to plant one or another of their plots in either eucalyptus or black wattle to supply firewood and poles and perhaps as a source of extra income Very little land is available for fallow although farmers report that when a plot becomes exhausted, they may leave it to rejuvenate itself The neighbors animals are, however, free to graze on these areas as they are on remanents of crop residues left in the fields In short, the land is intensively used, often left exposed to the occasional torrential rains and thus subject to both erosion and leaching of the nutrients left in the upper horizons of the soil Because of the permeability of the soil, runoff is rather uniform and gullies are not easily formed There is, however, a persistent and pervasive loss of topsoil through sheet erosion

5.2.2 Hillside Soil and Water Conservation Practices

Perhaps the most remarkable feature of this area of Uganda is the almost complete coverage of contour bunds dividing the farm plots These bunds date back to colonial times.

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They were first recommended in 1937 as a means to control erosion and were later (1945) incorporated into the local land-use by-laws. The original prescription was for the establishment of strips of Napier grass (*Pennisetum purpureum*) on stop-wash bunds three feet wide following the contour The distance between the bunds was 12 to 16 yards depending on the degree of slope It is noteworthy that the distance between bunds referred to slopes from 6 to 15 degrees (16 yard spacing) and 15 to 20 degrees (12 yard spacing) in sharp contrast with the slopes now being cultivated which often reach almost double that slope, i e , 40 degree slope

Over time, and although this prescription is still being followed and enforced, land-use pressures have far surpassed the capacity of this technique to control soil erosion The bunds have, however, served to create a modified terrace pattern common throughout the area There is occasionally a fringe of herbaceous vegetation or grasses along the terrace face or on the bund edge This is, reportedly, neither intentional nor traditional. Although these bunds and the terraces they create are not overly effective as erosion control measures, local people do insist that their maintenance is important

Area farmers fully understand that the soil which builds up on the edge of the terrace from soil working or downslope transport is their most fertile growing area When questioned about their motives for bunding, they quickly assert that without the bund all the good soil would end up on their neighbor's plot downslope- a prima facie case of soil conservation Redistributing the richer soil along the terrace front is not easy although it is occasionally done by breaking down the built-up terrace and spreading the soil over the combined area This is more frequent where both plots (up- & downslope) are owned by the same farmer Special arrangements for this purpose with one's downslope neighbor, though less common, do occur Farmers fear that if they don't tear down the terrace face under mutually agreed terms, there is a risk that it might collapse onto the neighbor's plot if it grows too big

In short, local people have learned, at least to some degree, the importance of soil conservation It is highly probable that this realization of the need to conserve the best soils is far more likely to be the causal agent behind the widely practiced bunding than, as others suggest, the result of local enforcement of by-laws In discussions with local residents, one easily perceives the legacy of tension and resentment regarding the imposition of these conservation practices by colonial authorities, this despite the fact that they the farmers are the direct beneficiaries of the practice and that they continue to maintain the bunds

5.2.3 Bwindi Forest

The Bwindi (or Impenetrable) Forest is an area of approximately 36,000 hectares of Afro-montane high forest occupying the upper elevations of a series of hills and plateaus in three districts: Kabale, Kisoro and Rukungiri in Southwest Uganda It is an important site for the conservation of biological diversity as it is home to 300 Mountain Gorillas- approximately half the world's population of this highly endangered species In addition to the Gorillas, there is a wide variety of other primate and animal species

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Prior to its designation as a National Park in 1991, the Bwindi Forest was a Forest Reserve dating back to colonial times. It was managed under the auspices of the Forest Department which allowed for a certain degree of local use These traditional uses included. collection of firewood, medicinal plants, wild honey, timber and poles for house construction and a variety of other wood and fiber materials used for basketry and domestic needs In addition, the Forest Department granted a yearly quota of permits for pit-sawing in the forest. These permits which were granted by the central authorities in Kampala allowed local people to carry out pit-sawing operations in the forest against the payment of fees depending on the class of timber quality

District Forest Department officers in Kabale claim that pit-sawing had little impact in and of itself on the forest as the task of cutting the trees and sawing them into boards is a slow, arduous, labor-intensive activity For the most part, according to local sources, it was a lucrative operation and those who were successful in obtaining the permits from the Forest Department hired others to do the actual work The whole issue of pit-sawing, however, is quite controversial as the present Park authorities claim that there was little control Pit-sawyers are also thought to be responsible for setting snares to catch game in the area and occasionally causing fires which are more damaging

With the closure of the area as a result of its designation as a National Park, pit-sawyers have been forced to shift their operations elsewhere. Some of them are currently working in Forest Department managed conifer plantations in the District but others have had to travel to other parts of the country to find work Uganda National Parks authorities are also working to eliminate the gold-mining activities within the Park Hunting and setting snares has been banned and the boundary of the Park is presently being cleared, re-marked and patrolled to ensure that local people observe the restrictions to its use

As part of a recently completed ethno-botany study of the Park and the adjacent communities, the Park authorities are studying the possibility of establishing multi-use areas on the fringes of the park This initiative is intended to help offset the loss of traditional usage rights by local villagers who have visited the area for years to collect basic commodities required at the household level The present thinking is to create local committees who will be responsible for controlling use by local people against a quota for various operations Collection will be allowed only in specific areas and at specified times Any illegal activities will be treated as reason for a series of graduated sanctions closing the forest to use by the community in question It is hoped that by sanctioning the community for individual transgressions, the authorities will induce local people to act as a community control mechanism

These arrangements for a multiple use area as a portion of the Park are likely to be quite important in mitigating the pressure on this important natural area. Local residents are understandably rather upset about the closure of an area within which they have had traditional usage rights for many decades It is also important because there is reason to believe that it will take a good deal of time before the benefits from tourism flowing into the area to view the

gorillas (habituation of groups for tourist visits has only recently gotten underway) reaches the local level in any meaningful way.

5 2.4 Swamp Area Utilization and Tenure

Uganda is a country with extensive swamp areas, over 7% of the total area of the country is made up of swamps The Kabale District is no exception, swamps occupy almost 100% of the valley bottoms throughout the area For the most part, because of the hilly terrain, these narrow valleys are choked with swamp vegetation, primarily the tall papyrus, bulrushes and cattails. In certain areas, swamp forests with woody shrubs and larger trees have taken over part of the margins of the wetlands

Swamps in this region of the country have been traditionally treated as common property resources- available to local people for the supply of papyrus roof thatch and other fibers used in making baskets, mats and other domestic needs and artifacts It has apparently only been recently that there has been any concerted efforts to convert these swamps to other uses It should be noted that the swamps are so extensive and the valleys so flat that swamp drainage can only be accomplished by digging and maintaining an extensive series of canals

The Land Reform Decree of 1975 had the effect of converting all land holdings in Uganda to possible leaseholds administered by the Uganda Public Lands Commission Although in practice customary tenure practices continued to prevail in the Southwest as the predominant form of land ownership, the decree opened the possibility of acquiring leasehold for public lands including former commons and for the Land Commission through its awards to terminate customary tenure In many areas of the country including the Kabale (formerly Kisoro) District swamps were a common property resource under local control, but with the enactment of the Land Reform Decree individuals and groups were able to gain lease title to swamp lands and drain those areas for agricultural uses

According to local authorities in Kabale, the large swamp area immediately outside Kabale town on the Kisoro road was acquired under leasehold by four individuals who drained it and converted it into a productive dairy farming operation This act, fully sanctioned by the Land Decree, usurped, in effect, traditional local user rights to the swamp The land had previously been commons used by the surrounding villages District agriculture officials argue that increased productivity, employment and milk availability more than compensate for these lost rights, and that in any case, the swamp products are still readily available elsewhere One of the effects of this action has been to trigger local villager/user groups to join together and seek leasehold arrangements for the swamp lands in their respective areas

At present, over 75% of the swamps in the District have been granted to such groups under leasehold and occupancy and swamp draining has begun in some of them Local people claim that the real motivation for these group efforts is to keep the swamps under the control of local villages and out of the hands of the rich and powerful New grants of leasehold over

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swamps is on-hold for the moment pending resolution of national policy determinations and legislation on wetland development.

5 3. Ndeego Growers Cooperative Society

The Ndeego Growers Cooperative Society is an example of one of the groups that has acquired leasehold over an area of swamp located in Iraiko and Ikumba counties A group of farmers from the Kashasha and adjoining Nyakabungo Parishes organized the Ndeego Growers Cooperative Society (NGCS) Ltd in 1977 At this time NGCS filed an application for cooperative status with the District Office of the Ministry of Cooperatives and Marketing, and also began the process to obtain a lease from the government (Ministry of Lands) for 188.6 hectares of swamp land It took more than five years for the 315 member cooperative society to complete the process and in 1983 was granted a 49 year lease over the swamp area.

Following the application, the District Land Commission surveyed the site and forwarded their recommendation to the Land Commission in Kampala to grant the lease. The fees paid by the organization were 169,000 shillings for the survey and application When the lease was officially signed in 1983 NGCS paid a fee of 225,000 shillings and from then on an annual lease fee of 22,500 shillings

5.3.1 Cooperative Organization and Working Rules

NGCS is organized in two branches, the Ndeego United Farmers and the Kashasha Nyakabungo Group At present the total membership of NGCS is 315 members, 200 from Ndeego United Farmers, and 115 from Kashasha Nyakabunga Group Membership fee is 500 shillings The NGCS executive committee is comprised of nine members, a chairman, a vice chairman, a secretary, treasurer, and five members They are elected for two years by the entire membership At each annual general meeting one third of the executive committee must resign and new officers are elected to their positions The District Cooperative Agent from Kabale attends the annual meetings The executive committee meets each quarter and smaller specialized committees within each branch meet periodically on an as-needed basis

The cooperative by-laws govern the operations and management of the NCGS and are formulated after the Uganda cooperative laws. The 118 6 ha is divided into plots each covering an area of 6000 sq yds There are equal shares among all members meaning each member has one plot. The membership has reached a maximum at 315 and no additional members can be admitted Ten hectares are reserved for communal lands on which crops are grown and sold for the benefit of cooperative finances In each branch members contribute one day per week for working common plots There is a 500 shilling fine for absenteeism from communal works Their names are recorded in a register and those failing to pay the fine are dealt with during branch meetings Two headmen from each branch are responsible for monitoring members' labor contribution Other communal efforts include periodic drain cleaning, and the one-time initial construction of cooperative offices and storage facilities

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The Cooperative Society has worked together to drain most of the swamp by digging an extensive series of canals and removing the swamp vegetation The completion of drainage works allowing cultivation on most of the land required four years of effort. Maintenance of the canals is an on-going operation and members are required to work on a regular basis to do their share (or must pay a fee to cover the work being done by others) The drains are approximately one meter in depth and this serves to lower the water table by about 50 centimeters providing growing medium for crops in the peat soils on the surface A variety of crops including Irish potatoes, corn, beans, sweet potatoes, and peas are being grown, often in complex inter-cropping patterns 15 hectares are preserved in their original state for grasses used for thatch and basket making Non members from adjacent villages are permitted to use these swamp land products They have also left an access corridor to allow local people and animals to pass through the swamp without damaging the crops.

The produce from communal plots are sold to the Kigezi Cooperative Union headquartered in Kabale of which NCGS is a member The Ministry of Cooperatives and Marketing sets the prices for certain produce, notably potatoes and sorghum while the cooperative sets prices for vegetables The cooperative can market all produce to any buyer if they are not satisfied with official price Members can sell their produce either through the cooperative or to private traders and are free to retain any portion for family consumption When members sell their produce through the cooperative they are paid immediately All accounts are kept with receipts and cash registers Annual audits of the cooperative accounts are conducted by the government cooperative agents

NCGS keeps funds in the Cooperative Bank in Kabale They have purchased shares in the Uganda Cooperative Alliance This membership allows them to access credit under a cooperative credit finance scheme They presently have a loan for 3 9 million shillings at 32% interest In turn, loans are made to members at 34%, with the 2% differential being retained for fund management The members take loans mainly for seeds, materials, and labor costs According to the District Cooperative Service NCGS is having trouble repaying its loan

The group has benefitted from the technical assistance of the District Cooperative Office, and although not without problems (particularly associated with transport and marketing), is focusing on future plans to diversify their production and income generating capacity The status of the cooperative as a legal entity with 315 members who represent the more progressive elements within the community enhances the potential for constructive dialogue and equal partnership with the promoters of development efforts in the area.

5.4 Local Organizations and DTC

An evaluation team reviewing the project in June 1990 found that there was a great deal of ambiguity surrounding the role of the Parish-level Community Advisory Committees. These project-created ad hoc structures were not well conceived in terms of their relationships to any existing recognized local institution. As a result of their ineffectiveness and based on a

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recommendation of the evaluation report, the DTC project has decided to forego the use of the Community Advisory Committees and give preference to working through the RC system

This may or may not be a step in the right direction; the RCs are fulfilling a number of important functions in rural communities, however, their track record with development project related activities is not well established Projects like DTC would in general be well advised to look into working with other local organizations whose interests and focus is either more sectoral or generally development oriented From discussions with the leaders of the Ndeego Growers Cooperative Society which operates in three parishes of the project area, and information from the District Cooperative Office concerning other such organizations in the area, it would appear that these groups have goals and objectives much more compatible with the project

Working with such organizations can help to accomplish the overall objective of this buffer zone type project, i e , to contribute to meeting peoples' needs so that they will not have to meet them themselves by activities in the protected area They can serve a number of functions related but not restricted to the communication and organized dialogue essential to genuine participation Our inquiries into the operations and management of the Ndeego Cooperative revealed a high level of organization and self-governing capabilities characterized by genuine concern for equity and accountability among members Their ability to endure over a five year period through the lengthy process to obtain official leasehold to and coordinate drainage of 118 hectares of swampland bear testimony to the determination of this local organization to improve conditions within the community

Some of the advantages of building relationships with these kinds of local "affinity" groups are:

- Brokering the choices of activities and interventions Typically, the range of needs identified by the NRM personnel flow from their assessment of the bio-physical attributes of the area Rapid rural appraisal, such as that recently undertaken by DTC, and continuing dialogue with local organizations can filter the bio-physical needs through the matrix of socio-economic needs leading to selection of high priority activities To the degree that a project can achieve local consensus in this regard, the mistakes inherent in a more top-down approach can be avoided

  In order to maximize the potential of the participatory approach, projects must include the full range of socio-economic skills sensitive to and necessary for fostering community involvement. Similarly, because of the importance of working with established agricultural practices, project personnel must be well versed in themes like soils management, agriculture and farming systems.

- Coping with resource limitations Projects must avoid inciting the interest and involvement of the farmers to think that there is really a future as a farmer under circumstances of small and fragmented farms in some of these steep and highly erodible areas **These projects should not be palliatives for more drastic**

changes that may be needed. Projects must avoid reinforcing the unfortunate "status quo" or further weakening the farm household's tenuous hold on financial and subsistence stability by burdening them with interventions that will not or cannot pay off given the inherent resource limitations in which they find themselves Doing so will at best postpone the final reckoning but is also likely to increase the negative effects on project credibility and the eventual costs of social and land rehabilitation that might otherwise have been avoided

- o Understanding land-use capability: While it is often possible to "push the envelop" of current practices to meet land-use capability limitations by increasing conservation measures, these efforts typically raise the cost of production, sometimes substantially There is a point of diminishing returns in attempting to do so Additional costs to the farmer to achieve conservation objectives must either be paid for through the marketplace or must be offset by incentives or subsidies which allow the family to continue to sustain a livelihood In other cases, where small farmers must absorb production tradeoffs in order to achieve conservation objectives of importance to larger segments of society, there must be some means for compensating them for their losses No nation has ever been able to sustain a conservation program on the backs of those least able to afford it

- o Developing the self-governing capabilities of local communities Sustainable development is not only measured in terms of resource management systems and productivity One of the important measures of the impact of projects like DTC will be the problem solving capabilities of targeted rural communities Their ability to organize, mobilize resources from within and outside the community, and demand the public services they need are skills that must be acquired to ensure sustained future development Seeking optimum technical solutions for present day resource and production constraints will not adequately address this objective

- o Institution building as an immediate project objective In effect, working on the participatory mechanisms is an important form of institution building or strengthening- something which should but rarely is formally enfranchised into the project Good in-depth institutional assessments followed by well defined institution building goals and benchmarks- a path to follow, indicating anticipated achievements- must be part and parcel of the project

Similarly, and in sharp contrast, to all of the advice about limiting the scope of DTC activities, we believe USAID and CARE may perhaps need to widen its horizons as a short-to-medium strategy for the buffer zone. If the project feels it can justify development investments in the area to offset the production trade-offs implicit in relinquishing use of Bwindi Forest, it may be necessary to look beyond the agricultural development focus Rural infrastructure such as farm to market roads, improved potable water systems (linked to the watershed of the forest), improved health and education facilities might better help to convince local people that the forest

is valuable to them. The Ndeego Growers Cooperative Society leaders told us that their single greatest need was for improving the local road (part of the Bwindi access road) so that they could more easily market their produce

Here it is important that local people understand that such efforts are linked to the conservation of the forest They should be seen as just compensation for foregone opportunities to meet basic needs or supplement farm income rather than just vague efforts to placate local sentiments The project and/or USAID could intervene with other projects and donors (eg Feeder Roads Project already operating in the area) to steer development resources into the buffer zone As an even more lasting contribution, the project could encourage and help prepare such local groups to present their own case for such assistance to district and national authorities These investments can buy time for the forest and also for the wider array of necessary achievements for the socio-economic development of the area

The farmers in the DTC project area seem caught between the forests and the swamps In the latter case, there is much sentiment heard about the "ill-conceived" draining of swamps and their conversion to agriculture The concerns about environmental impacts seem plausible but anecdotal If they are real, they certainly merit more serious attention given the fact that approximately 7% of the land area of Uganda is swamp There are even some half-hearted claims about swamp draining causing hardship for local people who depend on them for thatch and fiber supply This latter view was definitely not shared by any of the farmers we encountered It is perhaps a moot point in the Kabale area According to the District Lands Office more than 75% of the swamps have now been claimed under leasehold arrangements, some by local groups similar to the Ndeego Growers Cooperative Society Not all of these swamps have been drained as yet but farmers have obtained leasehold to reaffirm their rights to these lands They wish to avoid a situation similar to that which occurred outside Kabale on the Kisoro road, mentioned above, where powerful individuals usurped local rights and obtained leasehold on a swamp area

The project might have greater impact if it devoted part of its efforts to finding sustainable swamp farming methods The IUCN sponsored Wetlands Project has recently completed a wetlands conservation policy formulation exercise during which extensive consultations were undertaken with the district development committees The policy will soon be adopted by government and the consultative process with local technical services and the RCs should help ensure its effective implementation The IUCN project has also conducted applied research on multi-purpose production systems for sustainable management of wetlands. Some of this technology may be applicable in the DTC area

Even within the more narrow context of sustainable agriculture implicit in DTC, the action choices are wide In our view, and based on the decade of the cumulative experience with community based, popular participation in natural resources sector projects, working with and through local organizations, empowering them to take decisions and responsibilities, is a fundamental prerequisite for success

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6. Concluding Comments

Achieving effective participation of resource users in sustainable management of natural resources requires development and support of viable self-governing local institutions This appears to be particularly problematic in the areas our team visited in Uganda which are characterized by atomized communities where formal local organizations are largely absent perhaps due to the combined effects of imposed leadership under colonial and post colonial regimes and of the chaotic political situation over the past two decades In most rural communities where scarce natural resources are used in common, one would expect to find indigenous institutional arrangements, i e working rules, which are known to members of the community and for the most part respected Intimate understanding of these indigenous institutions and their working rules for resource management is a key first step in building more formal organizational structures through which projects can develop effective partnerships and problem solving capabilities

As noted above, some caution should be observed in harnessing all efforts in communication and local participation through the Resistance Councils Although our experience in Uganda has been relatively brief and we must rely to a large extent on key informants for our information and analysis, it would appear that the fledgling RC system is overextended in having to deal with a wide range of political, economic, and social matters Nonetheless, their role in local conflict resolution is providing positive reinforcement and contributing to building a sense of self-reliance among rural people, particularly at the RC I, II, and III levels

Consultation on national policy with the District Development Committees on which government technical services and RC members sit, is a positive step toward decentralization and institutional strengthening at the district level The NEAP process, will in principle provide a vehicle through which consultation with local authorities and representatives will provide valuable inputs to national environmental policies and improve the likelihood of their effective implementation The IUCN experience in developing national wetlands conservation policy may provide some valuable lessons in this participatory consultative approach

Democratic institutions and processes are built on the notion of balancing power with power Even at best, elections are inadequate to mitigate the tendency toward rent seeking, corruption, and other abuses A pluralist society must include countervailing institutions that represent specific interests of groups within the community This principle is paramount in situations of conflict and controversy such as those which surround the management and conservation of natural resources and bio-diversity in Uganda today

BIBLIOGRAPHY

Aluma, John, et al., "Settlement in Forest Reserves, Games Reserves and National Parks in Uganda", (LTC Research Paper 98), Land Tenure Center, University of Wisconsin, Madison, July 1989.

Aluma, John, R , Kamugisha, Ruhombe J., "Iganga Agroforestry Extension Project: Area Baseline Survey and Needs Assessment," GAF Consult Ltd., 1991.

Behnfeld, H. "On-the-Job Training Mbarara District" Training Report District Development Planning Project, September 1990

Behnfeld, H. "Decentralization Efforts in Uganda", December, 1990.

Bromley, Daniel W , Cernea, Michael, M., "The Management of Common Property Natural Resources Some Conceptual and Operational Fallacies", World Bank Discussion Papers No. 57, World Bank, Washington, D.C , 1989.

Care International, "Development Through Conservation Project Proposal FY92 - FY96, Uganda, May 1991

Cernea, Michael, M , "User Groups as Producers in Participatory Afforestation Strategies", (World Bank Discussion Papers No 70), World Bank, Washington, D C , December 1989.

Hart, W , DeGeorges P A , Kayanja, F , "Development Through Conservation in South-West Uganda Project Evaluation Report", June, 1990

Ministry of Planning and Economic Development, "The Report of the Technical Committee on the Recommendations Relating to Land Tenure Reform Policy, Kampala, October 1990.

Mubbala, Susan A , "PVO-NGO/NRMS Project Annual Report November 1989 to December 1990", The Experiment in International Living, Kampala, February, 1991

Republic of Uganda, Ministry of Local Government 1988/89 Annual Report

Roth, M. Cochrane, J., Kisamba-Mugerwa, "Tenure Security, Credit Use and Farm Investment in the Rujumbura Pilot Land Pegistration Scheme, Rukungu District, Uganda, July 1991 (draft)

Slade, Grant, Weitz, Keith, "Uganda Environmental Issues and Options", Center for Resource and Environmental Policy Research Working Paper #91-3, The School of Forestry and Environmental Studies, Duke University, May 1991

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Tukahirwa, E.M., Kateyo, E.M., Veit, P "Water Management By Pastoral Communities of Nyabushozi County, Mbarara District", From the Ground Up Case Study No. 2, Institute of Environment and Natural Resources, Makerere University, Kampala, (draft).

Tukahirwa, E.M., Kateyo,, E.M , "Increasing Productivity on a Rangeland Ecosystem: The Case of Kashaka Parish", From th Gound Up Case Study No 3, Institute of Environment and Natural Resources, Makerere University, Kampala, (draft).

Tukahirwa, E M (Editor), "Environmental and Natural Resource Management Policy and Law, Issues and Options in Uganda", Institute of Environment and Natural Resources, Makerere University, Kampala, 1991

Tukahirwa, E M Veit, P G , "Public Policy and Legislation in Environmental Management· Terracing in Nyarurembo, Southwestern Uganda", From the Ground Up Case Study No 5, Institute for Environment and Natural Resources, Makerere University, Kampala, February 1992

"Annual Report, Workplan and Budget, The EC Financed Natural Forest Management and Conservation Project", 1991

"Land Tenure and Agricultural Development in Uganda", Makerere Institute of Social Research and Land Tenure Center, January, 1989.

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Mali Field Report

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Decentralization and Natural Resources Management:

Mali Field Report

Prepared by: Steve Dennison
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December 1992

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I. INTRODUCTION

This report summarizes results of a three-week mission to Mali to gather data on cases involving decentralized governance and management of renewable natural resources (RNR) The two Mali cases presented here figure as part of a three-country, comparative study on the consequences of decentralizing governance and management of RNR. The Malien country study is interesting because it highlights:

- persistent interest in governance and management of renewable natural resources (RNR) expressed by local populations and to varying degrees implemented;
- potentially significant power shifts, unleashed by the violent downfall of an authoritarian regime, that may open up new opportunities for user-based governance and management of RNR in Mali; and
- difficulties that may be encountered at the local level in creating or re-establishing decentralized systems of RNR governance and management.

A. Research Hypothesis

The team sought to test the following working hypothesis:

> ***RNR will be governed and managed more effectively and equitably, and their usage will be regulated with a concern for maintaining RNR sustainability over the long-term, if their governance and management are decentralized.***

As stated, the hypothesis is inadequate It is not testable as formulated, even in a crude, "futures perspective" fashion, much less in a manner acceptable to ecologists, without further definition of terms. In particular, what do we mean by:

- decentralization?
- governance?
- management?
- sustainability?

Each term is defined below.

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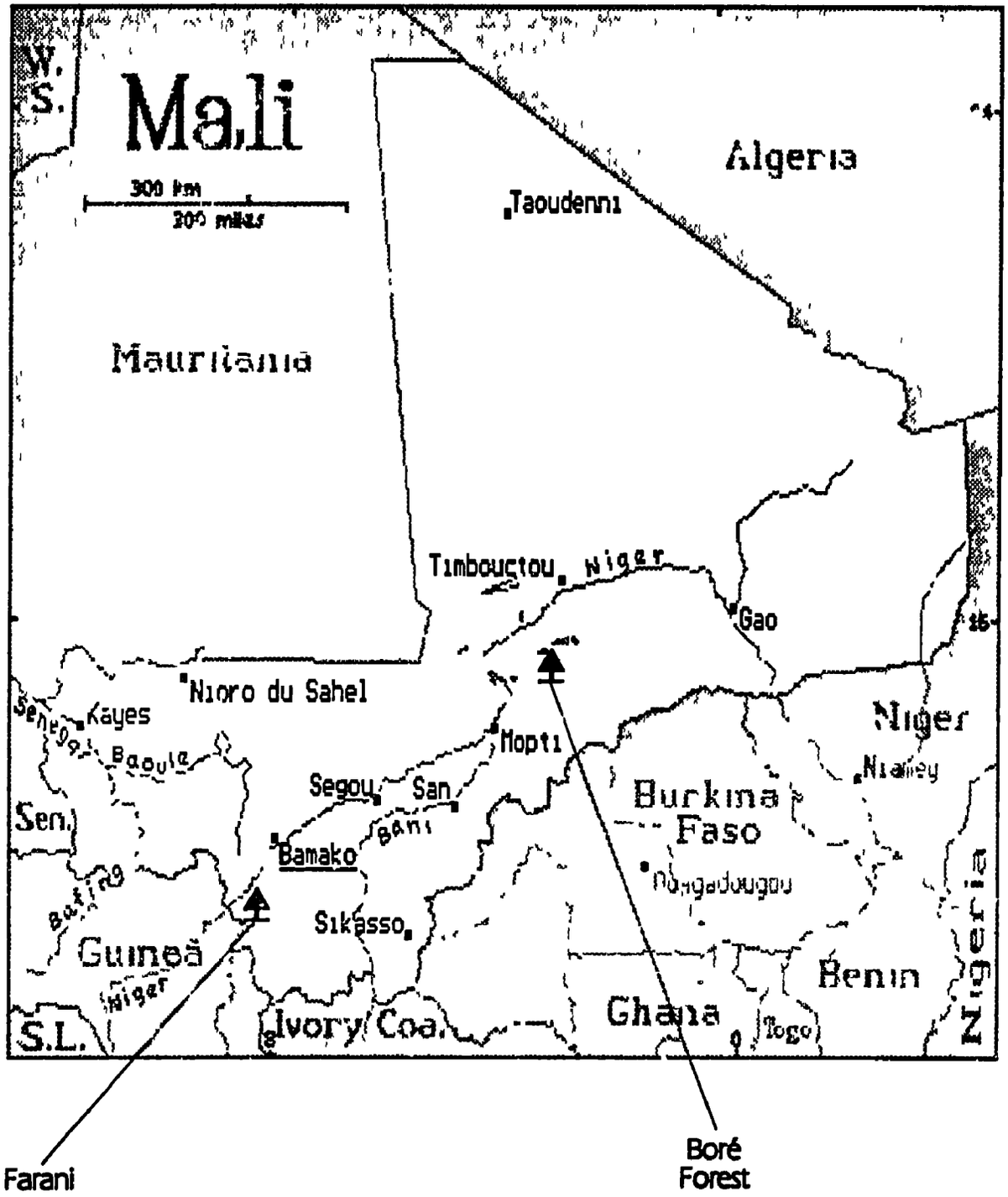
Figure 1: Case Study Sites, Mali



B. Definition of Terms

Decentralization as used in this report mainly connotes devolution, that is, irrevocable transfer of authoritative power from higher-level to lower-level governments. We use it neither to mean administrative deconcentration; nor revocable delegation of authority to some group to take care of some aspect of public business; nor privatization (transfer of public economic enterprises to private ownership); nor deregulation, i.e., a government's suppression of its rules governing an area of activity.

Governance refers to the making of collective decisions, their application, enforcement on a non-voluntary basis as necessary, and the resolution of conflicts arising from enforcement activities Governance decisions focus on public problems: can they be handled by private or voluntary means, or do they warrant collective action, and if so, what should be done? Governance is a neutral term Particular instances - or systems - of governance can be characterized by various adjectives, e.g , authoritarian or democratic governance

Management involves bringing together inputs (land and associated natural resources, labor, capital and technology) and combining them to achieve desired outputs, evaluated by some criterion, e g , profit, efficiency, innovation, adaptability, equity, sustainability, maintenance of species diversity, maximization of wildlife habitat Management of forest resources, for instance, can be quite "passive" (for example, avoiding overuse), or very "active" (e g., plantation forestry).

Sustainability refers here to renewable resources, and implies that productive capacity of a given resource will be maintained, either by regulating/reducing consumption or by increasing output through production-enhancing investments.

C. Report Contents

The report contains four chapters in addition to this introduction: background; two cases studies; and analysis of implications and conclusions. The cases studies (see Figure 1 for location) are:

- **Boré Forest**: in this case, a bottom-up proposal, formulated by the Near East Foundation (NEF),[1] seeks to transfer to some seven villages governance and management authority over Boré Forest. The forested area is situated on government domain land in the Fifth Region south of the Niger River's Inner Delta (the Gourma) between Mopti-Sévaré and Douentza; and

[1] A non-governmental organization (NGO) active in the Douentza area since 1985.

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- **Farani Village**: this case analyzes local patterns of governance and management of renewable natural resources (RNR) in a single village, Farani, located twenty kilometers off a main highway in Ouélessébougou Arrondissement in the Hautes Vallées section of the Second Region, south of the national capital, Bamako.

Transfer of control over RNR to local communities appears to be a generally appropriate policy in the case study areas This amounts to limited confirmation of the hypothesis. However, evidence both from the Boré Forest case study and from villages close to Farani in the Hautes Vallées region suggests that not all communities are equally capable of, or interested in, governing and managing RNR. Comments to this effect appear in the concluding section of the report.

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II. BACKGROUND

A. Introduction

This chapter provides a quick overview of the evolution of political conditions in contemporary Mali It notes the succession of regimes that have governed the country since independence, then focuses on the role of the Malien Forest Service (*Service des Eaux et Forêts*) in RNR governance and management.

B. Two Malien Regimes: An Overview

1. Keita Regime

At independence in 1960 a socialist government led by Modibo Keita took power. The Keita regime sought to crush local traditional institutions. It suppressed canton chieftaincies, degrading incumbents to the status of village chiefs, and tried to centralize all governance within the new independent government's administrative structure It never fully eliminated local institutions however Likewise, the Keita regime's efforts to create a centrally-planned economy committed to industrializing the country at the expense of rural populations fell short With the political system becoming increasingly repressive and the economy in shambles, the Keita regime was terminated in 1968 by a military coup

2. Traoré Regime

The coup that toppled Keita was led by Moussa Traoré. His military regime lasted 23 years, from 1968-1991. It practiced a quite authoritarian style of governance until 1987 when controls on the press were inexplicably loosened, condoned exploitation of Maliens by their officials, and ended in a week of violence that cost 600 people their lives.

On March 26, 1991 the regime of Général Moussa Traoré (GMT) ended in a *coup d'état* The fall of the Traoré régime ushered in a transitional period, subdivided into **l'ère "320"** and the **constitutional transitional phase** The transitional period ended in April 1992, when popular elections to select the executive and legislative officials of permanent new governments were completed with the selection of Alpha Oumar Konare as first president of the Third Republic Doubts about prospects for stability under the new institutional arrangements persist The tentativeness of the **fin de transition** period, which coincided with the team's field work in Mali, may well have affected information collected, for reasons that will now be discussed

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C. Forest Service: Role and Reputation under GMT

Under GMT the Forest Service earned a reputation for particular brutality and predaciousness in comparison with comparable agencies in other Sahelian francophone countries.

The forestry code took the form, as applied by foresters, of an *"unnecessary lawe that [was] not a good lawe, but a trappe for monie"* (Thomas Hobbes, Leviathan, 1652). The code authorized severe penalties for infractions, provided commissions on fines levied for informers, foresters, and all their hierarchical supervisors including the national director. The system invited abuses of power Foresters ran, in sum, an extraction scheme or "juice racket." The squeeze was justified in most cases either as an application of the forestry code to individuals engaging in RNR-destructive behavior, or as a mercifully bribe-bargained reduction of the full force of the law for those guilty of code infractions.

The forestry code was never translated into national languages Indeed, Malien foresters in practice often tried to keep its contents to themselves to maximize their "determining powers," i e , their capacity to make law on an ad hoc basis by interpreting code provisions as they saw fit. They routinely levied collective fines on communities when they could not rapidly identify the individual guilty of an infraction

One of the unfortunate results of these policies and practices was their impact in crushing local systems of RNR management. Boré Forest residents repeatedly lamented their loss of control over forest resources they formerly considered their own.

Further elaboration of this point - the extent to which the Forest Service and foresters had, by 1991, made themselves individuals hated by their own countrymen - is rendered unnecessary by events in the spring of 1991 Popular riots immediately after the fall of the Traoré regime ended ushered in **l'ère 320** The term is derived from input costs 300 FCFA for a liter of gasoline, with which to douse the target of public outrage, and 20 FCFA for a box of matches to ignite the gasoline Several government officials, including a forester, were served up in this fashion ("well done" generally described both the outcome and impromptu citizen evaluation of the results) At least one other forester was nearly beaten to death for trying to continue the old exploitative practices, and many others had to flee angry mobs eager for the opportunity to participate in a "roast " During the constitutional convention held in August 1991, foresters came in for intense, prolonged criticism by peasant group representatives By the end of the convention, the army and transitional government had regained control of the situation and the constitutional transition phase began.

D. The Transition Period: Low Patrolling and High Uncertainty

The popular outbursts just described caused foresters to cease their depredation. Indeed, during the team's visit, many were simply refusing to patrol. Evidence of rampant cutting was apparent throughout Douentza Cercle, as well as elsewhere in the region. Herders in particular had devastated many individual specimens of *Acacia albida*, *A seyal* and *A. senegalensis* in the Douentza area This behavior appears to reflect (a) less fear of Forest Service agents, (b) the release of frustration after having been oppressed by those same agents for a long period, and (c) significantly reduced patrolling activity of Forest Service agents

This development has utterly clouded property rights over forest resources in those parts of the country where foresters earlier managed to impose their interpretation of the forestry code. Discussions with Boré Forest inhabitants reflect this situation.

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III. BORÉ FOREST CASE STUDY

A. Introduction

Boré Forest provides an instructive case study in part because of its complexity. What is here referred to as "Boré Forest" is, from the perspective of villagers living in or near the forest, simply a series of local forests, a number of which are contiguous. Prior to independence each village managed the forest within its territory independently of the other communities Governance and management controls on access during the era varied from quite lax to quite strict In 1972 the Malien Forest Service opened a branch office at Nyiminyama, within the confines of the forest From that time until the present, the Forest Service has claimed control over forest resources But through 1986, foresters made no attempt to enlist the support of local communities to help with enforcement of access and use regulations From 1987-92, a new regime was put into place The newly named resident forester made a consistent effort to share responsibility with villagers for monitoring and enforcement of harvesting regulations. With the end of GMT's regime, the Forest Service has lost much of its former power Uncertainty about who has responsibility for controlling forest use is rampant

This chapter describes a total of four of the seven villages lying within or near Boré Forest in terms of their experience in governing the forest prior to the arrival of the Forest Service, the changes that occurred at that point, and briefly, the efforts underway to re-establish village-level control over the forest In the case of each village sub-study, an effort is made to highlight the motivations of relevant actors These are considered to arise from three sources

- nature of the forest resources, e.g., whether they are private, common pool or public goods;
- attributes of the community, in terms of history of settlement, internal organization, norms, relations with outside institutions and demand patterns for forest resources, and,
- characteristics of the rules governing access to and harvesting of forest products.

These three major sources of motivation are considered to influence the choice of strategy by major classes of actors, e g , sedentary peasants, woodcutters, fuelwood merchants, transhumant pastoralists and foresters. When individuals in each class implement their strategies, interactions result. Outcomes of these interactions can be evaluated in terms of a series of criteria, e g , sustainability of the resource base, efficiency of governance and management operations, equity, preservation of species diversity, etc

The chapter concludes with speculations about future prospects for decentralized governance and management of Boré Forest.[2]

B. Notes on Boré Forest

The governance, management and use history of the Forêt de Boré affects the current condition of the woodstock These experiences provide the basis for more intensive forest management strategies by local populations living around and in, and using the forest

Boré Forest (see Figures 2 and 3) provides an important resource for both the Douentza and Mopti *cercles* in the Fifth Region. It has always been a common pool resource for the resident and neighboring populations It is also an important resource for transhumant pastoral populations that move through the forest area twice yearly For this latter group, the ponds (*mares*) and stream beds (*bas-fonds*) provide water sources for the herds, and natural grasses and woody vegetation furnish browse resources important in local animal husbandry systems.

The forest also constitutes a very important fuelwood resource for the large "urban" populations of Mopti/Sévaré (80 km southwest of the forest) and Douentza (60 km to the east) Mopti also draws fuelwood from an area downriver (north) from the city, at Youvarou, but this area is only accessible for freight canoe (*pinace*) transport immediately following the rainy season Boré forest by contrast has become highly accessible since the road (Route Nationale No 1) that bisects it was paved during 1985-87. Infrastructure improvements followed directly on the severe drought conditions of the 1970s and early 1980s which killed a substantial volume of the woody vegetation

Individuals and families living in a number of villages (Amba, Batouma, Tabouké, Bima) are quite well organized for fuelwood harvest and collection They cut and stockpile dead wood at the roadside for transporters who come primarily from the two urban areas.

The national forestry code authorizes harvesting of deadwood only by those who hold a *permis de coupe* (cutting permit) indicating the number of *stères* (a cubic meter, or roughly a cord of stacked wood) to be removed from the forest These permits are issued by forest

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[2] The findings and some of the conclusions presented below were independently confirmed to a large extent by the parallel investigation undertaken by Rebecca McLain for the Near East Foundation (NEF), a non-governmental organization (NGO) involved in supporting efforts of Boré area villagers to improve their RNR governance and management capacity See "La Gestion décentralisée des forêts de Boré et du Tarabé une étude des systèmes de gestion forestière dans le Cercle de Douentza, République du Mali," April 1992 22 pp NEF local investigators, McLain and the DFM team worked together for ten days in the Boré area during March 1992 NEF has since continued its investigations and efforts to support local initiatives to strengthen RNR governance and management of Boré Forest resources

Figure 2: General Location of the Boré Forest in Mali's Fifth Region

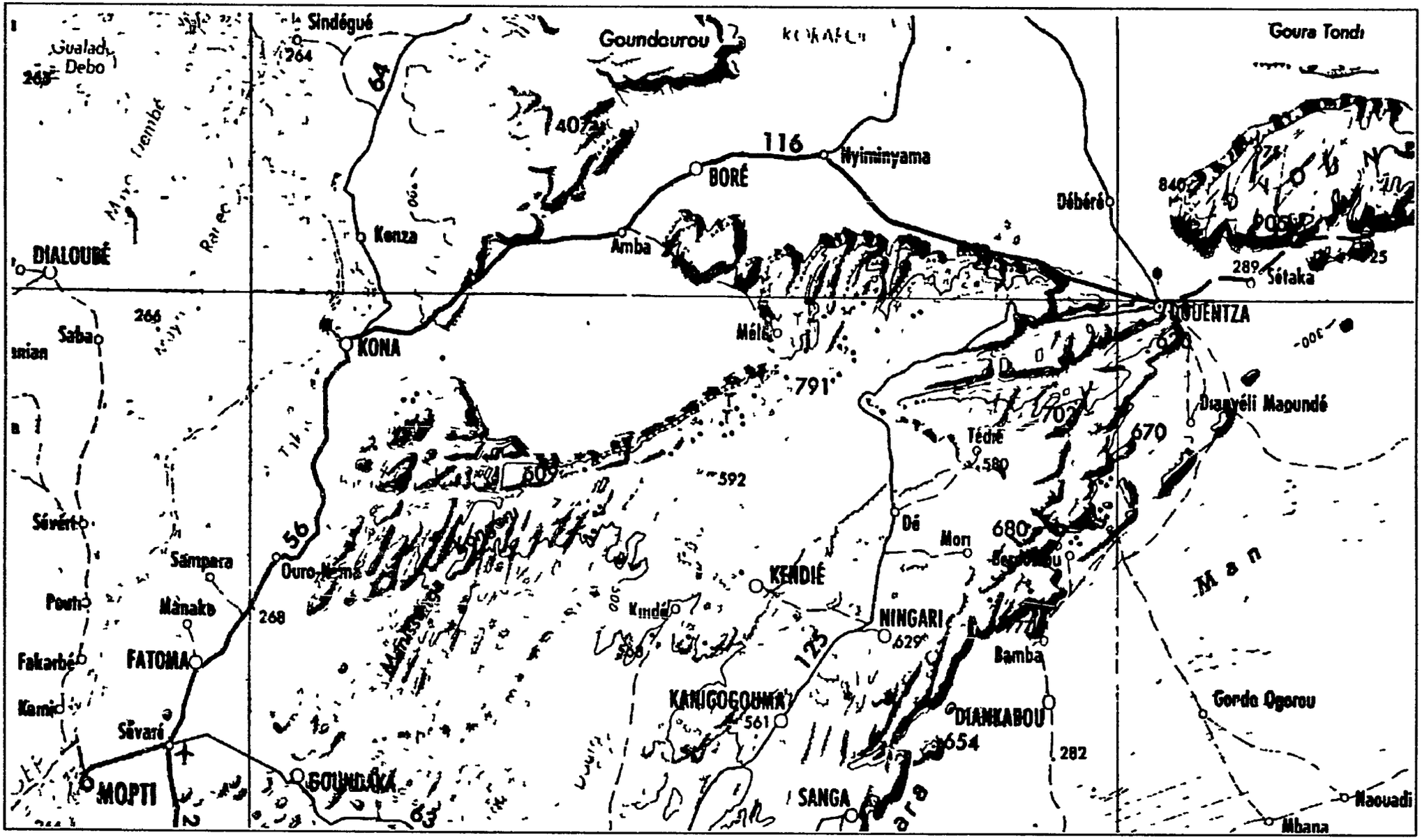
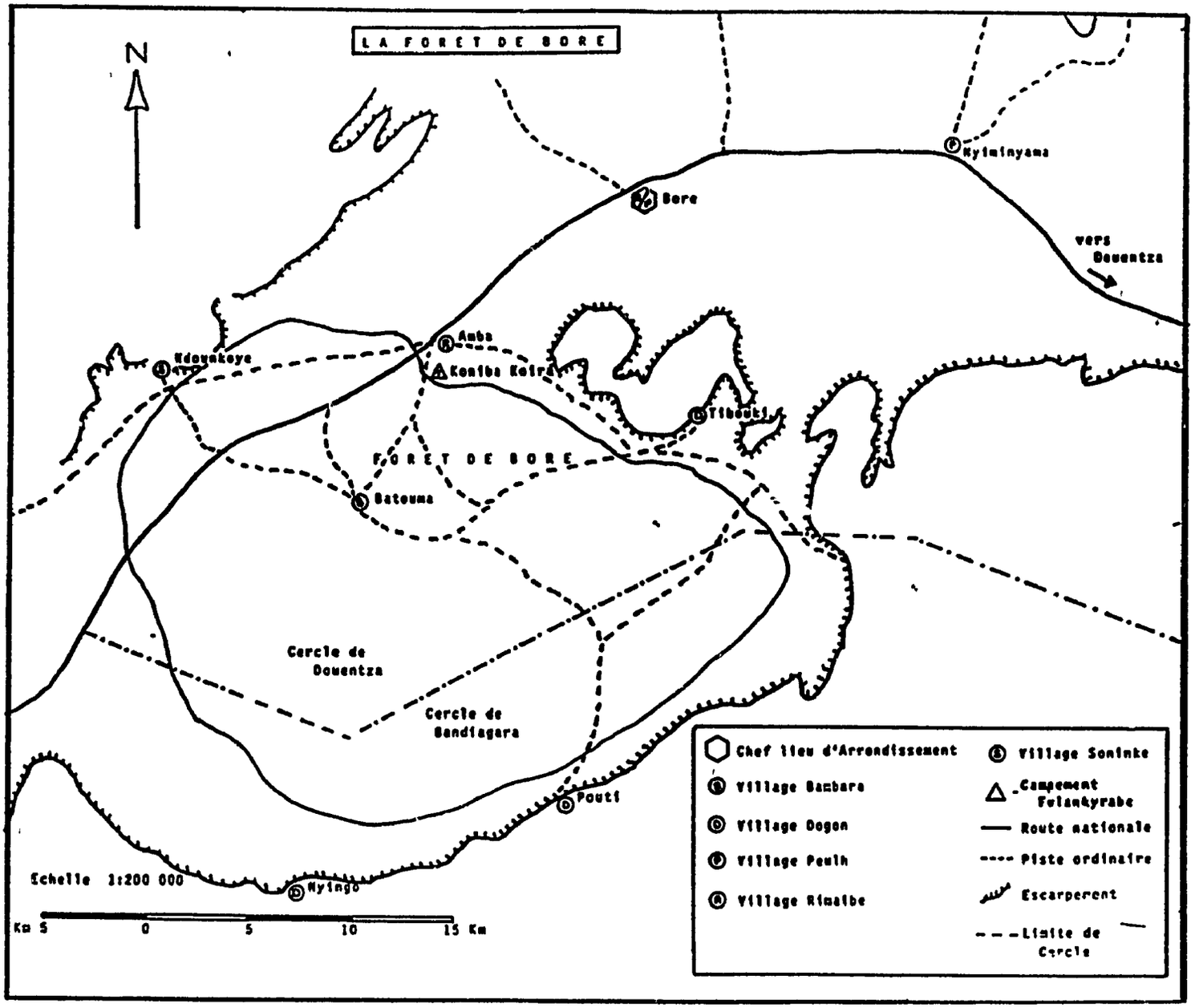


Figure 3 - Boré Forest (Detail)



service agents. Wood transport permits may also be granted to large scale woodcutters, who in turn issue them to the transporters themselves. Forest agents record in their reports the number of permits granted, but a system of using this information to manage or limit their distribution has apparently not been developed by the forest service.

Foresters have reported some abuses of the permit system in the Boré area by harvesters, with woodcutters interpreting the permits as time-based and not quantity based. Instead of a one-*stère* limit, woodcutters have treated the permits as authorizations to cut dead wood for an entire month. The explanation for the harvesters' interpretation derives from the fact that one *stère* is about the amount one individual can collect in a month. However, people have grouped together and used an individual permit for a month to collect up to three *stères*.

Permits to cut in Boré have also occasionally been issued from Mopti, although in principle a district forester (*chef de poste*) can only issue permits for his own district (*cantonnement*). Although the Forest Service's National Directorate (DNEF) has ruled these extra-jurisdictional permits are irregular (the issue is still under negotiation at DNEF), such apparently official papers continue to give "stranger" cutters enough authority to prevent villagers resident in the Boré region from interdicting their activities

Villages have attempted to patrol the forest against abuse by transhumants and woodcutters, with varying results To be effective their patrolling when challenged must be backed up by government agents. Forest Service head agents stationed at Nyiminyama, the Boré Forest post (particularly Mamadou Diakaté) have encouraged villager efforts to monitor the forests they consider their own, but the extent of this support fluctuates with the policies of individual district heads

Woodcutters who are large scale operators tend not to be inhabitants of the forest's peripheral villages, but people who either settle along its edge -- in villages or along the national route -- or professionals who appear in the forest to cut a load of wood and then leave.

Apparently, neither villagers nor Forest Service agents have given the forest as a whole a name, but talk instead of "the forest of such-and-such a village." This local terminology reflects the fact that in the pre-forest service era, each village controlled its section of the total forest. No overlapping jurisdiction existed with governance and management authority for the entire woodstock. On the other hand, forest use was partially subject to regulation for pastoral purposes through the "dina," a system of rules designed to facilitate governance and management of RNR in the Interior Delta of the Niger river and in neighboring regions where livestock was pastured during part of every year.

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C. Amba Village - Then: A Sophisticated Common Property System; - Now: Intelligently Seeking RNR Governance Authority

1. Introduction

The village of Amba is located on the Sevaré-Douentza blacktop road, some 13 km southwest of Boré and roughly 75 km west of Douentza. Administratively, it lies in what was, prior to independence in 1960, Boré Canton,[3] in the Boré Forest. Currently, in administrative terms it forms part of Boré Arrondissement, Douentza Cercle, Mopti (5th) Region.

2. Attributes of the Good

The major RNR in the Amba *terroir* (village lands) is the portion of the natural forest woodstock of the Forêt de Boré that lies within the village land area. As did most of Boré forest, Amba's woodstock recently contained a much larger variety of species and a larger volume of wood than it does today Quality deterioration is clearly occurring. Most of the woodstock area lies in a broad natural depression to the south of the village (see Figure 4) which also serves as the outflow area from the many small valleys and ravines that drain a substantial portion of the northern face of the Bandiagara Plateau (four to ten kilometers south of the village) A series of ponds have formed in this depression with water flowing in a northeasterly direction The edges of the ponds support the widest range of species diversity in the immediate area and also provide an excellent environment for wildlife - particularly birds.

Although the exact limits of Amba village lands are not delineated by the villagers, land is allocated roughly as follows:

Table 1.

LAND TYPE	SURFACE AREA %
Cultivated fields	15
Fallow land	15
Natural forest	50
Other (degraded, unused)	20
TOTAL	100

[3] Suppressed by the Modibo Keita single-party regime at independence.

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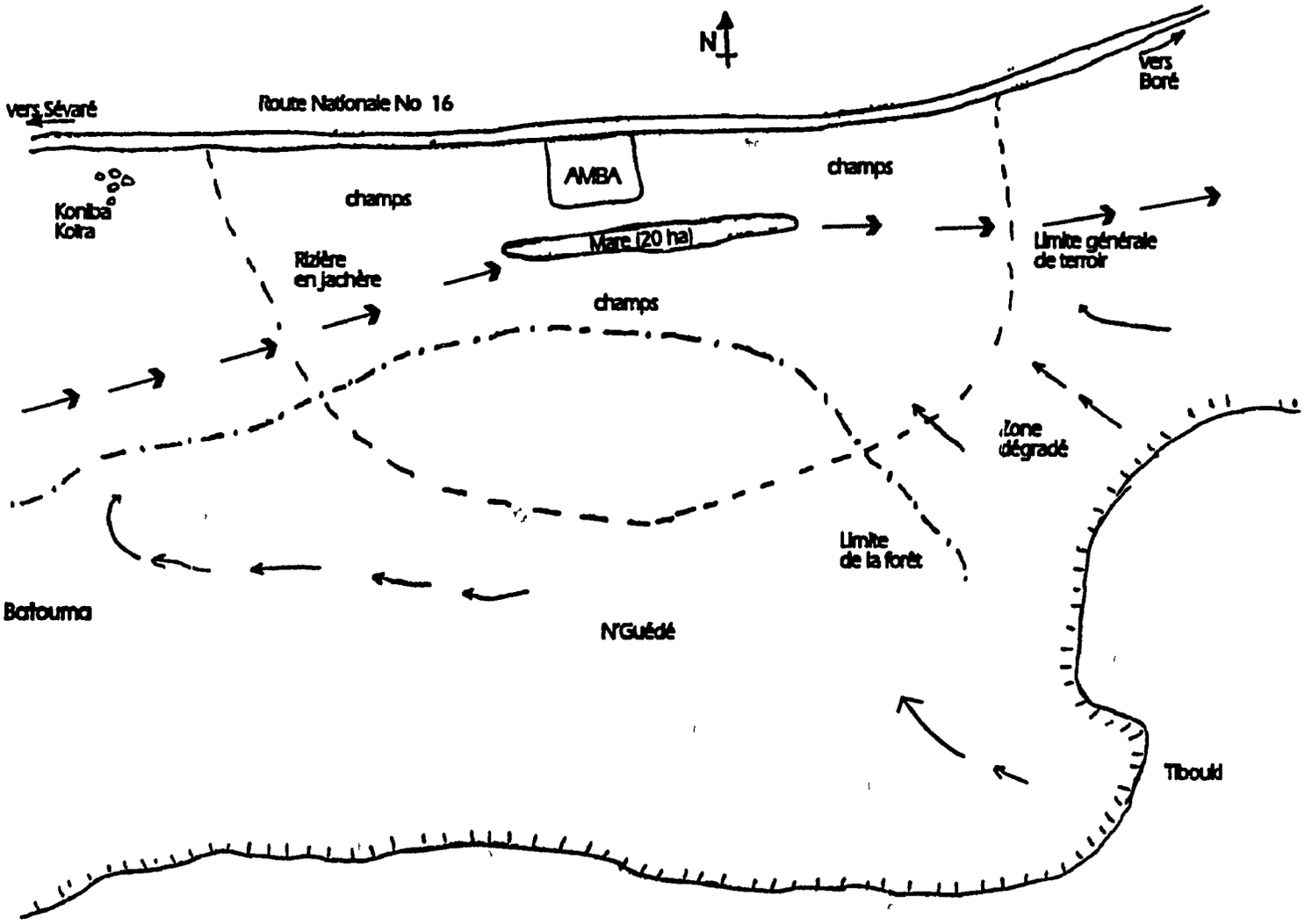
Figure 4 - Plan Général du Terroir d'Amba



In areas other than the severely degraded land, erosion, both from water and wind, is moderate. Prior to the last period of severe drought (1974-85, see below), Amba woodstock was healthy Today it is seriously degraded Little dead wood remains; live trees and shrubs have declined far below the volume that existed prior to the drought. Present volume estimates from a recent inventory by the NEF on 23,000 ha of the Amba-Batouma-Tibouki forested land are put at 8 153 m^3/ha of dead wood and 8.742 m^3/ha of living trees and shrubs

Boré Forest, as a complex renewable natural resource system, generates a wide variety of products. The most important of these, in addition to the on site, non-consumptive uses of environmental preservation, are dead wood for domestic fuel, building poles and beams, grasses and leafy forage for livestock during the dry season, and thorny, woody materials for fencing. Other forest products, such as fruits, nutritious seed pods, leaves for sauces and medicinal products are also harvested.

These products have the attributes of common pool resources. it is difficult to control access to them by both resident and transhumant pastoralist users, and consumption is separable Technologies used to harvest products involve simple tools such as axes, baskets, donkey-drawn carts, knives and the like.

Exploitation rates have varied over the years The most prominent product at the moment, firewood, is cut during the dry season, stocked at the village center on the blacktop highway connecting Douentza and Sevaré, and then sold in truckload lots at the beginning of the rainy season According to informants, they may only sell one trailer-truckload (which holds an average of 60 *stères*) every three weeks during most of the dry season But during their peak period, one individual sold five truckloads in ten days This contrasts with what informats said about today Cutters harvesting dead wood in Amba indicated that transporters from Mopti/Sévaré now go only as far as Batouma to get their wood The sole remaining wood merchant in Amba now only sells about one 10-ton truckload of wood every three-to-four months (One 10-ton truck is roughly equivalent to 30 *stères*, or about 1,000 faggots The price of a faggot varies between 25 and 50 FCFA)

Given the irregular pattern of demand, villagers asserted they could not estimate annual production.

This marketing system reflects the inability of firewood transporters to take their trucks into the roadless off-highway bush areas of the village once the rains begin, whereas other Boré Forest village communities such as Tibouki and Batouma, cut wood and sell substantial amounts outside the Forest Service control system to truckers who come into the forest on primitive tracks Wood is sold within the forest at roughly 70 percent of the roadside amount (35 FCFA for three pieces versus 50 FCFA charged at Amba, where foresters can easily control the market)

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3. Appropriation of the Woodstock

The Amba woodstock is used as a source of fuelwood, construction wood, traditional forest products such as fruits and medicines, and as a source of forage for grazing herds Transhumant herders do not regularly traverse Amba's portion of the Boré forest, although occasionally they may pass through, or even spend several days there

Fuelwood is harvested from dead woodstocks for both domestic consumption, primarily by women, and by men for commercial sale to transporters coming from Mopti/Sévaré. The predominant fuelwood species include· *Combretum micranthum, Pterocarpus erinaceus, Grewia bicolor,* and *Anogeissus leiocarpus.* The majority of Amba's dead wood stocks have already been removed, but there are still considerable portions of the *terroir* (village land area) containing appreciable volumes of live wood

Villagers also locally consume small amounts of live species used for construction wood (small and large diameter poles and posts) and make mortars, axe and hoe handles. The preferred species for these products are: *Diospyros mespiliformis, Dalbergia melanoxylon,* and *Anogeissus leiocarpus.*

Large variations in microsite conditions explain the uneven exploitation and use of the woodstock across the village land area. Woodstock harvesting patterns are quite seasonal, varying with natural cycles of production, and in the case of fuelwood, with the fluctuation in the prices paid by wood transporters from Mopti/Sévaré Rough estimates indicate that about 50 percent of the land falling within the area that can be classified as natural forest has substantial crown cover As noted, the ponds and other natural depressions on village lands dictate the location of the richest forest zones.

Large areas also exist within the forest boundary that once supported forest species but are now completed denuded These zones, often several hectares in size, have been rendered barren by the extreme drought conditions that prevailed 10 years ago and the presence of shallow and infertile soils that have prevented the natural regeneration of grasses, shrub and tree species.

Access to Amba's forested zone is relatively limited, and almost impossible during the rainy season. Woodstock harvesters essentially use one route in and out of the forest. Entrance can also be gained via Batouma/Guédé, eight kilometers distant on the other side of Amba's lands. Fuelwood harvested for commercial purposes is generally removed by donkey-drawn cart and stocked roadside at the village Highest prices are paid immediately following the rainy season (September-October). Lowest prices paid occur in March-April-May when access to the forest is easiest and stocks in Mopti are increasing No wood is harvested in the rainy season because access to the woodstock is too difficult and labor resources are diverted to farming.

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4. Action Situations

Distinct periods of use and harvest of the Amba woodstock can be roughly attributed to the recent climatic events described below:

- Pre-1972, when the region received normal, or above normal amounts of rainfall (400-500 mm/year); villagers more or less controlled access to their woodstock resources with little interference from the Forest Service, which only became operational in Douentza in 1972.

- 1972-1984, when this region, as well as the whole Sahel, suffered through a period of extreme drought conditions; annual precipitation rarely reached the 30-year average, Forest Service agents began playing an equivocal role in restricting or controlling woodstock removals in their capacity as protectors of the remaining forests, and

- 1985 - present, characterized by a return to rainfall conditions closer to the long-term average for the area; in 1985-87 the *Route Nationale No. 1* was improved and paved for the first time, Forest Service agents operating from the forestry post (*Poste Forestière*) in Nyiminyama began instituting a more transparent control process regarding permits and fines.

The remainder of this section summarizes the use and exploitation of the Amba woodstock during these periods.

Pre-1972

Prior to the drought period of 1972-84 the forest was relatively untouched. Transhumant herders frequented the area in their migrations in and out of the Niger River Inland Delta While numerous droughts have occurred in the area over the last 1,000 years, the relatively normal (average to good) rainfall at the end of this period (1950-72) kept the forest in good health and provided for the needs of both herders and Amba residents. Minimal amounts of wood products were transported out of the immediate forest area (local informants note that the largest external demand on the local woodstock was probably for building poles and timbers used in constructing the Douentza mosque).

Dead wood, which could be legally removed with a permit from the forest service, was relatively scarce during this period; local demand consumed most of the available supply. Virtually no wood was removed for commercial purposes The forest was seasonally exploited, however, both by local people and others from outside the area for fruit, fodder, medicinal purposes, and as seasonal pasture for livestock. Cutting of green wood was strictly controlled, although minuscule amounts were removed for making tool handles, mortars, etc.

1972 - 1984

During this period of severe drought many of the trees in the woodstock, and the Boré forest as a whole, died for lack of adequate water. This occasioned a decline in the relatively rich biodiversity of the area Herds of the transhumant population also declined substantially as pasture and natural forest fodder sources diminished and in some cases disappeared entirely. Traditional uses of the natural resources found in the forest continued, but exploiters found it increasingly difficult to harvest products there. The overall productivity of the woodstock fell at a drastic rate As RNR became scarcer, the Forest Service stepped up its monitoring and controlling efforts, ostensibly to preserve the vegetation that remained. The resident population of Amba was increasingly fined for unauthorized cutting in the forest. During this period, many so-called "fines" levied amounted in fact to bribes paid to the foresters. For such transactions, foresters never issued written citations

1985 - Present

Early in the period (1985-87), the national highway that passed through the village was improved and paved. Many more villagers also began to harvest the dead wood now prevalent in their forest and stockpiled it at the roadside for sale. More than a dozen families turned to wood cutting as their primary activity and continued to farm only as a secondary vocation It is estimated that about 90 percent of the dead wood on village lands was removed during this period Although village harvesters still commercially exploit a larger volume than the village population consumes annually, this practice cannot long continue At current consumption rates existing dead woodstocks probably will not last more than two or three years Almost all of the wood sold to transporters who come to Amba is extracted from the Guédé area, which lies outside of the recognized boundaries of the village. Amba's control over Guédé is disputed by both Tibouki and Batouma, two neighboring villages that also share boundaries with Amba and Guédé

Transporters come from Mopti to the west, and Douentza to the east, to purchase fuelwood Drought impacts were such that woodstocks closer to those cities had been exhausted by 1985 Demand for wood from the Boré forest skyrocketed, leading to exhaustion of most of the dead woodstocks by decade's end. The number of active commercial woodcutters has declined in Amba. Wood cutting now focuses primarily on meeting the more lucrative rainy season demand in the urban areas when prices are highest (50 FCFA/faggot, i e., 1/33 of a *stère*).

Amba woodcutters obtain permits, valid for one month, from the Forest Service agent for 6,000 FCFA (a permit can also be purchased for 12,000 FCFA which is valid only for one trailerload, an amount equivalent to about 60 *stères*.) Since the change of government, and the hiatus in Forest Service control measures, woodcutters have ceased paying for permits. Wood cutting has also claimed less labor over the past 12 months because many village workers have been digging a new well.

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Just prior to the government change the Forest Service agent had encouraged the woodcutters to form an association to organize themselves more effectively. As an incentive to woodcutters to organize the agent promised to lower the cost of cutting permits to association members. A single permit was to be issued in the name of the association for collective use on a monthly basis, rather than each individual having to purchase a permit.

5 Attributes of the Community

Amba is known locally as a Rimaïbé village The term Rimaïbé refers to captives taken by the Fulbe (sing. **Pulo**) warriors during the religious-ethnic wars of the 18th and 19th centuries in the central Niger Region. Amba captives belonged, according to local tradition, to the Bambara families that had settled in the neighborhood of Boré Canton seat When the founding Pulo chief of Boré, a certain Dicko, left the area to return to Macina at the southwest end of the Inner Delta or the Niger River, the Bambara families decided to establish a forward post on the northwest edge of their territory. Each family contributed a captive. From this collection of disparate peoples are descended most of the present-day inhabitants of Amba

The village itself numbers some ten (10) "families" for tax purposes. The size of these households is uncertain, as is the total population of the village. Villagers are estimated to number about 250 Of the ten families, nine are farmers and woodcutters. They estimate that they now draw as little as a quarter of their annual income from the firewood trade (in a good agricultural year) and as much as a half of their revenues (in a bad year). The tenth household is composed of herders who derive all their income from pastoralism

In addition to descendants of the original inhabitants, two Gargasa (Twareg praise singer) families have settled in the community. The men of the first family are specialists in producing tool handles, while those of the second are blacksmiths The wood users draw mainly on *Balanites aegyptiaca, Acacia albida, Schlerocarya birrea* and *Diospyros mespiliformos*. The women in these two families produce pottery Two other families, **Laobé** (woodworkers) of Fulbe origin, have also settled in the community, and they use *Acacia albida* None of these smaller families are registered for tax purposes in Amba. While all are Muslim, not all regularly observe basic Muslim religious rites

Land tenure rights in the village are not a subject of dispute apparently· villagers admit they hold all their lands from the Bambara ex-canton (now village) chief of Boré. They maintain that their borders with the neighboring villages of Tibouki and Batouma, respectively to the southeast and west, as well as with the abandoned village of Guédé, formerly situated on what is now a sort of no-man's land surrounded by the three villages, are well known to everyone, although not clearly marked But to the east they say they have "no boundaries" because they are related to the Boré people.

Relations with the Foulankraibé village of Koniba-Koira, directly to the west along the Douentza-Mopti road, are less tranquil. Amba residents note that the Foulankraibé first

appeared in the area as transhumant pastoralists. During the colonial era, they began to spend more and more time near Amba rather than returning annually to Gao, 300 km to the east. After independence, around 1972 according to Amba people, the Foulankraibé decided to settle permanently and, without permission, began to establish their village on fields belonging to the Amba village chief. Amba residents complained to the new Boré Arrondissement authorities, and managed to secure a judgment forcing the Foulankraibé to abandon their intended village site. However, this same decision also compelled Amba villagers to offer the Foulankraibé another site in their "zone". This was done.

Twenty years later, Amba residents assert that the Koniba-Koira Foulankraibé cause more damage to Amba's woodstock than do transhumant herders. Foulankraibé can be seen easily enough when pasturing their herds in village fields, but not when they enter the forest. There the Foulankraibé are suspected of doing most of the damage to Boré Forest, and are charged by Amba people with responsibility for most of the dead trees found there.

The village chief maintains one family in Amba and another in Douentza, the seat of Douentza Cercle. He spends most of his time in the latter town. In his absence, a council of senior men run the village, younger men execute their orders. The level of consensus in the village is reportedly quite high, and villagers obviously reflect on current issues and have a sophisticated sense of their institutional environment and the possibilities and dangers of change They might be best characterized as committed, skeptical progressives

6 Creating a Local Cooperative

Amba villagers began organizing a cooperative by creating a revolving fund Each adult male in the village contributed 1,000 FCFA. Two age classes contributed. the group of male villagers aged 30-40, and those older than 50. This amount was used to pay for a village well. The amount was not sufficient, so they cut wood, and traded it to the village shopkeeper for grain to feed and pay the non-resident specialists in well construction

They now intend to organize another round of contributions and then perhaps obtain some matching funds from the Near East Foundation (NEF) The cooperative, to which some 30 adult men have contributed their names, has not yet received formal state recognition. Amba villagers are however pursuing authorization with all due speed. They intend to use the cooperative revolving fund to purchase wood cut by members The wood will then be stocked until the Amba "selling season" arrives at the start of the rainy season. They will then replenish the revolving fund.

While it seems unlikely they will be able to buy all cut firewood produced by prospective members, the revolving fund will at least give individual members access to some cash flow. This will in turn liberate them from dependence on the village shopkeeper's credit, and his ability to play on their need and changes in market prices of commodities over the course of the annual cycle to enrich himself.

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The cooperative will include among its members all local woodcutters (providing a mechanism to control both access and harvesting rates) and three specialists: someone familiar with wood buying, another expert in marketing, and someone responsible for maintaining relationships with the administration. These measures should increase the value added that remains within the local economy from wood cutting and selling operations.

7. Attributes of Rules

Rules must be seen in three different periods:

- pre-colonial era to roughly 1972;
- 1972 with the first Forest Service presence in the area to 1991; and
- the uncertain present.

Pre-Colonial Era to c 1970

During Amba's first time period ("action situation"), from the colonial era through to the beginning of the great drought of 1972-74, villagers controlled woodstock use through application of traditional rules These rules were designed both to control access and to regulate harvesting practices among authorized users While rather simple, as recounted by villagers, they nonetheless constituted a fairly effective set of controls in light of the relative abundance of the resource at that time Each rule is briefly described below. Together, these rules allowed the village council to monitor and control access to its territory by stranger harvesters, and also to control residents' harvesting activities.

Operational Rules Governing Access

The first rule concerned access. Wood was divided into two categories: dead wood and live wood. Villagers enjoyed full liberty to collect dead wood whenever and wherever they wanted on village lands Outsiders, by contrast, could not. If non-residents, even from neighboring villages, wanted dead wood, they had to place an order with the village council. The council decided if supplies were adequate. If so, they assigned one or several villagers the task of collecting the required amounts. Villagers were paid by the non-harvesters for their work.

Live wood was subject to more stringent regulations. Only villagers were allowed to cut live wood from trees, and then only for specified purposes, with the express authorization of village authorities (see infra). For example, if villagers found a non-resident, transhumant herder in the act of cutting leafy branches from a tree, with his herd gathered at the foot of the tree waiting to be fed, they informed him that he was in violation of local rules The

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penalty, imposed by the resident who observed the infraction, involved taking an animal from the pastoralist's herd, and possibly his axe as well. The animal and tool were turned over to village authorities They then decided whether to return it to the herder, if he came to request it If the herder agreed to pay a fine instead, they returned the animal. If not, or if the herder simply abandoned the animal, the headman and councillors decided whether to slaughter it and distribute the meat to village families, or sell the animal and add the money to the village fund.

If the herder refused to accept the local decision, they took him and the animal to Boré, where the canton chief would make an irrevocable decision, with no possibility of appeal That lasted until independence, shortly after which time the office of canton chief was suppressed, and such cases went before the newly-established arrondissement administration.

Special Situations

Three special issues arose from time to time:

- if the person who identified the violation was not strong enough to take the herder's animal, he informed the village council, which then sent out a small group of young men to arrest the herder and bring him, his animal and his axe to the village where he faced as sanction the certain loss of both,

- if a herder was found having established camp on village lands, around which was evidence of cutting even though he had not been caught in the act, he was asked to leave village lands; and

- if someone, known to be poor, was caught with the fruits of illegal cutting, villagers took away whatever products he had collected and let him go.

If a transhumant herder wanted to pass time in the village area, he would request permission from the village headman. The latter would refer him to the councillors, who would indicate a village area where he could pasture his herds He was expressly told that he was responsible for any damage to live trees in that area so long as he remained there If he observed other transhumant herders cutting live wood, he had to inform village authorities if he wished to escape the penalty for unauthorized cutting in his temporary sector

Like non-authorized, stranger harvesters, villagers could not cut live wood without express authorization unless it was in small amounts. A villager found lopping live, leafy branches from a growing tree, accompanied by his herd, was subject to the same penalties as transhumant pastoralists. But if he was collecting forage in small amounts for a sick animal, or for young animals stabled at his compound, he faced no penalty.

Another access rule prohibited non-residents from directly harvesting wood on village lands. Instead, any non-harvester desiring products could request them from the village council. The councillors, if they decided to honor the request, would tell some villager to go harvest the required materials. The harvester earned a fee for his effort.

This rule allowed the village council to keep track of the amount of products harvested, and thus to control harvesting levels, including refusing new orders if they believed a product had been harvested to the sustainable limit in a given year.

Everyone was responsible for monitoring woodstock use. Given the generally rigorous controls, widespread support for them, and the amount of time villagers spent in village forests, they felt no need to organize a separate monitoring service.

Operational Rules: Seasonal Controls on Harvesting

The village council also controlled harvesting periods. The forest was officially closed during the rainy season to villagers as well as to others, and officially opened after the end of the season This rule allowed for forest regeneration during the rainy season.

The combination of rules, and the supporting institutional arrangements, permitted the village council to exclude non-authorized users and to regulate authorized users (residents and non-harvesters requiring forest products) However, when these rules were eliminated, first at independence by the gradual suppression of traditional authorities' power to render decisions, and then by the substitution of Forest Services regulations, local ability to control access and use collapsed

Amba villagers interviewed about attitudes towards Forest Service regulations indicated qualified support for the following reasons:

- most of the population knows very little about the old practices because they have been suppressed for nearly twenty-five years;
- it is important to maintain the permit system during an interim period because it symbolizes existence of an authority competent to engage in forest management;
- the permit system reinforces, in their opinion, the authority of local leaders because, on that basis, they can get recourse to the administration.

1972 to 1991: Forest Service Dominance

The first forester, Moussa Djembé, arrived at Nyamanyima forestry post in 1970. He set to work to suppress the existing system of controls and replace them with Forest Service regulations He insisted on cutting permits and imposed fines on all those who lacked permits, otherwise fell afoul of forestry regulations as interpreted by the field forester, or

could be threatened into paying collective fines. This system continued, with several changes of personnel (including Bilali "Pélé" Ouelegem, for the decade from 1974-84, and Souleymane "Solo" Cissoko) until the arrival of Mamadou Diakité in September 1987. The last remained at Boré until he was precipitously posted to another region in January 1992. Diakité's regime differed markedly from preceding ones, it will be discussed separately.

Forestry Code Regulations

As suggested above, forestry code regulations define woodstocks on village lands within Boré Forest as constituent parts of a common pool resource The Forest Service is considered to have ultimate responsibility for managing that resource Foresters theoretically control both access and harvesting rates by issuing permits in accord with their understanding of how best to preserve the resource while utilizing products at a sustainable rate and clearing dead wood from the forest for human uses Foresters, with the exception of Mamadou Diakité, have assumed responsibility for implementing these regulations. Diakité sought, with considerable success, to involve some forest users - those specializing in harvesting firewood - in managing the resource

8. Interactions. First Foresters' Regime

The normal procedure involved refusal by the foresters to honor local regulations. When Amba people attempted to follow their traditional practices, they soon learned that pastoralists now had a recourse against their sanctions Sanctioned herders would appeal to the Boré Arrondissement, and either get satisfaction there, or be referred to the forester at Nyaminyama The latter naturally refused to support the local sanctions In so doing, he used his determining powers to convert Amba's local portion of Boré forest into a constituent part of a larger common property woodstock "managed" by the local forestry post

In practice, foresters could never mobilize the manpower necessary to implement real access and harvesting controls, and so the effect was not to incorporate Amba into a larger but managed common property, but to reduce it to the status of an open access resource, exposed to demands imposed by a much larger number of user groups

Foresters usually imposed some fines during the course of each year. Villagers say they sometimes came in a group composed of agents from several different *cantonnements* (cercle-level Forest Service administrative units) at once. They would check for damage and then impose fines, often collective fines

<u>1992 On· Access and Harvesting Controls</u>

Amba young people observe that the existing permit system should not be eliminated immediately They argue for continuation in modified form on the following grounds: non-residents now harvest many products on village lands They do not have the same respect for village authorities as do residents Most rural people do respect the power of the state

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however, and would obey a permit system backed by state authority. They see two possibilities for managing the permit system in future:

- a local resident would be authorized by the Forest Service to exercise control over cutting amounts, deliver permits The individual would be taught the skills necessary to maintain written records Once a permit was issued, the harvester would have to go to the Forest Service, pay the required amount, and then return to harvest products on village lands within the limits authorized by his permit; the village would mount a monitoring system and, in return for these two services (issuing permits in light of their knowledge about availability of harvestable resources, and monitoring application) the village would receive a commission from the Forest Service on permits issued,

- villagers would simply purchase permits from the Forest Service, for the cost of paper and printing, and then organize themselves to run the system as they see fit.

Concerning the first possibility, interviewees noted that it would restore to the village a mechanism to control access They note however the importance of weighing the probable costs and benefits of the this set of rules, i e., how many people would be required to maintain the system and at what cost. They considered the proposed amount of 500 FCFA per permit would be inadequate, but refused to specify a higher amount. They justified their refusal by saying that they would have to find out how many people would be required to maintain the monitoring system, and how much they would have to be paid to ensure system reliability.

This system would not be fully satisfactory, they felt, but rather a compromise between the existing external (non-)controls and the more ideal measures outlined in the second option.

The second option would empower the village council to control harvesters and harvesting times and methods in accordance with their understanding of the limits of sustainable use in any given year They propose, under the second system - obviously their preferred option - turning management of the permits over to a village cooperative organization.

Allocation of Roles under a New System

Villagers envision a division of responsibility among themselves, the Forest Service and the administration. The Forest Service, which they know does not have the manpower or material means to ensure proper monitoring, would be restricted to providing technical advice on how to improve woodstock productivity. Villagers would take responsibility for defining access and harvesting regulations, ensure monitoring, issuance of permits in accordance with their knowledge of available resources, and setting penalties for infractions and applying

them. The administrative head of the *arrondissement* would be responsible for providing back-up to the village system on an as-needed basis.

D. Koniba-Koïra Village: Foulankraibé Agro-Pastoralists Who Put Animals Before Trees

1. Introduction

This case study follows the same approach of identifying the sources of motivation that influence RNR users' choice of strategies, then examining interactions and outcomes. The study is briefer than the others in this report, in large part because Koniba-Koira residents have made less effort to manage their RNR base than most of the other communities The logic of this strategy is important to understand from a policy perspective because it highlights the risk of devolving control over resources to similar communities.

2. Nature of Goods and Services and Production System

The woodstock found currently on Koniba-Koira's territory (see Figure 5) is severely degraded. By comparison with the relatively plentiful resources still available in the immediately adjacent community of Amba, Koniba-Koira's lands are denuded nearly to the point of desertification Remaining woodstock resources have the attributes for the most part of open access goods. Because the woodstock is so decimated, it is possible to see further from the residential center, but much of the territory lies beyond view. Thus users can enter the area and harvest resources with a high probability that they will not be observed.

The local woodstock was still relatively abundant when the Foulankraibé settled in 1972 (see next section) But the drought that struck the area from 1972-85 wrought havoc with the woodstock, causing very serious degradation.

Local people, in addition to deriving browse resources from the local woodstock, also collect firewood for domestic consumption. The amount of dead wood remaining is insufficient to justify commercial woodcutting.

When the local woodstock was more abundant, it must have produced the sort of environmental stabilization public service (difficult to control access to, consumed jointly in the form of improved environmental conditions) found in other areas of Boré Forest. At present however, the lack of trees and brush gives free rein to the play of wind on the land, and wind erosion clearly poses a constant threat to the soil resources upon which villagers now depend strongly for their very survival.

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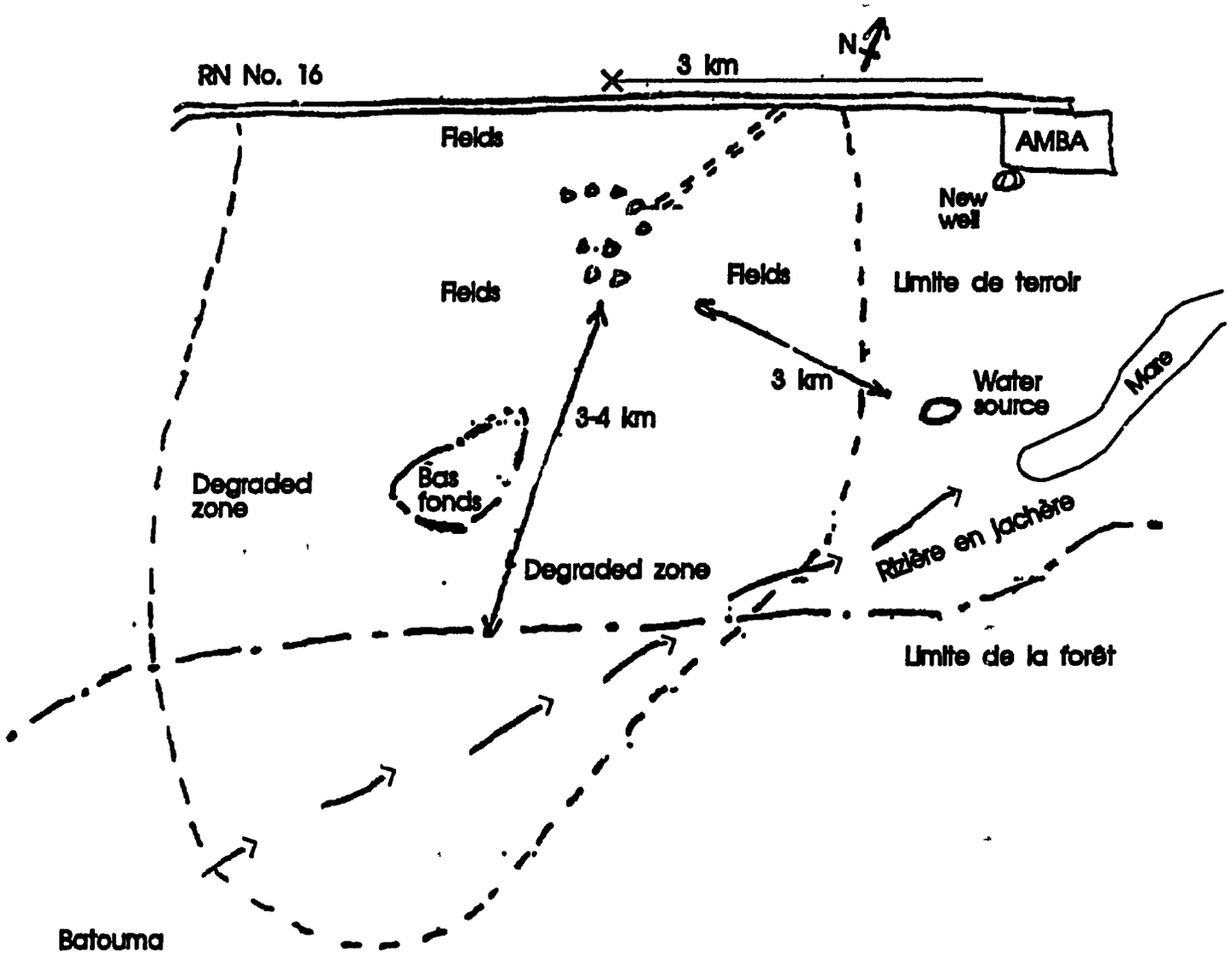
Figure 5 - Koniba Koïra Terroir



The local production system at present amounts to agro-pastoralism. Local people all own livestock Many have only sheep and goats, but several families still maintain sizeable herds of cattle The animals are sent on short transhumance to the Inner Delta of the Niger River during the dry season, particularly when the local rainy season has been inadequate and forage production is poor. Those that remain within the village during the dry season survive on a combination of dried grasses and green leafy browse The latter they either crop themselves from bushes and low-hanging branches or strip branches that their herders lop from higher up in remaining trees.

All families also farm, typically raising millet as their base crop Field crops are effectively private goods since farmers are present in their fields during most of the growing season and can easily exclude non-authorized persons from harvesting their crops.

3. Attributes of Community

Koniba-Koira represents the last act but one in a long process of sedentarization of a formerly transhumant pastoralist group It is unclear whether, having now settled and adopted first an agro-pastoral production system and now one per force based increasingly on agricultural, the Foulankraibé residents will become full-time agriculturalists or will eventually move on to other areas when they judge the local resource base to be entirely exhausted

The Foulankraibé belong, in ethnic terms, to the Fulbe group Like the Fulbe, they were traditionally pastoralists who lived exclusively from their herds They consumed animal products directly, and also traded those products for grain The Foulankraibés' distinctive history began with a refusal, some centuries ago, to accept Islam as a religion. As Islamized Fulbe conquerors swept the West African sahelo-sudanic regions in the 18th and 19th centuries, the Foulankraibé moved eastward in search of pastures where they would be free to continue their ancestral animist religion The group that ended in Koniba had, by the mid-19th century, settled some 340 km to the east of their present location at Rarous, near Gao

Over the next hundred years they continued to return on long annual transhumant cycles to pasture their herds during the dry season in the fertile bottom lands of the Niger Inner Delta. In each annual movement they spent considerable time in the Boré Forest, and eventually developed a close and supportive relationship with the Bambara chief of Boré Canton Some began to farm in the Koniba area during the rains, while others continued on transhumance with family herds. Gradually the Koniba Foulankraibé curtailed their long migrations to the east, and eventually, in 1972, settled permanently in Koniba-Koira, on land taken from the Rimaibé community of Amba on decision of the ex-Canton chief of Boré.

When they settled, the community numbered 28 families, in 1992, the number of families had increased by only two, to 30. In the intervening two decades a number of families had arrived, some had sub-divided, and more had emigrated further southwest to create new communities in more hospitable environments.

Chieftaincy within the community is hereditary within the headman's family. The current chief has a council of elders who assist him. The community does not appear to have a highly developed set of social institutions, e g., age grades. The relatively weak institutional base reflects the pastoral past of these people: transhumant groups tend to be small, family-based and highly self-reliant. During periods when forage is abundant it is possible for larger groups to assemble in a single place, but such meetings are temporary. The modal form is a relatively high degree of autonomy amongst household units

Foulankraïbé in Koniba-Koira now describe themselves as Muslims. They intermarry with other Foulankraïbé groups and with Fulbe communities, but not with Bambara and especially not with Rimaïbé.

4. Attributes of Rules

Absence of Local Rules Governing Woodstock Exploitation

Rules governing access to woodstock and pasture resources are effectively non-existent Community members treat their territory as an open access resource. The village chief indicates that they could not refuse stranger herders the right to pasture their animals on the land. They make no rules to govern local demand on the woodstock.

When local herds are taken to the Inner Delta, by contrast, access is limited They pay at least a token fee (5,000 FCFA in 1992) to pasture some hundred cattle within their traditional Delta sector The individual in charge of this area, the *dioro*, is a traditional official who has acceded to an office created during the regime of Ahmadou Cheikou, the Fulbe emir who organized land use patterns in the Inner Delta in an effort to govern and manage the rich resource base in that area *Dioro* posts were created for the entire delta area, and each managed his sector with a mandate to maintain the resource base.

Forestry Code Rules Governing Woodstock Exploitation

As elsewhere in Boré Forest, once the forestry office was opened in Nyiminyama, in 1972 just as the Foulankraïbé were settling permanently at Koniba, national regulations began to be applied in a somewhat irregular fashion. In principle, pastoralists could not lop branches from protected species without formal authorization from the resident forester.

5. Interactions

Before the Foulankraïbé settled at Koniba in 1972, they faced continuous complaints and accusations from Amba residents to the effect that they were devastating Amba's woodstock by unauthorized cutting. The Foulankraïbé deny this, asserting that Amba people were merely jealous of them because the agro-pastoralists were so much richer because they had herds Thus escaping pressure from Amba people provided one justification for settlement.

Koniba-Koira community spokesmen assert that they now have no problems with Amba people, and that any damage to the Amba woodstock is caused by "other transhumant pastoralists " Amba residents sharply contest this version of events, asserting that the Foulankraïbe continue to lop branches in forested areas on Amba land with little concern for the survival of the trees, and that the Foulankraïbé pose a serious threat to the survival of the Amba woodstock

Foresters have tried to control cutting by Koniba residents since 1972 These efforts during the period 1972-86 appear to have been focused as much on raising revenue, either for forest service coffers or for individual foresters, or for both, as they were on protecting the woodstock Koniba informants report they were routinely and regularly fined amounts of 25,000 to 50,000 FCFA when a resident was caught lopping branches Typically, foresters did not issue receipts for any amount less than 50,000 FCFA.

Koniba informants maintain that they could not rely on foresters to control non-residents cutting on their land because if they made the trip to Nyiminyama, actually got a forester to return with them, and then failed to find the person responsible, they were forced to pay the costs of transportation, and were as well collectively saddled with the costs of the fine for the cutting This result, so long as the fine was imposed and a receipt issued, is in perfect accord with terms of the Malien forestry code.

From 1987 on, the new forester at Nyiminyama applied the forestry code regulations very strictly. He fined heavily, and always issued receipts. Local people perceived his unwillingness to negotiate the size of the fines, as had his predecessors, as a great and costly inconvenience Koniba people continued to cut. The local woodstock was increasingly decimated, largely at the hands of local residents because few transhumant pastoralists spent any appreciable amount of time on Koniba territory In search of forage for those of their animals they did not move out to the Niger Inner Delta during the dry season, Koniba herders also apparently continued to cut in Amba areas of Boré Forest, without permission

At present, by their own account Koniba people derive much more of their subsistence income from farming than from pastoral activities. They lost a very substantial part of their cattle herds during the 1973-74 drought. Two residents still have sizeable herds of cattle, each numbering about 100 animals; goat herds; and sheep for fattening and sale.

6. Outcomes

The resource use practices of the Koniba-Koira Foulankraïbé agro-pastoralists have degraded their woodstock to the point of nearly total destruction This is neither efficient nor equitable, insofar as local people are now exporting these practices ever more to neighboring villages. Their own woodstock might be regenerated, but unless they act quickly and decisively, it will be destroyed rather than sustained

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7. Conclusions

The Koniba-Koira case suggests that agro-pastoralists of this type "cannot be trusted" to exercise responsible stewardship over their resource base. The Foulankraïbé have made no effort to impose limitations on the size of their herds, in accord with the capacities of the village environment to support stock pressure Instead, they appear to have adopted a consistent free rider strategy of exploiting resources others seek to protect. The tragedy of open access resources - that is, non-governance and non-management - is here made palpably evident. Two practices worked very effectively for transhumant pastoralists (1) build herd size whenever possible to increase the probability that the family will survive severe droughts with enough animals to sustain the household unit, and (2) exploit resources only within the limits of sustainability and then move on to other areas Unfortunately, as the RNR base in pastoral areas has been invaded by farmers seeking arable land, afflicted by drought, and overgrazed by growing animal populations, the two principles have come into conflict. When the Foulankraïbé settled, they simply failed to modify the first principle in a way compatible with respecting the second In this situation, local institutions were not dominated and suppressed by outside forces Instead, pastoralists failed to adapt to new circumstances. Now they have degraded their own status to that of agriculturalists

This suggests the danger of devolving control over RNR to residents of these sorts of communities On the other hand, a great deal of the damage to Koniba's RNR base occurred during precisely the period when the centralized Forest Service woodstock management system had an unquestioned mandate to protect forests.

The pertinent question is thus not whether to devolve authority, but whether devolving authority to a community with an impoverished resource base will create intolerable pressures on the RNR bases of adjacent communities This question in turn highlights the importance of local institutional capital and the capacity of local RNR users to craft new rules and new institutions to address a changing set of problems Critical issues are whether, for example, Amba could mobilize personnel to monitor use of its own woodstock by Foulankraïbé agro-pastoralists, could maintain respect for Amba's use rules, and could obtain adequate support from overlapping governments in cases of dispute These issues are addressed further in the concluding section of this country study.

E. N'Dounkoye Village: Soninke, Agricultural and Uninterested in Marketing Firewood

1. Attributes of Forest Resources in N'Dounkoye

Site Description

The village of N'Dounkoye is located on the southwestern edge of the *Cercle de Douentza* within Boré *Arrondissement.* To the west the village shares a common boundary with Kona, the *chef lieu* of Kona *Arrondissement* in the *Cercle de Mopti.* The old national

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highway that passes through N'Dounkoye provides the village with access to Kon: to the west and to Amba, Boré and Douentza to the east. The construction of the new *route nationale* to the south in 1985-87 isolated the village commercially. The villages to the south and east, Amba, Bima and Batouma, have benefitted the most from the new road. Two other small villages, Wori and Guelingouma lie to the north and are connected to N'Dounkoye by dirt tracks (*pistes*).

N'Dounkoye is a relatively small village with an estimated population of about 150 adults in 20 family groups. Based on a rapid trip around the boundaries with local residents, the village's land area (*terroir*) is estimated to be about 120 km^2. Land use can be roughly classified as·

Table 2

LAND TYPE	SURFACE AREA %
Cultivated and fallow land	30
Forested land	60
Other land (degraded, unused)	10
TOTAL	100

A steep rocky hillside forms a natural northern edge of the village *terroir*. The land slopes gently to the south from the base of the hillside toward the stream bottom where the natural forest is located The village itself is nestled against the hillside adjacent to an intermittent stream course which drains a small valley A band of agricultural land (cultivated and fallowed) is located between the hillside and the forest in the central and eastern portion of village lands, this band is usually no more than two-to-three kilometers wide Other small zones of agricultural land exist primarily as hamlets in the western reaches of the *terroir*

The main RNR used by the village are its very limited water resources, the agricultural land and the adjacent natural forest.

Water Resources

Water resources in the village can be classed as common pool resources subject to open access Women and children are the primary harvesters. The male population of N'Dounkoye has improved two small natural depressions (*mares*) to capture water running off the rocky hillside during the rainy season. These two depressions serve as important sources of domestic water supply, complementing the village's one meter diameter well (35m deep).

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Village informants suggested indirectly that transhumant populations in the area do not use village water sources.

The ponds' capacity to capture and hold water has been improved through collective village action, mainly by deepening the depressions and constructing a system of channels leading off the hillside immediately above the village and into the depressions The actual area served by the catchment system is probably no more than one hectare and villagers are continually enlarging and working to improve the system. The village association has organized collective work days for these activities.

Water from hillside runoff can remain in the pond until December if rainfall is adequate (normal). The stagnating water in the ponds creates a severe guinea worm problem for the village (The village does have an information and preventive program to address the problem)

When the new paved road was under construction N'Dounkoye villagers tried to improve their water resources situation by hiring a bulldozer from the construction site to create an earthen dam across the intermittent stream that runs by their village. No action was taken to reinforce the dam structure and the impoundment basin functioned only one or two rainy seasons before it washed out

Agricultural (Soil) Resources

The agricultural land, which gently slopes in a southerly direction away from the village (and toward the forest), is comprised primarily of sandy, lateritic soils with some clays and relatively little organic matter Agricultural fields in N'Dounkoye can be classified as private goods Village farmers produce a variety of traditional crops which include millet, sorghum, upland rice, fonio, niebe, and calabash In a normal rainfall year (350-400mm) crops are produced in a quantity sufficient to sustain the local population and generate a small surplus for sale The village is particularly known in the region for its calabash production and farmers gain substantial income by selling this crop in the region's markets

In the past two years N'Dounkoye has received technical assistance from an international NGO (Near East Foundation, NEF) operating in the Douentza *Cercle.* Assistance in the village has focused on a small agroforestry effort (providing inputs for shade, fruit and field tree planting) and soil and water conservation (SWC) activities on farmers' fields The NEF has helped farmers lay out contour lines in fields on which the latter construct small rock dikes (*digues filtrantes*) to catch and spread water running across the cultivated area These dikes allow greater water infiltration and trap suspended soils, retarding natural sheet erosion processes These improvements provide positive spillovers to fields downhill

Rocks destined for the dikes are amassed by collective village action and are transported by a NEF truck to the field sites. Village farmers then build the rock dikes on

contour lines previously traced out on the field. Farmers are not unfamiliar with the technology, having used traditional methods of tied ridges on their fields. The NEF assistance allows them to both improve the technique by following the contour and, with the use of rocks, make the soil and water barriers more permanent Long-term plans also may include planting grasses (such as *Andropogon spp*) along the dikes to further stabilize them and to provide an additional commercial product. Dike construction requires considerable collective organization and mobilization on the part of the N'Dounkoye farmers. Although almost all farmers want dikes on their land, it will require many years before a substantial amount of the cultivable land is treated.

There are relatively few in-field trees on village farm lands, but those that do grow are seen as the property of the farmer. The NEF has also started a small effort in N'Dounkoye to provide farmers with inputs necessary for producing trees that may be planted in their fields. Men engage in these actions

Natural Forest Resources

N'Dounkoye's forested land is part of Boré Forest, which stretches roughly in a 15-25 km-wide band for 30 km along the northern base of the Bandiagara cliff Its vegetation is significant relative to most of the Sahel and, with its many ponds and valley areas, supports a diversity of species The severe drought period of the late 1970s to mid-80s killed many of the trees That wood is now being exploited for fuel, particularly for Mopti/Sévaré, 80 km to the southwest, and Douentza, 60 km east Woodcutters in the villages of Amba, Batouma, and Tibouki appear to be the most organized and active exploiters of the Boré forest.

The forest has traditionally been a common pool resource with only a modicum of administrative control exercised by *Eaux et Forêts* -- mainly by issuing cutting permits for removing dead wood (200 FCFA/stère) To the present there has been no formal attempt at forest management or planning by any groups with an interest in the forest Because of this, coupled with the current demise of *Eaux et Forêts* in local people's eyes (particularly the Fulbeh herders), Boré forest runs the risk of becoming another degraded Sahelian resource as dead wood volumes diminish, the region's demand for fuelwood is maintained, and harvesters begin felling live trees.

The forest resources within N'Dounkoye's village lands are a substantial resource and appear to be relatively unexploited when compared to the forested land of surrounding villages (e.g., Batouma, Kona). The rapid reconnaissance of the forest indicated that there is a considerable woodstock on village lands with a wide diversity of species -- more so than many other forested areas in the Sahel within the same rainfall zone. Crown cover in most of the forested area is estimated to exceed 50 percent and there is considerably more live wood than dead wood (This contrasts with a recent inventory of forested village lands in three adjacent communities on the other side of the new paved road. Wood volumes there were estimated to be roughly half live wood and half dead wood, cf. discussion of Amba

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woodstock.) In other words, the N'Dounkoye woodstock appears to be in a very healthy condition.

N'Dounkoye derives all of its domestic fuel from the forest, some two kilometers distant. Although men sometimes collect wood for fuel, women are the primary harvesters and users of this resource. Forest species are also exploited by all villagers for fruit, forage, and medicinal purposes. Given the small size of the village, supply probably far exceeds the local demand for forest products Wood for construction is collected by men in the forest as necessary. They reportedly also purchase poles from Batouma. The Forestry Code requires that a permit be paid for all live wood poles removed from the forest The actual amount paid depends on the size of the pole.

Fulbe herders passing through village lands on their annual migrations also harvest some wood and forage for their animals. A small settlement of Foulankraibé living at the edge of the village territory also harvest wood and forage from the forest.

Villagers harvest a small quantity of dead wood in the forest for sale to wood transporters from Kona every year Although distances are shorter to the paved road (8 km) and to Amba, villagers experience less competition towards Kona Forest Service monitoring and control of cutting permits on the Kona side is less stringent (see discussion below). Until the national highway was rerouted, Bella woodcutters exploited the N'Dounkoye forests The activity ceased to be lucrative when the road shifted in 1987 and the Bella left the area

Today, village woodcutters report that only three to five truckloads are sold annually. This amounts to about 90-150 *stères* with a roadside gross value to villagers of 120,000 - 200,000 FCFA per year Cutting permits of 200 FCFA/*stère* levied by the Forest Service appear <u>not</u> to be paid by woodcutters from N'Dounkoye. With the hiatus in the current governing structure and the overall loss of control by forest service agents, villagers will probably not pay the cutting permit anytime soon.

Villagers harvest wood using local implements. Wood is transported from the forest to the village roadside stockpiles by donkeyload, headloads and oxen-drawn cart. Wood can be harvested for sale only by male members of the village, and only by members of the village association.

Woodcutters receive 35-50 FCFA/faggot. None of this sum goes to the village association. The association helps each woodcutter keep track of the number of faggots stockpiled. Most of the wood is harvested and sold prior to the cold season (when prices are highest, 50 FCFA/faggot). Smaller amounts are sold during the dry season (March to May) No wood is harvested during the rainy season When stockpiled quantities are sufficient for a 10-ton truckload, word is sent to Kona A trucker arrives, buys the wood and takes it from the village.

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The rapid survey of village lands revealed that the villages of Kona and Bima on the western side of N'Dounkoye have already heavily exploited dead wood in their own territories. Only small quantities of wood of marketable size remain. N'Dounkoye woodcutters report that villagers from Batouma on the south and eastern side of their territory (and across the paved road) also harvest some dead wood from N'Dounkoye forested land for sale in Sévaré They felt, however, that the quantity was relatively small and did not appear to be overly concerned about this infringement on their woodstock resources

Woodstock Resource Outcomes

These factors, the depletion of deadwood from the forests of the villages bordering N'Dounkoye and the relatively large amounts of deadwood in the N'Dounkoye territory represent both a potential source of conflict (from intruding woodcutters) and a commercially valuable resource for the village Even though N'Dounkoye villagers adamantly stated that they prefer farming and saw woodcutting as only a supplementary activity, a more active approach to natural forest management of those resources within their *terroir* could increase their incomes considerably.

Supplies of dead wood currently harvested from natural forests in the region are a result of the severe drought conditions in the mid-1980s Once these supplies are exhausted, the relatively good health of the forest will be severely compromised unless management strategies are in place to regulate removals of live wood Although discussions have been initiated with other villagers to manage their woodstocks, no formal or local rule structures currently exist to govern their use N'Dounkoye's forest, with its relatively low use (at present) could provide an excellent point of departure for formulating local use rules of forest resources Formulating rules now for the removal and commercial sale of dead wood resources could provide an excellent basis for the sustainable management (including harvesting) of all the village's natural forest resources and provide an example for other Boré Forest villages

2 Community Attributes

Village History

Residents of the nearby village of Wori initially founded N'Dounkoye as a seasonal hamlet. Drawn by the rainy season pond which collects runoff from the hills, Wori residents farmed the surrounding fields and returned to their village after the harvest. At about the time the French arrived in the region, the grandson of the first man to farm these lands established N'Dounkoye as a permanent village.

The first residents of N'Dounkoye were Soninke of the chiefly family of Wori and their captives, but from its earliest days, members of a variety of ethnic groups have lived in the village. Fulbe of the Diko family, recognized in the region as great warriors (Jagarafu) also came to N'Dounkoye from Wori In later years Bambara, fleeing from regional and

local conflicts, sought refuge and settled in the village. Village Soninke presently maintain three clans (**kabila**), while Bambara maintain ten. Ten to twenty Fulbe families of smaller size also reside in the community. While these proportions may reflect the tendency for Soninke to form larger clans, the Soninke clearly do not dominate the population. Although no exact figures are available, villagers interviewed suggested that N'Dounkoye Bambara and Fulbe outnumber Soninke. While some residents do not speak Bambara, both Fulbe and Bambara are widely spoken.

Through the years, N'Dounkoye's population has continued to change. In particular Fulbe and Bella families, some of whom are woodworkers, have settled permanently in the village.

Although N'Dounkoye is inhabited throughout the year, the village's seasonal character remains; the population expands in the rainy season and contracts after the harvest. Fulbe families, and young men of large livestock-owning families, return with their herds after the rains come Youth gone to seek work in Mali's urban centers or the Ivory Coast return to farm. Bella families who pass the dry season harvesting rice along the Niger, fishing, or working for fishermen also return

Services spring up to meet the demand of this increasing population: two boutiques open in the rainy season, and Twareg blacksmiths set up shop temporarily.

The Road

Construction of the new national road in the late 1980's seriously hurt N'Dounkoye's economy. While the national route had passed through N'Dounkoye, the new route built from 1985 to 1987 passes near Batouma, ten kilometers to the south This shift immediately isolated the village A number of Bella and Fulbe families who lived from the traffic moved out. Markets became more difficult to reach as the old road was left to deteriorate. Fulbe transhumant pastoralists who formerly passed through the village now move along the new road, drawing water from the ponds created by the road building

Village Social and Political Organization The *Association Villageoise* (AV)

Members of the village's various ethnic groups contribute jointly to the village's administration through a limited number of centralized institutions. N'Dounkoye is not subdivided into wards, and social/professional groups such as hunters or returned migrants have not established unions Age groups do not exist independently of the AV.

N'Dounkoye's AV, which was officially registered in 1990, developed out of the traditional village association, the *ton* (*fede* in Soninke) All permanent residents of the village are members of the *ton*, regardless of caste or ethnic group Three types of members make up the *ton*, each with their own leader. elder men, younger men, and women. Each contributes to village projects as their abilities permit Generally, elder men administer and manage, while younger men provide the labor, and women provide food. There is no membership fee.

N'Dounkoye's village association (AV) may presently be the most influential institution in the village The village multi-ethnic council of village elders plays an active role in decision making, but village residents develop and carry out projects through the AV. The village chief died four months before the present study was undertaken, and his family had yet to propose a successor for confirmation by the rest of the village. Some village residents interviewed suggested that the capability of the AV decreased the urgency of his replacement.

Production Systems

Agro-pastoralism and labor exportation form the basis of N'Dounkoye's production economy. Only in recent years have villagers of non-Bella ethnic groups begun exploiting the forest as a commercial resource.

The Soninke and Bambara of N'Dounkoye consider themselves -- and are known in the region -- as serious farmers Millet farmed on the raised soils (tintin) forms their principal crop The farmers of N'Dounkoye have capitalized on the introduction of ox-drawn plows into the village around 1970 by the Operation Mil Mopti project Presently village farmers own over fifty plows, though only a small fraction are functional today

Some families also farm sorghum in the limited depressed areas (*collanga*) to the northeast of the village When rains are more abundant they rely on the early maturing fonio to meet food needs before these other grains are harvested In recent years a few families have also adapted technology developed in nearby Boré and established rice fields (*kare*) in the lower reaches of the ravines In the humidity-retaining sandy soils of all these fields people plant niebe, watermelon and calabash, the last planted as a major cash crop sold in local and regional markets

The Soninke and the Bambara also own livestock, although only the Fulbe of the village consider themselves primarily herders. The village herd is managed independently by the various village families In addition to their own animals, Fulbe are entrusted by other village residents with their animals although increasingly even families that have not traditionally been herders send one of their sons with the animals during seasonal migrations.

N'Dounkoye's livestock actually spend only a small part of the year in the village. After the rainy season, herders drive the region's livestock across from the east, through the Boré Forest and across the recently harvested fields of N'Dounkoye to spend the dry season feeding on the banks of the Niger Much of N'Dounkoye's herd spends this period (from January on) at the riparian Fulbe village of Konsa, 14 kilometers west of N'Dounkoye. With the first rains, the herds return to the east, feeding on the new pasture Before the new national road was constructed, many of the region's herds passed over N'Dounkoye's fields, as now they pass along the new road and through the forest. Many of N'Dounkoye's cattle spend the rainy season in the village of Mondaro, where ponds exist to water them.

The people of N'Dounkoye are known as owners of large livestock herds, with some non-Fulbe families owning upwards of 100 cattle, and Fulbe herds are innumerable. Some village women also own cattle.

Village activities that have brought large amounts of cash into the village help account for N'Dounkoye's relative success in farming and stock raising. The 1987 census found that every household in the village had at least one migrant seeking work or working outside of the village In addition to local seasonal migration to rice and fishing activities along the river, a substantial proportion of the village's male population works in the Ivory Coast. The long history of wage migration from the village may in part account for the village's ability to mobilize the cash necessary to purchase agricultural equipment and livestock. Profit from calabash sales apparently also have contributed to village liquid assets.

N'Dounkoye's success in farming and stock raising accounts in part for the limited use they have made of Boré Forest, and why its use figures only minimally in their production systems.

3. Attributes of Local and Other Working Rules

Resource Tenure

The village council and *ton* manage the village's limited public water resources. Under the direction of the council, the *ton* organizes the efforts to maintain and improve the ponds and the water retention system They organize the youth of the village to contribute labor to weekly work sessions shoring up and re-digging these structures. To insure participation, the *ton* fines absentees 500 FCFA per day

The council also determines when the well may be opened and used after the ponds have dried up. It also may make decisions in extraordinary situations For example, the council re-closed the well this year after three days of dry season rains in January.

Land Tenure and Management

The noble families that initially settled in N'Dounkoye established claims to the lands they considered valuable farm land Dependant captives worked land owned by nobles. Successive arrivals initially either cleared their own fields or borrowed land from the tracts claimed by the original noble families Overtime, and through intermarriage, tenure on lands originally borrowed became irreversible Today, the oldest Bambara and Fulbe families of the village farm lands considered their own Village elders interviewed state that all resident families now own land, although the eldest and largest families maintain rights in the greatest amounts of land, and some families continue to borrow these lands Women, never landowners, borrow the land they farm

Heads of extended families (*kabila*) maintain managerial rights to family fields and, in consultation with other adult males of the extended families, determine transactions in these lands. Adult males of extended families farm fields together, and do not subdivide them into

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individual fields. Although individual family member fields did once exist, villagers report that with the advent of the use of the ox-drawn plow twenty years ago, families consolidated their efforts. Family harvest enters in a single family granary managed by the compound head.

Recent water harvesting activities confirm that investment as well as the principle of "first in time, first in right," influences the distribution of land rights Families that have improved borrowed fallow fields and cultivated rice on them retain rights to the improved land, although original owners may return to adjacent millet fields also improved and not farmed by the borrower. Conversely, land owners, supported by the village council, do not allow dikes on borrowed land, because this investment will secure ownership by the borrower.

No land is rented or sharecropped in N'Dounkoye. Paid labor does exist, and people with labor constraints, such as Fulbe or women, will sometimes borrow a field and pay the owner or someone else, to help farm it.

Forest Tenure and Management

The people of N'Dounkoye have defined few specific rights to Boré Forest. They have not clearly delineated the boundaries of village territory in relationship to those of surrounding villages, nor do different individuals of the village have claims to particular sections or trees in the forest. Until recently, forest products could be used by anyone in any way Limits apparently did exist however on cutting baobab (*Adansonia digitata*) Village residents could clear forest land for fields without permission from the village chief. Strangers asking to clear land for cultivation did have to obtain authorization from the village chief, since clearing a field necessarily involved settling in the village

In recent years, the village has asserted its authority in an attempt to protect the forest resource. The village has begun to define rights to the forest by patrolling. Although the patrols apply the forest code that makes no distinction between village and national resources, N'Dounkoye residents, by enforcing the code in an area unclaimed by other villages, are taking initial steps to establish a village claim

The people of N'Dounkoye began patrolling their forest in the early 1980s, when the head of the Nyiminyama Forest Post encouraged and supported their efforts The village organized patrols during the rainy season, after the village youth had returned. Monitoring was carried out by teams, each composed of ten young men selected and managed by the village *ton* They walked through the forest each Monday, the day the people of N'Dounkoye rest from working in their fields

While the patrols restrict use of the forest by both village members and "strangers," violations are adjudicated differently. Village violators are brought before the village council, while "strangers" are brought to the Forest Post head, where they assumed the individual would be fined When N'Dounkoye residents were caught, the patrol brought them before the village council, who administered a fine commensurate with the severity of the infraction and

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the means of compensation possessed by the malefactor. Fines might be in grain, money or animals.

This gradual definition of village claims to portions of the forest is recent and has not been fully worked through. For example, the new national route is now considered to be the boundary between N'Dounkoye and Batouma. Before the construction of this route the boundary had not been defined This effort also remains precarious. The people of N'Dounkoye have discontinued patrolling their forest since the coup d'etat in March of 1991, because the Forest Service has lost its authority and the people themselves cannot punish violators when they are apprehended.

Villagers also understand and respect the national forestry code regulation requiring individuals, before they clear woods for fields, to apply for a permit to clear (*permit de defrichement*) Permits are granted contingent on a positive review by a committee composed of representatives of government technical services, the arrondissement head and village representatives.

On farmed land, tree tenure is linked to land tenure in N'Dounkoye; a person's rights extend to the trees growing on land he claims. An individual maintains exclusive rights to the trees found in his fields.

Discussion of Rules

N'Dounkoye institutions do maintain limited control over the management of water, forest and farm land common pool resources. N'Dounkoye residents have charged their council with village-level adjudication of infractions of NRM rules by involving village members, while they apply national rules and defer to government adjudication for violations by non-residents N'Dounkoye people expressed satisfaction and confidence in the Forest Service to adjudicate and apply sanctions relevant to the forest resource.

Among these resources, rules have been best articulated and most strongly applied for the scarcer resources, that is, water and farm land. The village has developed effective management systems for both resources They determine open and closed seasons on water use, and prevent both passing herders and villagers from using N'Dounkoye ponds to water animals Local rules allocate use of farm lands and restrict clearing of the forest for cultivation. However, because of the size of the forest and the location of the village at one end of it, as well as the limited perceived value of the forest, the people of N'Dounkoye have had limited effect on restricting or managing cutting in the forest, even when supported by the Forest Post head. Individuals can, without fear of detection, cut in the N'Dounkoye section of Boré Forest unhindered all through the dry season, and six days of the week in the rainy season, using whatever tools and cutting whatever amounts they desire As noted, the forest boundaries themselves are only gradually being defined.

The village council and *ton* have been able to require village labor contributions to protect and develop these resources, as evidenced by the AV's group work on the ponds and dikes, and by the forest patrols. However, in the case of the forest patrols, where the village

is applying national law, to be effective, the village needs government support in enforcement.

N'Dounkoye's approach to forest monitoring is also dependent upon government support in enforcement, without which the organized monitoring does not take place. Even when the patrols functioned it is not clear to what extent patrol members assessed and recorded use and abuse of the forest.

F. Tibouki Village

1. Introduction

Tibouki village, established atop Toundoudfere plateau within the confines of Boré Forest, exemplifies the cohesive community committed to forest management.

2. Attributes of the Forest

Tibouki's forest strongly resembles those near neighboring villages, except for the high concentration of certain indigenous fruit trees and baobabs (*Adansonia digitata*). The forest in the plain is flat, with no natural boundaries -- no major watercourses, hills or land formations -- though a few water depressions do spot the area Forest cover is patchy Densely covered woods alternate with barren stretches Major species include *Combretum macrocarpa, Anogeissus leiocarpus, Acacia senegal, Pterocarpus erinaceus, Grewia bicolor* and *Commiphora africana*, with a few baobab and *Boscia senegalensis* In the water depressions ronier palms (*Borassus aethiopum*) and a few tamarind (*Tamarindus indica*) are also found.

A large population of valuable leaf and fruit bearing trees grows in the fields that have been cultivated since the foundation of the village atop the hill located in the center of village lands. These lands are densely forested with baobab mixed with *Sclerocarya birrea* and *Lannea macrocarpa* Behind these fields, in the less recently and less heavily cultivated sections further away from the village, *Boscia senegalensis* and *Balanites aegyptiaca* dominate.

Commiphor africana and *Balanites aegyptiaca* grow on the rocky hillsides.

<u>Uses of the Forest</u>

Firewood harvesting is presently the most important economic use of this forest. In 1984 Tibouki men from both the upper portion of the village, atop the hill, and from the quarter now located at the base of the hill, began cutting firewood for sale when their crops failed Initially only a few men cut a limited amount irregularly In recent years production has increased. Men from Tibouki work the forest in teams camped several kilometers from the village. Using locally manufactured axes, individual team members cut their own wood,

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pool their production for joint marketing, and split sale proceeds proportionate to amounts cut. Teams begin working after crops have been harvested, stop for Ramadan, and may continue for a short period before they must begin clearing fields. No one cuts all year round. The team will cut and stack enough wood to fill a truck, and leave it to be gathered once they arrange transportation. Although family members may work on the same teams, friendship and mutual trust form the basis of their association, not kin ties.

Tibouki residents transport their wood by cart. In the first years of harvesting firewood people owned few carts and owners loaned them out gratis, but in recent years people have begun to rent them for one-tenth of the load transported Tibouki presently counts eight carts

Initially woodcutters transported wood by car to Amba, where they left it with friends to be sold They did not pay the people in Amba for this service outright, but did "tip" them afterwards for their assistance However, in the last four years Tibouki cutters no longer sell through Amba, but to people from Batouma who act as middlemen with transporters from Mopti. Batouma woodcutters, closer to the road, have negotiated a 50 CFA\faggot price with truckers who they lead to the Tibouki forest Batouma woodcutters now buy wood from Tibouki cutters for 40 FCFA a faggot and turn it over to the transporters Tibouki residents resent this situation -- until last year they sold their wood at 30 FCFA a faggot -- and hope to establish direct ties with Mopti truckers themselves.

Three teams from Tibouki are cutting in the forest this year. The first team has four men, the second five, and the third has twenty-two These are the only Tibouki teams working over the past four years Woodcutters from Tibouki say a team of four men can cut, stack and load a 30-*stère* truck in about ten days Assuming these teams will each work for three solid months this year, they will cut, stack and load 70 thirty-*stère* trucks worth of wood. Assuming 30 faggots to a *stère*, they will make 2,772,000 FCFA for their work, or about $9,900 [4]

Two teams of strangers are also working the Tibouki woods this year, one of ten members and one of five. Making the same assumptions above, they will cut 33 thirty-*stère* truckloads, which they will sell for 1,306,800 CFA, or about $4,667.

The combined teams, by the villagers' estimate, will cut 103 truckloads of dead wood for an estimated gross benefit of 4,078,800 FCFA ($14,567).

Other Uses of the Forest

Tibouki women collect, process and sell a wide variety of forest products. This harvesting is the most important use of the forest for women, and the collection of baobab leaves is the major product collected. Although they are particularly known for the baobab leaves they collect and sell in Boré market, they also harvest *Sclerocarya birrea* nuts and

[4] Assuming an exchange rate of $1 = 280 FCFA.

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fruit. The latter they transform into a drink and sell both outside and within the village. Women collect ronier leaves for home use, and *Lannea macrocarpa* fruit for home consumption. With the lannea seed they make soap and tan hides. Women join together and collect *Boscia senegalensis* fruit in the more distant forest, and they collect *grewia* fruit in October, with which they make a drink also sold in Boré market.

Although people do not plant these trees, they avoid cutting saplings and, in the case of the baobab, build protective fences around them. Women collect for their own use, usually individually, except when they team together for protection to work the deep forest.

Tibouki's women, occasionally assisted by their husbands, have always gathered dead wood from the forest for domestic use as firewood, and they continue to be the primary collectors of firewood for domestic consumption Now, however, men occasionally assist them by carting wood home Before independence they gathered firewood from on the hill as well as from the forest below, but in recent years the expansion of farmed land has increased the distance women have to go into the plain to harvest firewood, and the drought has increased the amount available on the plateau as well as in the plain. Thus women who live on the hill now do not descend to collect wood

The people of Tibouki also use the forest resource in a variety of other ways. Men have hunted in the forest in the past, though this was done on a recreational rather than professional basis At present there is not much to hunt in the forest aside from a few deer. Honey was once harvested from the woods around the village. Individuals constructed cylindrical hives to lodge in the forks of trees. At one time honey was sold, but in recent years harvests have diminished so sharply that it is not worth selling the small amounts harvested. Wood has also been taken for building and carving tools, stools and utensils.

3. Attributes of the Community

Social cohesion, and simplicity and consistency of institutions characterize Tibouki. These strengths are due in large part to village isolation, antiquity and ethnic homogeneity.

Settlement and Subsequent Developments

According to village residents, Tibouki's founder arrived from the Mande area to the west before the founders of any other village in the area, with the exception of the village of Pele, which no longer exists The Tibouki ancestor was seeking refuge from the conflicts that plagued the area during the seventeenth and eighteenth centuries, and established the village on the south-western rim of the Toundoudfere plateau. In time, other Dogon established villages elsewhere on the plateau to the north and south, and Fulbe, Bambara and Rimaibé established the villages of Batouma and Amba across the plain, to the east

As French colonization diminished the threat of attack, Tibouki residents began farming in the plain at the foot of their village and, approximately forty years ago, families established permanent residence there. Presently almost as many people live at the foot of the hill as on the top The Dogon residents of the village form five extended families,

residing in the three village wards, two of which are found on top of the hill. Each ward has a meeting place, a *toguna*. Muslims as well as animists, they have built a mosque on the hill, and one below.

Although certain members of the village continue to be recognized as descendants of captives and do not marry with other families, it was impossible to ascertain either their residence or their relationship to the five village families.

Relative Physical and Social Isolation

Village relations with the exterior remain limited. People walk fifteen kilometers over the hill to the market in Boré. Cars pass through the forest to Batouma, and then to the paved road twenty kilometers away Transhumants do pass through village lands seasonally, and government officials and party officials visit occasionally, with perhaps the most frequent being Forest Service agents who pass through the village to collect fines

Only two men from the village hold jobs within the government One is a sergeant presently posted in Gao and the other is an agricultural specialist in Niono No village members held positions in the UDPM.

The only recent addition to the village is a Fulbe family which had long visited and passed the rainy season there Their herd was decimated by the drought of the early eighties and they took up permanent residence at the foot of the hill on the edge of Tibouki four or five years ago.

Seasonal Labor Migration

The young men of Tibouki have long left the village to search out work after the harvest, and the number of men leaving greatly increased during the most recent drought The numbers have not significantly decreased, in part because village families continue to be obliged to repay loans contracted in the drought and restock their herds. For most men, this remains seasonal migration, though a few leave for longer periods of time.

In many ways, the drought has been the most significant event of recent years in Tibouki, it greatly increased their dependance upon the rest of the world. In addition to increasing migration, the lost harvests of 1983 and 1984 forced people to sell off much of their livestock, and take out loans To keep alive, women collected sorrel leaves, which they turned into soap and sold. The men of the village began cutting and selling dead wood from the forest.

4. Attributes of the Rules

Village Institutions

"Administrative" Chief - The eldest man of the founding family inherits the position of administrative chief, and four men from each of the other families form his council. The French created this office, which took over some of the functions of the existing "traditional" chief. At present the administrative chief (the "amiri") and his council form Tibouki's central political institution They make most of the village-level economic and political decisions. Evidently no other formalized groups exist; there is no hunter's association, women's association, or migrant's association Village wards do not appear to conduct activities independently. Young men have never mobilized as a youth group working independently of the rest of the village, except for one year when young men worked a collective field and sold the harvest so that important visitors could be properly hosted

No Official Village Association - There is no registered village Association (AV) in Tibouki. The chief and council organize everyone for collective activities For example, in 1990 the village was fined 60,000 FCFA by a Forest Service agent for bush fires that occurred on their territory To pay the fine villagers collectively cut firewood which they sold for 25,000 CFA The remaining 35,000 FCFA was covered by villagers' contributions. The chief and the council also organize the village to monitor the forest This activity is discussed below.

"Traditional" Chief - A second village-wide institution exists While perhaps more important than the administrative chief and his council, it is not overtly political. The eldest man of the initial five families of the village holds the office of "traditional" chief (*anapie*) The *anapie* maintains certain fetishes and performs certain sacrifices -- or orders that they be performed -- and receives the head, skin and liver of animals sacrificed He also picks the date to begin planting and the date to construct pathways through fields He determines when the wall of the waterhole will be rebuilt In addition to these functions he performs, the *anapie* holds rights to some individual trees of the species *Lannea macrocarpa* At present, the *anapie* (as well as the village imam) perform primarily religious functions and rarely mobilize village labor or resources They neither represent the village to the outside world nor sit on the village council

Production Systems

The people of Tibouki are agro-pastoralists. In the plain below the village, and on the plateau behind it in smaller fields with bunds formed of cleared field stone, the men and some women farm millet. Men also farm some sorghum in the moister low lands of the plain, and have in recent years built rice nurseries next to the water catchment behind the upper portion of the village. Rice shoots are transplanted to fields recently built in cleared water depressions in the plain. Women also farm peanuts, sesame, sorrel and gumbo. Members of each of the five extended families of the village own at least one plow, while some own up to four

Men and women own livestock, although many perished during the last drought. Women still have animals, though they had to sell many during the drought. The women's husband manages her animals. Young men of the village take some of the animals on transhumance migrations. Village animals also graze in the forest and on top of the hill.

One Tibouki family also turns its livestock over to the resident Fulbe family to herd. In exchange the herder gets the milk. The Fulbe family also herds the animals of a man of Kunasana, who lets them work a field near his.

Transhumant trekking routes traverse Tibouki's forest. Just after the first rains herders drive their animals from Mopti, San and Djenné east to Douentza. They pass back after the crops have been harvested.

The people of Tibouki extract important inputs from their forest. Its exploitation is described below.

5. Working Rules

This section describes the working rules governing forest and other resources in Tibouki, and suggests how those rules influence the behavior of forest users.

Farm Land Tenure

The great expansion of available farm land enabled by the division of the village with the establishment of the lower quarter and the opening up of the plain has evened out distribution of farm land among Tibouki's families As is the case in many Sahelian farming systems, extended families farm a single field in Tibouki and store the harvest in a single granary Over time sub-groups, usually brothers but sometimes sons, ask the head of the family for the use of particular fields, and eventually hive off and store their harvests in separate granaries In Tibouki, although primogeniture determined field distribution on the plateau and the oldest families claimed the best fields, families do not maintain claims to uncleared land in the plain, families claim rights by clearing the woods with the consent of the chief and, more recently, with permission from the state Thus, once people began farming the plain, families needing land divided and a brother or two cleared and farmed land in the plain

In principle no matter how long a family abandons a field, the original owners retain control. Many of the old fields close to the upper village are farmed continuously and never fallowed because constant manuring by village cattle held in this area maintains soil fertility. Fields more distant from the village however are fallowed for a period of three to four years. In the plain, as farmers exhaust the soils and the population expands, farmers have moved further and further from the village, clearing land in the forest as they move During the drought, families cleared the ponds in the woods and began farming rice in these lands.

Despite the generalized access to Tibouki's lands, many farmers nevertheless find it convenient or necessary to borrow fields currently unused. To borrow a field, an individual

goes to the owner of the field with a faggot of wood on his head, gives him the wood, and asks to borrow the field. No other payment is involved. Neither sharecropping nor paid labor occur in Tibouki. Tibouki men only work another's field when the owner has fallen sick and the village organizes to cultivate his land for him.

Women farm individual fields adjoining those cultivated by their husband's family. Some women also assist men in farming their parcels. Women do not own land, but gain access through their male relatives.

Forest and Tree Tenure

Fruit, Leaf and Nut Harvesting A complicated and varied set of rules and beliefs restricts harvesting of fruit, nut and leaf products of trees in Tibouki These rules generally become more specific in direct relationship to the value people place on these products. The specificity and vigor in enforcement of these rules, also depends on where individual trees are found People place the highest value on the *Lannea macrocarpa* tree, as indicated by the vesting of rights to individual *L. macrocarpa* specimens with the office of the traditional chief Borrowers of fields in which *L. macrocarpa* are found do not gain rights to the tree's fruit. The same rule applies to tamarind trees Tibouki people also highly value baobab and *Sclerocarya birrea*, and protect individual specimens of all four species

For both baobab and *Boscia senegalensis*, people must wait for the administrative chief to declare open season to harvest them In the case of baobab, individuals cannot even harvest baobab leaves from trees in their own fields until the chief declares the season is open, because premature harvesting is thought to endanger the season's rainfall Furthermore, although no supernatural interdictions control use of baobabs, people are warned to avoid a few specific baobab trees at noon and in the evening because of the spirits found in them. Individuals caught harvesting fruit before the season has officially been declared open are reprimanded and deprived of their harvest

In principal, people from other villages are not allowed to harvest fruit and leaves of trees on Tibouki land, except in amounts they can immediately consume Village residents cannot harvest leaves from a baobab tree in someone else's field without being granted permission. However, leaves of baobab trees in the forest, along with *Boscia senegalensis* fruit, can be harvested freely by both locals and strangers, with no restrictions on quantities collected. Anyone may collect *Sclerocarya birrea* fruit once it has fallen to the ground.

Harvesting Dead Wood Residents of Tibouki do not need permission from the chief of the village to harvest dead wood for either home consumption or sale. Tibouki woodcutters do not harvest wood in the forests of other villages. People from the surrounding villages of Tete Onto and Tioki cut firewood from the Tibouki forest but, in principal, they must purchase a permit from the chief of Tibouki to do so. The chief sells permits for 1,000 FCFA per cutting session The village decided on this sum because cutters tend to be small scale operators for whom a larger fee would be prohibitive. Tibouki cutting permits afford locals a means of monitoring and controlling their forest.

By law, everyone who harvests fire wood in Mali must obtain a 6,000 FCFA cutting permit from the Forest Service, but not everyone does. Firewood cutting teams obtain permits based on the number of carts they use, generally one permit per cart. Since the coup d'état in 1991, no Tibouki resident has requested such a permit.

Cutting Live Wood Families own trees found in their fields and, except for state-imposed limitations, may cut or harvest them at will If someone wants to cut a tree in another person's field, he must get permission from the field owner. If a resident wants to cut a tree in the forest, the chief's permission must be obtained. Strangers -- woodcarvers and herders cutting branches for their animals -- are not allowed to cut live wood.

Clearing Forest. The forest claimed by Tibouki is not subdivided by individual owners, but administered by the chief of the village and his council. The forest is not internally subdivided by natural divisions, although names are given to specific sections. There is no sacred part of the forest.

In recent years, villagers have sought permits from the state when they clear forest. Although legally, committees composed of representatives from the various government technical agencies, the administration and the village council must deliberate on the request, this has never happened in Tibouki Forest Service agents simply grant permits and do not even confer with the chief of the village The agents correctly assume that villagers clear the request with the chief of the village before coming to them In the last two years villagers have been granted two or three permits in this way. Such permits cost 6,000 CFA

The village chief will generally grant any request from a Tibouki resident, except if the proposed site falls within a trekking route or encroaches on a waterhole.

Pasture tenure

The Kingdom of Macina established trekking routes and major water holes around Tibouki that have not since been changed The village requests neither a fee nor notification from livestock owners whose animals graze village fields or the forest

Rules in Application

The people of Tibouki have enforced their tenure on the forest through patrols for as long as they can remember Until three years ago, patrols were infrequent, of changing composition, and only served to prevent herders from cutting branches of live trees In 1989, at the suggestion of the local Chamber of Agriculture representative, they established formal patrols of two teams of five young men managed by the village chief and council The village council chose patrol members because of their courage, dynamism and honesty. The two teams, armed with guns, patrol the forest, each taking a different direction, on the plain and on the hill, at irregular intervals approximately twice a month

Patrols stop individuals cutting green wood, most often goat herders lopping branches to feed their animals. Tibouki people believe one can trim a tree and even do it good thereby

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if it is healthy and overgrown. They consider that transhumant pastoralists only mutilate trees, however. Tibouki has banned cutting for forage and fines people caught doing so either 1,500 FCFA or one goat. [Goats in the village sell for 2,000-3,000 CFA] Tibouki residents and strangers are fined equally. Patrol members report that about one in ten individuals fined is a village resident. Young herders prefer that the fines be paid in cash, out of the family treasury, and not in kind, out of their individual herds Confiscated goats are sold. Fines do not increase with the number of offenses an individual commits.

Patrol members also stop unauthorized woodcutters from other villages Unauthorized woodcutters are escorted to the chief. If woodcutters refuse, patrols give the cutter's name to the chief, who sends someone to collect the fine The village has never taken an offender to a higher authority They have either negotiated a solution, or let the person go Village officials do not monitor the number of fines or permits collected Nor do they attempt to limit or promote cutting in particular sections of the forest.

Patrols continue all year round, stopping only during Ramadan The council compensates members of the patrol with money from the fines collected. The remaining money is deposited in the village treasury, which is used to pay fines imposed by Forest Service agents Fines for woodcutting imposed by the Forest Service vary in amount, with the upper limit so far imposed on Tibouki being 30,000 CFA Although Tibouki residents assume that Forest Service agents know of their patrol, the parties have never discussed collaboration Fines imposed by Forest Service agents always surpass the amount collected by the village Since the coup, Forest Service agents no longer visit the village or patrol the forest, and villagers no longer take out permits

The chief of the village and others interviewed report that they are content with the system of forest management they have established, and believe that it has reduced cutting of green wood in the forest, which now produces more poles and fallen leaves for forage They feel it is difficult to properly monitor the forest because of its large size, and make no systematic attempt to manage it.

Village residents co-monitor forest use Individuals apprehending herders whose cattle have damaged their fields confront them and attempt to claim damages If the herder does not agree with the amount demanded, the farmer informs the Tibouki chief, who in turn sends a commission to assess the damage and set compensation If the parties still do not agree, the case is taken to the administration.

Relationships with Other Villages

Tibouki disputed with Korosana control of land situated at the boundary between the two villages They were not able to resolve the issue between them, and eventually took it to the administration Officials there told them to settle it among themselves. The case was eventually resolved with assistance from a third village.

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Villagers cited only one example of working with other villages of the region. The French NGO ACIM (*Les Amis d'un Coin d'Inde et du Monde*) provided development funds for the six villages of the sector and left the villages to decide among them how to administer it.

Observations and Notes

The specificity of rules and their enforcement depends on the perceived value of the resource in question to the group defining and enforcing controls on access and harvesting For example, the rules and process for the attribution of farm land have been the most clearly defined, and men have more closely monitored and controlled the use of dead wood as its value has risen In contrast, although other tree products, e g , nuts, fruits and leaves, are clearly important to women of the village, the community has not defined property rights to them, particularly those not found in fields

Perceived economic value of resources has also influenced the amount of energy put into defining village boundaries Clear, generally agreed upon boundaries marked with stones have existed between Tibouki and the other Dogon villages on the Toundoudfere plateau to the east as long as people can remember Here, a shared culture has facilitated dispute resolution and consensus when proximity necessitated boundary definition as the villages exploited land and forests closer and closer to each other

Conversely, boundaries between Tibouki and the village of Batouma across the plain are not defined, and the process has only recently begun There has been little reason to lay a claim to this land since dense forest is generally avoided In particular, Tibouki and Batouma people disagree over the ownership of land which once was farmed by residents of the now abandoned village of Guédé It was only when Tibouki residents attempted to farm these fields around the time of Mali's independence that they discovered Batouma claimed them. The issue has remained unsettled

Conflict with Transhumants over Recently Cleared Land

During the drought villagers cleared and built rice fields in small ponds that had been used by passing transhumants but not identified in the Dina. Numerous conflicts have resulted from this shift in land use, as transhumants attempt to water their cattle in these fields

For GMT's visit in March 1990, Forest Service agents required that the piles of wood along the road were cleared back one km from the road. On top of this, woodcutters, even those with permits, were "fined" two truck loads of wood and 10,000 FCFA each.

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Water Resource Tenure

Passing visitors may use the well Tibouki dug near the village quarter on the plain as long as they want -- for themselves and their animals -- so long as they use their own bucket to draw the water. The well runs dry in May.

Villagers may use water from the adjacent pond whenever it contains water. Pond water is also used to water donkeys and the rice nurseries.

IV. FARANI VILLAGE: A HILL COMMUNITY WITH AN ACUTE SENSE OF ENVIRONMENTAL FRAGILITY

A. Introduction

Farani exemplifies the dilemmas traditional Bambara communities in Mali's Hautes Vallées area face in trying to negotiate a viable compromise between the principles of a well-tested, indigenous, renewable natural resources governance and management (RNRGM) system and the demands of economic modernization Dilemmas arise in many forms. They can, however, be grouped into two major categories that revolve around·

- maintaining intra-community social control while acquiring new literacy, numeracy and farming skills; and,

- avoiding the temptations and traps of modernization in the form of short-term gains from RNR exploitation at the expense of long-term environmental stability and community survival.

Farani demonstrates that it is possible, under certain conditions, to exercise group control over individual response to temptation and to negotiate a path through the traps Clearly this process is a war involving many battles Victory can be declared neither now nor in future; the best one can say at any point is that defeat has been avoided thus far and, in this community, prospects are reasonable for continuing successful efforts to govern and manage RNR in a sustainable manner

The major constraint Farani families confront is seriously impoverished soils While the village lands, covering some 80 square kilometers, contain a range of soil types and production opportunities, the bulk of the uplands appear to be brown tropical ferruginous soils highly susceptible to laterization when exposed to air by land clearing and cultivation. Farani residents are keenly aware of this soil degradation process, and of the long time cycle required to reconstitute exhausted soils in played-out fields.

This recognition probably explains why they describe <u>all</u> village lands not currently under cultivation as "fallow lands " Apparently almost all areas have been farmed at one time or another since the village was founded nearly two centuries ago In the interim, a group dominated originally by hunters has, in order to survive, moved through various stages of sedentarization and greater reliance on agriculture to the contemporary agroforestry production system Yet even after twenty years of participation by Farani families in cotton farming for export markets and efforts to intensify agricultural and agro-forestry activities, links between the hunting tradition and practices, and capacity to govern a renewable resource, remain clear.

This case study highlights these issues using the standard format, each organized as a major sub-section:

- nature of the forest resources and harvesting technologies;

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- nature of the community involved in governing and managing forest resources;
- nature of the rules concerning forest resources governance and management;
- strategies individuals adopt in light of the incentives they face, and the types of interactions which follow when they implement their strategies; and
- outcomes of these interactions in terms of efficiency, equity, and preservation of the base resource.

B. Attributes of Farani Forest Resources and Exploitation Technologies

Farani forested areas occupy approximately 90 percent of the village land area The village itself is located some 150 km almost directly south of the national capital, Bamako, in Ouélessébougou Arrondissement, Kati *Cercle* of Mali's Second Region Farani is situated in gently rolling uplands in the southwestern part of the Niger River watershed The village lies eighteen km off the main highway running from Bamako south through the *arrondissement* seat at Ouélessébougou to the Ivory Coast and Guinea A rough sketch of the village terroir is illustrated in Figure 6

Woodstock resources in Farani are relatively rich and varied, ranging from trees in fields protected for their agroforestry value, to scrub brush to tall trees growing in dense thickets, within a large forested area. Within forested areas of village lands residents particularly appreciate the African mahogany (*Cailcédrat* [Fr], *Khaya senegalensis*), the tamarind tree (*Tamarindus indica*), the néré (*Parkia biglobosa*) and *zobanliane* because they provide wood, forage, fruits and nuts In addition they also protect the *balanzan* (*Acacia albida*) as a forage species, although the last species is rarer

1. Agroforestry

Farani farmers selectively protect three species of trees when they regenerate on their fields:

- néré (*Parkia biglobosa*)
- baobab (*Adansonia digitata*)
- karité (*Butyrospermum parkii*)

If they feel cover is not sufficiently dense, they allow seedlings to grow; otherwise they cut them before they really take root.

Farani forest resources produce environmental benefits that local people value highly. In particular, forest cover protects the fragile local soils against weathering and laterization and, given sufficiently long fallow periods, can regenerate worn out soils Details are

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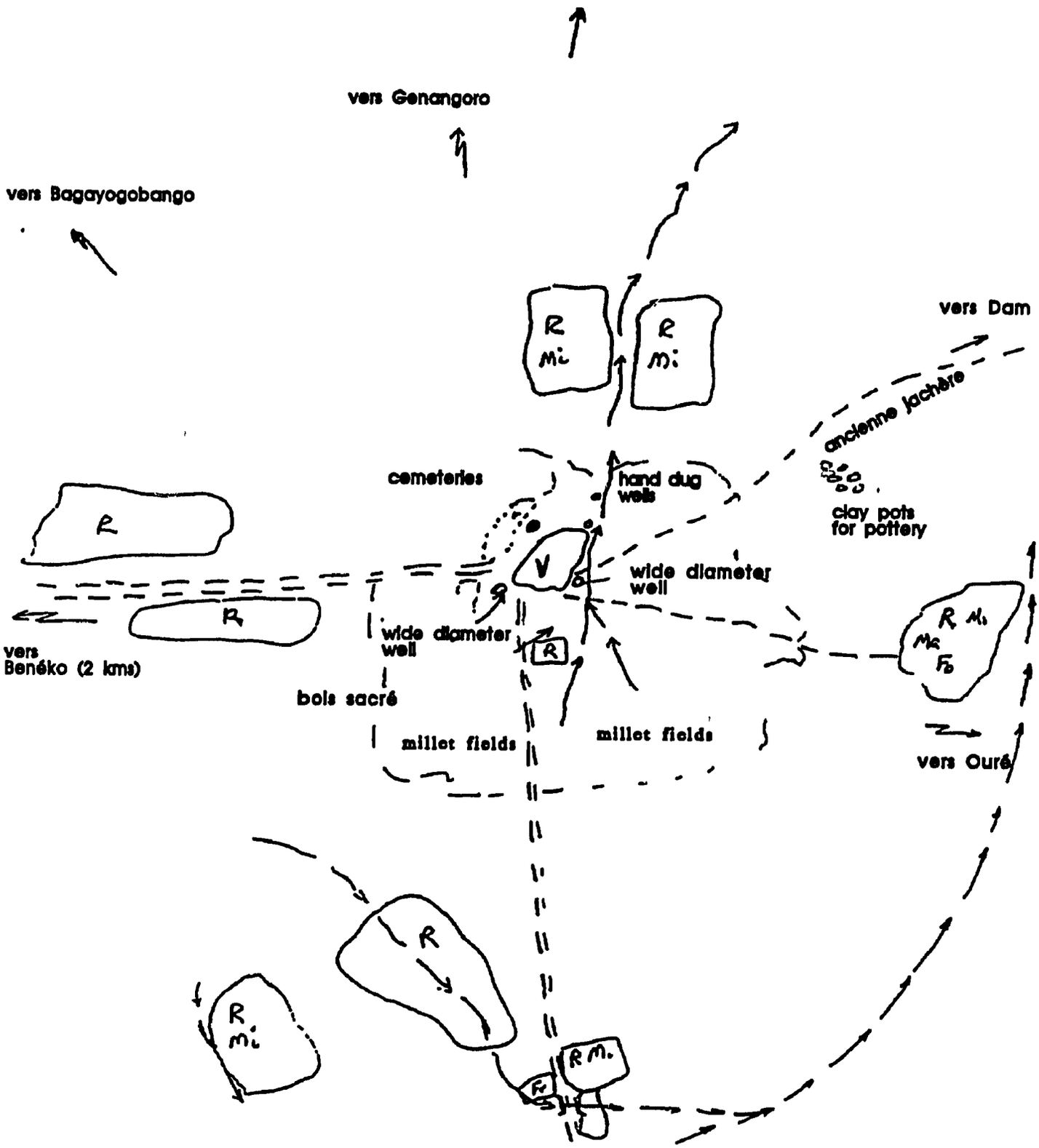
Figure 6: Village of Farani



Legend:

V - village
R - rice Mi - millet
Fo - fonio Ma - maize

Farani forest resources produce environmental benefits that local people value highly. In particular, forest cover protects the fragile local soils against weathering and laterization and, given sufficiently long fallow periods, can regenerate worn out soils. Details are presented in the next section. In addition, the Farani woodstock contains several sacred groves, the abode of spirits

These products and services can be usefully examined from the perspective of local people, in the context of their production systems. Their understanding of the practical opportunities and constraints of their environment explain much about the RNRGM strategies they have chosen to adopt.

2 Rainfall and Soil Erosion

Rainfall averages somewhere between 1100 and 1300 mm. It occurs during the typical West African sahelian single peak rainy season, from May through October During July and August rains drop substantial amounts of water, exposing local soils to the threat of hydraulic erosion Where that happens, the A horizon, fine-particle soils are swept away, baring the iron-oxide-laden B horizon to severe weathering If nothing is done to protect such exposed surfaces, they can turn to laterite pans with startling rapidity Once laterite surfaces develop, considerable and persistent effort is required to re-establish arable soils Often, soil reconstitution is simply not possible Farani farmers are extremely aware of the fragility of their soils

Farani village lands run the gamut from well-forested sections containing trees twenty-five years and older, to bottom lands where upland rice and other heavy soil crops such as maize are produced during the rainy season, to areas of laterite so sterile and stripped of arable soils that they have been abandoned. Most farm fields contain trees This suggests local farmers understand the benefits of agroforestry Personnel from *Opération Hautes Vallées* (OHV), a project which receives USAID funding, have been stressing agroforestry in their extension work

3. Agricultural Production System

On these lands Ouélessébougou area farmers produce a considerable array of crops. Rainfall, even in drought years, appears sufficient to generate outputs adequate to cover the subsistence needs of the local population, numbering about 500 persons Farmers derive most of their monetary income from locally-produced cotton which they market to the *Compagnie Malienne du Développement des Textiles* (CMDT), the Malian cotton parastatal.

Records made available by *Association villageoise* (AV) officials for the year 1989-90 give a indication of farming activities in the community. The following tables summarize this information.

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Table 1. 1989-90 CROPS

FARMING ACTIVI-TIES / CROPS	CULTIVATED AREA HA		# OF FAMI LIES	PLOWING HA		PLANTING HA		FERTILIZER HA	
	Planned	Realized		Plow	Hand	Planter	Hand	Organic	Chemical
MILLET	28	28	8	1	12	0	28	0	0
SORGHUM	37	37	33	0	37	0	37	5	15
MAIZE	19	19	10	19	0	3	16	19	0
PEANUTS	16	16	33	16	0	3	13	0	0
COTTON	18	18	13	18	0	15	3	3	15
RICE	8 5	8.5	8	0	8 5	5 5	3	0	0

Table 2. Farani Livestock Holdings[5]

Species	Cattle	Sheep	Goats	Donkeys	Horses	Draft oxen	Total
Number	95	29	34	11	0	42	212

Table 3. Agricultural Equipment in Farani

Tool type	Total No. of Tools	New in 1990-91
Ox-drawn multi-purpose cultivator	8	2
"Tropical Mali" plow	18	2
Seeders	3	0
Donkey "harine" plows	7	0
Carts	6	2
Cotton gins	2	1

[5] According to local extension workers, these numbers significantly underrepresent actual values because people generally avoid listing all their animals to escape taxation at the full rate.

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4. Marketing Local Crops

The village is linked to the main Bamako-Ivory Coast highway by a farm-to-market laterite road. The road traverses two other villages on the way to Farani, the termination point of the road The first village, Farakoroba, is located near the main highway. The second, Bénékou, is considerably larger than Farani and divided into at least three spatially separate neighborhoods or quarters Villagers from the two communities furthest from the highway have improved the road in several places where it is subject to erosion, by blocking incipient gullies with rocks, etc. At the moment traffic consists mainly of two- and four-wheel vehicles used by personnel of the OHV to visit Bénékou and Farani.

C. Attributes of the Community[6]

1. Settlement and Population Trends

Villagers indicate their ancestors arrived in Farani nearly 200 years ago, when a Bambara hunter from the Ségou region, in search of new lands, befriended a farmer already established in the area, obtained a land loan and then, to get access to more land, traded a woman slave and her child for the lands the village now claims. The community is composed of Bambara descendants of the original settlers, plus some later arrivals

The only recently arrived residents in Farani are members of a family which immigrated four years ago. They obtained their fields, including rice plots, from the village headman and other field owners In the last twenty years the village has lost two families All families resident in the village inter-marry with all other families There is no longer a caste group consisting of descendants of household slaves.

Farani is a community with an official population of 515 The breakdown by age and sex appears below in Table 4

TABLE 4 Farani Population, 1989-90

POPULATION CATEGORIES							
# Men	# Women	Total	Age 1-15	Active Workers	Retired People	Total	No. of families (*faroda*)[7]
209	306	515	97	142	276	515	33

[6] Information in this section was supplied by Bala Samaké, AV Vice President, Soungalo Samaké, AV marketing official and Famboré Diabaté, AV production organizer. They consulted records they have maintained for the years in question

[7] A residential unit composed of related families who collectively farm a single common field.

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Informants report the 276 adults listed as "retired" were older people who do not work full-time, although they may work occasionally. All able-bodied people in the village farm. Some also exercise other professions The reported sex imbalances seem improbable, since most male labor migrants return home annually and would therefore be listed in AV registers. Migration, furthermore, is decreasing because people have found that they can make money working in Farani. Not all families have migrants.

2. Local Institutions

Farani is organized through a series of local institutions, the most important of which traditionally were the chieftaincy, the age grades, and the hunters' association The founding lineage, the Samaké, continues to provide headmen for the village. Of the thirty-odd families resident in Farani, only seven are non-Samaké At the death of a sitting headman, the oldest male Samaké resident in the village is chosen to replace him, after an interval of three months This succession principle seems inviolate Informants said that even an individual known to be mentally incompetent would be duly selected for office when his turn came in order to maintain respect for the principle In the 32 years since independence in 1960, a total of six Samaké men have served as village chief.

Age Grades and Youth Groups

Age grades counted from five to nine members, and were formed at roughly three-year intervals ("three years of babies"). The village normally has ten to 15 age sets The oldest member of the age set automatically becomes its leader and remains so until death. In the old days age grade organizations worked together, usually at farming activities, to earn the wherewithal to organize a small celebration They ceased doing so "because political organizations take up too much time and leave none for the local organizations " But last year, for the first time in a long while, a group of girls organized a party using a goat they had received for working an old man's farm. An age grade will also organize funeral ceremonies when a member dies.

Before independence, Farani had a large youth group, called *kwotai*, that organized all the young men of the village (45-70 members) to undertake collective cultivation of fields against payment so they could organize parties for the village. They worked for residents of Farani, but also in neighboring communities. When the youth went to a collective labor activity, the girls went along to encourage the boys. The young women did not have their own organization, however.

At present, the youth group continues to function, and the young women now have their own organization.

Hunters

Another locally-important group were the hunters. In the old days, a youth received his first gun at about age twenty. He had to prove his ability as a hunter before he could marry. Hunters sought birds, wild boar, buffalo and other sorts of game. They were

responsible as well for ridding the community of dangerous animals such as panthers, lions and snakes. They likewise protected the village against the evil spirits of the bush. In addition to these activities, the hunters organized a major annual festival, and important ceremonies at the death of a village headman.

Hunters in Farani continue today to play a key role in controlling activities in the forest. They also still hunt wild game whenever they find it, e.g., wild boar, but fewer and fewer animals remain

Women's Group

The women of the village get together to help women who need help. One woman, chosen by the village and not a member of the chief's family, acts as president. This group farms a fonio field and sells the harvest. With these funds they too help on village projects. For example, when the village repaired the small bore well they drew on these funds.

Smaller groups of women will also work rice fields for a fee. The money earned is divided among the women and used to buy clothes.

Activities related to kaité (shea nut) production is also the women's domain. However, every step of the commercial shea nut butter production is individually organized. Stoves, an essential element in the process, are individually owned, and the produce is individually marketed

3. Pre-AV Village Activities and Projects

The village has farmed a collective field for at least 15 years. The field has been cultivated by the entire village, for the village as a whole, not by age groups. This work was conducted through the institution of the village "group " (In both French and Bambara this group was called a "group.") The village cleared a new field for this purpose, and it is considered the village (and village chief's) field. In 1991, the villagers cultivated one ha. of sorghum and another of cotton on the collective field.

Inter-aid

The village has a long tradition of working together to help residents who need assistance. The village joins together to help poor families or families who cannot keep up with their field work, by organizing weeding parties The village may also get together if a person's house is falling apart and he/she cannot repair it. The village also all gets together to move in a new bride if she is coming from a distant village When individuals have other, more delicate problems, the village elders can be called upon to resolve it discreetly.

These activities were once organized by the village council and the chief. The AV members interviewed suggested that now people first come to the AV, who goes to the village council and chief.

Pre-AV village activities included:

- collective field;
- small bore well, a gift from ex-President Traoré's wife, Madame Traoré, via Centre de Formation et Animation Rurale (CFAR);
- a dam, organized by the Catholic mission in Ouélessébougou;[8]
- a silage pit, organized by someone the AV members claim is unknown to them;
- village storeroom for agricultural equipment, in 1986; and
- a cereal bank, organized with assistance from the CFAR 1984.

An independent committee runs this revolving cereal bank which is established not for profit but for food security.

4. The *Association Villageoise* (AV)

The Farani AV was formally registered under Malien state regulations in June of 1989. It counts eight officers, some younger, some older. The AV vice president is a member of the village council There is no other overlap between indigenous and imported collective institutions Bureau members were chosen by all village men and by the president of the women's organization Criteria for selection included a reputation for intelligence, diligence, etc., and unmarried status.

Activities Undertaken with AV Participation Since 1989

- two wells, financed by Africare;
- soil erosion control dikes;
- a class room for the functional literacy course;
- a Koranic School;
- purchase of agricultural inputs; and
- a cereal bank.

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8 The village constructed the dam in 1984 to retain water after the rains for rice production. The entire village worked for 15 days straight to build the structure The design was faulty - no provision was made for a spillway, and so floodwaters ran around one end of the dam, causing the whole structure to fail.

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In addition, a cattle fattening operation is underway. The plan is to buy a total of 13 animals; to date, seven already purchased. One individual has acquired four of the seven, and is investing heavily in them. He expects to sell just before the rainy season.

Bank Credit

The first AV officers visited and obtained information from other AVs that already had received credit. Then the village met and approved taking a loan. The extension agent and the AV president went to the bank. When they got the money they bought the amount of inputs agreed upon by the villagers. In 1989 Farani people requested credit in the amount of 245,297 FCFA. They received the full amount and paid it all back.

This year, on credit, the AV is also buying grain for a cereal bank (the storage structure is yet to be constructed) and cows for fattening. The AV charges interest on loans, as well as the bank The loan has been paid back in full, though AV officers are still trying to figure out how much interest the AV earned The AV will cover the debts of individuals unable to pay back their credit. Defaulters then owe the AV.

A series of other activities are currently planned. a maternity, a village garden, a grain mill and more wells.

Functional Literacy

Village adults were trained in French years ago by an instructor sent to the village by the administration Farani people claim members of the village have been trained in functional literacy since 1972. In 1989, a one-room literacy center provided training for 25 men (21 attended regularly) and nine women (seven attend regularly).

At present, there are seven people in the village who are really literate in Bambara: four men and three women For reading materials they have only a minuscule library. The footlocker provided by the National Adult Literacy Center (DNAFLA) and OHV contains about 15 pamphlets on technical, health and farming, topics Apparently animators organize discussions in the village about topics of public interest People indicated interest in having an atlas, materials on Mali's history and on Samori Touré, and on the history of world agriculture

5. Conclusion

For a community of 500-plus population, Farani has comparatively rich institutional resources They also evolve with changes in organization of the village and its relationship to outside institutions. A community initially dominated by hunters, age grades and a gerontocratic government structure found itself, after independence, facing gradual pressure from institutions imposed by the national-level government and donor projects. After the fall of the Traoré regime in 1991, a tentative revival of the age grades may be occurring. Though it is too early to tell, the resilience of these groupings is an important source of institutional capital.

The leading figures in the AV have played a key role in helping villagers obtain resources from outside institutions. Those individuals appear to be engaged in quiet competition with the aged members of the village council, over who will exercise authority about land use and operation of supports for local production systems At this point the chief and council appear to be holding their own, but the relationship is in no sense fixed It appears likely that villagers, particularly young men, will maintain contact with outside organizations such as the Opération Hautes Vallées, a rural development project financed by USAID/Bamako among other donors and NGOs The nature of community organizations may change depending upon how much the young men, drawing on OHV advice and inputs, can improve the productivity of local production systems.

D. Attributes of the Rules

This section details the two sets of rules that have governed the Farani woodstock since independence. The first are rules developed locally, reflecting villagers' perceptions of appropriate limits on behavior. The second set of rules, based on the Malien forestry code, represent external requirements imposed intermittently on the village by roving agents of the Malien Forest Service.

1. Farani Woodstock Rules

The base rule limits access to the village woodstock. Non-residents must seek permission from the village chief and council before harvesting wood within the area claimed by Farani. The exception to this appears to be a willingness to allow people from neighboring communities, e g., Bénékou, to harvest live trees they might need for personal use on Farani land, so long as Farani people are accorded reciprocal harvesting rights on Bénékou land By contrast, any effort to harvest wood for commercial purposes would be subject to collective decision by the village council

While Farani hunters have no rules limiting game they can hunt, in practice once the rains begin hunters hang up their guns and devote all their effort to farming. Thus the rainy season is effectively closed season This promotes regeneration of wildlife populations since animals and birds reproduce during this period when food is most abundant.

The village chief bears responsibility for protecting the sacred grove. No formal organization exists to monitor implementation of the rules limiting access to village lands and regulating harvesting of trees and wildlife. Hunters monitor woodstock conditions on an informal basis, however.

<u>Rules Concerning Agroforestry Resources</u>

People actively cultivating a piece of land are considered to own the trees on that land. The owner can authorize another village to cut a live tree on his field if he wishes. Farmers keep an eye out for unauthorized activities occurring on their lands.

Nuts - shea nuts - produced by trees on family lands belong unequivocally to the family. Nuts produced by trees on land not belonging to any family are open access goods available to any resident of Farani.

2. Forestry Code Rules[9]

Forestry code rules define local woodstocks, including Farani's, as national common property resources. Access and use are subject to exclusive regulation by foresters exercising authority under code provisions The Malien forestry code lists between ten and fifteen protected species which can only be cut with express permission from a forestry agent, whether for consumption or sale. Most other species can be harvested, and some foresters support the authority of local communities to apply their own working rules to govern and manage woodstock resources not specifically protected by the forestry code.

Monitoring of forestry code provisions is the responsibility primarily of the Malien Forest Service. Foresters often work with local informants, but appear to handle most of the patrolling that is done in Farani.

E. Interactions

This section describes the strategies adopted by various classes of actors who want things from the Farani woodstock, notably local farmers, hunters and officials; foresters; and people participating in the urban fuelwood supply chain. The section notes how they develop strategies to achieve their preferences in light of the constraints inherent in their environment and the opportunities created for them by the nature of woodstock-based goods and services, the characteristics of the Farani community, and the rules relating to woodstock governance and management as well as institutions for local governance

1 Local Strategies to Preserve Farani's Forest Resources

To understand local potential to monitor and enforce a set of woodstock access and use rules, it is helpful to recall the basic unity characterizing Farani People maintain civil relationships with each other, and they support each other in a multitude of ways despite notable differences in the economic wealth of the thirty-odd families

The village chief can and does mobilize collective work groups to cut fire breaks around the sacred groves when conditions warrant. If a wildfire breaks out, everyone must mobilize to help fight it, without reference to age grades or other institutional distinctions.

Farmers, particularly those relying most heavily on mixed farming strategies to produce fertilizer, keep their animals on their fields during the dry season near the forage

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9 Since the regime change in 1991 discussions are under way about turning over more authority to local people to manage their woodstocks.

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supplies they have collected at harvest time. Thus many farmers can informally monitor activities on villages at no extra cost, and the community has a low-cost, well developed capacity to keep an eye on things.

Hunters survey the remaining, far larger part of village lands Village lands total almost 80 km^2, much of it fallow under regeneration or "abandoned" common land. This section lies too far from fields and dwellings to be observed casually Before independence, when a hunter wished to hunt on Farani lands, he asked the village chief to intercede for him with the local hunters' association so he could have their permission to pursue animals on village lands Thus hunters have a tradition of controlling access to their forests

Hunters now supply monitoring services for all village lands located beyond easy visual surveillance A group of young and old men totalling 15 are considered hunters because they carry guns and go out after game at least once a week during the dry season As a result of the incident described in Section E 2, below, they now make it a point to visit all parts of the village territory during the course of a week This informal coordination provides effective and costless monitoring by armed individuals intimately familiar with their community's territory The village chief and council rely on these individuals as their eyes, ears and enforcement mechanisms

Foresters during the period from independence to the fall of the Traoré regime tried to patrol village lands During the period 1960-85 they visited village lands once annually Thereafter they appeared more frequently Initially, villagers report, foresters began by fining local blacksmiths for cutting wood for tools without Forest Service permits Later foresters began imposing collective fines on the community [10] They also applied the code provision requiring individuals intending to clear land (or forested fallow) to obtain a 2 500 FCFA permit from the Forest Service, and fined people for trimming or cutting protected trees on their fields without proper authorization Farani people claim they never did understand how state officials could tax them for use of what was theirs by local working rules

Villagers indicate the community paid three separate fines for bush fires that occurred on village lands in 1984 (30,000 FCFA), 1985 (25,000 FCFA) and 1988 (25,000 FCFA) On these occasions the foresters compelled the village chief to convoke the population and then imposed the fines as noted and collected the money

In 1990, foresters began visiting the village twice a year or more often. Sometime they travelled over village land without imposing fines. Villagers report that, in their experience, foresters did nothing to protect the village woodstock. They never travelled to the

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[10] This was standard practice among Malien foresters, and partially sanctioned by the forestry code. If a community will not identify the individual responsible for an infraction, e.g, starting a bush fire, the community is held collectively responsible In practice, foresters regularly pursued this option as an efficiency device It is easier to impose a collective fine shared over all families in a village than it is to extract the same amount of case from a single individual or family

more out of the way places, where illegal cutting for other than local consumption was most likely to occur.

2. Woodstock, Woodsheds and Supply-Demand Relationships

Domestic Fuelwood Needs

Local domestic energy needs are met by harvesting woodstock on village lands. Annually, farmers clean their fields before cultivation. The *Combretum spp.* that flourish in the area grow on most cultivated fields and provide an abundant source of fuelwood. Women transport the dried brush home from fields located up to four km. from the village center. Whatever remains on fields is burned to produce organic fertilizer Women sometimes organize brush cutting parties before the rainy season and, having cut and stacked wood at the edge of the road leading into the village, pay a carter to transport the wood to Farani Dead wood from forested areas provides the rest of the local supply. Building poles and timbers are harvested, in the form of live trees, from wooded lands.

Urban Fuelwood Demand: Nearing Farani

The village lies within the "woodshed" of the national capital, Bamako, an urban agglomeration approaching a population of one million people. A very substantial proportion of Bamako households still use wood as fuel for cooking, so the demand on woodstocks in surrounding areas is considerable Effects are clearly visible in cutting activities concentrated for the moment in Farakoroba, the village adjacent to the highway There, women are busily at work with traditional axes, and occasionally machetes, cutting both dead wood for fuel and, for construction purposes, green wood The latter consists mainly of saplings but includes some larger trees as well This cutting occurs in areas where soils appear every bit as fragile and subject to laterization as those of Farani The wood is stacked at roadside, where chauffeurs driving mainly dilapidated small trucks load it for transportation to Ouélessébougou There it is bulked and transferred to tractor-trailers or large, tractor-drawn carts for transport to Bamako

Clearly this trade is sufficiently lucrative to motivate entrepreneurs to organize large numbers of people to participate. The issue that inevitably arises, however, concerns the extent to which the trade, as now constituted, is sustainable within the Ouélessébougou environment Clear-cutting is not sustainable because exposed soils harden, preventing natural regeneration from re-establishing tree cover on the land Taking out deadwood for marketing appears a useful activity as well as one that is probably economically rewarding, though not lucrative given the distances wood must be moved before it can be loaded onto motorized transport.

A small group of men from a neighboring community came onto Farani lands in 1988-89 and cut a large number of old trees to make charcoal. This incident - which became a trouble case in local peoples' eyes - reveals a good deal about the community's strategy to protect its woodstock.

The charcoalers had been cutting for several days when a Farani hunter discovered them in passing. He immediately informed the village chief, who dispatched a delegation to bring in the stranger before the village council. Having heard the evidence, the chief told the interloper that he would have him and his men driven from Farani lands by his own men - the hunters - if they did not withdraw voluntarily The charcoalers complied with the order. Malien foresters played no role in this event.

In discussing this incident, councillors indicated that if the charcoalers wanted to destroy woodstock, they could do it on their own lands. As for Farani, they were dubious about the desirability of harvesting wood in any form for market. Three conditions have to be respected, in their judgment, before such a course would be acceptable. First, any cutting would have to be organized and controlled. Second, someone would have to show them how to cut in a way that would ensure regeneration. Otherwise, they would refuse. Third, wood sales would have to be guaranteed at a *reasonable* price.

Councillors justified their position with the following arguments:

- the village faces a lack of arable land; and
- every piece of land, whether forested or not, is considered as a potential field, and so they want to avoid at all costs activities - such as overcutting the woodstock and exposing soils to erosion - that would degrade the agricultural potential of the village.

F. Outcomes

Outcomes can be summarized in the following terms. Farani lands not currently under cultivation are at present quite well forested for the most part. Villagers believe they have adequate land, but only if they take care of it. Farani residents have and practice a strongly conservationist ethic They see their stewardship in two different forms: preserving the woodstock because it protects and regenerates arable, and intensifying farming methods in order to enhance productivity, relieve pressure on the land base associated with extensive farming methods when population begins to rise, and so preserve the resource base fundamental for agricultural for both succeeding generations and any sons of the village interested in returning to Farani to farm the land

They express a good deal of confidence in their ability to protect their woodstock, as evidenced by the charcoaling case If they can maintain limits on access, they believe they can manage the woodstock themselves much more effectively than can foresters who only visit the village once or twice yearly Finally, the efficiency of the monitoring system for trees on farmlands is quite high, because of year-round usage Efficiency of monitoring of the rest of the woodstock combines the business of rule maintenance with the pleasure of the hunt during those periods of the year - from the harvest to the beginning of the rains - when outsiders are most likely to try to exploit Farani wood resources

This system is not impervious to outside pressures. Demand for firewood in Bamako grows every year. So far Farani has been buffered, with one exception, by the poor condition of the road linking the village to the major highway. Two attacks are possible on that isolation: improving the road; and charcoaling, which would increase the value of a truckload of fuel and thus perhaps justify the wear and tear on the truck

To combat these pressures and if not reject them outright, at least control them with an eye to preserving Farani's resource base, the village will probably require support from time to time from overlapping governments, e.g., the national administrator posted to Ouélessébougou Arrondissement, to affirm their authority over village lands. If that is forthcoming, the community's capacity to maintain a minimum cohesiveness in the face of outside pressures will probably be enhanced.

V. CONCLUSIONS

This section summarizes essential findings of the Mali country study from a policy perspective concerned with feasibility and advisability of devolving authority to govern and manage woodstock resources to rural communities in the country. The two major cases, Boré Forest and Farani village, are illustrative of the opportunities as well as the dangers of such a policy and course of action.

Variability characterizes Boré Forest communities in the following areas:

- degree of "environmentalist" tradition;
- importance of woodstock exploitation versus other pursuits; and
- amount of institutional capital available to villagers faced with new conditions, permitting them to confront successfully the needs to:
  - make rules that enjoy strong local support to limit access to communal woodstocks and regulate harvesting in ways necessary to sustain the resource;
  - monitor woodstock use to ensure access and harvesting rules are respected, including mobilizing the labor, in-kind and possibly cash resources necessary to effective monitoring,
  - enforce rules against violators in ways commensurate with the gravity of the offense and the long-term threat to woodstock sustainability;
  - obtain rapid and low-cost support from overlapping regimes in situations which someone caught violating local regulations refuses to comply with local judicial processes and penalties; and
  - get access to fair and objective legal recourse when local rulings are contested

In these circumstances, communities may gradually develop the capacity to work together, but that is an uncertain outcome. It is important to allow each community to evolve at its own pace, to experiment with institutional innovations, and to assess the value of its strategies in terms of the benefits of successes and the costs of failing to resolve critical problems. Relying on traditional relationships among local communities[11] may be one effective way to build towards supra-village institutions when local people feel the necessity for such arrangements.

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[11] Cf., e.g., McLain, "La Gestion décentralisée...," p. 4.

Farani represents a quite different situation: single community, relatively rich resource base, clear understanding of the dangers of excessive exploitation, e.g., for firewood sales, or land clearing Communities that exhibit these characteristics would quite likely handle a devolution of authority over RNR governance and management effectively.

Both types of communities will require empathetic back-up from overlapping governments or agencies, e.g., administrators or foresters, in situations where non-authorized users invade communally governed woodstocks, or where legitimate users violate harvesting regulations and then refuse to abide by community-established sanctions.

Finally, the importance of technical assistance on appropriate cutting strategies for those communities that approve cutting of their woodstock resources for commercial purposes cannot be emphasized Given the fragility of the RNR base, broadly conceived, in most parts of Mali, it is important to avoid management mistakes when possible. It is also important to disseminate information about the consequences of mistakes, as well as of successes, to other users This will cut the costs of institutional as well as technical learning.

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Namibia Field Report

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DECENTRALIZATION AND NATURAL RESOURCES MANAGEMENT: NAMIBIA FIELD REPORT

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GLOSSARY OF HERERO/HIMBA AND JU/'HOAN TERMS

Onganda (plural Ozonganda)	Homestead
Eanda (plural Omaanda)	Matriclan
Otuzo (plural Oruzo)	Patriclan
Otjiwondo (plural Oviwondo)	Age-set, Age
Omuhoko (plural Omihoko)	Family, matrilineally related
N!ore (plural (N!oresi)	Resource and habitation area
N!orekxao (plural N!orekxaosi)	Steward of a N!ore
'M/ho (plural 'M/hosi)	Gathering area
!Aqe/ho (plural 'Aqe/hosi)	Hunting area
G/ani (plural G/anisi)	Sector of a gathering area adjacent to the habitation area of a n!ore
Kxa/ho (plural Kxa/hosi)	Larger land area subsuming n!ores
Tju/ho (plural Tju/hosi)	Village or residential areas

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I. INTRODUCTION

A. Scope of Work

The following field report summarizes results of a three-week research mission to Namibia. The research was conducted in order to gain a greater understanding of the relationship of political and administrative decentralization, and local autonomy, to sustainable management of natural resources The goal of the research was to further explicate several themes:

1. Local control of natural resources is viable and effective; governments should support and promote local institutions that govern and manage natural resources.
2. Governments should improve conditions for natural resources management by establishing policies that create enabling environments
3. Resource governance and management institutions may well have to be complex to account for the diverse interests of the various actors involved To account for this complexity, the various systems of rules may have to be negotiated on a case-by-case basis, it is important that these negotiations start with an understanding of the legitimate interests the various parties may have
4. Community level conflict management mechanisms are crucial for effective resource governance and management
5. Communities and individuals have to have incentives to manage resources sustainably.
6. Successful resource governance and management institutions will reflect the attributes of the community, the resource, and the technologies available for resource management.
7. Natural resources management must capitalize on existing local knowledge, as well as on scientific knowledge

The Namibia research team visited two field sites in order to determine the conditions that have contributed to the success local institutions at these sites have had in managing natural resources Of particular interest were the resource management rules employed, and the relationships of the institutions to local and national government resource management policies By understanding these conditions, it is hoped that policy and programming decisions can be made in an informed manner, and that resources can be managed more equitably and sustainably through community and government collaboration

The research was conducted by Dr. Megan Biesele, Dr. Robert Hitchcock, and David Green through the Decentralization. Finance and Management (DFM) Project. The DFM Project is managed by Associates In Rural Development, Inc under the auspices of the US Agency for International Development (USAID), Research and Development Bureau The DFM Project has conducted its research on the subject of decentralization and management of renewable natural resources with the support of USAID's Africa Bureau. The research has included field research in Mali and Uganda in addition to Namibia, and 12 months of secondary source research Field work in Namibia was coordinated through the USAID office in Windhoek.

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This Namibia field report will be incorporated into the final report for the task which will summarize all field and secondary source research.

B. Background on Namibia

Slightly more than two years after independence, the Republic of Namibia is a sparsely populated new nation, purposefully underdeveloped by apartheid and European colonialism. It is now struggling to live up to enormous world expectations of it as the offspring of the United Nations and both local and international human rights efforts. With the oppressive benefactor and creator of much of its infrastructure, South Africa, now disappearing over the horizon, Namibia is realizing that it has inherited not only a land of opportunity but a mountain of debts and problems, not least of which have to do with its leadership having been largely educated and trained abroad and thus somewhat out of touch with the realities of governing their own people This situation has begun to change rapidly with the massive transformations in policies and government development directions since independence.

Namibia is a nation that is wealthy both in human and natural resources It has some of the finest scenery and wildlife populations of any country in the world It also has substantial mineral, fish, and other natural resources With a population of over 1 3 million and a per capita income of $720 in the late 1980s, Namibia is committed to enhancing socioeconomic development for all of its citizens Much of the attention of the government of Namibia will be on the communal areas of the country, where the majority of the population resides

As His Excellency Dr Sam Nujoma, President of the Republic of Namibia, said at the official opening of the National Conference on Land Reform and the Land Question held in Windhoek from June 25 - July 1, 1991, the land question is one of the most burning issues facing the young country today The vast majority of the population derives their living from the land At the same time, access to and ownership of land are distributed unevenly in Namibia Table 1 presents data on the land tenure situation in Namibia

Table 1 Land Tenure Situation in Namibia

Land Tenure Category	Size (sq. km.)	Percentage
Namibia	824,268	100.0%
Walvis Bay Area	1,124	0.14%
Diamond Area	25,000	3.0%
Conservation Area (parks, game reserves, etc.)	108,466	13.1%
Commercial Land	361,249	43.8%
Communal Land	329,429	39.8%

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It can be seen that about one sixth of the land either belongs to the state (e.g. the Diamond Area) or is designated as conservation area. Over two-fifths of the country is made up of commercial farms, only a small proportion of which are owned by black Namibians. Over 150,000 families have access to the 329,429 square kilometer communal land area. The question that faces the government and people of Namibia is how best to use the various resources in the country, whether they are on state land, in conservation areas, in the commercial farms, or in the communal areas

C Current and Potential Natural Resource Management Policies

The Republic of Namibia is currently in the process of revising its natural resource management policies In the past, much of the emphasis in rural development and natural resource management in Namibia consisted of emphasizing the development of commercial farms and the conservation of sizable areas of land in the form of national parks, game reserves, and recreation areas By the time of independence in March, 1990, Namibia had set aside 108,466 square kilometers of the country as conservation areas (van der Merwe 1983; NEPRU 1991, Christofferson and Plowes 1991) Most of the people who had resided in these places were resettled elsewhere Those that remained (e.g the Topnaars in the Kuiseb) had restricted resource access rights

The government of Namibia is in the process of re-evaluating its land tenure policies (Office of the Prime Minister 1991) A technical committee currently is considering the various options for dealing with land management and administration One area of concern is the management of land in the communal areas which comprise nearly 40% of the country. Improvement of livestock and crop production and provision of services in these areas is an important goal

It is clear that local people in the communal areas and in areas surrounding national parks and game reserves wish to have greater access to natural resources, including wildlife and veld products Efforts are being made by the government of Namibia, including the Environmental Planning Unit in the Department of Wildlife, Conservation, and Tourism (MWCT), various non-government organizations, and local communities to come up with policies that will increase the benefits flowing to rural communities from natural resource utilization A policy framework currently is being drafted which deals with issues such as trophy hunting, community-based resource management, and establishment of conservancies in which local people will manage resources and retain benefits Tourism is seen as part of this process, and programs such as that in Kaokoland are seen as having great potential in providing local communities with benefits from the presence of tourists

In order to abolish the racially structured local government legacy of the colonial administration, the government of Namibia is also presently embarking upon a new system of local governments and regional administrations. As a result of a Delimitation Commission study, the former tribal and ethnic homelands structure has been eliminated and replaced with

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new regions that have been defined on the basis of a number of factors including population, infrastructure, presence of municipalities, and economic viability.

The former racially divided municipal governments have been merged into single municipal councils, and the communal administrations and former regions have been replaced with 13 new regions (Figure 1) Each region will have a Regional Commissioner who will be an officer of the Ministry of Housing and Local Government, a Chief Administrative Officer, and an elected council

The regions will have advisory and planning authorities, and limited taxing capacities. The regional governments are not intended to fulfill a service provision or production function, which will still be the responsibility of the central government ministries

Though the report of the Delimitation Commission has been submitted, and the regions were officially proclaimed in March of 1992, the evidence of the new structure is not apparent based on the comments of those interviewed during the conduct of this field study The legislation defining the new structure is still being drafted All interviewed agreed that local government continues to be in a formative state One can assume that new regional power bases will be formed, but at this time more questions than answers remain How exactly will the local government structure be implemented? What will the relationship of the regional councils be to the national government? How will the headman/ward system be incorporated into the new structure? How responsive will the regional councils be to local constituencies?

The continuing state of indecision contributes to a sense of insecurity for local institutions, especially those in communal areas whose land tenure has also not been established As with land tenure, indecision regarding the official status of local government creates disincentives for sustainable resource management Hopefully, these issues will be resolved relatively quickly so that local communities will be able to embark on development and resource management programs with the full knowledge that they will receive the benefits from them.

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II. FIELD SITES

A. Introduction to Kaokoland and Nyae Nyae

1. The Communities and How They Differ from Other Parts of Namibia

Though Namibia has quite a few other communities living on communal land, the Nyae Nyae community (Ju/'hoan Bushmen) and the Kaokoveld community (Himba/Herero), together with a very few others (eg the Topnaars of the Namib Desert area) share features of unique interest to studies of decentralized resource management These features include not only relative isolation and traditional autonomy but clear conceptual/structural differences between traditional management techniques and incoming colonial economies Hunting-gathering and semi-nomadic pastoralism have remained relatively intact and operative in Kaokoveld and Nyae Nyae, in contrast to Namibian groups (e.g Ovambo, Nama) whose community strengths have in many cases succumbed to the destructive forces of wage labor, labor migration, and imposed political mediating structures

Kaokoland and Nyae Nyae are instructive for the subject project in that while they are politically perhaps the most vulnerable communities in Namibia, lacking until recently any over-arching political structures or a strong voice in national politics Internally they maintain traditional strengths on which to build organically to meet change These strengths include traditional agreement on the use of scarce resources, intact sharing systems, and information-intensive and environmentally-sound ideologies They do not preclude (rather enable) the potential establishment of viable mixed economies

Long before Namibian independence, in fact, it was suggested in several government advisory circles that the example of communities such as these could aid in the reconstruction of post-apartheid Namibian communities For a study of the value of decentralized resource distribution their contribution is inestimable, as they provide contemporary working models of the kind of holistic systems being promoted by planners throughout the world.

2 Significance of the Field Sites in Regard to Resource Management Issues in Namibia

The communities in the Purros area of Kaokoland and the Nyae Nyae region of Eastern Bushmanland are both in remote parts of Namibia They each contain populations which are heavily dependent on natural resources for their subsistence and incomes The two areas contain fairly sizable wildlife populations, range resources that can support both domestic and wild herbivores, vegetation which provides food, medicines, materials for building and for tools, soils that can sustain arable agriculture, and specialized kinds of resources (e g ochre in the case of Kaokoland and salt in the case of Nyae Nyae) Local materials are used in the manufacture of craft items that are sold in order to raise cash, one example being the fronds and nuts of the makalani palm (Hyphaene ventricosa). Access to land and natural resources are of critical concern to residents of both regions

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Kaokoland and Nyae Nyae are significant from the standpoint of the kinds of resource management issues faced by people in Namibia generally As is the case in a number of communal areas of the country, wildlife in the Kaokoland region was on the decline until the early part of the 1980s (It should be noted that since 1983 game numbers have increased in Kaokoland) Poaching of elephant, rhinoceros, and other game animals was commonplace The Nyae Nyae region has a depressed game population as well, although the factors involved are somewhat more complex than is the case at Purros Wildlife populations in Nyae Nyae were affected by the construction of fences, including the veterinary cordon fence and the border fence between Namibia and Botswana Hunting by the military in the late 1970s and 1980s and more recently by clients of safari companies has also had effects on the game population Nyae Nyae residents maintain that the use of guns by outsiders has affected the game in such a way that it stays in thick bush or out of the way of people Nature Conservation officials have also suggested that disease and/or inbreeding may be factors in the low game densities in eastern Bushmanland Drought is also believed to be a factor affecting wildlife population dynamics in both regions

The maintenance of wildlife populations is of great concern to the residents of both Kaokoland and Nyae Nyae Numerous statements were made in meetings and discussions by Himba and Herero in Kaokoland and Ju/'hoansi in Bushmanland to the effect that wildlife were crucial to the lives of people and that future generations should have the opportunity to witness wildlife There were some differences between the two field sites in the ways in which they dealt with wildlife In the case of Kaokoland, decisions were made to stop hunting altogether in order to allow the wildlife populations to recover This was done through the appointment of community game guards who were selected by local people In the case of Bushmanland, the Nyae Nyae Farmers Cooperative (NNFC) and members of local groups wish to continue to be able to exploit wildlife, but they want to do it in such a way that the extraction rates are sustainable They have also requested through the Environmental Planning Committee that safari hunting be stopped in eastern Bushmanland for two years in order to be able to determine the sizes of wildlife populations and work out a system of quotas Discussions have also concentrated on the preservation of economically valuable species such as roans, although no decisions have been made as yet by the NNFC to request people not to kill these animals

Water is a crucial factor in the adaptations of the people of Kaokoland and Nyae Nyae. Most of the water sources in Kaokoland are surface ones, including springs and rivers The settlement patterns of Himba and Herero are keyed to the distribution of water, grazing, and, to a lesser extent, browse A concern of people in Damaraland is that some springs have dried up as a result of drought One response to this situation has been for people to reside for longer periods at the permanent water sources such as that at Purros Longer-term occupation has led to greater pressure on local plant resources, especially riverine vegetation which in the past served as an important seasonal buffer for livestock More permanent settlement at Purros also came about in the 1980s when people began constructing (in response to the drought) furrow-irrigated gardens The presence of tourists also served to concentrate people around the Purros area

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A water and grazing and food plant resource management strategy of Himba, Herero, and Ju/'hoansi in the past was seasonal mobility. In the case of Kaokoland, people dispersed in small extended family units across the landscape during the rainy season and as long as surface water was available It was only in the late dry season that they would move back to the permanent water sources The Ju/'hoansi of Bushmanland would move as frequently as six to eight times per year, most of the moves occurring during the rainy season They would aggregate at pans with permanent water (e g at /Aotca) These patterns changed with the introduction of boreholes and the establishment of the permanent administrative center at Tjum!kui, which served as magnets for Ju/'hoansi and other populations Higher population densities and longer-term residency meant greater pressure on local resources, firewood being one example Sedentism in the area of permanent water sources has had a number of social and environmental effects, including changes in group sizes and structure and resource exploitation strategies There is greater emphasis on a mixed economic system including not only foraging but also pastoralism, agriculture, and wage labor

The field sites in Kaokoland and Nyae Nyae are significant from the standpoint of being representative of the kinds of natural resource management strategies and land use conflicts that can be found in other communal areas of Namibia Residents employ a variety of adaptive strategies, including the use of a flexible and generalized subsistence system and indigenous techniques for exploiting various species of plants and animals They also engage in a certain amount of environmental manipulation (e g burning the veld in order to promote the growth of grasses and food plants and reduce bush encroachment in Nyae Nyae) Sharing of information about the state of the environment and the distribution and abundance of resources is an important feature of the adaptations of the populations in the two areas Most people are aware of the need to limit the degree of impact they have on natural resources They observe conventions about the numbers of fronds that they should take from palm trees, for example, and they rarely will take all of the resources from communally owned patches.

The people of Kaokoland and Nyae Nyae both have to contend with the impacts of large wild animals, especially elephants, on their herds, gardens, and wild resources Many of the residents of the two areas are afraid of elephants They also resent the fact that elephants will consume most if not all of the water in natural springs and pans. Generally, there is enough water in Kaoloand for both elephants and stock (e g Purros is a strong, permanent spring There are no longer any gardens at Purrpos, people say that they earn enough from the tourist levy to buy mealie meal, etc The end of the gardens was welcomed, as they clashed with semi-nomadism.

The people of eastern Bushmanland have had to construct rock walls around their water facilities (hand and wind pumps and storage tanks), something that requires a fairly substantial amount of labor and capital Damage to crops by elephants was cited by a number of people as a serious constraint to agricultural production In spite of their concerns about the effects of elephants, the people of both Kaokoland and Nyae Nyae have come to appreciate the significance of their presence in terms of attracting tourists to their areas. Some individuals at Nyae Nyae suggested that they had much to teach the people of

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Damaraland and other parts of Namibia who are trying to figure out ways to protect their investments in water points and livestock facilities such as kraals while at the same time promoting elephant conservation

Tourism is a factor that affects the well-being of people in both Kaokoland and Nyae Nyae. People in both areas initially resented the presence of tourists, who they said were not very friendly and who rarely spoke to them or asked permission to camp in their areas It was the rumor of the establishment of a tourism camp in the Purros area that galvanized the communities there to begin considering strategies for controlling the behavior of tourists Tourists sometimes disturbed sacred sites or walked unconcernedly through Himba and Herero villages, crossing the 'spirit line' between the hut of the lineage head, the sacred fire, and the cattle kraal People also disliked the fact that the economic benefits from tourism usually went to the tour operators or concessionaires and that they received few, if any, returns from the tourists who came to their areas Those people who were able to sell crafts to tourists were sometimes resented by other members of their communities because they were making money while others were not In this sense, tourism was contributing to potential social stratification within local communities

Tourism had environmental effects, with campers depleting firewood supplies and driving across the landscape Some people in Nyae Nyae noted that the safari hunters tended to take prize animals, leaving a less robust wildlife population A serious problem, according to some Ju/'hoansi, was that the safari company would put out bait for large predators (e g lions and leopards) in areas close to places where people lived and kept their cattle herds In these cases, tourism contributed to land use conflicts in both Kaokoland and Nyae Nyae

3 Site Selection Criteria

In addition to the above stated natural resource management issues that made these two sites fruitful research locations, two other factors were also considered in site selection. First, literature on the areas, the communities, and the organizations active in the locales indicated that resource management by local institutions was of great concern in both places, and that a degree of success in regards to sustainable resource management had been achieved in both places Secondly, the areas are diverse geographically, ethnically and environmentally, which allowed for interesting and potentially corroborative comparisons of findings

The depth of anthropological research that has taken place in both areas provided access to detailed and refined information that has been used in this case to support an effort towards making informed development policy choices Also, the fact that the development organizations active in the area have greatly emphasized communications and political consciousness raising meant that interviews conducted and information provided was particularly forthcoming and relevant. Finally, because both of the subject populations live in sparsely populated arid regions, the feedback mechanisms regarding what resource management decisions do and do not work have been quite clear and often rapid. This meant

decisions and results could be explained and discussed with a perhaps unusual degree of certainty

B. Kaokoland

1. Physical Setting and Description of Resources

The Kaokoland area falls within the newly declared region of Kunene in northwestern Namibia (Figure 1). Kunene region covers an area of 44,254 square kilometers and has a population of 58,500 The Integrated Rural Development and Nature Conservation (IRDNC) project area in which community game guards have been appointed actually extends beyond Kaokoland and includes part of Damaraland north of the veterinary cordon fence The Purros area, where some of the most intensive investigations have been done and where the Himba and Herero communities are benefitting from tourism and participating in the community game guard system, covers an area of 300 kilometers by 60 kilometers or about 18,000 square kilometers (Figure 2) Within this area there are approximately 300 Himba and Herero These people are semi-nomadic pastoralists who move into and out of Purros and utilize widely dispersed water points and grazing in the rugged mountains and sandy plains of southwestern Kaokoland

Southwestern Kaokoland is a semi-arid to arid area with low, unpredictable, and erratic rainfall. According to figures obtained over a ten-year period from 1981/82 to 1991/92 by the IRDNC, average annual rainfall ranged from 17 mm to 176 mm, with the overall average being 75 6 mm per year Rainfall which is highly variable both spatially and temporally, is key to biological production in the Kaokoland region Other sources of water include springs and rivers which tend to flow during the rainy season and sometimes for a period of time afterwards Most of the rain falls during the period between February and April In the late dry season, the most stressful time of the year for people and their livestock, groups will utilize permanent water sources such as the stretch along the Hoarusib River at Purros Approximately 100 boreholes which tap groundwater exist in the Kaokoland region, with another 200+ boreholes in the Kunene Region These were drilled primarily in the 1950s and 1960s by the Ministry of Agriculture. Some Himba and Herero communities utilize these boreholes One problem that they face, however, is that the equipment sometimes breaks down and it often takes a while before they are repaired.

The two critical resources to Himba and Herero pastoralists were water and grazing Browse plants were also seen as significant since they provided food for goats Wild plant foods were exploited by Himba and Herero, and hunting and gathering was a convenient fallback strategy for people who lost their herds as a result of drought or predation There were differences from person to person in the degree to which each individual exploited wild foods. Some members of the population depended heavily on wild resources while others used them only occasionally These differences have sometimes been used as criteria to differentiate between Himba, who supposedly are pastoralists, and Tjimba (ovaTjimba), who are seen by some as hunter-gatherers. The term Tjimba is a derogatory one which may derive from the

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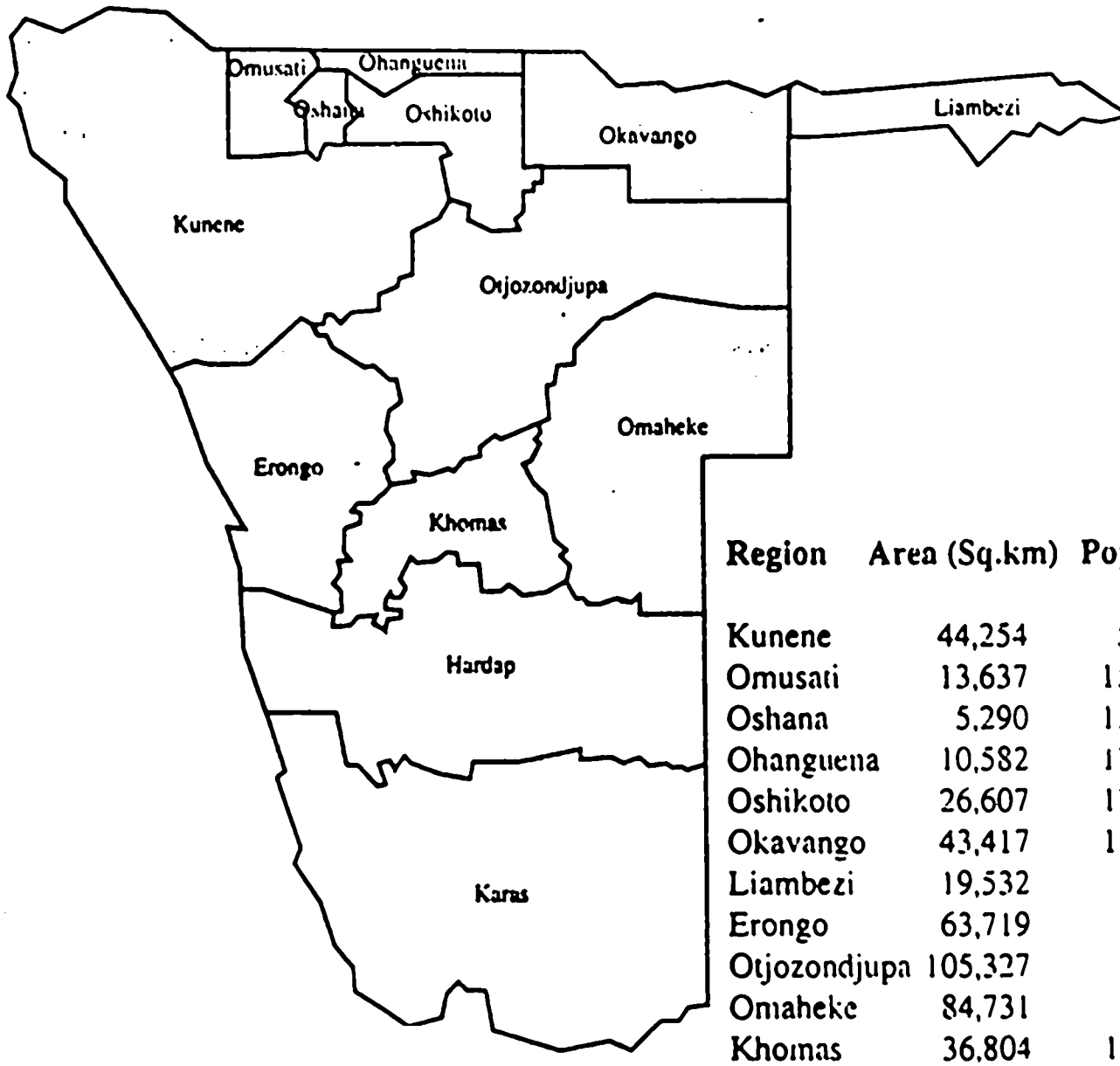
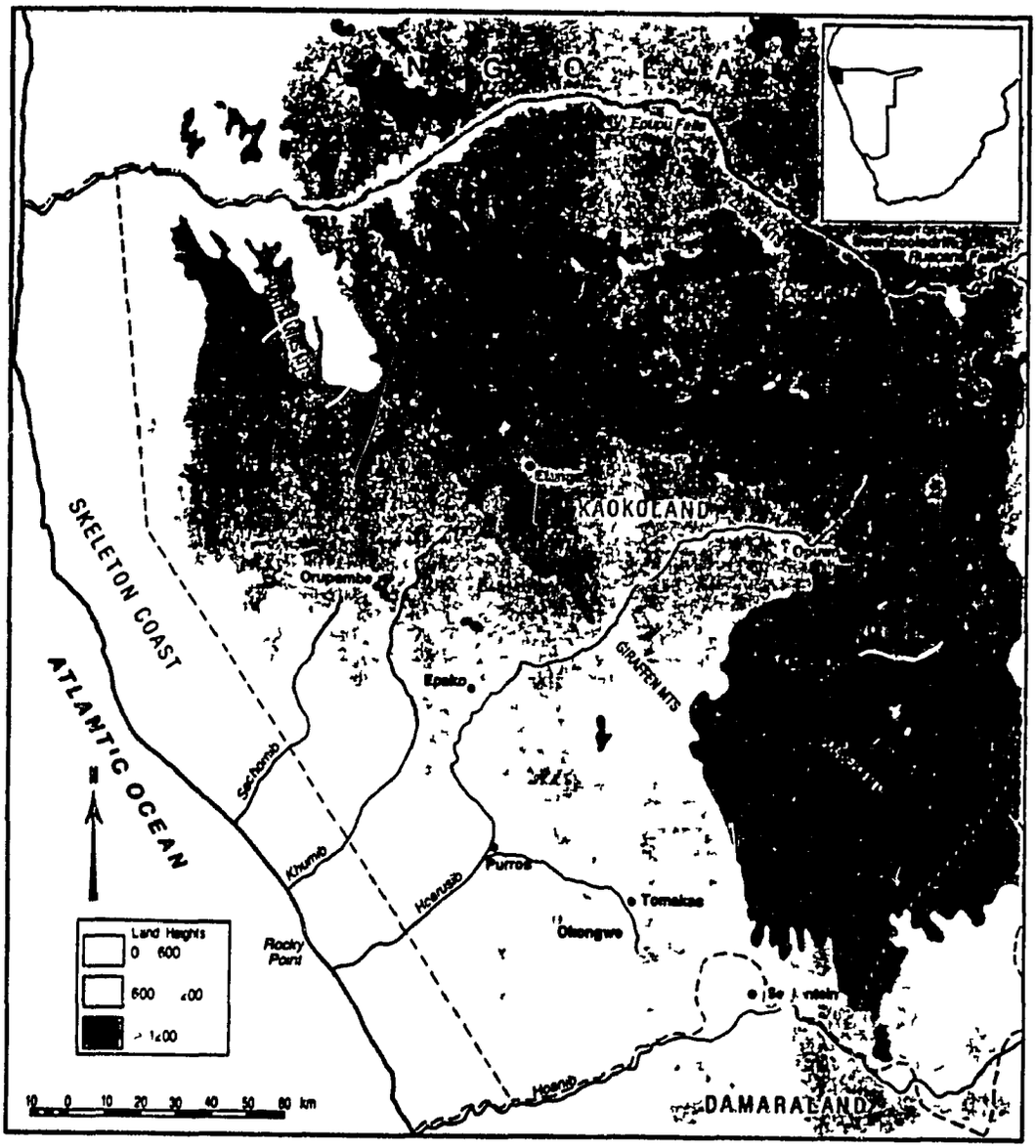
Proposed regions



Region	Area (Sq.km)	Pop. Est.
Kunene	44,254	58,500
Omusati	13,637	158.000
Oshana	5,290	159,000
Ohanguena	10,582	170,000
Oshikoto	26,607	176.000
Okavango	43,417	136,000
Liambezi	19,532	92,000
Erongo	63,719	98,500
Otjozondjupa	105,327	85,000
Omaheke	84,731	55,600
Khomas	36,804	161,000
Hardap	109,888	80,000
Karas	161,24	93,000
TOTAL	825,118	1 511,600

Adapted: First Delimitation Commission

Figure 1.- Proposed Regions



Kaokoland and its location in Namibia.

(from Jacobsohn 1991:6)

Figure 2

Herero word for aardvark, an animal which digs in the ground to obtain its food. The term also refers to a group of hunter-gatherers formerly living in the Baines Mountains of northern Kaokoland (Jacobsohn 1991 13-14)

Wild resources were distributed patchily in southwestern Kaokoland as a result of variations in moisture and soil conditions Certain kinds of resources were subject to "the right of discovery," one example being beehives People who found the hives considered them theirs and could extract payment from others who took honey without permission Beehives in trees were sometimes made accessible through the construction of scaffolding or cutting of steps into tree trunks

There were some gender differences in resource utilization and management among the Himba and Herero Some plant species were gathered and utilized specifically by women, one example being makalani palm which was used in the manufacture of baskets The nests of harvester ants were opened carefully and some of the seeds extracted for use as food In the past, men tended to collect the plants which were used in the manufacture of arrow poisons that were important in hunting Certain kinds of wild animals or parts of animals were reserved for use by men or women

The approximately 5,000 Himba in Kaokoland are known for their superb livestock management skills, and in the past they were some of the wealthiest pastoralists in Africa People spend substantial amounts of time with their cattle, herding them, providing water for them, taking care of health needs, and milking them Both women and men participate in livestock-related activities The role of women in livestock management has increased, in part because of changing labor requirements, the introduction of wage labor, and the reduction in the need for protection of herds from predators Livestock management strategies include moving herds from dry-season to wet-season grazing areas, splitting up herds into smaller units in order to maximize their distribution and take advantage of labor availability, and keeping mixed herds of both cattle and smallstock (sheep and goats) Younger boys usually take care of the calves and the sheep and goats while adults care for the older cattle The knowledge of the various grazing and browse plants is extensive, and people move their stock to various places to ensure access to high-quality and nutritious plant species Cattle are also taken to places where they can get mineral-rich earth to provide nutrients for proper bone growth Some more heavily vegetated areas in Kaokoland are burned periodically in order to enhance grass growth Careful attention is also paid to breeding of stock

Cattle are so much a part of the lives of the Himba and Herero in Kaokoland that it is difficult to over-emphasize their importance Cattle are used in ceremonies, they are exchanged among kinsmen, they are used as payment of brideprice, and they are viewed as a symbol of wealth and status At the same time, cattle provide the bulk of the food for a number of families, and the butterfat from milk is mixed with red ochre and applied to people's bodies In some cases, people are buried in cattle skins, and the horns are placed over the grave

Some of the people in southwestern Kaokoland raise crops, especially maize and sometimes millet, melons, and beans. Planting is staggered in order to take advantage of the variable rains Furrow-irrigated gardens were begun after the serious drought of the 1979-82 period when 80-90 percent of the region's livestock herds were wiped out As was mentioned previously, the possession of irrigated gardens contributed to greater sedentism among some of the area's residents, and labor was withdrawn from herding and other activities such as foraging One of the constraints on agricultural production in the Purros region was the presence of elephants which could get into the fields Cattle, too, represented a threat to crops, and cattle damage was a source of a certain amount of conflict between crop-producers and local herders In order to overcome the problem of cattle damage, people sometimes chose to build thorn fences of acacia Fertilizer (e g cattle dung) was used by some people in order to enhance soil quality

Besides water, grazing, wildlife, veld products, livestock, crops, and soils, there is one other type of natural resource of significance in Kaokoland This resource is red ochre, a material which is found in a specific location and which is used by most if not all of the people of the region The ochre source is held communally, and groups of women will go to the locality and extract ochre which they then take back to the homes Some of the ochre is stored while the rest is ground up for use in adornment People can ask individuals who have just returned from an ochre expedition to give them some, and their request is usually honored, especially if it comes just after the collector has returned from the ochre mine

2 Social Rules for Resource Management

Land in the Kaokoland area is held communally People are able to establish occupancy rights over water points and the surrounding grazing by finding places that are not utilized by others and setting up a homestead (onganda) which includes huts, hearths, and kraals for cattle and goats If a family came to an area which was already occupied by another group, they could request permission to join them in exploiting local resources Negotiations would be entered into, and if the resident group felt there were sufficient resources to be shared, the new family would be allowed to stay Land use conflicts did occur in Kaokoland, and sometimes these were resolved through extensive discussions among the affected communities In some cases, serious cases were taken to local headmen who could provide a neutral perspective Lineage heads and territorial headmen did not have authority over land matters, but they could make suggestions about how to handle land issues Decisions about where to live and where to graze one's animals were made on an individual basis It should be stressed, however, that these decisions were made in a social context and people generally held discussions with other groups in the region over resource rights These negotiations were usually with people who were related to one another or at least knew each other In those cases where outsiders requested land, permission was sometimes refused

The Himba and Herero land use and land management system is grounded in tradition Some people noted that they had a territory (omunda) of their own. One way in which rights to these areas were recognized was on the basis of the presence of former residential locations

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or sacred sites such as the burial places of ancestors of the local group There were also mutually agreed upon rights to specific types of resources, such as patches of !nara melons which were claimed by individual extended families The rights to these resources were handed down from one generation to the next As one Himba put it, "Just as you inherit rights to cattle, you also inherit rights to plants "

One of the remarkable features of the Himba and Herero social system was how egalitarian it was Unlike more hierarchical societies in southern Africa, headmen did not have a major say about land allocation and land management strategies Decision-making was done on the basis of consensus Conclusions about which individuals get access to which resources were situation-specific and were the product of protracted negotiations Unlike the n!ore system of the Ju/'hoansi of Eastern Bushmanland, there was not an agreed-upon set of resource areas divided among groups People were aware of which families laid claims to various areas, but these rights were constantly being redefined on the basis of who was using which areas and the kinds of agreements that had been reached among various people Marrying into another group (i e creation of affinal ties) was a means of gaining access to other areas Women who had married into a community had access rights not only to the resources of that community but also to the resources of the community from which they had come

In the past there were no headmen per se, rather, there were lineage heads and individuals who had substantial herds and therefore had some influence over a fairly sizable number of people "Rich" individuals were wealthy in people as well as livestock Sometimes people might approach these individuals in order to seek access to livestock which could be loaned to them on a long-term basis, thus tying them to the owner of the cattle As some of the people in the Purros area put it, all of the people of the area fall under a single headman, but all of them have rights to the resources of the area The headmen did sometimes represent the interests of the various local groups, as can be seen in the case of Warmquelle, where the two local headmen complained on behalf of the people of the area when land was taken away by the Ministry of Agriculture, Water Affairs, and Rural Development and turned into gardens for vegetables that were then exported out of the area The headmen also complained when they learned of the creation of the Skeleton Coast Park without consulting local people whose alternative grazing and food collecting areas were made inaccessible

From an institutional standpoint, the Himba and Herero of Kaokoland are made up of a number of different types of social units, two of the most important being the matriclans (omaanda) and the patriclans (otuzo) The matriclans share common origins through a single ancestor from whom people can trace their descent Cross-cutting these clan affiliations are age-sets (oviwondo) representing all of the people born between certain years The Himba and Herero are organized in a double-descent system in which people simultaneously belong to the kin groups traced through the female and the male lines Most property is controlled through the matriclan, while the patriclan serves to structure residence and authority. An individual does not inherit livestock from his mother or father but rather from his mother's brother

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Organizational units within the patriclans include lineages, matriclans, people who are related closely to one another and can trace their descent directly from a known ancestor There are eight lineages who normally reside at Purros during the late dry season These eight lineages are made up of some 20 extended families These extended families tend to disperse across the landscape during the rainy season The various families are linked through kinship and marital (affinal) ties These widespread social ties are useful in serving to distribute both goods and information In times of stress, as occurred during the drought of the early 1980s, people can call on their social alliances and can obtain resources or seek refuge with relatives.

One place which had significance to the Himba and Herero of Kaokoland was a sacred mountain or holy place where "nobody would fight." Located to the north of Purros, this sacred mountain was a place where people could go in times of stress They offered prayers and incantations at special sites there, and people were not allowed to bring weapons there While one patriclan had special links to that place, other clans could use it The significance of the place was underscored when rumors circulated that a tour operator had built a road close to the sacred mountain Local dissatisfaction with this turn of events was high, and it brought home the need for careful consultations to occur between local communities and private entrepreneurs, government agencies, or non-government organizations prior to the initiation of any projects that would modify the landscape

The people of Kaokoland have experienced a number of changes in the political and administrative systems of the region After the declaration of the Odendaal Commission and the establishment of 'second-tier' governments, Kaokoland was divided into approximately 40 administrative areas, or "wards " Each of these areas has its own headman and councillors. The headmen and councillors, the majority of whom are males, attend meetings at the regional administrative center at Opuwo and discuss matters of public policy Some of the people in the area are unaware of the substance of the discussions, but they realize that the deliberations could well have implications for them in terms of development projects and government policies

Gender issues are a subject of concern in Kaokoland, especially among adult women who feel they are seeing their power erode One response to this situation was to seek ways to increase their incomes Another response was to participate in activities such as group trancing, ritual get-togethers of a number of women and sometimes men which sought to rid people of spirits that had possessed them In this ritual context, women were in command. The group trances, which began in the 1970s, can be interpreted as an ideological response to social change, one in which women are seeking to gain access to some of the power that they felt had begun to slip away.

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3. Change: Causes and Effects

a. Issues that Have Prompted Change

The people of Kaokoland, Himba and Herero both, are currently in the midst of a transitional period caused by a number of events. the legacy of the colonial administration, the end of colonization and the beginning of independence, two severe droughts in the space of approximately 10 years, and a period of wildlife depletion followed by a re-establishment of wildlife herds and an accompanying increase in tourism Though adaptation to change, specifically in the physical environment, has likely been constant in the social evolution of these pastoral people, the current transitions challenge the actual natural resource base of the people of Kaokoland As such, the end result of this transitional period will likely be decided by whoever determines how the area's natural resources are managed and utilized

The landscape of Kaokoland has been changed by drought in several respects The drought of the late 1970s and early 1980s devastated the cattle and small stock herd sizes As those herds were recovering by the late 1980s, the present drought hit and speculation is that herds will again be cut dramatically in some areas

As a result of drought conditions and other factors, settlement patterns and densities have changed Communities now stay longer at the permanent water points, and have gardened at these areas, which further encourages settlement In addition, communities have clustered to a significant degree around boreholes The impact of these settlement patterns on the surrounding landscape has been substantial

As herd sizes dropped with the drought of the early 1980s, illegal hunting of wildlife increased as an economic coping mechanism This poaching decimated the wildlife of Kaokoland, nearly destroying it as a resource

Government services to this remote and sparsely populated area were minimal during the colonial regime It remains to be seen what services might be provided under the new system of local government, but the region's remoteness and small population makes service provision very expensive.

In an attempt to respond to the above conditions, two programs have been developed in Kaokoland through the combined efforts of the communities affected, and a non-government organization

b Community Game Guards

In response to the poaching that occurred in Kaokoland in the early and mid-1980s, a private non-governmental organization which later became Integrated Rural Development and Nature Conservation (IRDNC) was formed to work with communities on the problem (IRDNC was formed in 1987) From the outset, a proactive communications approach was adopted. At

several community meetings, the people of the area conveyed their interest and desire to help wildlife rebound in Kaokoland They stated, however, that they felt "distant" from wildlife, chiefly because control over wildlife had for many years been officially the responsibility of the Nature Conservation department The population felt no sense of responsibility for wildlife as a resource because they played no management role, and in no way profited from it, either financially or otherwise

As a result of these community meetings, and at the suggestion of community members themselves, a community game guard system was suggested and implemented The guards are selected by members of the community They are responsible for monitoring and tracking wildlife in their areas, which they do while they herd cattle, and in addition to their herding responsibilities The guards, being members of the small communities that populate these areas, also know when outsiders are present and can therefore identify potential poachers Poaching by members of the communities was never as big a problem as poaching by outsiders, and is even less so now that the community is so intimately involved in game guarding The guard's responsibilities are strictly for monitoring and reporting All enforcement is handled by government authorities

At the end of each month, the guards prepare reports on what they have learned over the course of the month with the assistance of technical staff from the IRDNC. n northern Kaokoland, the game guards are serviced by the field staff of the Ministry of Wildlife, Conservation, and Tourism In return, the guards are given a small salary, and a food and commodities allotment

Wildlife in Kaokoland during the time of the program has flourished. Some species have increased up to tenfold in numbers in the space of three or four years The program now has approximately 32 guards covering an area of approximately 95,000 square kilometers. (Another 18 game guards are working currently in East Caprivi, and it is anticipated that an additional 20 will be working in West Caprivi by late 1992)

The community game guard system has been successful for two important reasons First, the system was planned and implemented by the communities involved, and capitalized on the people's inherent value of wildlife as a resource by allowing them the authority and responsibility to manage it Secondly, the system brings together the expertise and support of several actors the community, the IRDNC, and the government - who play complementary roles in the program

Sustainability of the program has yet to be proven. The current drought and unemployment will likely cause an increase in poaching. Those community members interviewed, however, stated that they valued wildlife for, amongst other reasons, the fact that it was important for their children to be able to see animals A long-term perspective is therefore acknowledged.

It will be important, however, that the economic benefits from wildlife and tourism, in other words the fruits of the game guard system, be conveyed to the communities. Discussion of

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this need is underway with the Ministry of Wildlife Conservation and Tourism in the form of a community managed nature conservation area. If the benefits can begin to accrue to the communities, then it is possible that some of that economic return can be used by the communities to support the game guards so that the program may become totally self-sufficient

c. Purros Tourist Levy

As wildlife in Kaokoland rebounded in the late 1980s, at least in part due to the community game guard system, the area became more attractive for tourism. Purros in particular became a favorite tourist stop because the site's permanent spring attracted wildlife and was the focus of several Herero and Himba settlements

Residents capitalized on the increase in tourism by selling crafts and by utilizing the commodities, food and cash tourists left behind As a result, to assure this profitable contact, some residents stayed near the spring throughout the year instead of using it as a strictly dry season location The impact on the vegetation was severe In addition, social conflicts arose as residents competed for the "resource" - i e contact with the tourists.

Thus, in spite of the potential economic gains available, tourism proved to be unsatisfactory for the communities of Purros In consultation with the communities, however, IRDNC learned that the people of Purros were not completely averse to tourism if they could establish rules by which they would manage and profit from it What was established was an agreement with a designated tour operator who worked in the area that a levy of 25 Rands would be paid for every tourist who stayed overnight in Purros (Short visits by tourists paid R5) In addition, the tour operator was encouraged to have tourists stop and greet and talk to the residents, and to be more conscious of the environmental impacts of tourism, including depletion of firewood and the leaving of refuse

The levies were distributed every two months to the lineages who had traditional rights to the area (Purros conservation and development committee is now debating an annual payout and will make a decision on this matter at their next community meeting) These specific lineages were determined by the communities themselves Their rights were pre-determined and were not dependent upon the actual amount of time they spent grazing their herds around Purros in any one year Additionally, crafts were marketed more cooperatively so that craftmakers did not have to actually stay at Purros in order to sell their goods

The Purros tourist system represents an institutional response to a potential "Tragedy of the Commons" situation By agreeing to a set of rules and by determining specifically who was eligible to the "good," the residents of Purros have been able to equitably and sustainably profit from their wildlife and the tourism it attracts without increasing social tensions and environmental degradation On the face of it, the solution may seem simple, but in fact it involves a complex set of rules and agreements between the private and public sectors The Purros example is an important one for Namibia which must struggle with this and similar

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issues - getting all of these forces working together in order to tap the development potential of its resources

The Purros project is one example of what is being tried to allow communities to tap into a share of the resource potential through tourism. The project is working well in that the tourist/community relationship is now a more positive one and the communities are enjoying an economic gain The arrangement is however an ad hoc one; other tour operators could decide not to cooperate with the communities and there are no legal restrictions requiring them to do so To assure that the project continues to work smoothly, the communities' right to manage the wildlife and tourism must be legally protected Decentralization and local autonomy in this case should include the protection of local rights by the central government.

d. Conclusion

The community resource management projects described above illustrate that Namibia's wildlife is a significant resource not only because of its dollar value and development potential, but also because of the impact exploitation of that resource, through tourism, can have on other resources, especially on access to water, land, and grazing areas As such, equitable and sustainable management of wildlife is important and cannot be oversimplified Additionally, management of the resource is further complicated by its attributes as a "good." That is, wildlife can be seen as a public good (in some areas whoever happens by can view it), a private good (access is restricted and only those who own the area can view or hunt), and a toll good (access to wildlife viewing is available to those who pay a gate fee) There are public and private forces, market and non-market forces all interacting in the management of wildlife as a natural resource In order for all of these forces to be working efficiently and equitably together, complex institutional rules are required

In the past, central government policy determined the rules for wildlife management The rules employed had the effect of distancing communities from wildlife Wildlife management was seen as "Nature Conservation's job" communities gained nothing from its exploitation and had little incentive to see that it was sustainably managed The game guard program, the tourist levy, and the dialogue created between tour operators and community members reverses that pattern by giving the community control and management authority and responsibility These programs promote the local community decision making tradition as a continuing apparatus for decision making and conflict resolution They also take advantage of the communities' perception of wildlife as an integral part of their environment, and one which indicates the health of that environment.

Nonetheless, those interviewed indicated an understanding that modern scientific ways, in unison with traditional knowledge, will be helpful for the further sustainable management of their resources In this respect, the role of government assistance should be clear - aid and assistance to the communities of Kaokoland as they progress through the present transitional phase in ways dictated by the people themselves.

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C. Nyae Nyae

1. Resources

a. Physical and Administrative Description

The Nyàe Nyae region is in the northeastern part of Namibia in what used to be known as Eastern Bushmanland (Figure 3). As of 1991-92 Eastern Bushmanland became part of Otjozondjupa Region which covers an area of 105,327 square kilometers and contains 85,000 people The administrative center of the Nyae Nyae area is at Tjum'kui, which was established in 1960 with the appointment of the first Bushman Affairs Commissioner to Bushmanland Tjum'kui became a fairly sizable community in the 1970s and early 1980s, with over a thousand people, most of them Ju/'hoansi, living there Social and economic problems were severe in Tjum'kui, with poverty, conflict, high rates of infant mortality, and social dissatisfaction running high (Marshall and Ritchie 1984) In 1982, some of the Ju/'hoansi groups began moving back to their traditional territories By 1987 there were 10 settlements containing 342 Ju/'hoansi at such places as /Aotca, Xamsa, and N=ama This number increased substantially in the period between 1989 and 1991 when the Nyae Nyae Development Foundation undertook the majority of its borehole drilling efforts By early 1992 there were over 30 settlements in the Nyae Nyae region, each with its own water source (see Table 4 for demographic data on these settlements)

b Significant Resources

The Nyae Nyae area falls within the Kalahari Desert The region can be described as semi-arid tree-shrub savanna. Rainfall averages between 200 and 400 mm per year and is highly variable in space and time People in the region exp' 't a wide variety of resources, including over 120 species of edible plants and dozens of l' nd small mammals The subsistence system can be described as generalized, with certain species making up an important part of the diet at various times of the year (e g mongongo - Ricinondendron rautanenii - and morama - Tylosema esculenta) Hunting is done with traditional weapons (bows and poisoned arrows, spears, and clubs), and gathering of wild plants is done by hand or with the aid of a digging stick

Over the past twenty years, livestock have become increasingly important to Ju/'hoansi as a source of subsistence. Crop production has been attempted by people in the settlements with variable degrees of success In 1991 people planted maize, millet, beans, melons, and other crops, but they had insufficient seed to ensure substantial yields In 1992 the drought caused nearly all of the crops to die after they had sprouted Hunger was a common complaint in the Nyae Nyae settlements, and the main sources of food included marula, milk, maize meal, beans, and oil obtained through a drought relief feeding program or through purchase with wages or pension money

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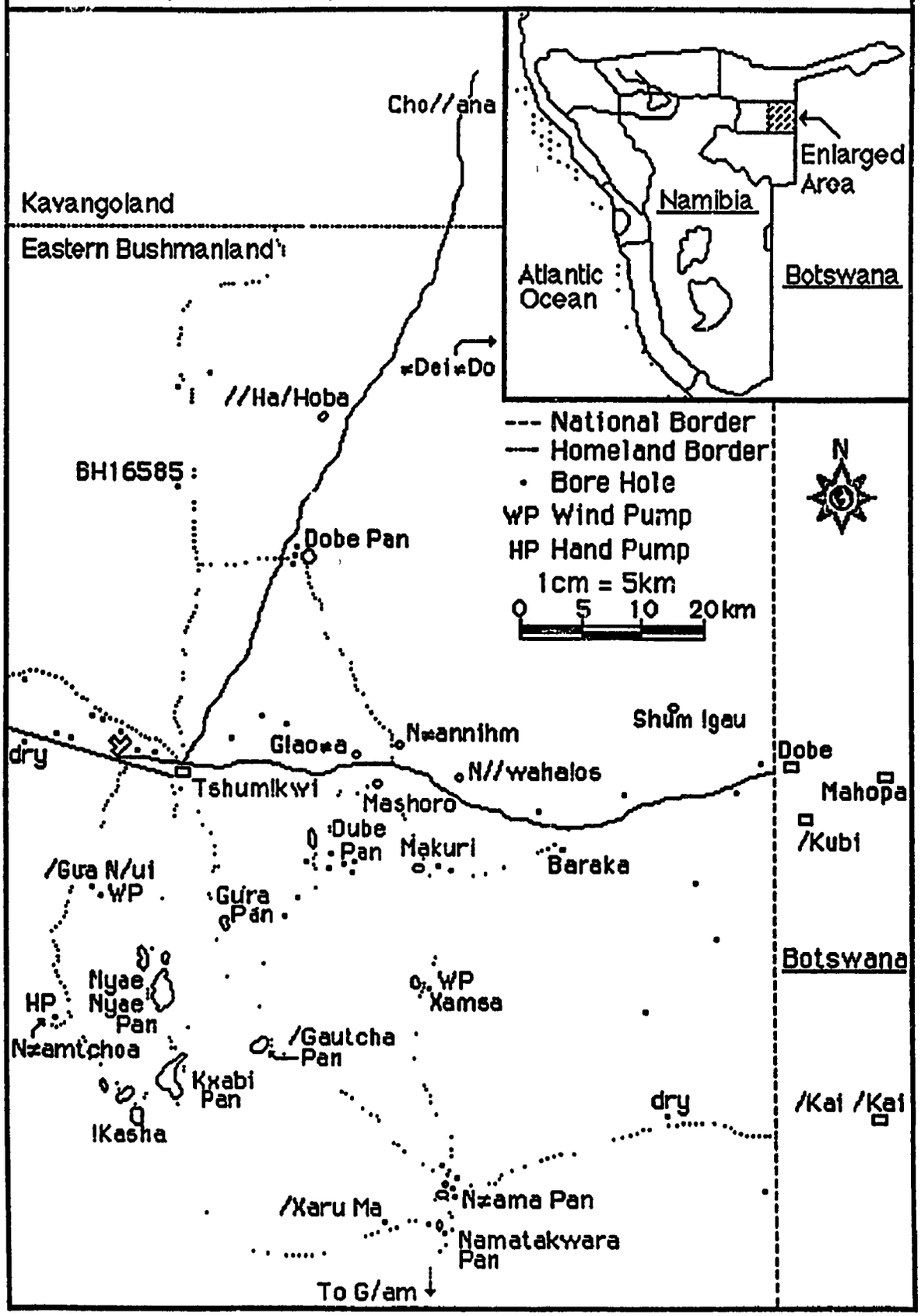
Figure 3. JU/WA Settlements in the Nyae Nyae Region, Namibia (Bixler 1992)



Changes have occurred in the distribution and abundance of resources in the Nyae Nyae region. Game is not found as frequently as it was in the past, and those animals that do exist in the area tend to be relatively shy and are not as easy to hunt Wild plant foods were depleted in the vicinity of Tjum!kui in the 1960-1980 period, and this was one of the reasons that people wished to return to their traditional territories. In the area of the newly established settlements it is still possible to find berries, nuts, roots, and other veld foods. The livestock populations are relatively small, with the largest herd being just over 100 animals and many of them being less than ten head Some of the people in the settlements do receive wages from jobs with the government or with the Nyae Nyae Farmers Cooperative, while elderly people receive pensions The economy of the various settlements thus can be described as a mixed one, with foraging, pastoralism, agriculture, and wage labor contributing to people's subsistence and incomes

2 Social Rules for Resource Management

a. Traditional Rules (N!ore Law)

The Ju/'hoansi of Nyae Nyae have long had clearly defined genealogical ties to resource areas, called n!ores Unlike other Bushman peoples of Namibia, many of whom have been dispossessed of land rights and scattered as serf laborers on both white and black farms, the Ju/'hoansi are fortunate to have maintained at one and the same time a substantial fragment of their former foraging territory and the social technology of resource management which has made their economic adaptation possible there for as much as 25,000 years [Yellen, Brooks, personal communication] In this social technology, leadership has traditionally been tied to stewardship of the resources of each n!ore by a core group of siblings Usually there is one oldest man or woman from this core group known as the n!ore kxao or n!ore owner (master) who has guardianship but not authority over the resources of the n!ore

N!ores are roughly circular areas of land with undefined borders, each of which provides wild food and animal resources, along with a water source or sources sufficient to sustain a traditional hunting-gathering group of 30-50 people Leadership in these areas is tied to generally agreed genealogical connections through parents, spouses, and/or special kin "name relationships" to the particular n!ores they inhabit Over two hundred named n!ores have been identified in the 6000 sq km of Namibia known after the Odendaal Commission (1970) as Eastern Bushmanland (Nyae Nyae) and perhaps another 100 remain to be identified in less accessible areas

The n!ore system has considerable time depth in Nyae Nyae This is known from both oral history evidence and archaeology Archaeologists have shown that Bushman peoples, probably the ancestors of the present Ju/'hoansi, lived in Nyae Nyae at least 1000 years ago, and the earliest recorded date of human occupation in Nyae Nyae is approximately 25,000 years B.P. No evidence of permanent occupation by any people other than hunter-gatherers has been found in Nyae Nyae

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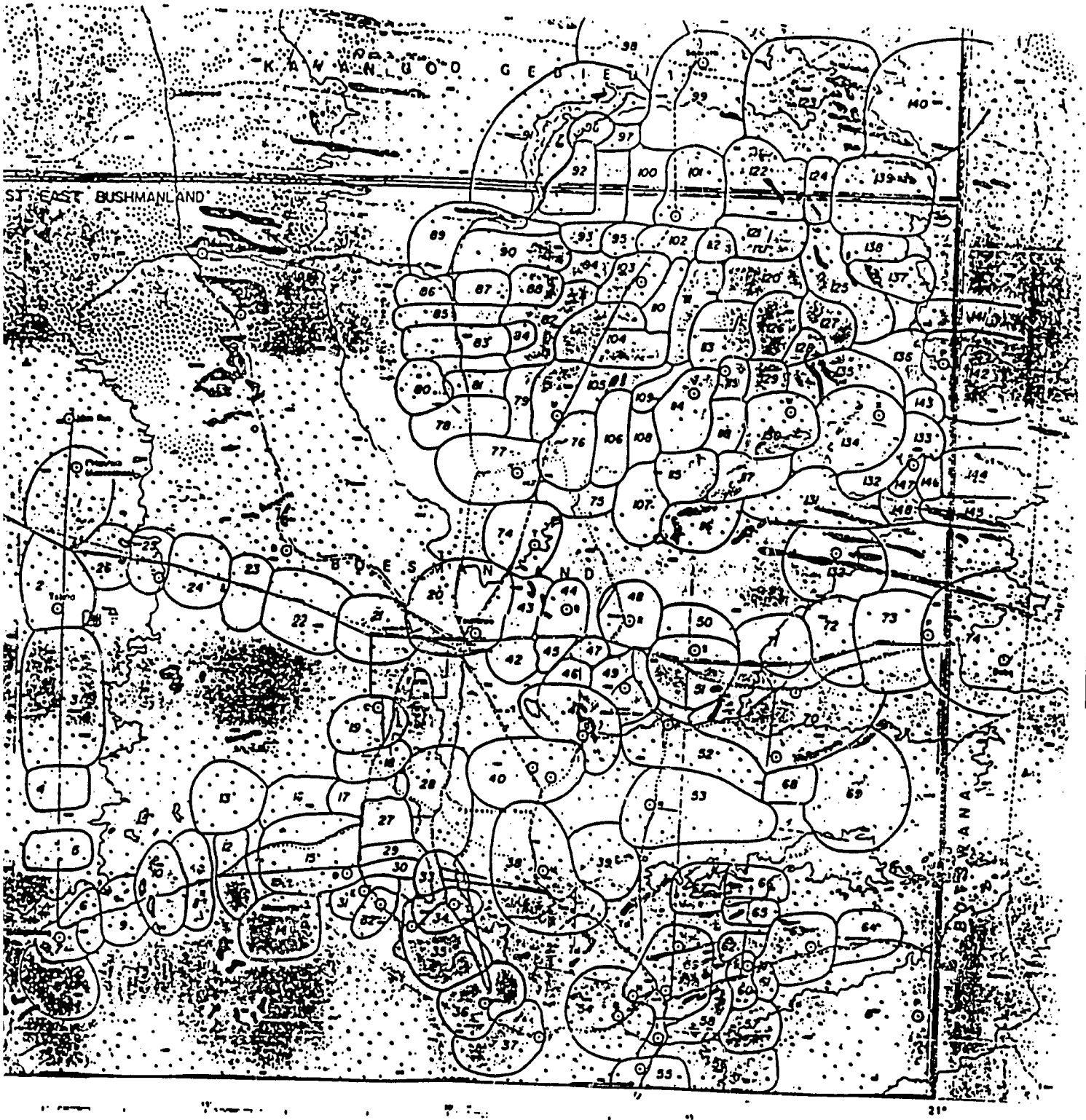

Figure 4 - Nlores in Eastern Bushmanland

There are two key concepts of land tenure and resource use in the Ju/'hoan n!ore system. These are n!ore rights and the right of the kxa/ho (the larger land area of Nyae Nyae under which n!ores are subsumed).

1. N!ore Rights

A n!ore is a named place, as we have said, containing various natural resources. Some n!oresi (plural) are residential while others are used only for hunting and gathering Each residential n!ore has one or more "eating places" ('m/hosi), which may or may not be shared with contiguous n!ores Each residential n!ore also has an associated "hunting place" (!age/ho) or direction of usual hunting (sometimes more than one), and these may or may not, as well, be shared with nearby residential n!ores The sharing of resource areas associated with n!ores is organized along lines of kinship, historical association, and specific local resource availability. The n!ore system and its understandings provide a flexible, yet generally agreed, method for adapting socially and numerically to make good use of unpredictable wild resources

Where "eating places" ('m/hosi) are shared, each n!ore's inhabitants has a special, but ultimately non-exclusive, relationship to the portion of the 'm/ho closest to their tiu/ho (village) This portion is called a g/ani, defined as "the gathering area that is behind you," in the sense of "in your back yard " As one informant stated (June, 1992) in response to questioning about exclusive rights to resources in his g/ani, "Look, even if bush food is 'in my back yard,' it doesn't belong to me alone, it belongs to all of us " He then went on to describe how a hungry person from another n!ore should request access to the g/ani of a n!ore kxao He should say, "I've seen food out back of you " Then the n!ore owner would say "where is it?" and join him in eating it. Clearly this sort of sharing has an information-spreading function as well as a risk-reduction one in an area of patchy rainfall In fact, over much of the Kalahari area of both Namibia and Botswana similar foraging band cooperative "nexuses" have been demonstrated [Heinz, Hitchcock, field data]

The right to reside permanently in a n!ore is inherited by individuals from their parents Siblings share this right equally This right cannot be sold, given away, or willed to anyone. A person or group may travel through other people's n!ores but no one may settle in a n!ore without the permission of the n!ore owner, or oldest person in the sibling core The rights of n!ore owners are understood to include the right of permanent, exclusive possession, with resource access modified, as indicated above, by flexible, environmentally modulated sharing with associated neighbors They also include the right to gather all bushfoods in the n!ore, to trap game there, to start poisoned-arrow game pursuits there, and to use the water sources Lately, n!ore owners and their extended families have been assumed to have the right to raise livestock on their n!ores and to develop any necessary infrastructure, as well as to cultivate crops there

The n!ore right is subject to the underlying right of the kxa/ho, explained below. However, the n!ore right is considered by the Ju/'hoansi to be stronger than the right of the kxa/ho.

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2. Right of the Kxa/ho

The kxa/ho (literally, "sand surface") is all of the land traditionally inhabited by the Ju/'hoansi and all of its water, bushfoods, game, grazing, wood, minerals, and other natural resources In other words, the kxa/ho includes all the individual n!oresi To express the meaning of kxa/ho, the Ju/'hoansi say "our land and all the things !Xu (God) has placed in it". The right of the kxa/ho is a communal land right acquired by individuals by descent

The right of the kxa/ho is usually exercised in the following ways

- o the right to drink the waters of the land, particularly in times of drought;
- o the right to travel freely through the land, and to drink water, hunt, and gather while on the journey,
- o the right to shoot and follow wounded game anywhere in the land, and
- o the right to gather key bushfoods anywhere, these include mangetti - mongongo - nuts (Ricinodendron rautanenii) and morama beans (Tylosema esculenta)

Today, anyone who speaks Ju/'hoan and refers to him- or herself as Ju/'hoan is assumed to possess the right of the kxa/ho According to the Nyae Nyae Farmers Cooperative statutes, the constitutional document recently drawn up by the local grassroots organization, the n!ore right and the right of the kxa/ho "have kept the peace among us and served us well." There is not a single known instance of death as the result of a dispute over territory in Nyae Nyae in over 100 years

b Territory (Occupants and Kinship)

Under the traditional system of land tenure, Ju/'hoansi inherited rights of residence in specific areas from their parents Individuals also established subsidiary rights in other n!ores through marriage, with bride service in the form of hunting for the wife's parents an important determinant of residence for at least part of the husband's lifespan Richard Lee writes of the contiguous Botswana Ju/'hoansi "A camp is built up gradually through time by the addition of inmarrying spouses of the core siblings These spouses in turn bring in their siblings and their spouses, so that the basic genealogical structure of the camp assumes the form of a chain of spouses and siblings radiating from the core.. "[Lee 1979 61]

The name relationship as an added dimension of kin-relatedness provides subsidiary ties to further possible n!ores It reflects the need to have several options open during lifetimes which may be characterized by shifting n!ore residence in response to environmental pressures such as scattered rainfall and variable local resources, or social pressure such as group incompatibility This flexibility is subsumed within a pattern which, to all accounts, has high social agreement and low conflict

The Nyae Nyae Development Foundation of Namibia (NNDFN) reports that there are presently 36 occupied residential n!ores in Nyae Nyae, with a total population of 1256. In addition, Ju/'hoansi live at two administrative centers in the region (Tjum!kui and

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Aasvoelnes), bringing the population to just over 1500. The population's age profile is slightly skewed, with the age class of 11-15 being under-represented The birth rate is 37 per 1000, and the death rate is 17 5 per 1000 The resulting 2% growth rate is approximately what would be expected in this sort of population Infant mortality has been high but is receding with recently introduced clinical and educational measures For the last year it has stood at 64 per 1000 live births [Zwaga, O'Neill] Morbidity problems include malaria and tuberculosis

c. Challenges to Egalitarian Society (Gender Issues, Representative Government, Creative Extensions of Traditional Resource Management Rules)

To understand some of the challenges the Ju/'hoan people, and other egalitarian, small-scale groups like them are facing in managing their resources in new, nation-state contexts, we must look briefly at social characteristics of their traditional society Though there is substantial disagreement among scholars about the degree of economic isolation in which these people have lived over the last two thousand years, the immense detail of environmental information at their command would itself alone argue for a substantially independent foraging existence, one consonant with certain social concepts and forms by now well-known to anthropology These elements include the absence of hierarchical leadership and the presence of pervasive power-sharing mechanisms, sharing and leveling as important social technologies to spread resource access, general sexual egalitarianism and complementarity of economic roles, nurturant and permissive childrearing and a lack of ageism, ad hoc leadership characterized by facilitative rather than autocratic roles, sapiential authority in an information-intensive economy, democratic inclusion of personal opinion in consensual decision-making, stewardship rather than ownership of land, communication and healing skills seen as multiplied rather than divided by social sharing, and the absence of activity specialization in favor of flexibility which generally accompanies a hunting-gathering economy Though much about Ju/'hoan society is in transition to a mixed economy, the hunting and gathering ideological substrate is still very much in evidence in areas relating to economic organization, authority, and decision making

In confronting the recent need to develop a wider social form than the extended-family living group in which these characteristics were embedded, Ju/'hoansi face a number of cultural problems These include an ideological and practical difficulty with the concept of representativeness in government In their small, face-to-face groupings they had worked always on the principle that if each person's opinion was not physically heard, there would eventually be trouble Sometimes this concern was expressed in an idiom of health it was said that repressed opinions could create sickness This tolerance of each person's views, extending unproblematically to women as well, has made for practical problems in new contexts When the Nyae Nyae Farmers Cooperative, a grassroots movement of Ju/'hoansi, began in 1986 its general meetings at first consisted of hundreds of people, and the meetings went on for days and days By 1992 this problem has been alleviated somewhat, partly through the availability of new models beyond the hierarchical ones of the Ju/'hoansi's neighbors and partly by sheer attrition in the last analysis they sought the means to deal with

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many new decisions in increasingly smaller amounts of time. Eventually they solved the problem of the social fear of self-aggrandizing persons and institutions, and of leaving out people's opinions, by discovering government by committee. A history of the NNFC now being written [Biesele] details the discovery process and changes in leadership since the Co-op's formation

One of the major ongoing problems for the NNFC has been "the tall poppy syndrome", the propensity for traditional-community members to fear standing out from the crowd due to social censure A correlate of this attitude, of course, is a difficulty in getting individuals to stand out in any way or to commit themselves publically to a course of action before a general poll is taken Yet both stands have become necessary in the course of consolidating community strength and entering national politics in Namibia

It was often said in both apartheid and black governments in southern Africa that Bushmen, having no traditional headmen, must therefore be incapable of governing themselves. Indeed forms of headmanship or chieftainship made familiar by pastoral and agricultural societies do not characterize leadership in these recently hunting-gathering groups. Instead of hereditary headmen with status and wealth exceeding those of others as in stratified societies, Bushman groups have leaders who lead rather by virtue of a combination of the genealogical ties to resource areas discussed above, and personal qualities which may arise unexpectedly in individuals and are not necessarily passed on to heirs In the case of the Ju/'hoansi, both these traditional sources of authority are being creatively extended in the development of new leadership patterns

Similarly, and in a closely related development, creative extension is being made of the traditional resource management rules. The NNFC presented to the Namibian government via its National Conference on Land Tenure and the Land Question (June-July, 1991) its suggested extensions of the n!ore concept to meet new circumstances in building the new nation

In a further development at the same Land Conference, the leadership of the NNFC made the following recommendations concerning resource use and tenure on communal lands. These grew out of their traditional n!ore system but were also informed by contact with environmental and ecological planning perspectives provided by scientists and the post-Independence Directorate of Nature Conservation. The points were (as reconstructed from the Ju/'hoan translator's notes)

1. Farmers should not be allowed to overgraze their own land and then move on to other peoples' land and ruin it.
2. Namibia is now free and open but permission must be asked from local residents by anyone wanting to resettle
3. It is not good for the land to have too many cattle; better to take good care of a few cattle, offtake the rest, and use the proceeds to establish water points and support the health of the land.

4. The land we have is today reduced and we must protect it as best we can Those who live on land and know it well are its best protectors.
5. In the case of Nyae Nyae, taking care of land means that some must be set aside for wild animal breeding and some for wild plant collecting
6. If we protect our land, it will support many more of our people, for example those who were taken to the Gobabis farms as slaves and those who went to South Africa with the SADF.

The presentations made at the Land Conference were recognized by the then Namibian Minister of Lands, Marco Hausiku, in verbal and press statements to the effect that the n!ore system would become the basis for land allocation in Nyae Nyae Since that time, efforts of the NNFC have been concentrated on making sure this recognition is legally formalized and that Ju/'hoan land rights achieve secure status under law.

d Sharing Rules and their Implications for Development of Workable Structures in the Future (Sharing as a Social Technology)

Traditionally, Ju/'hoan society prescribed not only flexibility of access to resources on the ground as described above, but also clear rules for their sharing and distribution once gathered or successfully hunted In general, vegetable foods became the property of the woman (or man) who gathered them, and were shared most usually with members of the nuclear family Meat, in contrast, was rigorously shared with all members of a living group, which generally meant an extended family and any visitors This sharing of meat was a social mechanism to minimize conflict over the most desired food resource (perhaps 20% of the diet) and a recognition of the universality of protein needs among all members of the population, not just the successful hunters

e Specific Rules for Important Resources (Meat, Morama Bean Fields, Mongongo Groves, Water)

A further social mechanism to spread the ownership of the sharing of meat (which in and of itself is a resource and which has strong implications for future reciprocity in this society) is the convention of arrow-sharing Anyone, including women, children, and the elderly, may make or acquire arrows and then lend them to hunters. The meat then belongs to the owner of the arrow which kills the animal This convention allows everyone in the society access to meat for sharing, which in turn binds others to that individual in reciprocal meat-sharing obligations The social technology of Ju/'hoan hunting, which further involves pervasive leveling mechanisms to minimize the hunter's prowess and emphasize the shared needs of the society, thus provides thought-provoking models for decentralized resource management

A further important point in regard to hunted resources involves the pursuit of wounded game across adjacent n!ores of other peoples The Statutes of the NNFC recognize the utility and importance of this right: after all, without it, many valuable animals would be wasted. This

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rule honors the vast amount of local information and tracking skills needed to bring an animal down; anything more exclusionary would be counter-productive

This rule may well be modified in the case of different technologies for hunting, eg. in setting snares, which do not involve mobility or tracking A small research project in hunting technologies and their social/spatial ramifications in regard to the n!ore system would provide interesting ancillary data

Morama bean fields and mongongo nut groves provide resources in Nyae Nyae which are both plentiful and extremely nutritional Both morama and mongongo (mangetti) are high in protein and calories, and both provide tasty and desirable foods. Access to these resources is somewhat more open to inhabitants of all n!ores than other bush foods found in more limited amounts There is a sense in which Ju/'hoan people identify themselves with these two foods and their relative limitlessness. "Why should we plant crops when there are so many mongongos in the world?" said one Ju/'hoan man to Richard Lee Enormous bad feeling would ensue if one person refused to share the morama or mongongo resource with someone from even a distant n!ore And in general the fields and groves where these resources are located are defined as communal areas not for habitation but for walking to, camping at, gathering loads in, and going home from

Water, the bottom line resource, has special sharing rules because if it were ever to be refused in a case of need, someone might die Though knowledge of the calls on a water source should be centralized in one person, the n!ore kxao, he or she would never refuse a water request or expect reciprocity therefrom The pervasiveness of this rule is pointed up by the shocked reaction of an NNFC delegation which visited Hereroland during 1989 (not a drought year) and discovered their Ju/'hoan relatives working or squatting there having to pay the Herero farmers for water In a communal system, it appears, specificity of resource access rules, adjusted to both local conditions and to social expectations, works well in the wider scheme to ensure economic viability Once again the formula for sustained success is detailed, informed environmental awareness combined with both social agreement and consensual flexibility

3. Change· Causes and Effects

a. Issues that have Prompted Change (Colonial Administration and Militarization, Drought, Wildlife Depletion, Tourist Encroachment, Independence)

During the 1950's, about 1200 Ju/'hoan people in the Nyae Nyae Region in what was then South West Africa and adjacent Botswana (see map) were the only people still supporting themselves solely by hunting-gathering in southern Africa This form of economy requires approximately 37 sq km per person in this area to support a stable population It also requires that people live in small, widely scattered groups in order not to rapidly exhaust local resources of bushfoods Hunting supplied about 20% and gathering about 80% of the diet

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Women's salience in the society was linked to their invaluable economic contribution as gatherers.

From the 1950's to the 1970's, however, Ju/'hoansi came to live at the administrative center, Tjum!kui, as a result of promised wage labor, agricultural training, and medical care. Over 900 people migrated to Tjum!kui, where they were given a school, a clinic, a church, a jail, and a few jobs The result was catastrophic for Ju/'hoan life as decimation of local food resources, social disintegration, dependency, alcoholism and crime set in Worse, as the Ju/'hoansi were no longer occupying their land, it became the target of attempts by the SWA Directorate of Nature Conservation to set it aside as a game reserve from which human habitation--except for a few tourist guides in skins--would be excluded

In 1970, following the work of the Odendaal Commission, Ju/'hoansi lost 70% of their previous foraging territory in Namibia and all but one of their permanent waters Over 30,000 sq km of southern Nyae Nyae, where only Ju/'hoansi and one Tawana/Herero family lived, were expropriated by the SWA Administration and given to the Herero as Hereroland East Over 13,000 sq km of Northern Nyae Nyae, where only Ju/'hoansi and three Kavango families lived, were incorporated into Kavango About 4,000 sq km were later proclaimed the Kaudum (!Aodom) Game Reserve Ju/'hoansi were left with about 6,000 sq km of land, enough to support only about 170 residents by hunting and gathering

By the late 1970's, Ju/'hoan groups in Tjum!kui were realizing that they would have to go back to their land if they hoped to hold onto it They also realized they would have to develop more intensive forms of economy to add to hunting-gathering in order to survive on a reduced land area Ad hoc leadership of n!ore groups became somewhat more formalized as people threw their hearts behind individuals they thought could lead them out of "the place of death," as Tjum!kui came to be called

The period 1980 to 1986 in Nyae Nyae paralleled the "Outstation Movement" in Aboriginal Australia It saw the departure of the first three re-formed n!ore groups for their traditional areas and a life with hope of a self-sufficient future Over the next six years some 500 Ju/'hoansi left Tjum!kui to reestablish n!ores in Nyae Nyae, and by 1992 this number has more than doubled (with the addition of other new settlers from the Gobabis Farms area) and accounts for the inhabitants of more than 30 communities All along their attempt has been to establish broadly-based rural communities and a mixed-subsistence economic pattern to counter the recent shrinkage of their land base

The changes this effort has meant have been far from easy Ju/'hoansi have struggled with lions that kill their cattle, elephants that trample their gardens and pull out water pumps, and hostile SWA Administration officials who believed them incapable of development. They have also struggled within themselves, adapting the cultural rules and values that underwrote the old foraging way of life to the very different one of agriculture.

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Hunting-gathering involves great individualism of labor, situation-specific decision-making, relatively undelayed rewards for effort, and egalitarian sharing rules Agriculture, in broad contrast, implies collective labor organized more or less hierarchically, undifferentiated, often repetitious and arduous labor patterns, greatly delayed rewards, and, often, stratified sharing Vast cultural abysses opened beneath the efforts of even the most motivated Ju/'hoansi as they struggled to enlist their extended families in puzzling new labor patterns with uncertain returns

The setting up of a grassroots movement in 1986 called the Ju/wa (Ju/'hoan) Farmers Union, later renamed the Nyae Nyae Farmers Cooperative, marked a decisive moment of change in both leadership and general conscientization among the Ju/'hoansi Several leaders at the new communities proposed a new incarnation of the n!ore system, an organization to represent the communities which had gone back to their land This organization was to help the Ju/'hoansi hold onto their land and to enable dispossessed groups to settle on available land along the old n!ore lines of settlement and resource use Each community was to have two representatives acting as voices for their communities on matters of n!ore allocation, n!ore group viability, cattle allocation, and the organization of farming labor Increasingly this body has formed an important forum for the discussion of macro-environmental issues, as well

During the six years since the NNFC was begun, the Ju/'hoansi have been subject to unprecedented outside pressures Not only has there been continued militarization (some Ju/'hoansi, misunderstanding the nature of the South African war with SWAPO, fought on the side of the SADF against the people who were to become their fellow-Namibians), but also, continued interim government obstruction of their development goals in the name of centralized "administration" of their population The wildlife of their area was purposefully depleted by Nature Conservation and various sub rosa operations, overexploited by hunters and trophy safari companies, and caused to die by the hundreds as a result of fences erected in ignorance of game migrations

Drought too has taken its toll on the wildlife of Nyae Nyae, with a very dry period lasting from 1981 to 1988 receiving only a brief respite between 1988 and 1992 before apparently beginning again Tourists in unmanageable numbers have also flocked to Nyae Nyae, and Ju/'hoansi became anxious at the threat to their game posed by careless camping and building of fires near key waterholes and pans Namibian independence with its breath of fresh political air and sense of opportunity for marginalized communities to develop in their own way brought the challenge of constructing a brighter future home to the Ju/'hoansi Perhaps the most galvanizing aspect of both the problems and the possibilities confronting them, however, was the threat of the loss of their land base posed by alternative models and incoming interests These included both conservation efforts that excluded people and pastoral encroachment on the relatively unspoiled grazing of Nyae Nyae

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b. NGO Influence· The Integrated Rural Development Program and Environmental Resources Planning

The establishment of a Namibian non-governmental organization, the Nyae Nyae Development Foundation of Namibia or NNDFN (formerly the Ju/wa Bushman Development Foundation) in 1981 was a response by anthropologists and friends to concrete initiatives of the Ju/'hoan people As the first n!ore groups, tiring of the incessant squabbling, hunger and uncertainty at Tjum!kui, began to move back to their foraging territories, the NNDFN was able to help logistically Drawing upon private donations and later international agencies, the NNDFN provided assistance to the communities and eventually to the NNFC (the Farmers' Co-op) in drilling and equipping water installations, purchasing small herds of cattle for resale at subsidized prices, and financing transport and communications over the Nyae Nyae area

In the ten years since it began, the Foundation's role has expanded greatly as the partner of the Farmers' Co-op in planning and implementing an integrated rural development program for virtually all of Nyae Nyae's inhabitants. To its original economic development emphasis it has added communicational and organizational skills facilitation, income generation through handicrafts sales and a cooperative mobile store, cooperative income generation via media education work such as participation in informational films and videos, agricultural and vocational education, community-based health education, and child and adult literacy in the Ju/'hoan language as part of Namibia's Basic Educational Reform Program

Particularly important in the Foundation's role has been its activity in natural resources planning Believing that a viable mixed subsistence in the Nyae Nyae area must involve not only the full understanding and commitment on the part of the community to integrated change but also creative environmental conservation, NNDFN has sought to improve relationships between Nyae Nyae inhabitants and the scientific conservation community

After extensive and often difficult communications between 1987 and 1990 a plan was evolved with the Directorate of Nature Conservation to carry out a survey of resources and local opinions regarding them. This survey was to be used to construct plans for environmental management involving local people's input at all stages

Results of the survey were written in 1991 by Brian Jones of Nature Conservation's Planning Unit and Megan Biesele of NNDFN (see unpub ms prepared for later NC publication). In subsequent meetings and communications with the Nyae Nyae Farmers Cooperative, Nature Conservation has endorsed the people's wish for a planning committee in Nyae Nyae to include local people along with conservators and scientists The main contribution of NNDFN to this effort is a major land use planning project drawing on the extensive environmental knowledge of Ju/'hoan residents, scientific specialists and experienced wildlife liaison personnel, and Namibian Government officials at all relevant levels NNDFN believes that this effort will have substantial chance for success because it comes as an integral part of ten years of general development work which has already forged reliable relationships between Ju/'hoan people, their NGO, and the new Government.

c NNFC as a Resource Management Institution

NNDFN and NNFC have been evolving in tandem as a most creative partnership, one that has the advantages of both local people's control and considerable outside networking capacity for specialized information, lobbying and press coverage, and funding They have worked together to promote, both within the Nyae Nyae population and externally, awareness of resource and environmental issues and how they may best be managed for the good of the community Basic to this effort has been, of course, the land rights struggle in Nyae Nyae, which after ten years reached in 1991 a satisfactory plateau for at least temporary consolidation of gains and assessment of next steps in resource planning

The NNFC has taken seriously the honored environmental management rules of past Ju/'hoan society in constructing its constitutional document, the Statutes of the Nyae Nyae Farmers Cooperative This document puts in writing for the first time the n!ore law and the law of the kxa/ho and has brought these management techniques, hitherto known only to themselves and to a handful of anthropologists, into national and global forums This contribution to environmental planning comes as a timely insert into the world dialogue now developing to link indigenous peoples' empowerment with environmental conservation and sustainable production The particularity of the Ju/'hoan adaptation, known in detail now to outsiders at a level generally unprecedented in most of the world, can model a new level of both scientific responsibility and local participation in resource planning

d Tourism, Game Guards, Environmental Education

A big part of the impetus for the resource planning efforts in Nyae Nyae has been the realization that resources were under threat of exploitation by outside forces unless the people themselves began to direct resource control As early as 1988 the then Chairman of the NNFC, Tsamkxao ≠Oma, submitted to the acting Commissioner in Tjum!kui a plan outlining local control of tourism for the area Involving expert game guides for tourists and trophy hunters, informational pamphlets and signboards regarding environmental rules for campers to observe, and eventually game guards to prevent poaching and promote awareness of valuable species among the local population, this plan profited from information then beginning to filter in from the Purros project of the Himba people and the work of Jacobsohn and Owen-Smith It was also given a boost during an NNFC visit to the Himba area in 1989, when mutual natural resources, land rights, and political representation issues were discussed. Completely ignored by the interim government administration and actively opposed by many of that government's Nature Conservation personnel, the NNFC's 1988-89 plan is finally seeing the light of day under the enlightened new Wildlife Ministry mandate calling for consultation with local people and support to grassroots initiatives.

Environmental education both external and internal will be a large area of both NNFC and NNDFN effort over the next ten years, after which time NNFC will be substantially in control of all programs now jointly managed Curriculum development for the first four years of education in the Ju/'hoan language and for adult literacy will involve community input into

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decision-making about environmental knowledge, now wholly in oral form, to be transformed into written and graphic forms for local and wider educational efforts.

e Cultural Resources and Change

Ju/'hoan people regard their handicrafts and their beautiful singing and dancing traditions, as well as their profound environmental knowledge, as cultural goods from whose promotion they should benefit. They know that for too long the profits and benefits from these things have passed out of their hands in the form of exploitative pricing, unremunerative display for photographers, unpaid participation in media, and other misguided romanticizing of their way of life Today the NNFC is promoting reliable markets for crafts of high standard, new crafts using indigenous materials which are known to have market appeal, outlets for Kalahari bush products which may be marketed in a dignified and remunerative way, and community-based informational tourism emphasizing people-to-people contact and high information exchange.

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III. FINDINGS

A. Renewable Resource Management in Namibia - Current Conditions

1. Wildlife conservation and tourism in Namibia is a significant resource because of its development potential. This is true not only because of the large economic resources involved and the profit potential, but also because of the impact it has on other resources, especially on access to water, land and grazing areas.

2. A wildlife and resource conservation ethic exists amongst the people of Namibia and could even be referred to as an aspect of the traditional values systems. This ethic has been subverted by policy decisions, and economic constraints and demands. Given their choice, however, people want to be close to wildlife and want to have the option to manage their resources as was the case in the past.

3 With communal land tenure issues unresolved the sustainability of resource management programs is in question. The uncertainty affects incentives to manage resources sustainably

4 There is significant non-governmental organization activity associated with nature and wildlife conservation in Namibia, but the degree to which there is collaboration between these organizations is questionable. Additionally, many NGOs appear to be too greatly centered in Windhoek and perhaps lack a sufficient field presence.

5 Field level implementors for community resource management programs are needed along with environmental education and training programs.

6. Serious questions have been raised regarding the wildlife resources of Nyae Nyae; i e. why the levels are low and how well the quota system for trophy hunting is working. There is a need for resource surveys and game censuses that will be required for preparation of management plans It can be assumed that this need holds throughout Namibia

B. Local Self-Governing Institutions

1. There is recognition amongst the actors involved in renewable natural resources governance and management (communities, NGOs, government) of not only the roles each has to play in management, but also the fact that each brings unique and useful knowledge to the process

2. Examples of successful local management of renewable natural resources exist, but the replicability of these programs and their sustainability is yet to be answered

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3. Official government recognition of local self-governing resource management institutions, such as the Nyae Nyae Farmers Cooperative, is important for establishing institutional legitimacy and sustainability. This requirement will help to assure that collaborative and supportive roles are established between local and national governments and institutions One significant issue will be the revenue raising authority of these institutions

4. Tourist revenue sharing with communities is done on an ad hoc basis at this point; that is, there is not yet an "official" government policy to encourage revenue sharing. The programs are in danger until a coherent policy is formulated. The questions to be answered include what kind of official sanctioning and structure is required, and how can practices be established for specific localities that will then be codified, thereby avoiding a "cookie cutter" approach that is adopted without regard to local realities

5 Namibia's current economic reality is that the national budget is earmarked for national capital investment projects, versus local rural investment. This makes it even more important that local institutions are empowered to manage their own natural resources in order to mobilize these institutions as a management resource

6 Neither Himba nor Herero nor Bushmen appear to be traditionally hierarchical Conflict resolution in these societies is based on debate and negotiation, which allows for flexibility in resource management rule adaptations within a changing and fragile environment Modernism, however, promotes hierarchies, especially when dealing with government, both central and regional The challenge is to determine how governments and traditional societies can collaborate to form governance and management institutions that recognize both these realities The Nyae Nyae Farmers Cooperative presents a model for such an institution It is important that policies view the institutional structures as equally as vital as the technical structures for sustainable resource management

C. Local and National Government - Interactions with Communities

1 The present local government presence in Kaokoland and Nyae Nyae appears to be negligible What presence there is, is often negative. At this time people neither pay any taxes, nor do they get any services from local governments.

2. The new local government unit system is still in the formative stage, which begs the question of what the practical implications of the new structure will be for existing institutions, both governmental and non-governmental Specifically, how will local self-governing institutions relate to and work with the new government bodies? How will the headman/ward system fit in? How does the new structure fit with traditional governance institutions? The local governments are designed to have little authority - how will they then support local development and be responsive to local institutions?

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3. The new local government units are designed to have networking, communication, and liaison roles, versus service provision/production roles. Government service presence is provided through extension agents from central ministries, versus local representatives that are responsible to the local population

4 The Nyae Nyae Farmers Cooperative has had positive relations with the local government in regards to a willingness by the government to back-up the authority of the cooperative with enforcement support, and by working with the cooperative on decision making This kind of collaboration could form a model for other local government - local self-governing institutions relationships

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IV. RECOMMENDATIONS

A. Decentralization

1 At this time, in the absence of any other authority, the Nyae Nyae Farmers Cooperative as a self-governing local institution, is the de facto government of the area Rather than being supplanted by the new local government unit, the cooperatives' strength should be utilized and supported by the government. Its potential as a development and service provision institution should be actively promoted In this regard, a collaborative relationship between the cooperative and the local government should be supported as a model for decentralization that could be useful throughout Namibia as the local government system develops

2. Now is the time to help influence the goal of the new local government units The structure of the units is determined, but it may be possible to influence their direction so that a service provision focus is encouraged. Donor assistance could help in identifying and promoting local self-governing institutions and NGOs; performing resource surveys and censuses, and, conducting public finance capability studies This assistance would help local governments to establish cooperative and collaborative relationships with self-governing institutions

3 Especially because the local government system in Namibia is in a formative state, local self-governing institutions and non-governmental organizations should be encouraged to develop ties with the local government presence so that mutually supportive relationships are built If bridges are not built at this time, there is a danger that local governments will build power bases later at the expense of local institutions, and that resources will be poorly coordinated instead of being efficiently complemented

B Programmatic Support

1. The concept of "Nature Conservancy Areas," to be managed in large part by communities with the support of technical expertise from the Ministry of Wildlife Conservation and Tourism, should be encouraged and supported. Previous experience in southern Africa, however, has demonstrated the implementation difficulties these programs have Therefore, a pilot study/test case should be field tested before a broader ranged program is attempted

2 At the same time, a policy that legitimizes and encourages community sharing of tourist revenues needs to be prepared This policy should be flexible enough to allow for tailoring of the rules for different locations The complexity of the "good" (i.e. wildlife) and its public and private, market and non-market attributes dictates that policies be adaptable for the various actors involved in different circumstances.

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3. Donor support for community resource management programs should be carefully and selectively granted to those organizations and institutions that truly involve all members of the community There is a danger that organizations may actually only represent one or two selected individuals chosen as spokesmen Therefore, emphasis must be placed on providing support for institution promotion Additionally, these institutions must be allowed to actively participate in all aspects of the program including planning

4. Donors should continue their emphasis on education and training Networking and sharing of resources amongst the various environmental education and natural resources management programs would be an especially useful coordinating function that donors could support. This networking should include project-to-project visits, much like the visit of the Nyae Nyae Farmers Cooperative to Kaokoland to witness the community game guard program.

5. Local language resource management newsletters should be supported to both discuss resource management issues and to promote literacy. Information on resource management issues would likely prove to be relevant and interesting, and would not only prompt people to read, but would also help them make informed management and governance decisions

6. Action oriented research is required to determine how institutions can develop resource management rules and conflict resolution mechanisms that endure through periods of environmental stress, specifically drought.

C Technical Support

1. If local institutions are allowed to, and expected to, make resource management decisions, significant technical assistance will be required and should be supported. Geographic information systems could be utilized to map resources These resource maps could be merged with resource rights and land tenure patterns Additionally, wildlife census data should be added to the data bases so that information can be easily and periodically updated

2. Additionally, research is required to determine optimal sustainable herd sizes, including not only cattle but also small stock.

3. The deliberations and decisions of the Technical Committee on Land should be closely monitored and analyzed The committee's decisions regarding land tenure will have enormous impact on local self-governing institutions and the sustainable management of their resources Support should be provided for analyzing the results and conveying the information to rural areas where people will be most affected by those decisions

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REFERENCES

Biesele, Megan (1990) Shaken Roots The Bushmen of Namibia Marshalltown, South Africa: Environmental and Development Agency (ENDA) Publications.

Biesele, Megan, Dianne Hubbard, and John Ford (1991) Land Issues in Nyae Nyae: A Communal Areas Example In National Land Conference on Land Reform and the Land Question, Volume 1 Research Papers, Addresses, and Consensus Document, pp 517-544. Windhoek, Namibia· Office of the Prime Minister, Government of the Republic of Namibia.

Biesele, Megan, Mathias Guenther, Robert Hitchcock, Richard Lee, and Jean MacGregor (1989) "Hunters, Clients and Squatters The Contemporary Socioeconomic Status of Botswana Basarwa " African Study Monographs, 9(3) 109-151

Bixler, Dorinda S (1992) Parallel Realities Ju/Wasi of Nyae Nyae and South African Policy in Namibia 1950-1990 Unpublished M A. thesis, University of Nebraska, Lincoln, Nebraska

Christofferson, Nils D and Darrel C.H. Plowes (1991) Preliminary Review of Namibia's Natural Resource Office of Technical Resources, Bureau for Africa, Publication Series No. 91-3 Washington, D C United States Agency for International Development (USAID)

Department of Agriculture and Rural Development (1991) The Current Land Tenure System in the Commercial Districts of Namibia Windhoek, Namibia· Ministry of Agriculture, Water, and Rural Development.

Gordon, Robert (1992) The Bushman Myth The Making of a Namibian Underclass. Boulder, CO: Westview Press.

Hitchcock, Robert (1991) "Human Rights, Local Institutions, and Sustainable Development Among Kalahari San." Paper Presented at the Meetings of the American Anthropological Association, November 20-24, Chicago, IL.

Hitchcock, Robert (1991) "Politics, Ecology and Survival Tactics Among Kalahari San." Paper Presented at the Conference on Indigenous Peoples in Remote Regions: A Global Perspective, July 3-5, Victoria, British Columbia.

Jacobsohn, Margaret (1991) Himba· Nomads of Namibia Cape Town: Struik Publishers.

Jones, Brian and Megan Biesele. "Integrating Conservation and Development in Eastern Bushmanland (Nyae Nyae)." Unpublished manuscript prepared for the Ministry of Wildlife and Tourism, Government of Namibia.

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Lee, Richard B (1979) The 'Kung San· Men, Women, and Work in a Foraging Society. Cambridge, England: Cambridge University Press.

Marshall, John and Claire Ritchie (1984) Where Are the Ju/Wasi of Nyae Nyae? Changes in a Bushman Society· 1958-1981. Communications No. 9, Center for African Area Studies, University of Cape Town Cape Town, South Africa: University of Cape Town

National Economic Policy Research Unit (NEPRU) (1991) Land Tenure Data In National Conference on Land Reform and the Land Question, Volume 1 Research Papers, Addresses, and Consensus Document pp 145-148 Windhoek, Namibia: Office of the Prime Minister, Government of the Republic of Namibia

Nyae Nyae Farmers Cooperative Application for Right of Occupation in Eastern Bushmanland Proposal for the Registration of the Nyae Nyae Farmers Cooperative as a Charitable Corporation Nyae Nyae Farmers Cooperative, Baraka, Eastern Bushmanland, Namibia.

Office of the Prime Minister, Republic of Namibia (1991) National Conference on Land Reform and the Land Question, Volume 1 Research Papers, Addresses, and Consensus Document Windhoek, Namibia· Office of the Prime Minister, Government of the Republic of Namibia.

Owen-Smith, Garth and Margaret Jacobsohn (1989) Involving a Local Community in Wildlife Conservation A Pilot Project at Purros, South-Western Kaokoland, SWA/Namibia Quagga 27 21-28

van der Merwe, J.H., ed (1983) The National Atlas of South West Africa (Namibia) Goodwood, Cape, South Africa· National Book Printers.

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APPENDIX 1 - PERSONS CONTACTED

Kxao Moses =Oma	Manager, Nyae Nyae Farmers Cooperative
/'Angn!ao /Un	Chairman, Nyae Nyae Farmers Cooperative
Tsamkxao Moses	District Representative, NNFC
N!ani Kxao	N!ore Representative, NNFC
N!aici Kaqece	N!ore Representative, NNFC
Tsaq'an /Ai!ae	N!ore Representative, NNFC
/Aice Djana	NNFC Member
Kxao /Ai!ae	N!ore Representative, NNFC
G=kao Dabe	N!ore Representative, NNFC
G/aqo N!a'an	Ju/'hoan visitor from Botswana
Claire Ritchie	Co-founder, NNDFN
Wendy Viall	Windhoek Liaison, NNDFN
Axel Thoma	Program Manager, Nyae Nyae Development Foundation of Namibia (NNDFN)
Elizabeth O'Neill	Health Project Coordinator, NNDFN
Froukje Zwaga	Community Health Nurse, NNDFN
Patrick Dickens	Linguist/Educator, NNDFN
Jean Guarnier	Village Schools Coordinator, NNDFN
Magdalena Brormann	Education Project Coordinator, NNDFN
Dave Cole	Marketing Officer, NNDFN
Eric Wood	Anthropologist/Development Worker, NNDFN
Margaret Jacobsohn	Rural Development Director, IRDNC, Damaraland/Kaokoland
Garth Owen-Smith	Conservation Director, IRDNC
Brian Jones	Planning Unit, Ministry of Wildlife, Conservation, and Tourism
Sharon Montgomery	Save the Rhino Trust
Douglas Reissner	Director, Namibia Nature Foundation
Richard Shortlidge	Director, USAID, Windhoek
Barbara Belding	Human Resources Development Officer, USAID, Windhoek
Goliat Kasaona	Headman, Warmquelle
Joshua Kongombe	Headman, Warmquelle ("founder," CGG)
Japie Waravi	Councillor, Okotjitenda, Kaokoland
Pieter Waravi	Okotjitenda, Kaokoland
Omukuyu Tjipomba	Lineage Head, Purros
Kari asitu Tjipomba	Community Game Guard, Purros
Mateus Waravi	Lineage Head, Purros
David Cownie	SIAPAC, Windhoek, Namibia
Chris Tapscott	NISER (Namibia Institute of Social and Economic Research)

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John and Jill Kinehan	National Museum, Windhoek
Alan Simmonds	Namibian Groundwater Consultants
Dian Svendsen	Consultant Trainer, WWF
Neil Powell	Researcher, East Caprivi, SIDA
Peter Alpert	AAAS Fellow, Bureau for Africa, USAID
Tor Sellstrom	Namibian Economic Policy Research Unit
T.N. Mbaeve	Deputy Director, Regional Government Coordination, Ministry of Local Government and Housing
Johannes Gaomab	USAID/Windhoek
Philip and Holly Stander	Ministry WCT
Raphael Siketa	Acting Regional Representative (Tjum!kui)

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Appendix 2
DEMOGRAPHIC DATA EASTERN BUSHMANLAND

Population figures

VILLAGE	TOTAL	0-5	6-10	11-15	16-30	31-45	46-60	60+
Makuri	37	9	8	3	9	5	3	0
Xamsa	26	5	4	4	3	6	2	2
Djxokho	34	10	7	1	6	3	3	4
/Aotcha	28	4	3	0	9	5	3	4
/Ukoarama	26	7	2	4	4	5	2	2
G//arate	20	4	4	2	5	2	3	0
N'aici(1)	34	7	3	4	10	5	2	2
/Uidinsi	26	7	4	3	4	4	2	2
//Aufu)	100	20	12	10	21	16	12	8
=Habace	18	4	1	3	4	1	2	3
N=ama	48	11	6	6	13	8	4	0
''Obaha	17	5	2	1	3	1	3	2
//Aqri=aq(11)	30	3	3	3	5	3	2	0
G'ukon'a'ao	16	3	3	3	5	3	2	0
N//haru='han(2)	56	11	10	5	7	7	6	8
N=oqmtjoha	97	19	11	12	26	14	7	8
N/um'xum	34	7	8	2	9	4	1	3
G/aqo'oma	27	8	3	1	6	3	2	4
Klein Dobe	10	3	1	1	1	2	0	2
=Om'o'o	21	7	1	2	2	7	0	2
/'Ao/'o(7)	40	8	9	0	5	6	3	2
/Xoan'huru	20	4	4	1	3	4	1	3
N//oqma	25	8	7	0	6	2	2	0
/Ko/kori	42	7	8	6	10	8	1	2
Baraka	39	9	6	6	11	5	2	0
N//oaq''osi	48	13	10	5	10	6	3	1
N=anemh	32	5	5	3	7	4	2	6
'Ao='a	37	6	7	5	6	5	4	4
Bense Kamp	55	13	8	5	11	13	4	1
Com'ao	2	0	0	0	0	0	0	2
='Otcakxai	45	14	9	5	6	9	2	0

VILLAGE	TOTAL	0-5	6-10	11-15	16-30	31-45	46-60	60+
G=ain=oq	24	2	2	5	4	3	5	3
=Aqbace	42	11	5	3	11	6	0	6
/Aig!oan	27	6	4	4	2	8	1	2
G/uih''han	20	4	5	1	6	4	0	0
//Xa/hoba	53	13	5	5	12	8	7	3

DEMOGRAPHIC DATA EASTERN BUSHMANLAND
(not including: Aasvoelness and Tsumkwe)

TOTAL Population	1256	
0-5 yrs	277	22.05%
6-10 yrs	191	15.21%
11-15 yrs	122	9.71%
16-30 yrs	259	20.62%
31-45 yrs	195	15.53%
46-60 yrs	98	7.80%
60+	92	7.32%
Missing 22		

Birth rate	47 per 1256
	37 per 1000
Death rate	22 per 1256
	17.5 per 1000
Growth rate	2%
IMR	3 per 47
	64 per 1000 live births

Appendix B: Annotations

CASE STUDY ANNOTATIONS AND USAID PROJECT DESCRIPTIONS

To compile case studies of natural resources management, the DFM/NRMs research project conducted a comprehensive data base search for literature and case study material using a variety of sources and methods, including:

- o development of a keyword indicator list for computerized data base searches,
- o use of ARD's DFM library and existing common property bibliographies,
- o coordination with the Land Tenure Center in order to search the Land Tenure Library at the University of Wisconsin; and
- o review of non-published and/or non-catalogued literature of other NRM technical assistance organizations, such as WWF, WRI, and CARE.

Early in the literature search, a keyword list that focused on community-based NRM was developed Listed below are the keywords that were used to search within the Commonwealth Agricultural Bureau (CAB) Abstracts, AGRICOLA, AGRIS, TROPAG, ENVIROLINE, Environmental Bibliography, Rural Sociology Abstracts, and the LTC Library.

Geographical Descriptors

- o Africa/Sub-Saharan Africa

Access to Resources Descriptors

- o Land tenure/land access
- o Property rights
- o Riparian rights
- o Common property
- o Land use

Technical/Physical Descriptors

- o Natural resources/natural resources management/resources management/resources use/resource conservation/resources utilization
- o Pastoralism/livestock/range management/range use
- o Wildlife/wildlife management
- o Water/water resources/water resources management/watershed management/riparian management/irrigation
- o Forestry/forest management/fuelwood/reforestation
- o Soils/soil conservation
- o Agroforestry
- o Fisheries/fisheries management
- o Wild plants/medicinal plants

Social Interaction Descriptors

- Local control/empowerment
- Local access
- Local use
- Group dynamics
- Participatory approach
- Cooperation
- Social Participation
- Social inequality/social equality
- Dispute resolution/conflict resolution
- Social mobilization
- Community organization
- Institutions/local institutions

Project Activity Descriptors

- Project Design
- Project Evaluation
- Project Monitoring

Other Descriptors

- Sustainability/sustainable use
- Biodiversity
- Economic analysis/benefit-cost analysis/cost-benefit analysis

The bibliographic data base and non-published literature search resulted in between 2000 and 2500 abstracted citations. It became necessary to narrow the focus of the literature review so that a manageable number of cases could be reviewed and annotated. Cases for annotation were determined based on the following criteria

- A representative regional split Given the amount of work completed in the Sahel on local level NRM (eg the Opportunities Study, ARD's OECD Mali study, CARE's Village Terroirs, and Rochette), the DFM/NRMS team decided to concentrate on the east and southern Africa region

- It was decided that numerous examples of agricultural, soil and water conservation NRM activities have been documented, and that valuable lessons could be learned from NRM activities in wildlife utilization, reserves/buffer zone management, and other non-agricultural NRM activities (silk production, fire management, ecotourism, fisheries). Therefore, DFM's focus was on non-agricultural resource management activities

- A desire to focus on ethnographies that might be non-project or non-donor supported. The final annotated bibiliographic analysis includes cases where the communities' efforts were not part of an external donor supported project

The criteria under which the literature was examined aimed to determine if there is a link between the autonomy/framework of local NRM, and sustainability of the resource( ) in question For the purposes of the literature review, analysis focused on instances of resource use (off-take, exploitation, etc.) and maintenance by people/institutions where production levels were maintained or enhanced without a degradation or destruction of the capacity of the resource to yield surpluses

Specifically, the review was concerned with:

- access to resources at varying levels (i.e region, community, individual);
- degrees of control of resource production; and
- patterns of use

In addition, the cases were analyzed with the following institutional questions in mind.

- Do the working rules (those applied in practice) clearly define the group of users who can exploit the resource? Is the resource clearly bounded (eg. woodstock, stretch of river, pasture)?

- Are the rules well adapted to the attributes of the RNR (good or service) and to the characteristics of the community(ies) of users involved in exploiting the resource?

- Do users have the opportunity to participate in making operational rules concerning access, control and use of the resource, and modifying them in light of experience so that rules will, over time, become better adapted to local circumstances?

- Do users monitor compliance with the rules?

- Are penalties for rule infractions graduated from relatively insignificant to severe, depending on whether the accused is a first offender, acting under the pressure of severe need (e.g., environmental duress), or a calculating recidivist?

- Can disputes about rule enforcement be resolved rapidly and at low cost to litigants and judges or arbitrators?

- Do overlapping regimes or jurisdictions accept the authority of local jurisdictions to make and modify RNR management and governance rules?

- Are there multiple levels of jurisdictions available to deal with an RNR governance or management problem, if necessary, for instance when some aspects of a management problem can be handled best by local units (camps, quarters, villages, micro-watershed special jurisdictions) while other levels (larger geographic units) are required to coordinate certain activities for certain levels among the local units, or to represent them to higher levels?

Reviewers of the selected cases used the above concepts to assess the degree of autonomy users had with respect to the resource Access, control, and use were assessed in each of the situations and an attempt was made in each case to determine the answers to the above key questions

To complete the case study research, USAID NRM project documents were also identified and reviewed A list of USAID projects in Sub-Saharan Africa was compiled Those related to forestry, institutional development, and natural resources management were identified, and their documentation (design documents, technical reports and evaluations) were reviewed In addition, individuals who were associated with some of the projects were interviewed

A data form was prepared to compile the information from the various projects. That information was then incorporated into the DFM/NRM analysis. The data forms for the most relevant projects are included in this appendix

Region: East

Title of Study	Country	Natural Resource Type	Author/ Organization Source	Donor/ Government Support	Institutional Form	Institutional Issues
1. Organization of the Irrigated Agricultural Economy Amongst the Small Farmers of the Mubaarak/Lower Shabelle Region	Somalia	Irrigated land	Seger	No	Religious/Irrigated farming community	The case presents an example of a successful irrigated farming community that has nearly 200 years; the institution is highly organized with rules based on religious precepts.
2. "Pastoral Development in Somalia: Herding Cooperatives as a Strategy Against Desertification and Famine." In Desertification: Environmental Degradation in and Around Arid Lands	Somalia	Grasslands and livestock	Swift	No	Pastoralist families	This case documents the degradation of grasslands in Somalia and the impact of this degradation on the welfare of the pastoral peoples and their herds; degradation is a result of increasing pressure due to increased herd size which has occurred due to improved technology and water sources, author recommends herding cooperatives as a solution but from an institutional analysis viewpoint, greater research is required to determine what incentives and what institutional rules would promote sustainable use of the common resources (land and water)
3. Combining Local Knowledge and Expert Assistance in Natural Resource Management: Small-scale Irrigation in Kenya	Kenya	Irrigated farm land	Thompson/World Resources Institute	Yes - African Development Fund	Self-help water project	Three villages joined forces to raise funding for, construct and operate and maintain a water system for irrigation and household use, the system includes village water user groups, the group has been successful enough that it has branched into other infrastructure projects. Institutionally, the project provides an example of an effective special district that has achieved not only the support of residents, but also de facto (possibly de jure) legitimacy from the government.
4. "Social Organization and Water Control among the Borana" in Five Essays on the Study of Pastoralists and the Development of Pastoralism	Kenya/ Ethiopia	Water and grassland	Helland/ Institute of Social Anthropology	No	Family groups	Traditionally the Borana have sophisticated rules regarding marriage which have controlled population, and about water rights and access, which has controlled herd sizes; these rules are under pressure with the improved technology which increases access to water, as a result, the social rules have less import and human and animal pressures on resources are increasing

Region: East (*cont.*)

Title of Study	Country	Natural Resource Type	Author/ Organization Source	Donor/ Government Support	Institutional Form	Institutional Issues
5. Irrigation Agriculture and Pastoral Development: A Lesson from Kenya	Kenya	Irrigated land	Hogg	Yes/No	Government organized irrigation system and Farmer-managed irrigation system	Study compares two irrigation systems, one government-promoted and one locally developed and managed. the government scheme is classified as a failure due in part to the lack of target population involvement, the farmer-managed system is considered a success and one reason for the success is that it was organized and managed by the farmers themselves, deeper institutional analysis would examine the rules of the two schemes to determine how they aided success and failure respectively.
6. Traditional Village Institutions in Environmental Management	Kenya	Farmland	Thomas-Slayter, Kabutha and Ford/World Resources Institute	No	Communal farm labor groups	Neighborhood communal groups formed to assist individual members with farm labor, specifically terracing, the groups appear to be successful, the rules they use to assure their success are not apparent; their success could be improved through links for technical cooperation and legitimization.
7. Usufruct Rights in Trees: The Role of Ekwar in Dryland Central Turkana, Kenya	Kenya	Trees	Barrow		No local institutions	Case discusses resource management (trees) through system of individual, hereditary ownership; thus the institution is based on individuals and their heirs, versus a community; the system of rules is elaborate and evidently successful, and therefore potentially provides an opportunity for further development.
8. "A New Approach to Amboseli" and "Amboseli National Park: Human Values and the Conservation of a Savanna Ecosystem" in National Parks, Conservation and Development: The Role of Protected Areas in Sustaining Society	Kenya	Wildlife, water and grazing land	Western	No	No local institutions	Documents the history of the game park, issues related to the competition between the indigenous population and the tourist economy for control of the resources, and what steps have been taken to resolve those issues, residents were given land title and share revenues from the park and tourism, the structure of the rules is not apparent.

Region: East (*cont.*)

Title of Study	Country	Natural Resource Type	Author/ Organization Source	Donor/ Government Support	Institutional Form	Institutional Issues
9. Traditional Water Management and Irrigation Systems in Tanzania. Case Study of Msanzi Village, Rukawa Region	Tanzania	Water	Mascarenhas/ World Resources Institute	No	No local institution	The case focusses a village's experience with irrigation, both self-managed, and more recently when assistance was arranged with a government agency. of interest is how the self-governing local institutions have been affected by the central government villagization program
10. Hadza Traditional Economy and its Prospects for Development; and A Brief History of Mangola Hadza	Tanzania	Various productive resources	McDowell/Ministry of Information and Culture, Government of Tanzania	No	No local institution	Little information on the rules by which the Hadza managed the community's use of natural resources; case provides an example of the tensions that exist between a pastoralist people, a government intent on economic development, and how this interaction can affect sustainable resource management.
11. Pastoralism, Conservation, and Development in the Greater Serengeti Region	Tanzania	Wildlife and grazing land	Parkipuny/ Ngorongoro Conservation and Development Project	No	No local institution	Survey of the impact the wildlife conservation policies and policies promoting sedentary agriculture have had on pastoral people, states that traditional conflict management and resolution has broken down as the state has stepped in to manage land or has established systems favoring tourism and agriculture on all arable land.

Region: South

Title of Study	Country	Natural Resource Type	Author/ Organization Source	Donor/ Government Support	Institutional Form	Institutional Issues
12. "Wildlife Conservation Outside Protected Areas--Lessons from an Experiment in Zambia"	Zambia	Wildlife	Lewis, Kaweche and Mwenya	Yes - Zambian government, WWF, and other conservation organizations	No local institution	The case describes a program that successfully involved local communities in wildlife management - poaching declined, incomes increased and attitudes towards conservation improved. Keys to the success included the legitimization of residence rights and local access to the wildlife as an economic resource.
13. The Imperial Lion: Human Dimensions of Wildlife Management in Central Africa	Zambia	Hunting	Marks	No	No local institutions	Describes shift in control over hunting rights from traditional powers to central government; use of productive resource shifted from emphasis on "harvesting" to "mining."
14. A Comparison of Fishing Strategies in the Bangweulu Swamps	Zambia	Fishing	Ichikawa	No	Local/village fishing units	Describes fishing methods, yields, and the rationales driving the voluntary formation of fishing units (little, however, regarding the sustainability of the resource).
15. The !Kung Settlement Pattern: An Archaeological Perspective	Botswana	Subsistence hunting and gathering	Yellen	No	Family groups	Study of the foraging patterns of the !Kung, who live, migrate and subsist in family groups; and how their resource use and management has changed with central government intervention.
16. The Okavango Fisheries Socio-Economic Study	Botswana	Fisheries	Skjonsberg and Merafe	Yes - Botswana government grants	Individuals and fishing groups	Government tried, basically unsuccessfully, to promote fishing in the area through grants programs; lack of success based on a variety of technical problems, the risks associated with fishing, a lack of resources, and institutional problems.

Region: South (*cont.*)

Title of Study	Country	Natural Resource Type	Author/ Organization Source	Donor/ Government Support	Institutional Form	Institutional Issues
17. An Investigation into the Decline of the Yambezi Fisherman's Co-operative Society	Botswana	Fisheries	Gilmore	Yes - Botswana government support to the cooperative	Government promoted cooperative	Documents the failure of a government-supported cooperative due to the cooperative's dependency on the government, lack of commitment on the part of the members to the rules of the cooperative, incentives that worked contrary to the intentions of the cooperative, and a variety of other physical and political problems
18. Socioeconomic and Environmental Impacts of International Tourism among Kalahari San	Botswana	General management of productive resources	Hitchcock	No	No local institution	Development and promotion of tourism raises a series of natural resource management issues; from an institutional perspective, questions include: How will changed incentives affect sustainable management of resources? How can traditional local institutions for management adapt to the national demands of a tourist economy?
19. A Review of the Western Ngwaketse Wildlife Utilization Project	Botswana	Wildlife	Department of Wildlife and National Parks	Yes - Government of Botswana and multiple donors	Government sponsored committee	Government-sponsored committees to manage hunting, which was done by individuals; project was intended for income generation; project considered unsuccessful partly because committees are not reflective of the community as a whole.
20. Pilot Project on Silk Production in Botswana	Botswana	Silk worms	Bailey and Ashby	Yes - Government of Botswana and USAID	No local institutions	Description of a project which analyzed the feasibility of exploiting indigenous insects for silk production - no institutional issues apparent.
21. Rural Swazi Women in Development: A Report on the Zenzele Women's Project Survey	Swaziland	A variety of productive resources	Ministry of Agriculture and Cooperatives	Yes - Government of Swaziland	Self-help women's associations	Describes survey of women's groups in Swaziland, groups are an adaptation and capitalize on the tradition of labor sharing by women; to what degree do present incentives and rules promote productive use of this human capital?

Region: South (*cont.*)

Title of Study	Country	Natural Resource Type	Author/ Organization Source	Donor/ Government Support	Institutional Form	Institutional Issues
22. Involving a Local Community in Wildlife Conservation: A Pilot Project at Purros, Southwestern Kaokoland, SWA/Namibia	Namibia	Wildlife	Owen-Smith and Jacobsohn	Yes - WWF and Endangered Wildlife Trust	Traditional village/ community	Project utilized traditional village structure to arrange participation in a project that promoted tourism and wildlife without alienating and disrupting the population.
23. The Constitution and Communal Lands in Namibia. Land Rights and Local Governments. Helping 33,000 People Classified as "Bushmen": The Ju/Wa Case	Namibia	Variety of productive resources	Marshall	Yes - Ju/Wa Bushman Development Foundation	Family groups	The family groups that are the subject of this study have relatively recently returned to their ancestral lands, away from settler communities; they are now living a modified traditional lifestyle that incorporates agriculture and income-generating activities, issues include whether they will be successful in managing their resources and whether the government will legitimize their control of and access to those resources.
24. Drakensberg/Maluti Mountain Catchment Conservation Program (1989) Fire and Grazing Project	Lesotho	Mountain grassland	University of Durban, Westville/Ministry of Agriculture, Lesotho	Yes - University of Durban and Government of Lesotho	Grazing associations	Grazing associations are promoted for sustainable use of the mountain grasslands; research is required into the proper institutional forms and incentives that will promote the associations to sustainably self-manage the resource.
25. The Livestock Economy in the Mountain Zone of Lesotho. Drakensberg/Maluti Mountain Catchment Conservation Program, Socio-Economic Project, Document 6	Lesotho	Mountain grasslands	Quinlan	Yes - University of Durban and Government of Lesotho	No local institutions	The focus of the study is the socioeconomic importance of livestock in the area, the various institutions, both traditional and government, that affect the livestock economy, and how these various institutions affect the sustainable use of the resource.

Region: West/Sahel

Title of Study	Country	Natural Resource Type	Author/ Organization Source	Donor/ Government Support	Institutional Form	Institutional Issues
26 Community Institutions in Resource Management: Agroforestry by Mobisquads in Ghana	Ghana	Agroforestry	Dorm-Adzobu, et al.	No	Government promoted, but locally based	Government of Ghana promoted but did not fund formation of Mobisquads that determined their own development activities.
27. Report 5: Community Woodlot Study. Land Tenure Project. Mopti, Mali	Mali	Woodlots	McClain, et al.	Yes - AID/ Government of Mali	No local institutions	Government of Mali Forest Service promoted and funded (with USAID) woodlots; local institutions established for labor but not for ongoing management.
28. Le Sahel en Lutte Contre La Desertification - Lecons d'Experiences	The Sahel Region	Desertification control	Rene Marceau Rochette	Non-project	Local institutional initiatives	Collection of case studies documenting a variety of institutional and technical responses to drought and desertification.
29. Opportunities for Sustained Development - Successful Natural Resources Management in the Sahel	The Sahel Region	Diverse natural resources	Asif Shaikh, et al.	Project and non-project interventions	Diverse individual and institutional initiatives	Evaluates 70 institutional and technical interventions that are expected to result in improved NRM.

Region: West/Sahel (*cont.*)

Title of Study	Country	Natural Resource Type	Author/ Organization Source	Donor/ Government Support	Institutional Form	Institutional Issues
30. The 'Bouna Agreement; in Opportunities for Sustained Development	Mali	Diverse production systems	Shaikh, et al.	Yes - IUCN	Community production groups	'Bouna Agreement attempted to organize and formalize rules and agreements among a variety of users of a variety of resources
31. "The Guesselbodi Natural Forest Management Experiment" and "The Guesselbodi Wood Cutters Cooperative"; in Opportunities for Sustained Development	Niger	Forest Management	Shaikh, et al.	Yes - USAID	Local users groups	Successful combination of local management and participation; groups received privileged treatment regarding government restrictions in order to be able to use their own management rules.
32. Contribution a la mise en place d'un nouveau systeme de credit rural. Banh, Burkina Faso	Burkina Faso	Agro-pastoral	Diop	No	No local institutions	Traditional Fulani management patterns disrupted by state intervention; NGO reacted by creating a credit program to overcome the resulting poverty.

1. Organization of the irrigated agricultural economy amongst the small farmers of the Mubaarak/Lower Shabelle region

by N. Seger

Summary

Mubaarak village on the Lower Shabelle River of southern Somalia was established in 1818 by Sheikh Abdi Dayow At the time of study 4120 inhabitants used the twice yearly peaks in river flow to guide water by gravity along canals to their fields The community is divided into seven groups each with a leader originally appointed by the Sheikh (following the Koran) All members of the community are required to follow the ideas of Jama'a (Sufism), rather than their diverse clan origins To avoid clan affiliations, new members are appointed to a group depending upon the day of the week on which they join the community The Sheikh (and subsequent village chiefs) had the following powers.

- issue decrees concerning people or land,
- nominally owned the land and subdivided it among settlers;
- farmland was to be collectively cleared and husbanded; and
- tending livestock was community work and all should profit from the animals.

Following the Sheikh's death, crop and livestock production have gradually reverted to an individual basis

In accordance with Koranic law, a hierarchical system deals with conflicts Disputes are discussed first at the family then at the group, and finally at the village level, with the village leader (or religious leader should he be a different person) being the final arbiter The village leader is advised by a council with two members from each group Individuals who do not comply with community regulations are expelled.

Within groups much work is communal However groups generally work separately, although two or more may combine occasionally for extensive land clearing or canal building and maintenance Groups are not equal in size, family ties and a desire to join "stronger" groups leads to this disparity

The farming system is highly organized Newcomers are provided with land and housing according to their family needs and capabilities The groups assist in clearing land and provision of an irrigation canal Mutual support requirements within groups are high (assuring water and land rights, assistance in times of stress or conflict, etc) An experienced and respected "Aw Keli" is elected to oversee canal construction and maintenance and water distribution Distribution rules have been developed over time to meet changing needs

Internal changes and changes instigated by colonial and post-colonial governments are briefly discussed For example, crop production has become less communal, the government appoints village leaders Outsiders have begun to claim land which the village perceives as its own

It is concluded that smallholder development in this area will be more successful if it builds on existing institutions rather than imposing new ones.

Evaluation

As with all irrigation systems, within this system there is a combination of a bounded resource (agricultural land)

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and a mobile resouce (water) Both are potentially renewable and sustainable in a floodplain setting provided the river regime stays similar. Since this study a high dam has been closed on the Shabelle, upstream in Ethiopia. Water flow and floodplain soil fertility may be adversely affected as a result As the community grows access to land may become a problem, particularly as more outsiders make claims

Resource users are clearly defined by acceptance of rules of entry to the village Religious leadership leads to cultural homogeneity even though villagers are from different clans Interdependence is crucial for effective water management and communal work stengthens these ties within groups Continuity of the community for almost two centuries is a testimony to cultural stability Levels of technology are low, but entirely adequate for the land-use system Dependence upon inputs such as pumps and agrochemicals is not appropriate for most smallholders in Somalia.

Community institutions are based upon strong religious leadership and the need for coordinated water management. In theory, land is owned by the state, but usufruct rights (of which the Mubaarak system is one example) apply in much of the country Attempts by outsiders to legally lease land from the government, which is locally regarded as belonging to the village is causing concern and conflict The village has proved adaptable up to the time of study, as shown by its long existence through internal change (loss of the Sheikh, ethnically diverse in-migration, gradual development of water allocation rules, increased individual control of fields and livestock) and a series of central government regimes Growth of the community indicates adaptability and sustainability of institutions Costs and benefits seem equitably distributed Land is allocated according to family size (i e the amount of land that can be worked), women are accepted as household heads, and communal labor is evenly spread

Rules for community participation seem comprehensive A hierachy of dispute resolution mechanisms exists Penalties for non-compliance, beyond expulsion, are not elaborated Religious communities in Somalia have de facto recognition of internal jurisdiction, although de jure land claims by outsiders have weakened this somewhat Although many rules draw inspiration from the Koran, it is clear that users have been able to participate in rule making (e g water distribution, individual ownership rights) and in monitoring compliance (through election of "Aw Keli")

Issues relating to autonomy and decentralization

Mubaarak, as described, has a high degree of autonomy It has remained intact and has changed a little despite passing through a colonial administration and post independence governments The 1969 revolution and its centralized socialist philosophy appears to have had little influence on the village Indeed, the government maintains close ties with many religious communities despite their local autonomy Land nationalization and leasehold has begun to affect many riverine communities De jure claiming of land leases is highly centralized and expensive (because of corruption), thus favoring townspeople Mubaarak is able to resist land claimants to some extent by withholding water supplies

Central administration has collapsed in Somalia since this study Clan-based war fronts have passed back and forth in the south If Mubaarak and similar religious groups survive these ethnic and physically destructive events, it will be a testament to their institutional strength

Case-study specific attributes

The religious basis of institutions in Mubaarak contrasts with ethnic bases in much of Africa. Recognition of local autonomy by the government (despite a philosophy of centralization) has insulated the village from national policy swings

Related literature

Helming, S. (1984) *Smallholder irrigation agriculture - its role in national development.* Second International Congress of Somali Studies; Hamburg.

Lewis, I M. (1984) Sufism in Somaliland. In· S.A Akbar & D.M. Hart (eds) *Islam in Tribal Societies.* Boston.

Unruh, J.D. (1991) Nomadic pastoralism and irrigated agriculture in Somalia. *GeoJournal* 25: 91-108.

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2. Pastoral Development in Somalia: Herding Cooperatives as a Strategy Against Desertification and Famine

by Jeremy Swift

Summary

This paper assesses pastoral production and issues relating to environmental management and degradation among pastoralists in Somalia It argues that the traditional Somali pastoral system was such that human and livestock populations were "kept in a fluctuating and approximate relationship to each other and to the land by a variety of mechanisms" (p 275) Constraints were set by environmental factors such as low and variable rainfall, drought, scarcity of surface water, and disease Socioeconomic regulatory mechanisms included regulation of births, distribution of grazing, and allocation of livestock among pastoralists Raiding and warfare also played roles in controlling human and livestock populations The result of the environmental and social factors was that, in most cases, ecological degradation and famine were avoided

With the establishment of the colonial and, later, the independent Somali state, changes occurred among Somali pastoral populations The marketing of livestock, combined with the reduction of some environmental constraints (e g water and disease) and removal of traditional social controls, has upset the balance between people, animals, and land This situation helped give rise to economic and environmental instability and contributed to widespread desertification and the famine of 1974-75

Swift assesses the changes that occurred over time in the pastoral economy and ecology of Somalia He outlines the shifts that occurred with the commercialization of livestock production and the changes in control of resources, especially water He demonstrates that Somalia's pastoral population has become increasingly vulnerable to droughts and other environmental and economic crisis situations He concludes his paper with a discussion of pastoral cooperatives as a means of re-establishing effective controls over the relationships between people, animals, and land in Somalia.

Access, Control, and Use of Resources

Somalia is a semiarid country with highly variable rainfall that ranges from 100 mm annually on the northern coastal plain to 600-700 mm in the south The availability of grazing resources is tied to water inputs (both rainfall and surface sources, such as the Juba and Shabelle Rivers) and to geomorphological features and soil conditions Pastoralists adjust their livestock populations, depending on the distribution and abundance of grazing and water resources and the locations of other groups Mobility was a common strategy among Somali pastoralists, and in some cases, groups moved long distances in order to take advantage of grazing Rinderpest and other major livestock diseases had effects on the herds In order to counteract the effects of disease and drought, individuals spread their risk by distributing their herds spatially Sometimes they loaned their animals to relatives who cared for them

The main unit of production in Somali society is the family Periodically, several families coalesce into larger units which use natural resources within areas which they control In some cases, resources are used by segments of families, as in cases where the men and boys take some of the animals out to graze while the remainder of the family keeps a few burden and milk animals People lived largely from the products of their herds, combined with grains and other goods bought from villagers and agriculturalists Animals are owned individually, while the pastures are managed communally As Swift notes (p 284), "In the traditional setting, there seem to have once

been formal mechanisms, amounting to de jure control of grazing " There is evidence that chiefs had the right to declare particular areas of pasture closed. These controls were enforced, and failure to observe them resulted in the imposition of penalties Similar kinds of controls were seen in the case of forests, which sometimes were declared off limits Trees belonged to the clans in whose territories they were found. Certain kinds of trees (e.g. frankincense, gum Arabic, myrrh) were owned individually In these cases, rights to harvest the trees could be sold by the owner

The landscape in Somalia traditionally was overseen by social units, including clans, sub-clans, and families. Pastoral groups control access to resources within their grazing areas Permission to enter another group's grazing area had to be sought, generally from clan leaders or chiefs It is important to note, however, that they did not own these areas Grazing land could not be bought or sold

A critical feature in resource management and control was the ownership of wells It was access to water and "effective occupation" by social units that guaranteed access to pasture The most significant factors in the regulation of grazing pressure, according to Swift, were water availability and military alliances between individuals and groups De facto control of pasture use was a product of the distribution of water points and the patterns of grazing management Swift admits (pp 284-285) that "the mechanisms regulating the relationship between animals and land in the traditional Somali pastoral ecosystem were relatively weak and ineffectual " The Somali political system was not centralized to the point where it could "impose stringent land-use discipline" (p. 285)

Impact on Resources and Sustainability

The flexible and adaptable pastoral system, which includes social and environmental regulatory mechanisms, served to ensure sustainability of the resource base in most years Livestock and human populations in Somalia were affected significantly by rainfall conditions In those seasons when the rains were late or when there were insufficient amounts of rain, mortality levels
among livestock and human populations were high Changes in the system occurred with the introduction of commercial trading and shifts in Somalia's sociopolitical and economic conditions In the early 19th century, most of the trade revolved around livestock products (e g clarified butter or ghee), plant products (e g frankincense), and wild animal products such as ivory and ostrich feathers With the establishment of colonial centers (e g. Aden), trade patterns shifted more toward live domestic animals This process was reinforced with the growth of the economies of oil-producing states such as Saudi Arabia

Some of the development activities of the colonial and postcolonial state in Somalia included expanding the number of water points in the rangelands and increased veterinary assistance The densities of livestock increased in the vicinity of water points, and there were changes in the types of animals kept by pastoralists (e g. from camels to cattle) Cattle have a greater impact on the ecosystem because they are tied more closely to water and they are more gregarious than camels The decline in the mobility of pastoralists, changes in herd composition, and the rise in livestock numbers due to reduction of disease-related mortality has led to significant pressure on natural resources in Somalia.

The commercialization of Somali pastoralism has increased the pressure to keep greater numbers of animals on the range Some of the changes which occurred in the Somali pastoral system included increased economic stratification, the privatization of resources, and a breakdown of some of the traditional social institutions which had regulated social and economic systems in the past. The increased monetarization of the pastoral economy has contributed to changes in community control and management of resources Fencing has been introduced in

communal pasture areas, and individuals have established private rights over fodder resources which they then sell to other people Wealthy livestock traders and pastoralists established control over water points, excluding those who could not afford to pay water fees. The overall result was that resource use patterns become increasingly non-sustainable This led to a decline in control of water and grazing as well as environmental degradation and famine.

Autonomy and Decentralization

In the past, Somali pastoral groups were independent actors, and they controlled land and natural resources in their grazing areas The rise of the Somali state has led to a reduction in autonomy of pastoralists One point made by Swift (p 276) was that "Only the government now has the authority and the means to act " He argues that the government can help to create some of the conditions under which pastoralists can enact more stringent social and environmental controls to regulate the relationship between people, animals, and land Efforts by the British colonial government to introduce grazing reserves failed There was more success in Somalia's setting up of grazing associations, but these activities were affected by the 1973-74 drought, which led to their demise

As a socialist state, Somalia was committed to finding new forms of social and economy organization which could promote sustainable use of human and natural resources In the context of the severe drought of the early 1970s, Somalia introduced settlement schemes for pastoralists based on farming and fishing However, the main planning task for Somalia, according to Swift (p 294), was to transform pastoralism itself, a task for which there was little experience from other countries to guide the Somali government. A major recommendation was that pastoral cooperatives be established with the aim of establishing more effective controls over people, land, and natural resources The establishment of an institutional framework within which technical changes could be managed and controlled was seen as crucial

Swift recommends that pastoral cooperatives be provided with capital so that they can purchase livestock at fixed prices and provide insurance funds for people against losses of their animals He also suggests that cooperatives oversee livestock marketing, and that they serve as a kind of bank and credit organization The cooperatives could serve to organize labor and promote self-help schemes among members A major policy decision would have to be the degree to which communal herds would replace private herds Swift admits that the enforced communalization of herd ownership has not always worked, as was seen in the case of Mongolia. One way to handle the regulation of livestock numbers might be through imposing a tax on animals that exceed an established limit per family or, alternatively, to reward those pastoralists who limit their herds to specific sizes The formation of specialist herding brigades might be a useful objective of pastoral development

Setting up functioning pastoral cooperatives should involve making particular groups of people responsible for specific areas of land (p 297) The cooperatives could have management responsibility over blocks of land. These blocks could be based on large territorial units incorporating the boundaries of present nomadic movements and resource use and control patterns of nomadic groups Eventually, it might be possible to subdivide these units as pastoral cooperatives gain experience and confidence Water points could be ordered opened or closed by the cooperative, as could grazing areas Numbers of animals kept on the range could also be determined by the cooperative, which would have to calculate carrying capacities on a regular basis Swift notes that in order for Somalia to implement this type of strategy, it might be necessary for the state to nationalize all water sources (p 298) The most difficult step in the process would be to delimit the boundaries of cooperatives and to assign groups to them On the social side, the most complicated task would be to ensure adequate participation of all group members in decision-making Consultation among all concerned would be a key means of bringing about an equitable development program

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A problematic aspect of Swift's suggestions is the mechanism by which cooperatives would be administered. He notes that the cooperative "would be the main vehicle of state administration and intervention in the pastoral sector" (p 299), but he does not spell out the ways in which the state and cooperative members might interact. Working out ways in which cooperative members can be involved in decision-making at every level while at the same time the cooperatives have centralized control from the top is a critical problem. Pastoral cooperatives may well be able to enhance grazing and water management, provide a degree of security against losses, and regulate conflicts over land use The question that still needs to be addressed is exactly how these cooperatives could be set up organizationally and how they would be managed socially and politically

Unique Attributes

The size and economic significance of pastoralism in Somalia is unique in Africa. A large proportion of the rural population of Somalia is made up of pastoralists, and livestock and livestock products are the major source of income and foreign exchange for the country In addition, the degree to which Somalia was committed politically to socialism is relatively unique in the African context

Related Literature

Box, Thadis W (1971) "Nomadism and Land Use in Somalis." Economic Development and Cultural Change 12(2) 222-228

Haakonsen, Jan M (1979) Survey of the Fishing Cooperatives for Resettled Nomads in Somalia. Montreal: Labour Studies Group, Center for Developing Area Studies, McGill University

Haakonsen, Jan M (1980) The Fishing Cooperatives for Resettled Nomads Revisited Montreal: Labour Studies Group, Center for Developing Area Studies, McGill University

Hitchcock, Robert K (1987) "Refugees, Settlement, and SelfReliance in North West Somalis." IWGIA Newsletter 50 134-138.

Hitchcock, Robert K and Hassan Hussein (1987) "Agricultural and Non-Agricultural Settlements for Drought-Afflicted Pastoralists in Somalis " Disasters 11(1) 30-39.

International Labour Office (ILO) (1977) Economic Transformation in a Socialist Framework: An Employment and Basic Needs Oriented Development Strategy for Somalia. Addis Ababa, Ethiopia. Jobs and Skills Program for Africa (JASPA), International Labour organization

Lewis, I M (1961) A Pastoral Democracy A Study of Pastoralism Land Politics among the Northern Somali of the Horn of Africa. London Oxford University Press.

Scudder, Thayer (1981) From Relief to Development. Some Comments on Refugee and Other Settlement in Somalis Report to USAID/Somalia and the Government of the Somali Democratic Republic, Mogadishu, Somalia.

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3. Combining Local Knowledge and Expert Assistance in Natural Resource Management: Small-scale Irrigation in Kenya

by J. Thompson

Summary

The Njogumi, Gitero and Kabati Self-help Water Project (NGK) illustrates how three local communities combined to establish supplemental irrigation systems and household water supplies The communities are at 2000 - 2250 meters altitude on the lower western slopes of Mount Kenya in Naro Moru Location Although rainfall is moderately high [800 - 1600 mm, incorrectly described as semi-arid] the area is subject to periodic droughts For example, in 1984-85 crops failed to the extent that food aid was needed

The communities were established in the mid-1960s by landless squatters most of whom were Kikuyu (about half in Njogumi were Meru) Each community formed a co-operative to buy the land in the 1970s Eventually 250 families (2100 people) obtained title deeds for 800 ha. The average holding is 2 ha (they range from about 0 5 ha to almost 10 ha) Following the 1984-85 drought, the three villages independently organized to request improvement in water supply for irrigation purposes The Ministry of Water Development (MWD) suggested that a joint scheme was technically and financially more feasible An NGK Executive Committee of nine members (three elected from each village) was formed

Using a plan drawn up by local MWD officials and assistance from a Peace Corp Volunteer, NGK obtained grants of almost $250,000 from the African Development Fund (ADF) All labor (280 workdays per household) and some finance and materials for construction were provided by villagers Cost per hectare of irrigation works was $3000 (compared to $25,000 - $60,000 for some large-scale schemes in Kenya) Each household paid a subscription fee ($25) to NGK and an additional $5 to their respective village water users' association Late payment or failure to supply labor was charged at $1 per day Members joining after completion are charged $315 to cover fees plus labor costs supplied by the original members Each household was allocated 0 4 ha for irrigation (some people have 2 or 3 of these original plots) plus a larger plot of unirrigated land. A water standpipe was also supplied to each household A former Peace Corp Volunteer was hired by NGK for one year as project manager and to train a counterpart

Agricultural production has diversified (additional crops including livestock forage) and intensified (rotations, irrigation, stall-fed livestock, use of dung fertilizer) Year round production of subsistence and cash crops, using supplemental irrigation has improved household economies and nutrition NGK has diversified its planned activities to include road improvements and agricultural storage and processing facilities The Executive Committee has provided effective leadership in regulating water-use, advising on improved farming practices and liaison with local administration agents

Concerns about long-term sustainability include the possibility of salinization and waterlogging, shortage of labor (many men earn wages away from the villages), overproduction (and consequent poor returns) of some crops; and potential conflicts over water-use with neighboring communities.

The report makes recommendations concerning reorientation of government policy to encourage a less technocratic approach to irrigation projects The need for sound socioeconomic information and a participatory approach is stressed.

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Evaluation

Land and water are bounded and mobile resources, respectively Water for the villages' supply systems is not in short supply under the current management regimes and land management has improved (crop rotations, manuring, etc) Thus sustainability has improved for the medium term. Over longer periods, salinization and perhaps competition for water with other communities may be problematic

The user groups are well defined, as is their combined NGK executive committee Origins are somewhat diverse (although Kikuyu and Meru are closely related) Shared experience as landless peasants and interdependence in the water supply system may be effective binding and stabilizing agents Addition of new members at relatively high cost suggests that joining the groups is attractive Technical experience was limited, but assistance from administration extension agents and some expatriate help were effectively mobilized Additional extension in irrigation practices is needed by some farmers NGK itself contributes some advise of this nature The relatively simple and standardized gravity fed water system, and an excess of water reduce the required skills

The two-tier co-operative institutional structure (village water-user associations and NGK) have performed their functions well (the report gives much more information about the latter) The initial village organizations impressed government and donor agencies sufficiently to suggest the joint scheme The NGK in turn showed great committment in building an extensive water supply system, obtaining technical and financial aid and in managing the whole enterprise No information is given about legal status of these institutions However, their legitimacy is clear from recognition by government agencies and ADF

NGK farms are individually owned, access to water supply was collectively and equitably built and managed Rules with graduated penalties were applied during construction, little information is supplied about subsequent governance of water use (possibly little is needed because of excess water availability) The extent to which users participate directly in rule-making or monitoring of compliance is unclear NGK Executive Committee members are directly elected and are perceived as good managers They are unpaid, put executive power and prestige are said to be sufficient incentive Expansion of NGK into other activities indicates the vigor of the institution Government officials recognize and support NGK's jurisdiction, but some neighboring communities are begining to question it

Issues relating to autonomy and decentralization

The Kenya Government has come to recognize that decentralized small-holder irrigation schemes perform better than most large-scale government run estates Rural development is now focused at the District level However, it seems that the district administration had virtually no concerted role in NGK, although local officials of MWD provided crucial technical assistance Administrative links at the sub-district, location and sub-location levels need more attention than the district level if true government-led decentralization is to occur

Although NGK is autonomous (but responsible to its members) substantial technical and financial assistance was obtained The project could not have succeeded without this help An expatriate (Peace Corp volunteer, initially) also played an important role, first in communicating with ADF, then in managing the project and training a counterpart. An appropriate balance was struck between local autonomy and external assistance which facilitated rather than controlled the project. NGK was fortunate to obtain a grant to finance most of the capital expenditure.

Case-study specific attributes

The degree to which circumstances combined (drought, government policy shifts favoring decentralization, ready financial and technical assistance) to produce success is unusual. Access to a reliable and plentiful water source was readily available, thus enabling simple technology and water-use rules.

Related literature

Coward, E ed (1986) *Watering the Shamba Current Public and Private Sector Activities for Small-Scale Irrigation Development in Kenya* USAID Water Management Synthesis Report, no 40

Barnett, T (1984) Small-scale irrigation in Sub-saharan Africa. sparse lessons, big problems, any solutions? *Public Administration and Development* 4.21-47 Kiriro, A & Juma, C eds (1989) *Gaining ground Institutional Innovations in Land-use Management in Kenya* Nairobi ACTS Press

4. Social Organization and Water Control among the Borana

by Johann Helland

Summary

This paper assesses the social organization and systems of water control and management of the Borana of southern Ethiopia and northern Kenya. It concentrates on the Borana of southern Ethiopia, who occupy two provinces, Arero and Borana. The majority of the Borana population in this region are in a zone in which there are deep perennial wells which support them and their livestock in the dry season

The rate of natural increase of human populations is subject in part to cultural controls All Borana participate in a complex organizational system known as Gada which divides the population into generation classes, each of which is subdivided into patriclases (Sgorgessa) Membership in a generation class (luba) is ascribed for males at the time of birth, while females derive their affiliation with a luba through their association with a male to whom they are attached A new luba is opened to recruitment every eight years Individuals are only allowed to marry after the 32nd year of the cycle through which each luba passes Actual marriage will depend on whether or not an individual has been able to accumulate sufficient resources to pay bride price and the success of marriage negotiations between families

Under customary law Borana are not allowed to have male children until the 40th year of the cycle and female children after the 45th year Social pressure is brought to bear on individuals to observe these rules, which serve to delay marriage and child-bearing and thus keep population growth rates down

Borana are heavily dependent upon livestock for their subsistence and income They utilize a breed of shorthorn East African humped Zebu cattle (Bos indicus) which is relatively resistant to disease and has high heat tolerance The Borana also keep camels, goats, sheep, horses, and donkeys

The most important environmental factor affecting Borana adaptations is rainfall, which tends to be seasonal and fairly variable Another crucial resource is pasture Grazing is limited by the combination of water and pasture availability In the dry parts of Boranaland, surface water points are limited and thus land use is limited to the areas surrounding the wells

The danger of over-grazing around the water points is counteracted by several factors, according to Helland (1) the erratic rainfall pattern produces a situation in which there is "forced rotational grazing," (2) there are seasonal shifts in herd locations from the dry period, when livestock are restricted to places with permanent water, to a more dispersed situation in the rainy season, and (3) local pastoralists have established wide grazing radii between areas where livestock are kept, especially in the dry season The numbers of livestock tend to below local carrying capacity levels, according to Helland

In the drought period of 1974-75 people were forced to keep their livestock at water points year-round, thus increasing pressure on the local grazing resources Herders did not have the option of permitting dry season grazing areas to rest. The consequence was that overgrazing increased and there was fairly high mortality in the Borana herds

The organization of water rights, outlined below, is an important part of the Borana adaptation. Access to permanent water is a pre-condition for successful livestock husbandry in the Borana area. Access to water, which

is restricted, has implications for access to grazing Also crucial to successful livestock production among Borana is the availability of labor.

Access, Control and Use of Resources

Helland (p 48) suggests that land use and tenure are communal and that there are no organizational measures which prevent individuals from overgrazing the range resources He notes that the rules regulating access to pasture in the Borana area are simple First of all, every Borana has the right to graze his livestock anywhere he wishes within the Borana areas Pasture, in this sense, is freely accessible, and thus cannot be monopolized by a particular group or person (p 58)

The only limitations on open access to pasture land among Borana are that lactating herds kept near the homesteads which are brought back at night for milking have priority over the dry "satellite" herds Milking herds can displace satellite herds, but the opposite is not the case

As Helland notes, "if pasture in Borana is freely accessible, water is not" (p 61) Management units press their claims for control of water points, and they compete with other groups for water The most important sources of water are wells, although there are also temporary water sources (e g floods in sandy river beds and ponds that fill up in the rainy season) According to Helland, wells are important focal points for Borana social life Borana groups maintain these resources, and they carry out ceremonies which are geared toward underscoring the significance of these ecologically significant resource points Substantial investments in labor are made in the wells both in terms of initial excavations and cleaning them out for subsequent usage

Unlike pasture management, the ownership of wells and the regulation of access to them is complicated (p 63) Clans own specific wells, and the rights to the wells are passed down from one generation to the next through the male line (i e patrilineal inheritance) The holders of wells are "kept under constant scrutiny by the clan elders" (p 65) who ensure that they discharge their obligations in accordance with Borana customary laws In cases of abuse, the clan elders have the authority to take well rights away from an individual and give them to a close relative

Among the Borana, there are well councils which are made up of users of each well The overall authority over water management is vested in the well council Daily management of the wells is done by a kind of supervising officer who is a member of the council or appointed by them The watering of the livestock is done by a team of people who pass the water up in buckets The deepest wells in Borana have labor units of 15 to 20 men, most of whom tend to be relatively young The overseers organize the labor and ensure that the work is done properly Two crucial features of the Borana livestock watering system are that (1) labor inputs are significant, and (2) water point usage and maintenance are coordinated carefully The well councils decide on the sequence of watering by users, and they have the ability to impose sanctions on those who do not abide by the rules

Watering rights are maintained through continued usage of a well If the well falls into disuse, other people can come and clean it out and put it to use themselves It is important to note that not all wells are used exclusively by one or a few clans Often, there are other users, some of whom may not be related to the clan which has rights to the well People can gain access to water points through other mechanisms, including marriage, friendship, and social alliances There are also situations in which people appeal for watering rights to the well councils Decisions about user access rights generally are made on the basis of consensus among people attending the well council meetings

Impact on Resources and Sustainability

In general, the systems of population regulation and resource management served to ensure the long-term viability of Borana human and livestock populations Changes have occurred in the Borana region with the introduction of development programs aimed at improving livestock quality and encouraging marketing of excess stock. Environmental changes have also had significant impacts on the Borana, especially drought and overgrazing The major livestock losses and famine problems seen in the 1974-75 drought are indications of the problems that are facing the Borana and other Ethiopian populations

As Helland notes (p 71), sustained livestock production among the Borana depends on having a balanced relationship between pasture, water, animals, and humans The availability of water and the social regulations which provide for control of access and use of water has, in the past, ensured that overgrazing was not too significant a problem The changes in social organization, with the decline in customary rules and the reduction in the importance of the Gada age system, have led to a decline in the ability of the Borana to manage water and grazing resources The disruption of the delicate ecological and social balance achieved by the Borana has led to resource depletion and consequent socioeconomic difficulties

Autonomy and Decentralization

The Borana are found within two provinces of Ethiopia, Arero and Borana. In the past, these provinces were divided among Borana clans, but today they are administered by the government of Ethiopia. Planners from Addis Ababa increasingly are making decisions about the kinds of activities to be undertaken in the Borana region The pastoral resources of the Borana have been expanded by digging additional wells, making dams, and sinking boreholes These developments have significant socioeconomic consequences, not the least of which is the change in water rights of the various well councils Helland points out (p 72) that if water is made more freely available, existing social organization, which regulates labor inputs and controls water and, by extension, pasture use, will be stripped of a major function

Without some effort to maintain the existing system, it is likely that uncontrolled human and livestock population growth and long-term environmental degradation will occur. He concludes by noting that development inputs in the Borana context should be designed to be accommodated within the existing local control mechanisms Monitoring of the system should be done on a regular basis in order to determine how the local populations adapt to innovations and changes In this way, negative trends can be ascertained and, hopefully, adjustments can be made in order to avert problems

Unique Attributes

A unique aspect of the Borana case is the complexity of the water management system and the intensive labor which is required to excavate, maintain, and operate the wells.

Related Literature

Bauer, Dan F (1972) Land, Leadership, and Legitimacy among the Inderta Tigray of Ethiopia. Ph.D. Dissertation, University of Rochester, Rochester, New York.

Baxter, P.T.W (1970) "Stock Management and the Diffusion of Property Rights among the Boran " In Proceedings of the Third International Conference on Ethiopian Studies, Volume III Addis Ababa Institute of Ethiopian Studies

Hoben, Allan (1973) Land Tenure among the Amhara of Ethiopia· The Dynamics of Cognatic Descent. Chicago University of Chicago Press.

Nadel, S.F. (1946) Land Tenure on the Eritrean Plateau Africa 16(l)·1-21

Weissleder, Wolfgang (1965) The Political Ecology of Amhara Domination. Ph.D. Dissertation, University of Chicago, Chicago, Illinois

5. Irrigation Agriculture and Pastoral Development: A Lesson from Kenya
by Richard Hogg

This paper considers two irrigation schemes on the Ewaso Nyiro River in Isiolo District, Kenya, one government-sponsored and the other run by a non-government organization The Malka Dakaa Irrigation Scheme was begun by the Kenya government in 1976 with assistance from the Food and Agriculture Organization and the United Nations Development Program The goal of the scheme was to settle Boran pastoralists affected by drought and warfare and to provide them with an alternative source of food besides famine relief It covered 90 hectares of land, not all of which was under cultivation at the same time A total of 160 farmers cultivated plots averaging an acre in size Plots were irrigated by furrows, with the water pumped from a nearby canal Farmers did all the agricultural work but the plots remained the property of the scheme The total population on the scheme was 1,800

Farming decisions in the government-run project were made by the scheme's managers (e g types of crops planted, times of planting and rotation methods) Crops cultivated included maize, cowpeas, green gram, and cotton, although a variety of other crops were grown previously Land preparation was done by the scheme

The Malka Dakaa Scheme was organized hierarchically, with the higher-level positions held by non-Boran Most of the senior staff came from outside the area. At the bottom of the socioeconomic system were tenants and destitutes Some of the people on the scheme were supported by food-for-work programs

Some of the scheme's activities were overseen by a cooperative which had an elected chairman, vice-chairman, and secretary and approximately 150 members who paid membership fees The cooperative was responsible for purchasing seeds and other inputs and for marketing produce One problem with the cooperative was that the chairman was a young individual who obtained his position because of his education and language ability as opposed to his standing with his peers and elders

Overall, the scheme was unsuccessful economically and socially Some of the people people migrated away, and others often failed to work due to their discouragement. A point made by Hogg (pp. 581-582) was that no effort had been made to consult the Boran about their thoughts on becoming agriculturalists or taking part in the scheme Overall, irrigation farming at Malkaa Dakka was seen as an inefficient way of providing destitute Boran with a livelihood

The Gafarsa Irrigation Scheme was a non-government project which was initiated locally and which received relatively little capital investment from outside The scheme was founded in 1971 by an individual who cleared some dense bush along the river Other settlers came to the area and formed a "Farm Committee" which played a crucial role in scheme organization and management. The committee consisted of 12 elected members, all of whom were farming in the area. Some of the responsibilities of the committee included supervision of canal excavation and allocation of water

In the early 1970s about 350 acres were under cultivation by about 500 farmers, average plot size was less than an acre The fields are flooded by feeder canals Individuals made their own decisions about crops to plant, the main ones being maize, green gram, and cotton Some communal work is done on the irrigation system under the direction of the Scheme Manager and the committee.

Unlike the Malka Dakaa Irrigation Scheme, the Gafarsa Scheme was run by people who were from the area. The

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Manager generally consulted with the committee before taking any action. The committee retained its authority even after the Kenya government and donor agencies began to provide a modest amount of support.

Access, Control, and Use of Resources

The main difference between the two schemes was that agricultural plots belonged to the scheme in the case of Malka Dakaa while they belonged to individual farmers on the non-government Gafarsa scheme Water allocation was done by the scheme in the former case, while in the latter it was handled by a committee of local farmers A topic which did not receive much attention in the paper was the degree to which the people on the Gafarsa scheme had security of land tenure

Inmpact on Resources and Sustainability

Soil salinity is a major problem with both of the schemes Water is often not available in sufficient quanitities to flush the salt out of the soil Another problem relates to the heavy silt-load of the river, which leads to plugging of canals Heavy labor investment is required in order to dig out the canals
Some of the problems of the scheme emanate from outside deforestation and high water offtake upriver has resulted in a reduction in flow in the Isiolo Cluster area. As Hogg (p 585) notes, any long-term reduction in water levels will threaten the Boran, who depend on the river and adjacent vegetation to meet their water and grazing requirements Given the environmental situation along the Ewaso Nyiro River, it would be difficult to expand the irrigation schemes

In themselves, the irrigation schemes are insufficient to provide the Boran with an adequate livelihood. In order to survive, most Boran employ an economic diversification strategy Perhaps the best way to see these schemes is as a kind of back-up or buffer for people who pursue a mixture of pastoralism, wage labor, and agriculture

Autonomy and Decentralization

A key to the greater degree of success of the Gafarsa Scheme was the fact that management was largely in local hands This was not true for Malka Dakaa, which had difficulties in running the scheme efficiently. The lack of consultation at Malka Dakka has exacerbated the problems

It is clear that decentralization of authority is important in facilitating the process of managers of farm operations taking greater responsibility for their holdings An organizational structure which fits the local socioeconomic situation is much more likely to succeed than one superimposed from the outside. A major conclusion is that locally-initiated development projects tend to have greater chances for success than do ones introduced from elsewhere, especially if they are capital intensive and hierarchically organized

Related Literature

Arundale, H (1978) Report on Irrigation in Arid Regions of Kenya. Report to the United Nations Development Program, Nairobi

Hogg, Richard S (1980) "Pastoralism and Impoverishment: The Case of the Isiolo Boran of Northern Kenya." Disasters 4(3) 299-310.

Kuester, P. and S. Wiggins (1982) Proposals for Development of the Ewaso Nyiro Irrigation Scheme Cluster

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6. Traditional Village Institutions in Environmental Management

by Barbara Thomas-Slayter

Summary

Katheka sub-location is in south-central Kenya (Eastern Province, Machakos District) The climate is sub-humid to semi-arid and drought prone Rugged terrain and degraded natural vegetation lead to extensive soil erosion during the rains High population density results from land alienation dating from the colonial period and rapid population increase The local Akamba are fairly homogeneous economically Farmland is privately owned by 360 households, 57 household heads interviewed held a median of 1 3-2 0 ha. Maize is the main subsistence crop, but pulses, bananas, coffee, cassava and cabbage are raised on most farms Most households also have a few livestock which graze partially on common lands between the farms Forty of the interviewed households were headed by women Many men are wage-laborers in nearby plantations and more distant towns

Soil erosion was recognized as a serious problem during colonial times (largely caused by land alienation for settlers) Remedies enforced upon the Akamba included bench terracing and destocking Terracing was viewed as a symbol of colonialism, despite recognition of its resource management value As such, it was resisted and abandoned at independence, thus exacerbating soil erosion

In 1973 a new assistant chief in concert with elders and informal village leaders took several self-help initiatives to strengthen local institutions, recruit voluntary local labor and improve natural resource management. Most important was activation of traditional self-help groups called *mwetha* groups Pre-colonially these were clan and family based groups of men and women They atrophied during the colonial era because of formal work groups and conscripted labor Modern *mwetha* groups are based on neighborhood and household clusters rather than clans and comprise 25-35 women

The main function of *mwetha* groups is co-operative labor on privately owned farmsteads Agricultual practices and soil conservation (terraces and cut-off drains) are the main focuses of the work, which is determined by the land-owner Some building of check dams and road maintenance has also been done on intervening communal land Groups have an elected leader and a secretary/treasurer to keep attendance and financial records, set rotational work schedules, and, maintain logs of accomplishments The groups work two mornings per week. Each farmstead benefits from the group labor effort three or four times each year Members who miss two or three work sessions are fined, or lose the benefit of group labor

General principles of terrace construction were known from the colonial period, but layout and levelling techniques had not been passed on Technical assistance from government agencies has been sporadic at best. The necessary techniques were learned by a mixture of trial and error and dissemination by a few members able to learn from extension agents or a short workshop run by the Catholic diocese of Machakos

Success of the *mwetha* idea is demonstrated by steady growth from five groups in the late 1970s to fifteen by mid-1988 Membership in each group is relatively stable *Mwetha* groups have formed a council, the Katheka Women's Group, which co-ordinates community development Activities have widened to include revenue generating activities such as craft marketing and kerosene distribution Of recently formed groups, one comprises men, and another men and women Success is attributed to community-based initiative, known and manageable technology, and viable local institutions The last is seen as the most significant

Limitations largely relate to inability to influence activities by interests outside the area. Technical assistance by

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government or other agencies is minimal. Commercial mining (with local government permits) of sand from seasonal riverbeds threatens dry season water conservation efforts.

Recommendations are made concerning limited and appropriate external assistance to local institutions for finance, technology and training Ways of increasing effective links between communities and development organizations are also discussed

Evaluation

Soil as a resource is non-renewable on realistic time scales, although it can be used sustainably In some respects soil is not a clearly bounded resource since erosive activities around a farm can affect the soil on that farm No data are available to demonstrate how successful *mwetha* groups have been in promoting sustainable soil use although erosion is presumably reduced significantly

The women of Katheka sublocation form well-defined, homogeneous, interdependent and stable groups with respect to soil conservation activities Technical capabilities are largely sufficient, but some simple training would have made earlier efforts more productive

The report is successful in identifying viable local institutions as a key to resource management *Mwetha* groups are based upon traditional village structures, but effectively form a user group with respect to soil conservation Most communal work is carried out on members privately owned land Soil is peculiar in being a mixture of private and common pool resource in this instance *Mwetha* group activities appear to fit well with users and natural resources Communal activities are planned to fit the agricultural calendar For example, terraces are built at the end of dry seasons when the soil is workable and when labor is available The groups are adaptable and sustainable as evidenced by growth in numbers and activities and ability to seek help from outside with technical solutions Costs and benefits (largely non-monetary) are equally shared among groups members Although some benefits are immediately tangible (field structures) their effects (such as soil fertility) are long-term Leadership was initially provided by the appointment of an unusually able assistant chief to the sub-location It is unclear to what extent leaders have emerged (or are necessary) within individual groups

Rules are not elaborated in detail in the report Only one level of penalty for non-compliance is mentioned and there is no information on dispute resolution It is not explicit how rules are made or monitored, but it seems implicit that these activities are largely performed by the members Problems of jurisdiction are evident Sand extracting companies, with local government permits do not recognize any *mwetha* group rights to seasonal stream beds even when dams and gabions are constructed The groups and their umbrella Katheka Women's Group form two potential levels of jurisdiction for resource management, but they are virtually disconnected from higher levels of authority which are primarily governmental

Issues relating to autonomy and decentralization

The report goes to some length to describe Kenya's nominally decentralized District Focus in rural development Government policies and international agency programs have stressed the importance of decentralization and the role of women in rural development However, these factors did not help the women of Katheka. They were all but forgotten by the district headquarters and extension services based in Machakos and Kangundo, respectively These local administration agencies and local government (Machakos County Council) rarely visited the sub-location Indeed, it is the county council which issued sand-removal permits to Nairobi businesses

In some respects *mwetha* groups have too much autonomy They are virtually disconnected from potential benefits of government and administration services Even an enthusiastic district representative (the Katheka assistant chief) was unable to obtain much assistance However, his appointment by the local administration was an important catalyst in strengthening local institutions *Mwetha* groups have virtually no power to control adverse exploitation of local resources by outsiders (sand removal in particular) despite attempts at physical obstruction Neither has the *mwetha* revival in Katheka spread to surrounding parts of the district

Recommendations in the report relate to finding the balance between local community action and decentralized government activities and effective linkages between them.

Case-study specific attributes

Soil is a resource that is difficult to categorize In some respects it is common pool, but parcels of it can be privately owned. It is non-renewable (except on geological time scales), but can be used sustainably In this example, soil management needs are determined by individual landowners, but performed by groups The historical aversion to terracing as a symbol of colonialism is an important factor in Kenya, only recently overcome

Related Literature

Clark University & Kenya National Environment Secretariat (1988) *Resources Management, Population and Local Institutions in Katneka A Case Study of Effective Resource Management in Machakos, Kenya* Worcester, MA· Clark University

Cohen, J & Hook, R. (1987) Decentralized planning in Kenya. Public Administration and Development 7.77-93.
Thomas-Slayter, B & Ford, R. (1989) Water, soils, food and rural development. examining institutional frameworks in Katheka sub-location *Canadian Journal of African* Studies 23:250-271.

7. Usufruct Rights in Trees: The Role of Ekwar in Dryland Central Turkana

by Edmund Barrow

Summary

This paper examines a system of customary rights to trees among the pastoral Turkana of northern Kenya. Trees are an important part of the natural resource management system of Kenyan pastoralists The Turkana have individual hereditary rights relating to trees, especially Acacia tortilis, in a system known as Ekwar These rights vary somewhat, depending in part upon whether the trees were planted or self-sown and the uses to which the trees are put The importance of this resource use and management system was discovered during the course of a social forestry extension program

The Turkana have a variety of social controls relating to access and usage of such natural resources as water, grazing, and trees Resource use and management strategies include the exploitation of extensive areas, relatively high mobility, use of wild food resources, and economic diversification (e g raising of crops as supplemental foods) These strategies traditionally have enabled them to use their resources sustainably

What Barrow describes as the Turkana's "silvo-pastoral system" is geared toward maximizing use of vegetation spatially and temporally through a transhumant pattern of wet and dry season grazing (p 166) The Turkana also have a system of grazing reserves (Epaka) that are set aside in the dry season The herding unit consists of a group of families which follows a roughly similar pattern from one year to the next These units interact with other groups who have their own grazing areas, each of which is known to all of the people in the area.

Areas along rivers and lakes containing fodder and browse resources, especially Acacia tortilis, are divided among social units or families In some cases these places are fenced, and people are not supposed to enter them without first requesting permission The importance of these areas was underscored during a series of Kenya Forestry Department participatory extension workshops for chiefs and other people in Turkana District. Turkana noted that trees were protected and managed by families, who guarded them carefully These controls were maintained in times of severe resource shortage as well as during normal times

A survey was conducted in Turkana to determine (1) the extent of Ekwar in the district, (2) the duration of occupancy of Ekwar, (3) patterns of movement into and out of Ekwar, and (4) the significance of Ekwar in different seasons A total of 977 people were interviewed in eight river areas, mostly in the dry central part of the district and along Lake Turkana. It was found that the Ekwar system of usufruct rights to trees was most pronounced in the drier areas where there were well-developed riparian woodlands Another finding was that people own Ekwar for extended periods, often over two generations Over three quarters of the respondents had inherited their Ekwar from their fathers There were movements in and out of Ekwar, prompted in part by social and ecological pressure (e g raids, drought, and soil exhaustion) Use of Ekwar is most pronounced in the dry season The paper concludes with the suggestion that the Ekwar system could serve as a means of promoting sustainable resource management and development in dryland areas of Turkana District

Access, Control, and Use of Resources

The significance of access rights to trees is demonstrated in this analysis. Trees are used as sources of browse for livestock, timber for fuel and charcoal, wood for the construction of houses and fences and the manufacture of tools, medicines for people and animals, shade, and food for humans. Some of the vegetation is confined to strips

along the rivers, especially in the driest areas The term Ekwar, according to Barrow (p. 167), refers to areas beside river banks or lakes

Individual livestock owners have ownership rights over specific resources, including wells, fodder, and trees. Resource rights are defined carefully, particularly during the dry season The rights to use resources are controlled by the livestock owner Another person who wishes to have access to an individual's Ekwar must first request his or her permission

It is important to note that occupancy and usage are critical to continued resource access rights If an individual is absent from his Ekwar over a certain period of time (which is not specified), another person may take it over. Barrow argues that this flexibility in Ekwar ownership is a mechanism for reducing risk and ensuring efficient resource use There are cases of disputes over resource rights, and individuals and groups sometimes have to defend their Ekwar Traditionally, disputes over Ekwar were brought before the elders, who resolved the conflicts based on their assessments of each side's position.

Impact on Resources and Sustainability

One of Barrow's suggestions was that it might be possible to combine a system of individual ownership based on Ekwar with communal ownership of wet and dry season grazing lands In the past, the Ekwar system controlled access to specific areas and the produce of the trees in those areas. Thus, it was in the interests of individuals to manage their resources in a sustainable manner in order to ensure continued production Pods and leaves were used for feeding livestock, and the trees were cut down for fuel and construction materials The problem, however, is that the Ekwar system is under pressure as a result of expanding populations and rising numbers of development projects It is difficult to determine from Barrow's discussion whether or not areas that are or were Ekwar have been depleted seriously as a result of socioeconomic changes in northern Kenya, but it is likely that some Ekwar have been overexploited by resident and immigrant populations

Autonomy and Decentralization

As Barrow points out (p 172) the system of Ekwar is impossible to separate from tenure rights At the time of the investigation, grazing areas in Turkana District were considered County Council Trust Land, which was held in trust for the Turkana people Changes have occurred in resource control and access as a result of the establishment of development projects, including irrigation schemes and a fisheries project on Lake Turkana. Settlements have also expanded along the rivers in Turkana District One outgrowth of the changes is that trees have been cleared without taking into consideration traditionally defined rights As a result, the number of disputes and conflicts over resource access has increased

Barrow maintains that the system of Ekwar can be important in the development process, in part because Ekwar owners represent a discrete target group Extension programs could be aimed at these individuals, who already engage in various strategies of natural resource management. Sustainability of the system over the long term could be enhanced by linking individual and communal responsibility Interventions could include encouraging multiple use management systems and provision of legal protection for usufruct property rights

Unique Attributes

The Ekwar system of individual property rights to trees among the Turkana is somewhat different from other situations in Africa. In Niger and other parts of Sahelian West Africa, for example, economically significant trees

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belong to the state There is evidence among some societies in Tanzania of tree tenure on the part of groups as opposed to individuals The degree to which Ekwar rights are still observed among Turkana is relatively unique, as well.

Related References

Allen, J A. (1990) "Homestead Tree Planting in Two Rural Swazi Communities " Agroforestry Systems 11(l):11-22

Fortmann, Louise (1985) "The Tree Tenure Factor in Agroforestry with Particular Reference to Africa." Afroforestry Systems 2(4) 229-251

Fortmann, Louise and Dianne Rocheleau (1985) "Women and Agroforestry· Four Myths and Three Case Studies." Agroforestry Systems 2(4) 253-272

Lawry, Steven J (1990) "Tenure Policy Toward Common Property Natural Resources in Sub-Saharan Africa." Natural Resources Journal 30(2) 402-422.

McCabe, J Terrence (1983) "Land Use among the Pastoral Turkana." Rural Africana 15-16:109-126.

McCabe, J. Terrence (1990) "Turkana Pastoralism A Case Against the Tragedy of the Commons." Human Ecology 18(l)·81-103.

Poschien, Peter (1986) "An Evaluation of the Acacia albida-based Agroforestry Practices in the Haraohe Highlands of Eastern Ethiopia." Agroforestry Systems 4(2)·129-143.

Starmheit, Peter (1990) "Agroforestry and Soil Conservation Needs of Smallholders in Southern Zambia." Agroforestry Systems 10(3)·265-289

8. A New Approach to Amboseli and Amboseli National Park: Human Values and the Conservation of a Savanna Ecosystem

by David Western

Summary

These two articles describe the ways in which land use and resource conservation have been approached in and around Amboseli National Park in southern Kenya. They describe the history of the Amboseli region and changes in the ecology and management of the area by local people, the county council, and the government. Western began his research on Amboseli in 1967, and he documented the changes in the ecosystem over the next decade and a half He also assisted in some of the planning of the park and surrounding areas

Changes in the region included environmental degradation, competition for resources, expansion of tourism, and shifts in land use and land management systems A critical change, from the standpoint of the local Maasai, was the declaration of Amboseli as a national park, which cut off their access to some of the water and dry season grazing resources in the region

Based on research findings, Western identified the economic potential of various options for land use in Amboseli The most profitable of these options, according to his calculations, was wildlife exploitation It was difficult to pursue this option given that the Maasai had traditional claims to the land, and there were no alternative areas where they could be relocated. The government decided, therefore, to employ a combined strategy involving wildlife and livestock usage in the area surrounding the 488 square kilometers set aside as the national park. Beyond the park's boundaries were Maasai areas where they would have the right to continued traditional usage as well as to economic benefits from the park and tourism-related activities

The capital and recurrent costs of the park were to be paid by the government The Kajiado County Council, which administers the area where Amboseli is located, received a portion of the gate receipts In exchange for the land becoming a national park, the Maasai were to receive title to the remainder of the land in the region, which was to be owned cooperatively and operated as group ranches

Suggestions for benefits to landowners included (1) setting up a lodge in the Maasai ranching area, (2) allowing ranchers to have campsites for tourists on their land, (3) establishing hunting concessions in the land surrounding the park, and (4) providing revenues as a kind of compensation for use of ranch land by wild animals As Western (1984 96) points out, "The principle underlying the expanded plans was to show that in return for continued access to the entire ecosystem, Amboseli's wildlife could contribute economically to the landowners .." The assumption was that the approach to development would involve participation of local people in the discussions and planning The group ranchers formed a wildlife committee which met monthly with the park warden to discuss issues of mutual concern

One measure of success of the approach was that the numbers of wildlife in the Amboseli ecosystem increased. Poaching was reduced Wildlife were distributed in a more uniform manner over the landscape, something which contributed to a reduction in tourist pressure

There were problems in implementation of the plans The water scheme which was to deliver water from the park to outlying areas was poorly designed and not cost-effective. This situation led to Maasai having to go into the park for water Secondly, the plan to divert part of the swamp to an area outside the park, with support from a

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non-government organization, was not implemented. Third, there were serious shortcomings in the ways in which visitors were managed But perhaps the most serious problem was that there was a continued reluctance by the government to involve the Maasai as fully as they could in Amboseli's benefits

Efforts were being made to overcome these problems New legislation was introduced which defined the areas surrounding national parks The approach to planning in Amboseli has become a model for integrated conservation and development strategies elsewhere in Kenya and other parts of Africa.

Access, Control, and Use of Resources

The Maasai had access to the land and natural resources of Amboseli National Park until the early 1970s The Maasai used grazing, water, fuelwood, wild food and medicinal plants, soils (e.g. clay), and wildlife in Amboseli. Exploitation patterns were handled traditionally by the Maasai within and their own groups

Changes in access and control of resources came about as a result of the imposition of hunting regulations and shifts in land administration policies The government took control of part of the area when it was gazetted as a national park According to Western, one way that the Maasai showed their dissatisfaction with loss of access to resources in the Amboseli region was by spearing rhinoceros, reducing the numbers from over 150 in the 1950s to 8 in 1977

The Maasai retained control of the lands and resources in the area surrounding the park Portions of the ecologically important swamplands in the park were degazetted and returned to the Maasai in order to ensure access to high quality dry season pasture Access to water was improved with the establishment of a pipeline, although there were problems with the quality of the workmanship Competition for resources has increased along with rising population densities

Impact on Resources and Sustainability

The Maasai have played a significant role in shaping the present ecology of the Amboseli region Pressure on resources was affected by the mobility of pastoralists, with aggregation at water points in the dry season and dispersal in the wet season Western notes that pastoralists use the environment in ways that are similar ecologically to wildlife, moving from place to place depending on resource availability Resource management strategies included a rotational grazing system, setting fires, and exploiting a variety of wild resources in different mixes during the year

Carrying capacity changes were brought about through the introduction of water development and veterinary programs in the 1940s Livestock numbers expanded as disease-related mortality was reduced The reduction in mobility of people and their livestock, combined with increased population densities, led to ecological deterioration in the Amboseli area Some of the development projects initiated in the Maasai areas contributed to this deterioration The vulnerability of Maasai livestock increased, and the effects of droughts on livestock numbers became more pronounced

East African pastoralists such as the Maasai do utilize wildlife resources, especially in dry periods Wildlife was an important buffering resource, and the Maasai used game for food, something which occurred during the 1973-74 drought when livestock mortality levels were high The Maasai's access to wildlife was reduced by the game laws and by the establishment of the national park, where they were not allowed to hunt or pursue predators that had killed their stock

While there is little direct discussion of sustainability of resources or the long-term viability of management strategies,, the papers do raise a number of significant issues concerning land use, conservation, and planning strategies. Restriction of access to the crucial water and dry season forage in the park and especially the Amboseli Swamps reduced the sustainability of the pastoral production system, something that the park planners had to take into consideration

Another area of concern was the growth in human population numbers in the region The increased density led to greater competition for resources A similar situation was seen in the park itself, where the numbers of tourists increased substantially Research done by Western showed that most tourists tended to spend their time in relatively restricted portions of the park and that they concentrated their attention on certain species (e g lion, cheetah and elephant) The congestion had an effect on park resources as well as the hunting efficiency and reproductive capacity of certain species (e g cheetahs)

Planning was initiated which aimed at dispersing visitor usage and diversifying their viewing interests both seasonally and over the long term Careful monitoring and assessment of social, environmental, and economic impacts of park usage helped guide policy formulation Western (1984 97) makes a useful point when he says, "It takes time to build up the necessary foundation for so complex a plan as that called for in Amboseli, in the meantime it may be necessary to limit the number of visitors until those capabilities are developed " Long-term planning, patience, and flexibility are key issues when it comes to making institutions and development projects sustainable over the long term

Autonomy and Decentralization

The Maasai had traditional rights to grazing and other resources in Amboseli until the 20th century when the government took control of the area and it was declared a National Reserve Hunting regulations were imposed, restricting access to certain species of wildlife In 1961, the administration of Amboseli was handed over to the local county council, which set aside a 78 square kilometers block of land as a stock free-zone

At the national level, Amboseli was seen as a resource which could generate income primarily through wildlife-based tourism The Kenya government therefore gazetted an area of 388 square kilometers centered on a dry lake basin north of Kilimanjaro as a park. The Maasai viewed this change as one which reduced their access to resources, especially grazing land, water, and wildlife

A strategy recommended by Western was that the Maasai be allowed to continue their seasonal migrations in the region and that they receive some of the economic benefits from the park In the areas surrounding the park, the Maasai gained full legal [illegible] over the land The buffer zone around the park consisted of an area of 121,400 hectares, which represented the area within which the Maasai maintained and moved their livestock. The land allocation was done in such a way as to take into consideration the social units of the Maasai Attention was also paid to the ecological requirements of livestock and wildlife The system was designed to allow overlapping usage A significant benefit of legal title for the Maasai was that it prevented encroachment of agricultural populations and limited the amount of land alienated for the national park

A major problem recognized by Western in 1976 (p 3) was how to set up an institutional arrangement whereby the distribution of resources was equitable The two critical institutions were (1) the regional County Council of Kajiado District and (2) the local Maasai landowning units The assumption was made that there would be revenue-sharing between the council and the local landowning units

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In the past, the Kajiado County Council received most of the benefits, with relatively little going to the local people. The two ways that this could be rectified were to ensure that revenues went directly to the Maasai and that they also received indirect benefits in the form of social services and water supplies The park provides other benefits, including employment opportunities and a market for handicrafts.

A useful point made by Western related to the relationship between the Kenya government and the Kajiado Council He noted (1984 97) that the ministry of Tourism and Wildlife failed to secure a management agreement with the Kajiado Council, as a consequence, the park headquarters area at Tukai had become an "urban sprawl," and there was little hope that it could be improved If a comprehensive agreement could be negotiated between the government and the council, it might be possible to resolve some of the problems and manage the area more carefully in the future

There is little discussion in these papers of the structure and organization of the Maasai residing in the Amboseli region It would be useful to know how decisions were made within groups about the distribution of benefits It would also be helpful to have an understanding of the ways in which land and resource conflicts are resolved by the Maasai Additional information on the workings of the Kajiado County Council would provide insights into regional decision making No information is provided on the composition of the Kajiado Council (in terms of local Maasai elders and others) Finally, a breakdown on the distribution of tourism revenues to the different institutions involved (the Kenya government, the Kajiado County Council, and the local Maasai) would be useful

Unique Attributes

As Western (1984 93) notes, "What is unique about Amboseli is that its policies directly address the conflict of man and wildlife within the ecosystem " An unusual feature of this study is that local people were given legal title to their land, thus putting them in a better position to benefit directly from the revenues generated by the park and tourism The degree to which tourism figures in the lives of the Maasai of the Amboseli region is also somewhat unique From the perspective of the Maasai, the compensation for the impacts of the park and the increased numbers of tourists is inadequate This has led to political pressure being brought to bear on the County Council and the government, something that relatively few other groups affected by government policies have had much success at exerting

Related Literature

Bachman, Philipp (1987) Tourism in Kenya: A Basic Need for Whom? Berne· Lang Publishers.

Deihl, Colin (1985) "Wildlife and the Maasai· The Story of East African Parks." Cultural Survival Quarterly 9(1) 37-40.

Elkan, W (1975) "The Relation Between Tourism and Employment in Kenya and Tanzania." Journal of Development Studies 11(2) 12130.

Farvar, Jo Ann M (1984) "Tourism and Employment in the Gambia." Annals of Tourism Research 11.249-265.

Fish, Mary (1982) "Taxing International Tourism in West Africa." Annals of Tourism Research 9.91-103.

Henry, Wesley R. (1979) "Patterns of Tourist use in Kenya's Amboseli National Park· Implications for Planning

and Management " In Tourism Marketing and Management Issues, Donald E. Hawkins. Ellwood L. Shafer, and James M. Rovelstad, eds. Washington, D C · George Washington University. pp 43-57.

Hitchcock, Robert K (1991) "Tourism and Sustainable Development among Remote Area Populations in Botswana." In Tourism in Botswana, Linda Pfotenhauer, ed. Gaborone: The Botswana Society. pp. 161-172.

Hunt, Christopher (1988) "Gorilla " Travel and Leisure 18(10) 104-113, 166-171.

Kumpumula, M (1979) The Influence of Visitors on the Predators of Amboseli National Park. M A. thesis, University of Nairobi, Nairobi, Kenya.

Myers, Norman (1975) "The Tourist as an Agent for Development and Wildlife Conservation: The Case of Kenya." International Journal of Social Economics 2(1):26-42.

Ouma, Joseph P M B. (1970) Evolution of Tourism in East Africa (1900-2000). Nairobi: East African Literature Bureau

Popovic, Vojislav (1972) Tourism in Eastern Africa Munchen: Weltforum Verlag.

Saglio, Chrristian (1979) "Tourism for Discovery. A Project in Lower Casamance, Senegal." In Tourism Passport to Development? Emanuel de Kadt, ed Washington, D.C. The World Bank. pp. 321 335

Sindiga, Isaac (1984) "Land and Population Problems in Kajiado and Narok, Kenya." African Studies Review 27(1) 23-37

Thresher, Philip (1981) "The Present Value of an Amboseli Lion " World Animal Review 40.30-33

Vedder, Amy (1989) "In the Hall of the Mountain Gorilla " Animal Kingdom 92 31-43

Western, David (1973) The Structure, Dynamics, and Changes of the Amboseli Ecosystem. Ph D. dissertation, University of Nairobi, Nairobi, Kenya.

Western, David (1982) "Amboseli National Park: Enlisting Landowners to Conserve Migratory Wildlife." Ambio 5 302-308

Western, David (1986) "Tourist Capacity in East African Parks " Industry and Environment 9(1)·14-16.

Western, David and Thomas Dunne (1979) "Environmental Aspects of Settlement Site Decisions among Pastoral Maasai.11 Human Ecology 7(1) 75-98

Western, David Jonah and Wesley R. Henry (1979) "Economics and Conservation in Third World National Parks." Bioscience 29 (7) .414-418

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9. Traditional Water Management and Irrigation Systems in Tanzania. Case Study of Msanzi Village, Rukwa Region

by O. Mascarenhas

Summary

Msanzi village in southwest Tanzania is situated at the intersection of two land systems and the confluence of two rivers Immediately east are the Kira-Longo Hills, to the west the Sintali Plains The Msanzi and Sukwa Rivers drain the hills before joining to flow southwest across the plains In the mid-1970s, Tanzania's villagization policy served to combine small communities (of around 50 households) into Msanzi village with more than 3500 inhabitants

Each household has a small village plot (< 0 5 ha.) and hill and/or plains fields 1 - 10 km away Average land-holdings per household range from 8 ha (well-off) to 1 ha (poor) with an overall mean of 4 ha. and a maximum in excess of 20 ha. Most agricultural activity is performed by individual households, but a few hire labor from poorer households which are not self-sufficient in food Most payment is in kind

Traditional shifting-cultivation at low population density became unsustainable due to villagization (higher localized population) and commercialization of maize The former process also involved redistribution of land-holdings involving both communal and private plots Intensification of maize production (hybrids and agrochemicals) led to abandonment of traditional methods of maintaining soil fertility

Several methods have evolved locally to make use of river water in agriculture to supplement rainfed cropping Small areas have long been planted on stream banks and beds during the dry season In 1933 a farmer dug a channel to drain his floodplain field and realized he could use the water to irrigate the plain below In 1966, following a drought a farmer's son induced fellow villagers to build a canal and furrow irrigation system in which each household received one acre Further modifications and land redistribution occured during villagization in 1974 A year-round cultivation system comprises wet season cultivation in the river valley (primarily rainfed) and partially irrigated crops during the dry season in the valley and on the plains Most farm work is done individually, but maintenance of the irrigation system involves communal activities Crops include maize, wheat, millet, pulses and a variety of vegetables Overproduction of maize as a cash crop has led to a greater emphasis on vegetables for nearby towns

This pattern of cultivation was upset in 1983/4 due to erosion in the main canal, reducing total area cultivated from 360 ha to 90 ha with losses mainly in the plains Villagers discussed rehabilitating and expanding the irrigation system with community development officials from the Rural Development Program (RUDEP) These officials assisted in setting up a village Development Board which includes an Irrigation Committee (IC) Further assistance allowed the IC to draft and submit a drainage and irrigation plan to RUDEP The village supplied labor to build a 2 km canal, while RUDEP provided technical assistance, some materials and transportation The work was in progress when the study was completed. Although equitable rules for communal work were in place, the problem of water distribution when the canal is complete had not been tackled

RUDEP assistance is limited to draining the valley around the village farms and irrigating the plains The villagers also want the option of irrigation in the valley closer to the village They have planned a second canal for this purpose, independently of RUDEP, using the new technology and skills learned for the first This development indicates the strength of the Development Board and IC Money can be raised for this purpose at the village level

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through taxation of crops, beer or crafts.

Success to the present stage is attributed to sensible use of natural resources (water and evolution of cropping systems), extension of growing seasons by irrigation to match labor availability; adaptation to market opportunities; and influential local innovators (including the RUDEP officials)

Evaluation

The report has good coverage of the use of natural resources, particularly use of water (including future plans) and evolution of cropping systems in response to socioeconomic changes and technical innovation The previous irrigation system was not fully sustainable; it remains to be seen how the new one will fare

The village is probably ethnically homogenous, but fairly stratified with respect to wealth How villagization has affected intra-village relationships is not made clear Technical skills have developed first through individual innovators, then with assistance from RUDEP to be sufficient for construction of simple gravity-fed irrigation systems It will not be known until later how effective are other water management skills

The institutional backdrop has changed substantially due to the Tanzanian villagization policy Msanzi has a legally recognized and locally respected Village Assembly (all adults) and Village Council (25 elected members) Each group of ten households has an elected "ten-cell" leader who is often co-opted by the Council to help make important decisions "Ten-cell" leaders equitably organize their households for village-level communal labor projects The IC was specially created for day to day running of the irrigation construction project and liaising with RUDEP

Land tenure arrangements are not described in detail, some land is privately held and some communally How the different plots are used is not clear The local institutions now in place are designed to be self-sustaining (see below) and seem to be responsive to changing circumstances Costs of construction (mainly labor) were equitably distributed. Allocation of benefits will be clearer when irrigated land and water distribution are finalized

Institutional rules covering dispute resolution, penalties and monitoring of compliance are not described However, the legal democratic structure of the village should insure adequate participation in rule making Local jurisdiction is recognized How this jurisdiction relates to neighboring communities (for example, over water use) or the government hierachy (outside RUDEP) is not decribed

Issues Relating to Autonomy and Decentralization

Tanzania's villagization, which took place mainly in 1974-77, is a paradox of decentralization and centralized control Central planning was behind the policy Thus most rural communities in Tanzania are recent agglomerations of smaller villages and hamlets Initial rigidity and uniformity presented many problems The net effect was to increase centralization Subsequent legislation has genuinely increased decentralization District and village level projects may be carried out without reference to higher levels of government

The current situation described in Msanzi illustrates responses to these changing policies and their effects on natural resource management New institutional structures which are democratic and decentralized to the level of these villages (see above) seem to have reached a stage of legitimacy with the population and to function in a flexible and effective manner The legal ability to raise taxes at the village level is unusual and allows a degree of financial autonomy as described However, RUDEP officials were a necessary stimulus in setting up the IC and in

providing technical assistance. The village is planning to use the institutions and knowledge gained to increase irrigated land on its own initiative.

Case-study Specific attributes

As previously mentioned, Tanzania has some unusual rural policies Villagization and its new institutions led to a massive social upheaval Other policy changes (e g. from large-scale state farms to emphasis on smallholders), national economic woes and Msanzi's remoteness provide a strong stimulus for local self-sufficiency.

Related Literature

King, R B. et al (1979) *Land Resources of the Rukwa Region, a Reconnaissance Assessment.* Dar es Salaam: Institute of Resource Assessment.

Mascarenhas, O. (1987) *Adaptation or Adoption? Ecological and Socioeconomic Implications in Smallholder Production Systems in Rukwa Region, Tanzania* Ph.D Dissertation, Clark University

10. Hadza Traditional Economy and Its Prospects for Development; and, A Brief History of Mangola Hadza

by William McDowell

Summary

These two reports focus on the economic, social, and land use systems of the Hadza of the Lake Eyasi region of northern Tanzania. A culturally distinct population that depended traditionally on hunting and gathering, the 800-1,000 Hadza (known previously as the Kindiga, Tindiga, or Kangeju), reside in semiarid shrub savanna areas of the Rift Valley The Hadza are one of a number of people living in the target area of the Tanzania Ministry of Information and Culture's Rift Valley Project. The goals of McDowell's papers are to provide suggestions on how the traditional Hadza hunting and gathering economy can best be integrated with the villagization policy of the Tanzanian government and to demonstrate the utility of a foraging adaptation

The three essential features of the traditional Hadza economy are (1) selective harvest of a diversity of plant and animal foods, (2) food gathering on a daily basis, and food sharing with other group members, with no individual accumulating a surplus, and (3) nomadic movement to areas of high seasonal availability of resources At least ten species of wild fruits and berries, five species of roots, and a number of minor plants were utilized by the Hadza. They also used three different kinds of honey and "several dozen" species of game animals The diversity of species they used provided them with a range of options about what to eat and where to reside

Food is shared widely in Hadza groups, the custom is that food must be shared with anyone who asks for it. The only formal rule of food distribution, according to McDowell ("Hadza Economy," p 12), was that adult males held the right to eat a special portion of fatty meat from each large animal killed. Honey is a food accumulated in surplus quantities by individuals, it is sometimes sold as a means of generating cash In McDowell's opinion, Hadza see honey as wealth ("Hadza Economy," p 16)

The Hadza land use system is characterized by fairly frequent residential moves (once or twice a month) and coverage of large areas There are no restrictions on where or with whom a person may live Mobility is a key means of maintaining access to resources The wide scientific knowledge of natural resources of the Hadza provides them with a detailed understanding of the ways that they can exploit and/or manipulate the habitat to meet their needs

A characteristic feature of the Hadza social system is their nearly complete lack of specific, binding social obligations The Hadza also allow any Hadza complete and unrestricted access to natural resources ("Hadza Economy," p 25) Hadza view other Hadza as kin and they treat them as such

The key to the future of the Hadza is, in all likelihood, sedentary agriculture mixed with foraging and wage earning This will be especially important as competition and ecological pressures increase. According to McDowell, Hadza must become more involved in village educational and political institutions in order to protect their right to form a viable, sufficient socioeconomic system in the future

It will be crucial that the Hadza maintain their traditional resource utilization skills and their diversity of procurement and production techniques Expanding exploitation of certain resources, including (1) game meat, (2) hyrax (for their skins), (3) honey, and (4) beeswax, could help provide additional income to Hadza households.

Finally, it is to the Hadza's advantage that they establish residency and land rights in the places where good agricultural land is still available.

Access, Control, and Use of Resources

Access to resources among Hadza is described as being communal, with no restrictions on resource use McDowell also notes that no Hadza individual or group "ever claims special rights to any locality, resource, or territory" ("Brief History" p 2) At the same time, McDowell points out that many Hadza spend nearly their entire lives in specific areas of Hadzaland, and people commonly are referred to by the name of the area in which they reside

In pre-colonial times the Hadza's access to natural resources was "largely uninhibited by ecological competition or political forces" ("Brief History," p 3) Virtually all natural resources (game, wild plants, water, beehives, pipestone) were "openly available" to anyone who wished to seek them This was true, too, of harvested food, which was shared with anyone who asked for it, with the exception of honey and specified portions of large animal carcasses

Beginning in the early 20th century, the Hadza's access to their resource base began to be increasingly restricted by immigration of agricultural and pastoral populations A major incursion of pastoralists began in 1948 as a result of famine in the Dongobesh and Karatu highlands Livestock densities have increased, especially in the Mangola Ward Hadza were alienated from their land, and their subsistence resources were affected by competition with both people and livestock Hadza moved out of areas inhabited by other groups in order to maintain their social integrity

Access to land and resources was restricted by the establishment of government-sponsored settlement schemes both prior to and after independence The goals of these schemes were (1) to persuade the Hadza to abandon their foraging activities, (2) to encourage them to give up their mobility and to settle down, (3) to facilitate their becoming self-sufficient agriculturalists, and (4) to promote their participation in national educational, economic, and political institutions All of these schemes failed, and the Hadza resorted to their traditional mobile foraging strategies Unfortunately, there is little information on the reasons for the failure of these schemes A fallacious assumption about their demise holds that Hadza "simply refused to develop themselves," and that they did not appreciate the services and goods provided to them.

From the Hadza perspective, sedentary agriculture is viable economically only if the benefits (nutritional, health) outweigh the costs Some of the problems in the settlements included crowding, poor sanitation high rates of disease and mortality, insufficient food, water, and clothing, and lack of participation in the running of the settlements

For hunter-gatherers, access to game is crucial for their success One of the problems faced by most if not all foragers in Africa was that the state imposed restrictions on hunting This was done by the Germans in Tanganyika around the turn of the century, and the Tanzanian government followed suit The Natural Resources Office of the Mbulu District, for example, told the people of Endamaghay, a Ujamaa village founded by a Hadza elder, that any Hadza found hunting with bows and poisoned arrows would be arrested and prosecuted This ruling was made in spite of the fact that the Hadza had been issued a Presidential License that allowed them to hunt without paying fees This situation underscores the fact that national-level legislation on resource access rights is not always followed at the local level

The Wildlife Conservation Act of 1974, administered by Tanzania's Ministry of Natural Resources and Tourism, had legalized subsistence hunting in Tanzania. As the law states, "The Director (of Game Division) may grant a designated organization (defined as corporate or unincorporated or any ujamaa village) a license to generally hunt such number of scheduled animals, subject to terms and conditions and for such period as may be specified therein " Nevertheless Hadza were still arrested for supposedly violating hunting laws For non-Hadza, licenses with quotas attached must be purchased from the government. Certain species are excluded completely (e g giraffe) There are also stipulations about the kinds of hunting methods that can be employed ambush hunting is not allowed, nor are pit traps A restriction that bans hunting within 500 yards of a water point has had effects on hunting success rates among Hadza.

The setting up of national parks and game reserves has also had significant impacts on the Hadza and other African foragers The Hadza were affected by the establishment of the Ngorongoro Conservation Area, which reduced the amount of land available There were also cases in which Ngorongoro conservation Area game guards seized and beat Hadza for alleged offenses These types of incidents contributed to a distrust of government officials on the part of the Hadza.

Displacement of Hadza from the springs and other water sources which they had utilized in the past has led to a situation where they spend part of the year (August to October) as laborers on farms, and the balance of the year (November to July) is spent collecting wild plant foods and hunting

Hadza recognize the need for both socioeconomic security and for security of land tenure In 1980, the Mangola Hadza proposed to the Rift Valley Project research team that government aid be provided so that they could establish an agricultural settlement of their own They stipulated the place the scheme might be, and they requested that they be provided with farm implements and food aid Another of their requirements was that they be allowed to continue their diverse economic strategies, combining hunting, gathering, and honey collecting with farming The Tanzanian government has not provided them with the land for their settlement, nor have they guaranteed that they would have secure land rights, but there was a possibility that such steps would be taken

Impact on Resources and Sustainability

The diversity of food resources used by the Hadza ensured that the impacts on any one resources were minimized Traditional Hadza dependence on wild plants and animals was said by McDowell to be sufficient enough to prevent them from suffering severe food shortages, and famine was said to be unknown to them Mobility was a key means of adapting to the semiarid Rift Valley ecosystem. Mobility reduction, on the other hand, was seen as being associated with loss of land fertility, desertification, and erosion problems ("Hadza Economy," p 20).

Over time, the expansion of human and livestock populations has had significant impacts on Hadza resources Tree-clearing activities for purposes of establishing agricultural plots and making charcoal resulted in destruction of midabi (Cordia sinesis), an important food resource which is the staple of the Hadza diet from December to February Heavy grazing pressure by livestock has affected Grewia species, and bush encroachment has resulted in a crowding out of nutritionally significant plant resources The presence of large numbers of livestock and heavy hunting pressure has led to a reduction of wild game species in the Hadza region Competition between Hadza and immigrant groups for valued resources such as honey has increased, something that has had effects on income levels The long-term sustainability of hunting and gathering in the Rift Valley is uncertain There is no question, however, that foraging can and does provide an important buffering strategy for a number of northern Tanzanian population

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Autonomy and Decentralization

Prior to incursions of other groups in the Rift Valley, the Hadza were completely autonomous, and they made their own decisions, about resource use and movements Their success in remaining autonomous was seen in the fact they were perhaps the only society in Tanzania to escape taxation and administration by the European colonial authorities ("Hadza Economy," p 26)

This is no longer the case in the modern state of Tanzania. The Hadza are found in three administrative regions: Mbulu District, Arusha Region, Iramba District, Singida Region, and Maswa District, Shinyanga region. Like other residents of these districts, they must follow the dictates of district officials They also are supposed to pay taxes.

One of the problems facing Hadza in their interactions with other groups was that the hunting and gathering lifestyle had a stigma attached. Hadza males in mixed settings did not have as much of an opportunity to find a spouse. In the settlements, Hadza did not have decision-making power, nor did they have any say over the ways they were treated

The government settlements were problematic entities for Hadza The food and other goods that people were supposed to receive in these places were not always forthcoming Hadza no say whatsoever in their management They were rounded up forcibly and forced to go to the settlements, where they did not have the right to choose their own places to put up their houses As McDowell (p 9) notes, the schemes "suffered from the fact that the facilities were provided on the basis of what planners thought the Hadza should have, rather than on the basis of what Hadza said they needed "

A major conclusion is that settlement schemes in and of themselves are not necessarily beneficial for hunting and gathering populations The long-term viability of these schemes will depend on the ways in which they are set up and whether or not participants are allowed to follow their own principles of adaptation to the local environment If it is made clear that permanent residence in specific places is a matter of choice as opposed to being mandatory, then there is a better chance the scheme will be viewed favorably

For the Hadza, having autonomy is crucial Hadza groups prefer to live as a unit, if they elect to move into a village, they want to do it in places they see as their own Many of them wish to retain their identities as Hadza. As McDowell ("Hadza Economy," p 29) notes, "To these people the physical unity and associated social unity of Hadza within an otherwise integrated village is a vital and legitimate concern which cannot be ignored "

One of the constraints faced by people in remote parts of Africa is their lack of information about markets for local natural resources Providing local people with this information as well as training will go a long way toward helping them increase their incomes and raise their standards of living The reports do not go into detail concerning the rules by which Hadza groups manage resources They also do not spell out the ways rules change when non-Hadza groups enter the picture There are indications that group meetings are held and that suggestions are put forth concerning development and acquisition of land and resources It would be useful to follow up on the efforts of the Hadza to establish their own settlements and mixed economic systems

Unique Attributes

Hadza social organization is described as being remarkably flexible and egalitarian, so much so that it permits individuals to live anywhere they wish. The lack of territoriality and absence of social restrictions on where and

with whom an individual lives is unusual in Africa.

Another unique feature is the low population density of the region where the Hadza live, approximately two square miles per person. The Hadza also use extensive areas for resource collection and camping.

Related Literature

Bagshawe, F.J (1925) "Peoples of the Happy Valley (East Africa). The Aboriginal Races of Kandoa Irangi, Part II Kangeja." Journal of the African Society 24(94) 117-130.

Bunn, Henry T., Laurence E Bertram, and Ellen M. Kroll (1988) "Variability in Bone Assemblage Formation from Hadza Hunting, Scavenging, and Carcass Processing. Journal of Anthropological Archaeology 7:412-457

Cooper, B. (1949) The Kindiga. Tanganyika Notes and Records 27:8-15.

Enderlein, P (1971) Utindiga Wildlife Utilization Project. Report ,to the Game Division, Ministry of Natural Resources and Tourism, Dar es Salaam, Tanzania.

Fosbrooke, Henry A (1956) "A Stone Age Tribe in Tanganyika." South African Archaeological Bulletin 11:41.

Kohl-Larson, L (1958) Wildbeuter in Ost-Afrika Die Tindiga, ein Jager- Und Sammlervolk Berlin· Dietrich Reimer

Ndagala, D K "Free or Doomed? Images of the Hadzabe Hunters and Gatherers of Tanzania." In Hunters and Gatherers 1 History, Evolution, and Social Change, Tim Ingold, David Riches, and James Woodburn, eds. Oxford Berg Publishers, Ltd pp 6572

Newman, James L. (1970) The Ecological Basis for Subsistence Change among the Sandawe of Tanzania. Washington, D C National Academy of Sciences

O'Connell, James F , Kristen Hawkes, and Nicholas Blurton Jones (1988) "Hadza Hunting, Butchering, and Bone Transport and Their Archaeological Implications " Journal of Anthropological Archaeology 44(2).113-161

Schultz, J (1971) Agrarlandschaftliche Veranderungen in Tanzania (MbululHanana Districts). Munich: Weltform Verlag.

Smith, Lars C. (1980) Resource Survey of Hadza Hunter-gatherers. Unpublished manuscript on file in the Tanzania National Archives, Dar Es Salaam, Tanzania.

Tomita, Y (1966) "Sources of Food for the Hadzapi Tribe: The Life of a Hunting and Gathering Tribe in East Africa " Kyoto University African Studies 2.157-171

Wooaburn, James (1964) Social Organization of the Hadza of North Tanganyika. Ph.D. Dissertation, Cambridge University. Cambridge, England

Woodburn, James. (1968a) "An Introduction to Hadza Ecology." In Man the Hunter, Richard B. Lee and Irven DeVore, eds. Chicago. Aldine pp. 49-55.

Woodburn, James (1968b) "Stability and Flexibility in Hadza Residential Groupings." In Man the Hunter, Richard B Lee and Irven DeVore, eds Chicago· Aldine. pp. 103-110.

Woodburn, James (1970) Hunters and Gatherers Material Culture of the Nomadic Hadza. London· The British Museum.

Woodburn, James (1972) "Ecology, Nomadic Movement, and the Composition of the Local Group among Hunters and Gatherers An East African Example and Its Implications." In Man, Settlement, and Urbanism, Peter Ucko, Ruth Tringham, and G W Dimbleby, eds London: Duckworth. pp 193-206

Woodburn, James (1979) "Minimal Politics The Political Organization of the Hadza of North Tanzania." In Politics in Leadership A Comparative Perspective, W A Shack and P S. Cohen, eds. Oxford· Clarendon Press pp 244-264

Woodburn, James (1988) "African Hunter-gatherer Social Organization. Is It Best Understood as a Product of Encapsulation?" In Hunters and Gatherers 1 History, Evolution and Social Change Tim Ingold, David Riches, and James Woodburn, eds Oxford Berg Publishers, Ltd pp 31-64

11. Pastoralism, Conservation, and Development in the Greater Serengeti Region
by M.L. Parkipuny

Summary

This is a paper based on a field mission to Maasai areas in Kenya which provides Parkipuny with a basis of comparison of similar pastoral economies in Tanzania. His basic premise is that livestock production, the mainstay of the Maasai pastoral socio-economic system, has been and continues to be marginalised by land alienation for arable agriculture and the creation of exclusive wildlife protection areas Government policies and projects in both Kenya and Tanzania, the international wildlife lobby, and increasing populations in the Greater Serengeti Region have all led a severe undermining of livestock rearing and the specific culture of the Maasai people as well as wildlife conservation

Compensatory measures for land locked into reserves and for conflict resolution concerning land resources use are legislated in both countries (more so in Kenya than Tanzania) But enforcement is often left to central authorities with little opportunity or incentive for local communities to participate. Greater alienation on the part of the pastoralist is the end result

Evaluation

The impact of wildlife reserves, protected areas and national parks in the Greater Serengeti on land use and the traditional economic system is tremendous and affects it directly (e g , loss of pasture) and indirectly (e g , declining productivity on residual lands) National policies, particularly in Tanzania, are promoting a protectionist system which is allowing wildlife herds (most notable cape buffalo) to proliferate beyond the carrying capacities of the migration routes National policies are also propelling arable agriculture into the semi-arid zone with very marginal results Neither of these policies promote sustainable use of the grassland and wildlife resources More specifically as Parkipuny points out.

> " the ongoing and spontaneous expansion of cultivation into the rangeland areas of both Kenya and Tanzania is severely undermining livestock rearing and the specific culture of the Maasai people, as well as wildlife conservation "

Traditional systems of conflict resolution concerning land resources access and use has broken down as the state has stepped in to manage the land or has established systems which favor wildlife tourism and programs to insure food self-sufficiency on all arable lands

Issues related to autonomy and decentralization

Access to range resources by their traditional users, the Maasai, varies between Tanzania and Kenya and often between parks and reserves in the same country Even though there may be statutes on the books, the actual enforcement is quite varied In some instance the Maasai have found ways (adapted through local initiative) to resolve issues through local institutions established with the formation of the reserves, in other instances this has not worked for reasons that are not entirely clear in the text of the report.

Penalties for rule infractions are also not elaborated, although the punishment for offenses in Tanzania seem to be more severe and with less chance for arbitration. The author does not elaborate on the speed of rule enforcement in any of the cases he reports on, nor on the social and/or financial cost to the litigants.

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The local, traditional institutions of the Maasai appear to be at the mercy of the state This is harsher in Tanzania than in Kenya. At least in the latter, individuals may seek retribution (even though there may not be any to be had) in instances of injury or damage caused by wildlife which roams outside of the reserve areas

Renewable natural resource jurisdictions and rules associated with such vary by country, in and outside of reserve boundaries, and even between reserves There appears to be little, if any effort to coordinate activities or rules among the various units even though they all impact on the same ethnic groups inhabiting and using the same geographic unit

Unique attributes of the resources

In the traditional land management sense, the Greater Serengeti Region represents one of the few areas on the globe where man, livestock, and wildlife were mutually beneficial.

Related literature

Field, R C , Moll, G and Ole Sonkoi, C. (1988) Livestock development in the Ngorongoro Conservation Area. Technical Paper No 1, Ngorongoro Conservation and Development Project (Tanzania).

Western, D (1982) Amboseli National Park Enlisting landowners to conserve migratory wildlife. Ambio 11(5).

12. Wildlife Conservation Outside Protected Areas – Lessons from an Experiment in Zambia

by Dale Lewis

Summary

This paper assesses an experimental socioeconomic and natural resource development project in an area outside of South Luangwa National Park in Zambia The project included (1) a wildlife culling component, (2) a law enforcement component incorporating local people as village scouts, (3) consultation with village-level wildlife councils, local leaders, and members of communities, and (4) recycling of some of the revenues into the communities as well as providing support for wildlife management staff It demonstrates that the project activities generated sufficient economic returns to underwrite some of the project costs. In addition, poaching declined in the area, and the attitudes of local residents became more positively disposed toward wildlife conservation and management.

The project, which was supported by Zambia's National Parks and Wildlife Services (NPWS), World Wildlife Fund (WWF), Wildlife Conservation International of the New York Zoological Society, and several other organizations, was based in the Lupande Game Management Area (GMA) in eastern Zambia The GMA covers an area of 4,849 square kilometers and contains six different chiefdoms of the Kunda, each of which has its own traditional chief The total population of the area at the time of the study was approximately 20,000 Most of the work was carried out in Malama, a chiefdom which covers 400 square kilometers and contains 700 people in small, dispersed villages based primarily on agriculture and, to a much lesser extent, wildlife utilization

Baseline socioeconomic studies were conducted in part of the GMA in the early 1980s, these studies showed that only 1% of the safari hunting revenues of some $350,000 per year went to local communities Other data revealed that illegal hunting was significant and that poaching was making significant inroads on large mammal populations, especially elephants and rhinoceros The Zambian government attempted to deal with the poaching situation by fielding additional game scouts in the area. In general, local attitudes toward wildlife authorities and toward laws relating to fauna were negative Resentment toward the safari companies and tourists was also felt by local communities

The Lupande Development Project was established in the mid-1980s as a way of encouraging local participation in wildlife management and conservation and enhancing local incomes and employment Part of the project was devoted to training wildlife personnel at Nyamaluma, a training center in the Malama chiefdom Men from local villages were chosen to take part in a six-month course which included training in law enforcement, collection of data on wildlife, and record keeping Employment opportunities for people as village scouts expanded from six in 1985 to 26 in 1987 The scouts received wages and food for their services

Because of the increase in manpower and efficiency of the wildlife management personnel in the Lupande area, the numbers of arrests and firearm seizures increased and poaching levels declined According to Lewis, Kaweche, and Mwenya (p 175) annual mortality of elephants and black rhinoceros decreased at least tenfold from 1985-1987, based on numbers of poached carcasses located

Revenues were generated from several sources as a result of the development program· sales from the harvest of hippopotamus, hunting licenses, fees from safari hunting concessions, fines from convictions of people for illegal hunting, and the moneys obtained from collection of ivory generated a total of Kwacha 694,754, some of which (K163,067, or 24%) went to local projects Some of the revenues were used to support recurrent costs of wildlife management in the project area.

An important impact of the project was that it helped change attitudes of local residents toward wildlife conservation and management activities By providing communities with some of the economic benefits of wildlife programs, it helped convince them that wildlife was worth maintaining It also helped improve the image of the National Parks and Wildlife Service in the area.

An important aspect of the Lupande Development Project involved consultation The NPWS and LDP personnel dealt with wildlife committees in each chiefdom Meetings were held in which issues such as revenue sharing were discussed Responses to survey questionnaires administered in the area indicated that a significant percentage of the local population saw the Lupande Development Project and the wildlife management activities of the NPWS as more positive than they had previously

The experimental program in the Lupande GMA examined the feasibility of involving local residents in wildlife management. Overall, it has been relatively successful in terms of expanding incomes and employment, reducing poaching, and helping improve attitudes toward wildlife conservation and government wildlife officials. It has also had some spin-off effects in local communities in the form of revenue sharing and underwriting of the costs of development projects Overall, the project appears to be cost-effective if one does not include capital and some technical assistance costs that were provided by outside agencies

Access, Control, and Use of Resources

In the past, people in the Lower Lupande Game Management Area (GMA) had their access to wildlife resources restricted both by wildlife conservation laws and by the establishment of South Luangwa National Park In order for people to hunt in GMAs, they need to have licenses The Lupande Development Project allowed people access not only to employment opportunities but also to hunting that was legal (e g of hippos) In this sense, the Lupande Development Project and changes in wildlife policies in Zambia increased the access of people in this area to wildlife resources

One of the advantages of a GMA is that local people have residence rights, something that they lack in national parks under existing legislation in Zambia Individuals could live and work in the GMA and take part in safari and conservation activities The decision of the project to require safari companies to hire local people was a good one, and undoubtedly has contributed to an expansion in income in some of the local households

Impact on Resources and Sustainability

One of the goals of the project was to support wildlife conservation and management and promote community improvements through the sustained-yield uses of wildlife resources The work by Lewis, Kaweche, and Mwenya suggests that "potential revenues from future sustained-yield uses of elephants would more than meet the total costs of this program" (p 178) This conclusion assumes that utilization of elephants would be allowed, something that was no longer the case after the ivory ban was instituted at the Conference on Trade in Endangered Species (CITES) in October, 1989 From an economic standpoint, the project was sustainable in the period under study (1985-87) Whether or not this is still the case, given the changes in the economy, natural resource base, and elephant access, is open to question

One of the factors which affects the viability of the wildlife culling and safari hunting activities include population declines in fauna, something which occurred in 1987 as a result of an outbreak of anthrax Safari hunting and tourism activities are also influenced by factors such as the economy of Zambia and the degree of safety visitors feel in going in to rural areas As long as the safari and tourism industries are viable in this part of Zambia, the communities presumably would be able to continue to benefit from the revenues generated.

In order to assess whether or not the project is sustainable ecologically, it is necessary to have additional data on

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wildlife resources in the region. While this information is not included in this paper, it is probable that such data are available, given that part of the work of the NPWS and the village scouts includes collection of wildlife statistics

Autonomy and Decentralization

The communities involved in the ADMADE project activities in the Lower Lupande Game Management Area belong to six Kunda chiefdoms The residents of the villages in the region are under the authority of the chiefs of their areas They also are affected by the government of Zambia through district officials and the personnel of the National Parks and Wildlife Service The activities of the wildlife committees in each chiefdom were overseen by the Unit Leader, a civil servant who works for NPWS The wildlife committees themselves were generally made up of the chief's council "as a show of respect for traditional leadership authorities in the villages" (pp 178-179)

One of the questions that arises with respect to the degree to which decentralization of authority has proceeded is how much leeway wildlife committees have in making decisions which may not accord with the wishes of the Unit Leader or other NPWS personnel Another question revolves around the degree to which individual members of local communities have a say in the decisions of the wildlife committees Given that the committees are made up primarily of members of the chief's council, one might wish to find out more about whether other people in the area feel that they are having inputs into decision-making It would also be useful to know whether or not the kinds of projects that were chosen for implementation in the communities by the wildlife committees were ones that benefitted substantial numbers of people or if they had limited impact

Another issue relating to autonomy and decentralization has to do with the policies of the NPWS. One of the institutions that has helped provide revenues to local people in GMAs in Zambia is the Wildlife Conservation Revolving Fund (WCRF), which was established in 1983 Under the WCRF, local communities get a portion of the revenues that go into the revolving fund At present, only a small percentage of the WCRF funds actually go to the communities One way of improving the impact of the WCRF on local villages would be to increase the net percentage that goes to the communities

A second problem with the WCRF is that the bulk of the funds that go into the fund's coffers derive from sales of ivory Given the restrictions on ivory sales, there is a possibility that relatively few funds are going in to the WCRF If the NPWS is going to be successful in generating income for local communities through the WCRF, then it will have to consider expanding the numbers and types of revenue sources It would also be useful if the management of the WCRF was decentralized so that more people were involved in decision-making about dispersal of funds

An examination of the role of the personnel of the Lupande Development Project, the Nyamaluma Training Center, and the NPWS might reveal that the project is not quite as participatory as one might assume based on the assessment provided in this article Additional work is necessary in order to determine whether or not various groups and individuals in the communities affected by the project are actually receiving benefits Doing attitude surveys is one way of finding out about people's perceptions of the project. Another way would be to do detailed behavioral observations, cost-benefit analyses, and socioeconomic investigations. Such research would provide additional insights into the kinds of effects that the Lupande Development Project has had on local communities

Unique Features

The Lupande Development Project was somewhat unique from the standpoint of its having been established in a Game Management Area which allows residence and multiple use It is also in an area that is rich in game, the Luangwa Valley The presence of the Nyamaluma Training Center, and NPWS and project personnel in the

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Lupande area meant that there was fairly significant outside input which undoubtedly had effects on local communities, both positive and negative. The existence of the Wildlife Conservation Revolving Fund and the organizational structure of the Zambia NPWS are a bit different from the kinds of institutional features found in other parts of eastern and southern Africa.

Related Literature

Abel, N. and P Blaikie (1986) "Elephants, People, Parks, and Development: The Case of the Luangwa Valley, Zambia."Environmental Management 10 735-751

Bond, G C. (1976) The Politics of Change in a Zambian Community.Chicago: University of Chicago Press.

Dalal-Clayton, D B and D M. Lewis, eds. (1984) Proceedings of the Lupande Development Workshop. Lusaka. Republic of Zambia.

Lewis, D M and G B Kaweche (1984) The Luangwa Valley of Zambia: Preserving Its Future by Integrated Management. Ambio 14 362-365.

Lewis, D.M. and A.N Mwenya (1988) Unit Leader's Manual Lusaka, Zambia. National Parks and Wildlife Service

Prins, G. (1980) The Hidden Hippopotamus Cambridge· Cambridge University Press

Mwenya, A M , G B Kaweche, and D M Lewis (1988) Administrative Design for Game Management Areas (ADMADE) Lusaka. National Parks and Wildlife Service

Wright, Michael R (1989a) Wildlands and Human Needs in Africa: The Beauty of "Imperfection " Paper presented at the 88th annual meetings of the American Anthropological Association, Washington, D C

Wright, Michael R (1989b) Zambia's Innovative Approach to Conservation. World Wildlife Fund Letter 7.1-10.

Zambia National Parks and Wildlife Services (1988) Proceedings of the First ADMADE Planning Workshop Lusaka. Zambia: Republic of Zambia.

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13. The Imperial Lion: Human Dimensions of Wildlife Management in Central Africa
by Stuart Marks

Summary

Stuart Marks' book examines the impacts of changes in wildlife management from the village level to the colonial and bureaucratic state level in Zambia. The study is based on Marks' field work among the Bisa in the Luangwa Valley in eastern Zambia during the mid-1960s and early 1970s In 1973, slightly more than 5,300 Valley Bisa occupied the Munyamadzi Corridor bounded by three national parks (North Luangwa, South Luangwa, and Luambe National Parks) The total population of the Luangwa Valley included an additional 64,000 humans, 86,000 elephants, 14,000 hippopotami, 12,000 rhinoceros, as well as wild ungulates, warthogs, lions, cheetahs, leopards, hyenas, and wild dogs Prior to the mid-1960s, the Valley Bisa remained relatively isolated from surrounding areas due to the lack of all-weather roads and bridges

About 80% to 85% (based on weight) of Valley Bisa diet was derived from shifting cultivation, crops raised included finger millet, ground nuts, cow peas, beans, sweet potatoes, cassava, mangoes, papaya, and bananas Inadequate crop yields resulted from drought, flood, and pests (including a variety of wild mammals) The Valley Bisa could not raise livestock due to the prevalence of tsetse fly in the region.

Animal protein had been obtained from subsistence hunting The target game species included buffalo, impala, and warthog, these three species accounted for from 75% to 90% of the game animals killed by the Valley Bisa during the mid-1960s and the early 1970s In 1966-67, wild meat consumption for the Valley Bisa equaled 91 5 kg per year (250 5 grams meat/day), 40% (36 6 kg) was obtained from "regulatory kills" by wildlife officers. By 1978, local meat consumption levels dropped to 29 7 kg/person/year (meat subsidies not included) There is no mention of meat subsidies from wildlife officers or other sources In one decade, Valley Bisa wild meat intake appears to have declined by 67 5%

Farm land and lands for new settlements was ideally to have been gained via consultation with the chief In actuality, Valley Bisa chose plots of land for cultivation in an opportunistic fashion Additional critical resources such as water, firewood, and wild plants and animals were obtained from lands adjacent to the village; these lands were considered to be community property

Until the late 1800s, many males hunted with traditional weapons including spears, bow, and arrows Wild game belonged to the chief Colonial rule during the twentieth century created a wage labor economic system based on copper mining Many adult males left their rural homes for the mines Muzzle loading rifles were introduced at this time, however, the colonial government placed restrictions on local hunting Hunting was then conducted by select individuals within matrilineages and access to rifles was controlled by-thd elders

Zambia gained independence in 1964 and wild animals were placed under government control (i e, the Game and Fisheries Department) The Game Department had a number of goals including 1) development of wildlife management plans, 2) initiation of wildlife research, 3) establishment of an economic program based on tourism and game animal harvesting, and 4) formulation of a public education plan According to Marks, the Game Department failed to achieve a number of these goals due to the lack of specific management objectives, high turnover in personnel, "capitalization" of game cropping, and unwieldy administration For example, safari hunting originally produced considerable revenue for the Zambian government (approximately $930,000 between 1971 and 1977) Meat from these kills in game management areas was available to local inhabitants Safari hunting was later privatized and the meat went to the government.

In 1971, the Game Department expanded its responsibilities and became the National Parks and Wildlife Service By 1972, Zambia contained 18 national parks that encompassed more than 59,000 square kilometers or 8% of the

country's land area. Marks points out that parks frequently fail to manage wild game effectively because park areas and boundaries rarely conform to the life space demands of animals. Parks, as well as Game Management Areas (GMAs), produce little income or resources for local people In addition, park lands cannot be used as "buffer resource zones" when local food production fails

Access, Control, and Use of Resources

Marks describes the dynamic changes in the Luangwa Valley that shifted control of natural resources, specifically wild game animals, from tribal chief and elders within female-centered descent groups to bureaucratic agencies in colonial, and later, independent states Chiefs held loose control over wildlife procurement On some occasions, hunters gave meat as tribute to the chief On other occasions, the meat obtained by hunters was distributed to fulfill social, economic, and religious obligations within a society based on kin-based interactions After rural-to-urban migration began and many adult males left the small villages, elders within matrilineages controlled access to muzzle-loading rifles used by a select hunter Once roads, bridges, and government facilities were established in the Luangwa Valley, the meat from wild game animals was trucked to urban areas and sold by "entrepreneurs" Less attention was given to the distribution of meat (from wild game) within local, kin-based networks More than 8% of Zambia's countryside was placed in national parks, even more land was put into Game Management Areas, of which there were 32 at the time of Marks' work, covering 163,853 square kilometers (21 8% of the country)

Local inhabitants no longer maintained access to, or control of, wild game Marks points out that the Valley Bisa realize that local harvests of wild game could not be sustained over-the long term, yet, they did not want to give up the other "positive benefits" that had been gained as a result of improved transportation routes, wage labor, urban migration, and influxes of construction workers, safari hunters, park personnel, and other government officials As Marks (1984 104) stated, "With the change in normative restraints and the collapse of supporting reciprocal social structures which sustained local resource process, wildlife has become increasingly 'mined' rather than harvested '"

Impact on Resources and Sustainability

The shift from local kin-based to centralized, non-kin-based, and bureaucratic regulation of the wild game management system in Zambia has had a number of impacts on natural resources Once hunting and meat sharing were no longer controlled by the elders of the matrilineage, Valley Bisa hunters were more apt to involve themselves in poaching and illegal and non-local meat sales They adopted hunting methods (e g , wire snares and breach-loading rifles) that were used selectively on female buffalo and placed greater stress on herd dynamics Economic ties with urban areas increased the demand and the prices for wild game meat and trophies

The Valley Bisa apparently were aware that they were taking larger numbers of animals than they had killed in the past (Marks 1984 102) No data regarding total wild game kills are offered, admittedly due to the fact that illegal kills will nearly always be under reported According to Marks, wild game as a protein source for rural people proved to be uneconomical, however, there is no empirical substantiation for this finding

Marks points out that sustainability of wild game resources is closely tied to maximal, as well as minimal, population sizes The elephant population in the Luangwa Valley has increased since the national parks were established. This increase has led to considerable environmental degradation and subsequent population crashes in the elephant herds In the recent past, Valley Bisa hunting practices were more closely connected to local kin-based social, religious, and political systems Decisions regarding wild game procurement were made locally with respect to locally-derived information about animal and human populations, environmental degradation, and nutritional needs It should come as no surprise that once locally adapted hunting strategies are altered, resource depletion levels increase

Autonomy and Decentralization

The Munyamadzi Corridor in the central Luangwa region where Marks did his fieldwork is still remote There is an administrative post on the Muchinga Escarpment to the west of the Luangwa Valley The three national parks on the peripheries of the region are overseen by Zambia's National Parks and Wildlife Service (NPWS) and thus are not under the control of the Valley Bisa. The decisions about demarcating and gazetting these wildlife areas were made in the absence of consultation with people in the region

Over time, the role of external factors has increased, and the autonomy of the Valley Bisa has declined proportionately The Zambian government has given concessions to safari companies and tourism organizations which have brought hunters and visitors to the central Luangwa region People from neighboring areas (e g the adjacent plateau) have come to the valley to exploit wildlife for both subsistence and commercial purposes Valley Bisa have been arrested by game scouts and police for allegedly poaching game in the Munyamadzi Corridor Local people believe that their autonomy in decision-making about access to resources has declined significantly in the face of these changes

Subsequent to the time of Marks' study, international donor agencies entered the Luangwa region, bringing with them new kinds of development approaches A participatory strategy was to be employed in which the Bisa would be encouraged to form wildlife committees at the local and district level These committees would receive funds from safari concessions, which they would then have the opportunity to use for community development purposes The degree of autonomy of these committees was open to question, however, since the members were appointed by the district game warden and not selected by local people Local communities, on the other hand, have promoted self-help projects that do not draw upon outside assistance

The experiences of the Valley Bisa suggest that the lack of autonomy in decision-making about resource management and use can contribute to the reduction of wildlife and overexploitation of resources It is also evident that local leaders and elites may take advantage of situations for their own benefit. Having a better understanding of the local cultural and environmental situation can help to ensure that planning is more appropriate to the needs of resident populations The top-down approach that has been employed in the Central Luangwa has not resulted in the development of local leadership and the promotion of effective community-based resource management and development projects

Additional information is required on local institutions and resource tenure in order to better understand the ways in which decisions are made on resource use and management. Devolving authority over wildlife and other resources from the state to the local community in Zambia could help to ensure that the process of deterioration of the resource base is slowed down or reversed. This devolution of authority should not be done half-way, as occurred in the case where the district game warden appointed the members of the wildlife committee Rather, the members of the local communities should be given the opportunity to choose their own representatives It is also crucial that local people be consulted about their ideas on what kinds of development strategies should be initiated prior to the establishment of projects

Unique Attributes

A unique aspect of Marks' study is the fact that the area in which it took place was bordered by national parks. The degree to which local people participated in hunting of large mammals was also somewhat unusual for central Africa.

Related References

Johnson, David S and Wolf Rader, eds (1979) Proceedings of the National Seminar on Environment and Development. Zambia Geographical Occasional Study No. 10 Lusaka.

Marks, Stuart A. (1976) Large Mammals and a Brave People Subsistence Hunters in Zambia. Seattle. University of Washington Press.

Marks, Stuart A. (1977a) "Perception and Selection of Cape Buffalo by Valley Bisa Hunters in Zambia." The Western Canadian Journal of Anthropology 7(1).53-68

Marks, Stuart A. (1977b) "Buffalo Movements and Accessibility to a Community of Hunters in Zambia. East African Journal of Wildlife 15 251-261

Marks, Stuart A. (1977c) "Hunting Behavior and Strategies of the Valley Bisa of Zambia. Human Ecology 5(1) 1-36

Marks, Stuart A. (1979) "Profile and Process: Subsistence Hunters in a Zambian Community." Africa 49(1) 53-67

Marks, Stuart A. (1988) Common Property Regimes and Traditional Management. Methodology Concepts, and a Review of Current Projects Report to the Food and Agriculture Organization of the United Nations Rome FAO

Marks, Stuart A. (1989) Small-Scale Hunting Economies in the Tropics. In Wildlife Production Systems Economic Utilization of Wild Ungulates, Robert J Hudson, K.R. Drew, and L M. Baskin, eds Cambridge and New York. Cambridge University Press pp 75-95

Marks, Stuart A. (1991) "Some Reflections on Participation and Co-Management from Zambia's Central Luangwa Valley " In Resident Peoples and National Parks Social Dilemmas and Strategies in International Conservation, Patrick C West and Steven R. Brechin, eds Tucson University of Arizona Press pp. 346358.

14. A Comparison of Fishing Strategies in the Bangweulu Swamps

by Mitsuo Ichikawa

Summary

This study deals with fishing strategies of local subsistence farmers in the Bangweulu Swamps in northern Zambia. Fish obtained by these fishermen have traditionally been sold in nearby towns as an animal protein source for workers in Zambia's copper-belt The Bangweulu Swamp provides one-fourth of Zambia's fish catch and ranks first in size of the six fishing grounds in the country

Ichikawa's investigation focuses on six fishing methods utilized by 27 fishermen that were organized into 19 fishing units. The Bangweulu Swamp covers more than 5,000 square kilometers, this area is a patchwork of meandering river channels, lagoons, dense papyrus reed beds, and foodplain grasslands The nutrients and oxygen supplied by the Luapula River and small tributaries of the Kasenga River provide a productive habitat for more than 80 species of freshwater fish, particularly the Cichlids The five highest ranked fish species include Tilapia rendalli Domerii, Sarotherodon machrochir Boulenger, T sparmanii Smith, Serranochromis angusticeps (Boulenger), and Marcusenius macrolepidotus (Peters)

The fish catch totaled 7,388 9 kg during 744 fishing days for the Muilaka camp located in 7 kilometers south of Lake Chali Ichikawa points out that water levels in Lake Bangweula fluctuate seasonally based on stream flow from the Chambesi River Rainfall regulates stream discharge, highes precipitation (400mm/month) occurs between January and March, and lowest precipitation falls between May and October Water levels in the Bangweulu Swamp drop from 1 2 to 1 5 meters between the wet season and the dry season Fish catch is correlated inversely with water levels in the lake, swamp, and river complex A three year record (1978-1980) of dried fish production in the Bangweulu Swamp shows that yields drop from nearly 200 tons in November to less than 20 tons in April Swamp water levels are highest in April and lowest in November (Ichikawa 1985 28, Fig 2)

Previous investigations in this area disclosed 17 fishing methods Ichikawa deals with 6 methods that are used most frequently by commercial fishermen today All of these fishing methods make use of a boat (i e , a dugout canoe). The methods include fish driving, lupata driving, stationary gillnet fishing, stationary gillnet fishing in daytime, and drawnet fishing Drawnet fishing produced the greatest yields (7 7 kg/attempt) while the lowest yields (1 8 kg/attempt) were obtained with stationary gillnets during the day These fishing strategies differ with respect to type of net, location, and fishing time Decisions regarding fishing strategy are based on rainfall patterns, water levels, phases of the moon, fishing returns of other strategies, and so forth

The Muilika fishing camp contained a core of 27 males, thirteen women and 15 infants also spent a portion of the season in this camp Most of the fishing units came from the Kapata Peninsula. Ichikawa's study provides very significant insights into the risk minimization aspects of fishing groups Fish catch per fishing day for the 19 units varied from 6 6kg to 12 1kg and efficiencies ranged from 0 8kg/hr to 1 7kg/hr Total fish yield (kg) for fishing units varied positively with total-number of fishing days per fishing unit ($r=0\ 92$, $p>0\ 001$, $N=17$)

Bangweulu fishermen believed that variation in fish catch between the various units was explainable in terms of fishing skill Statistical analysis revealed, however, that total fish catch per unit was, in fact, related positively to the total hours spent fishing per unit ($r=0\ 96$, $p>0\ 001$, $N=16$) We see, then, that more than 97% of the variation in fish catch for the different fishing units can be accounted for on the basis of hours spent fishing Perhaps the remaining 2-3% of the variation is related to skill

This relationship helps us understand why fishermen form groups Individual variation in fish catch per day and per hour is considerable It is evident that a number of fishermen can minimize variance in fish catch in the long

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term if they form fishing units. Ichikawa also found that yields from night fishing exceeded yields from day fishing (2.5 kg/hr and 1 3 kg/hr respectively). Despite these higher yields, night fishing is not conducted very frequently due to the fact that nets are difficult to work at night and hippopotamos and crocodiles pose dangers to fishermen at this time

Access, Control, and Use of Resources

In order to gain access to fishing areas, each fisherman must obtain a license in the village of Samfya and is expected to pay tribute to the local chief who owns the fishing grounds Fishermen generally return to the same fish camp(s) each year Furthermore, there are a number of individuals that do not own a boat or essential fishing equipment (i e , nets) As a result, fishermen form fishing units or "companies" composed of boat and net owners and workmates Boat owners provide logistical support and generally receive 30% of the cash obtained from fish sales Fourteen fishing units are grouped into eight commensal units that shared resources particularly food. These commensal units, in turn, are integrated via a complex of patrilineal, matrilineal, and affinal ties Kinship systems in the surrounding villages are organized principally on the basis of matrilineal connections Ichikawa suggests that this variation can be related to the male-based nature of fishing activities

Impact on Resources and Sustainability

Although Ichikawa provides very useful empirical data regarding fish catch sizes, efficiencies and return rates for various fishing methods, this study contains no discussion of resource impact or sustainability He does state that Brelsford's (1946) study of Bangweulu fishing reports that total annual yield in the early 1940s equaled 4,000 tons (wet weight) Ichikawa also points out that increased stress will be placed on the fisheries in the Bangweulu Swamps due to the near completion of a road connecting Samfya with the copper-belt to the north in Zambia.

Autonomy and Decentralization

One of the reasons for the success of the fishing groups studied by Ichikawa was their close-knit nature, a product of their kinship basis A major conclusion he drew was that to understand the activities of Bangweulu fishermen, one has to pay attention to social factors These groups are autonomous from the standpoint of decision-making, at the same time, they are tied in to the larger socioeconomic system of Zambia. The changes that will occur as a result of increased access to the area may well include a reduction in autonomy of fishing groups and shifts toward more commercial activities, some of them sponsored by outsiders. A reduction in fishing efficiency and increased conflicts may be the inevitable result.

Related References

Brelsford, W V (1946) Fishermen of the Bangweulu Swamps Occasional Papers No 12. Livingstone The Rhodes-Livingstone Institute

Hayward, P (1981) Fish from the Kafue A Zambian Informal Commodity System Lusaka: Institute for African Studies, University of Zambia.

Imai, Ichiro (1985) "Fishing Life in the Bangweulu Swamps- A Socio-Ecological Study of the Swamp Fishermen in Zambia." African Studies Monographs, Supplementary Issue 4 49-88

Imai, Ichiro (1987) "Fishing Life in the Bangweulu Swamps (2). An Analysis of Catch and Seasonal Emigration of the Fishermen in Zambia" African Studies Monographs, Supplementary Issue 6 33-63.

15. The !Kung Settlement Pattern: An Archaeological Perspective
by John Yellen

Summary

This study is an analysis of the subsistence and land use patterns of the !Kung San (Bushmen, Basarwa), a population of Khoisan-speakers in the northwestern Kalahari Desert of Botswana The investigations were carried out in 1968-69 and consisted of observation of hunting, gathering, and use of space by approximately 300 !Kung in the Dobe area. Emphasis was placed on the recording of the behavior of !Kung and the assessment of the ways in which their activities affected the depositing of materials on the landscape

The region where the study was conducted is semi-arid and consists of tree-bush savanna. There are east-west trending sand dunes fixed by vegetation Between these dunes are valleys, or molapos, where water sometimes collects The northern Kalahari landscape is dotted with pans which serve as major focal points for !Kung occupation

At the time of Yellen's study, the area had a population density of 41 people per 100 square miles The !Kung lived in a number of independent camps made up of groups of families, these camps averaged 20-30 people. The vast majority of food obtained during the time of the study was derived from wild plants and animals The !Kung had relatively few possessions, did not own firearms, and practiced little pastoralism or agriculture Wage labor was practiced only occasionally by a few !Kung in the area

Mobility was an important factor in the Dobe !Kung's adaptation to their environment They were particularly mobile in the summer rainy season and tended to stay sedentary around pans or pools in the dry season The average number of moves per year was 5-6, but some groups shifted their camps as many as 30-40 times Part of the reason for this mobility was the variation in the availability of moisture and food in the Kalahari habitat Decisions about movement were made on the basis of consensus

Membership of !Kung camps changed fairly frequently, however, most camps were composed of a sibling core group and their nuclear and/or extended families Each camp was a self-sufficient unit with the adult members foraging during the day and sharing the collected foods when they returned to camp in the evening Vegetable and animal foods were usually obtained within a six-mile radius of the camp, although longer forays were sometimes undertaken, especially for hunting purposes !Kung bands were composite in nature, they consisted of individuals and families who shared resources

The !Kung resource base included 150 species of plants and 100 species of animals (out of a total of 500 local species of plants and animals identified by the !Kung) Vegetable foods consisted of 30 species of roots and bulbs, 30 species of fruits and berries, and an assortment of melons, nuts, leafy greens and edible gums The staples included the mongongo or manghetti nut (Ricinodendron rautanenii), which has both an edible fruit and kernel, baobab fruit (Adansonia digitata), and tsin or morama bean (Bauhinia esculenta) Most of the vegetable foods in the region are seasonal Faunal species recorded by Yellen in the Dobe region included 57 species of mammals, 75 species of birds, 9 species of snake, 2 species of chameleon, 7 species of lizard, and 2 species of frog

Only a small percentage of the insects and other invertebrates present in the Dobe region were collected and identified For the !Kung, the most important of these were two species of beetle, Diamphidia nigro-ornata and Polycada flexuosa, which were used for poisoning arrows One species of anthon has an annual outbreak in late November and early December Tens of thousands pupate within a brief period, and !Kung eat them in large quantities Bee hives are found in most heavily wooded areas, and the honey in them ripens in late May and June Honey is valued highly by the !Kung

The density and distribution of large ungulates in the region was restricted by the absence of available standing water and scarcity of food during a large part of the year. Zebra, roan, impala, and buffalo were found there only during the rainy season The larger, more mobile ungulates that were present year-round were kudu, gemsbok, eland, blue wildebeest, red hartebeest, and giraffe The low numbers, frequent movement, large ranges, and uneven distribution of these buck posed difficulties for !Kung hunters since it was difficult to predict on a day-to-day basis where game would be located.

From a !Kung's point of view, the varied character of the landscape was extremely important for it increased the number of plant foods available for exploitation Compared with flatter areas in the Kalahari which receive a similar amount of rainfall, the number of plant species is relatively large Since these associations are arranged in contiguous, parallel, and relatively narrow bands, an individual hunter or collector could exploit each of these in the course of a single day's trip

The !Kung needed only a few, very effective tools to exploit their subsistence base Since they had to transport all their goods when they moved, material possessions were kept at a minimum. Women used digging sticks in gathering vegetable foods which made up the bulk of !Kung subsistence They also used mortars and pestles to prepare some of the vegetable foods Men had a slightly more elaborate technology for food procurement. They hunted with bows and arrows, spears, clubs, snares, and springhare hooks They also had quivers, carrying pouches, and tool kits.

Hunting was usually restricted to !Kung adult males who employed a number of different strategies In some cases, individuals ranged out on forays from camps in search of game Hunting was also done cooperatively, something that was a necessity with certain kinds of prey (e g springhare) Generally, men from the same camp hunted together Pursuit hunting of animals was often done in pairs That way, if one man wounded a large animal, he could follow it while the other returned to camp to obtain assistance for stalking, killing, and butchering the animal The hunting party could then carry the meat back to the residential location.

The most common method of hunting involved stalking A man would either see an animal or its tracks and follow it cautiously until he was close enough to shoot it with a bow and arrow The !Kung arrows were tipped with a virulent type of poison made from a beetle Once struck, the animal will usually die Hunters chased their prey until it dropped from exhaustion or until it could be dispatched with a spear, club, or rock. Snares made of sisal fiber or twine were another common method of procurement. Snares were used to trap both birds and small mammals One advantage of snares was that they had a high success rate in relation to labor time expended.

An intriguing aspect of resource access rights of !Kung relates to arrow ownership There is a rule among !Kung which hold that the owner of the arrow which struck an animal is considered to be the "owner" of that animal The arrow owner gets first pick of the meat from the animal, and it is he who takes charge of the distribution of the rest of the animal. In some cases, dogs are used to chase down animals In these cases, the dogs' owners usually are entitled to a share of the kill even if they did not participate in the hunt.

Between January and July, 1968, Yellen observed two married members of a sibling group from Dobe Detailed records were kept on the activities of these two men These records included almost all the moves made during a yearly round, covering the period of heavy rains, autumn, and the first half of winter Yellen recorded information of 16 base camps with a total of 23 occupations The study included a total of 96 observation days An analysis of the data revealed an average length of temporary camp occupancy as being 4 62 days The average camp consisted of 7 adults and 7 children

During the observation period, the !Kung group killed 32 porcupines, 24 springhares, 6 steenbok, 6 gemsbok, 4 duikers, 2 tortoises, 3 guinea fowl, 2 hornbills, one aardwolf, and a red-crested korhaan Of the 6 steenbok obtained by the !Kung, two were scavenged from carnivore kills and two others were shot with poisoned arrows All 6 gemsbok were wounded or killed with poisoned arrows. A warthog was also scavenged from a leopard kill

Based on a total of 8 species of animals obtained, 39% were porcupines, 29% were springhares, 7% were steenbok, 7% gemsbok, 5% duiker, 4% guinea fowl, 2% tortoise, 2% hornbills, 1% red-crested korhaan, 1% aardwolf, and 1% warthog It is apparent from these results that small mammals were the most common animals obtained by the !Kung group

An examination of the hunting success rate revealed that there were 25 unsuccessful hunt days out of 66 days when one or more men left camp with hunting as their objective This meant that hunting parties from one camp were successful 62% of their time During the total camp occupations of 80 days, there were 14 days (18%) when nobody left camp to go hunting Therefore, they went hunting 82% of their time On 36 days (55% of the total number of hunting days), there was only one hunting party, half of which consisted of two men, a quarter of a single hunter, 12% of three men, 8% of four men, and 6% of 7 men The average number of members of a hunting party was 1 95

One conclusion reached was that there was a positive correlation between group size and hunting success rates. This finding corresponds to the !Kung perception that as group size increases, so does the variety in the diet. In general, the larger the group size, the greater number of people engaging in hunting and gathering activities !Kung hunters, therefore, operate most effectively, in larger units and thus they play an important role in integrating larger social units (bands)

From his observations of the Dobe group, Yellen proposed a !Kung San hunting model based on the seasonal cycle of subsistence foraging This model was one of 2-3 nuclear families related by a core sibling group, which usually consisted of 2 or 3 good hunters When group sizes were larger, there was greater chance of obtaining meat. Land use patterns were such that aggregation of !Kung groups occurred during the dry season, when they settled close to pans containing water Both hunting and gathering was done on a fairly regular basis With the onset of the rainy season, the groups dispersed, moving out in small family groups to temporary camps Hunting success rates were not as great in the dispersed camp situations

The model for !Kung group organization holds that bands are composite in nature Secondly, exclusive territorial rights are not recognized, boundaries are not defended, and some areas, especially those around permanent water points, are shared by more than one group This band system, according to Yellen, has enough flexibility built into it to permit population concentration in especially bad years when some of the water holes in the region run dry Individuals do talk about ownership, Yellen notes, and about who has rights in certain areas But these rights are seen as being flexible, something that is crucial . a highly unpredictable environment like that of the Kalahari.

Families in general are relatively unconstrained in their movements and can claim some kinds of rights or band membership in different territories One must think not only of local bands but also of larger, territorial bands which can coalesce and then disappear if the need arises One must think in terms of different levels there is the individual level and the group level While there may not be specific easily-defined territories from the individual's perspective, there may well be areas recognized as belonging to groups

One of the changes that has occurred among !Kung over time has been a breakdown in the size of groups Whereas in the past the !Kung resided in bands for at least part of the year, today most !Kung groups live in nuclear families This change in group structure has affected the viability of hunting, reducing the number of hunters available for cooperative endeavors There has also been a change in the distribution of bands in the northern Kalahari landscape, this has resulted in part from the penetration of in-migrating cattle owners

Access, Control, and Use of Resources

At the time of Yellen's study, the !Kung in western Ngamiland had customary rights to use land and other resources Access to these resources were controlled by social groups (bands) which oversaw blocks of territory

averaging between three hundred and six hundred square kilometers. The Dobe region cannot be described as an open access area. Rather, it was divided into tracts, each of which was occupied by a group whose core members had long-standing rights there Land rights are inherited, although individuals may get access rights through various relatives and in-laws

The focal points of the land use systems of the !Kung were pans The territories generally consisted of one or more water points and a mixture of plant resource and game areas Bands moved around in these areas, depending on the availability of water, food, and the distribution of other groups One was able to obtain access to other groups' areas through seeking permission from the areas "owners "

At the time of Yellen's study, individuals were allowed to hunt without licenses as long as they were considered "traditional" (i e subsistence hunters) Since the late 1970s, however, people who wished to hunt had obtain a special license under Botswana's Unified Hunting Regulations This restriction has reduced the number of people who have the right to hunt in the Dobe area.

It is important to note that the !Kung were not the only groups with customary rights in western Ngamiland. Other groups also occupied the area, including Herero pastoralists, the majority of whom established residence there in the early 1900s after being forced out of Namibia as a result of the German-Herero wars The Dobe area also contained Batawana, a Tswana-speaking tribe that had moved into Ngamiland in 1795 Dobe itself is in an area overseen by a MoTwana headman based at !Xangwa. This individual administered the area on behalf of the Batawana chief based in Maun According to Tawana customary law, both the chief and his or her headmen had the right to allocate grazing and arable land and take care of judicial matters in the Dobe area.

After 1970, land allocation in western Ngamiland was controlled by the Tawana land board, a statutory body based in Maun The land board has superseded the chiefs in land management and administration Working through a series of sub-land boards, the land board allocates land for grazing, arable, residential, and business purposes Some !Kung have applied for arable land and have been granted it. Access to grazing land, however, has proven to be more problematic While the Dobe !Kung registered their well with the land board, they have not been able to prevent encroachment by Herero cattle owners who have established cattle posts near the well.

The degree to which the !Kung control their land came into serious question in the mid-1970s, when the Government of Botswana announced the Tribal Grazing Land Policy, a land reform and livestock development program While Dobe itself initially was zoned as communal land, the number of boreholes being allocated to non-local individuals increased substantially Under Tswana customary law, the establishment of a borehole or well provides a person with de facto rights over the grazing surrounding that water point What has happened in the Dobe region, therefore, is a shift from a situation in which !Kung hunter-gatherers had control over land to one where cattle owners have appropriated an increasing share of the region. If plans are put in place where the land is divided into ranches over which individuals and groups can obtain leases, there is a distinct possibility that many !Kung will be dispossessed of their land rights

Impact on Resources and Sustainability

In the 1960s, the Dobe !Kung San were some of the more isolated people to be found in northern Botswana. Hunting and gathering was a primary source of food. Assessments of the subsistence returns of !Kung revealed that they were obtaining sufficient resources to meet their needs Offtake rates in general were sustainable, although some species may have been affected adversely by foraging pressure (e g ostriches)

There are indications that this situation has changed considerably since the late 1960s Subsistence hunting and gathering has become more difficult, in part because of overgrazing of the area by livestock and the reduction of wildlife due to habitat changes and hunting pressure Population sizes have expanded, and there are more firearms and horses in the area, which has increased hunting efficiency Wage employment opportunities have also

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increased, and many young adults prefer prefer earning cash to learning and utilizing foraging techniques The long-term viability of hunting and gathering as a strategy, therefore, has declined significantly.

In 1965 a fence was built along the unguarded international border of Botswana and Namibia. Many !Kung San worked for the government in building that fence Since this fencing limited access to the western hunting area (as well as limiting game movement in the area), some !Kung San emigrated to Tsumkwe, a South African government settlement station established in Namibia in 1959-60, 50 km west of the Dobe area.

Changes in the degree to which !Kung participate in foraging and food production can be seen in the Dobe area. During a high rainfall period of 1967 to 1970 many San planted and harvested crops of maize, sorghum, and melons But they returned to hunting and gathering in the dry years of 1972-73 By the mid-1970s, hunting and gathering was on the decline again as people moved increasingly into pastoralism, agriculture, and wage labor

Autonomy and Decentralization

The Dobe !Kung San are not autonomous Their access to land is controlled by the state, although in practice people do establish fields without asking permission from the sub-land board. They also do not have free access to wildlife resources Some species of animals are considered endangered (e g giraffe, pangolin), so they are not allowed to kill them Penalties for killing these animals were severe (fines and prison sentences) The !Kung are allowed to kill limited numbers of other animals (e g gemsbok, duiker) There were no restrictions on gathering of wild plant resources

Yellen does not go into detail about the relationships between the local !Kung groups and other people (e g Herero) in this study These relationships potentially have great significance, such as in cases where !Kung are given rifles to hunt for other people It is also difficult to tell from the study whether the other groups in the region intervened actively to influence the !Kung's patterns of resource use Taking people out of the labor force and pressing them into service as herders or agricultural workers, for example, would have definite impacts on the viability of foraging among !Kung groups

Another topic of concern relates to the degree of authority which local people have over resources While Botswana government rural development policy holds that people should be allocated sufficient land to meet their needs, it is not clear whether this has been followed in the Dobe area. Some !Kung complained that they were not given rights over pans and surrounding land when they made formal applications to the Tawana Land Board.

The extent to which the !Kung have the opportunity to participate in the making of operational rules regarding land and resource management is unclear At the time of Yellen's study, there were no !Kung in the Ngamiland District Council, nor were there any !Kung headmen recognized as having authority by the Batawana tribe

Since the time of Yellen's study, the Botswana government has encouraged the formation of Village Development Committees (VDCs) among the !Kung and other groups in remote areas The VDCs have no authority over land matters, but they do carry out development activities and discuss community matters at the local level The VDCs among !Kung have not been very effective at promoting the interests of their members in land and resource access

One of the intriguing aspects of Yellen's study is that it describes individual and group-level models for utilization of space This kind of model might be useful in coming up with community-based resource management schemes that pertain to different segments of a society There are already indications that families in the Aha Hills area have been asked to take part in tourism enterprises In the /ai/ai area, south of the Ahas, !Kung have sought to obtain land rights from the Tawana Land Board on the basis of group affiliation.

Unique Attributes

Perhaps the most unique aspect of this study is that it was done among a group of people who subsisted entirely on foraging This is not a common situation in Africa today. There are relatively few groups who continue to derive their subsistence from hunted and gathered foods

A second relatively unique feature is the degree of isolation of the Dobe area at the time of Yellen's study. There were no roads into the area, only sand tracks which had to be negotiated by four-wheel drive vehicles Population densities were very low by African standards

Finally, the nature of the land tenure system in the Dobe region has changed significantly since the time of Yellen's study While group members had relatively unrestricted access to resources within their own group's territories in the 1960s, this situation no longer prevails !Kung groups cannot hunt freely, nor can they find large amounts of plant resources very easily Although the !Kung theoretically have customary rights in the Dobe region, they have not been allocated exclusive (common law) rights over blocks of land under the new land tenure system in Botswana.

Related Literature

Lee, Richard B (1965) Subsistence Ecology of !Kung Bushmen. Ph.D. dissertation, University of California, Berkeley

Lee, Richard B (1968) "What Hunters Do for a Living, or, How to Make Out on Scarce Resources." In Man the Hunter, Richard B Lee and Irven DeVore, eds Chicago Aldine pp. 30-48.

Lee, Richard B (1969) "!Kung Bushmen Subsistence An Input-Output Analysis " In Contributions to Anthropology Ecological Essays, David Damas, ed. Ottawa. National Museums of Canada. pp 63-94

Lee, Richard B and Irven DeVore, eds (1976) Kalahari Hunter-Gatherers Studies of the !Kung San and Their Neighbors Cambridge, Massachusetts Harvard University Press

Lee, Richard B (1979) The !Kung San Men, Women and Work in a Foraging Society Cambridge Cambridge University Press

Solway, Jacqueline L and Richard B Lee (1990) "Foragers, Genuine or Spurious? Situating the Kalahari San in History "Current Anthropology 31 109-146

Wilmsen, Edwin N (1976a) Summary Report of Research on Basarwa in Western Ngamiland, Report to the Ministry of Local Government and Lands, Republic of Botswana, Gaborone, Botswana.

Wilmsen, Edwin N (1976b) "Subsistence Hunting as a Source of Income for Bushmen at /ai/ai in Northwestern Ngamiland." In Appendix 23 of The Rural Income Distribution Survey in Botswana 1974- 75, Central Statistics Office Gaborone, Botswana. Government Printer

Wilmsen, Edwin N (1989) Land Filled with Flies A Political Economy of the Kalahari Chicago University of Chicago Press

Yellen, John E. (1976) Archaeological Approaches to the Present. Models for Reconstructing the Past. New York: Academic Press

Yellen, John E (1990) "The Transformation of the Kalahari !Kung." Scientific American 262:96-105.

Yellen, John E. (1991) "Small Mammals. !Kung San Utilization and the Production of Faunal Assemblages." Journal of Anthropological Archaeology 10(1):1-26

16. The Okavango Fisheries Socio-Economic Study

by Else and Yvonne Merafe Skjonsberg

Summary

This study focuses on the socioeconomic conditions related to the subsistence and commercial fisheries in the Okavango region of Ngamiland in northern Botswana Two previous reports undertaken by NORPLAN A/S involved an assessment of the status and development strategies of Botswana fisheries and an examination of fishing technology, processing, and marketing Skjonsberg and Merafe (1987 2) state that, "A major objective was to highlight how standards of living in the Okavango 'catchment' area could be improved through the upgrading of the present fishing efforts " Furthermore, the investigators wanted to view the development of fisheries in the context of local economic and political systems

The investigative team spent approximately three weeks in the Okavango region They gathered information through informal surveys and interviews with men and women engaged in commercial and subsistence fishing, as well as fisheries staff and representatives of local governments, Community Development, Land Use Planners, Agricultural Demonstrators, and the Food Resource Department.

The fisheries resources of the Okavango region have attracted recent attention due primarily to drought, overgrazing, and economic collapse in 1985 involving loss of employment in the South African gold mines At the time of the study, it was believed that the Okavango Swamp contained relatively untapped reserves of fish Local technology based on dugout canoes, floodplain traps, baskets or funnel traps, gillnets, cast nets, and hook and lines were thought to pose little threat of overexploitation In addition, the nature of the swamp itself was seen as an obstacle to overuse by commercial fisheries

The Okavango floodplain system consists of a large interior delta (3,120 square kilometers) surrounded by swamplands that cover from 10,000 to 16,000 square kilometers Water that drains from this swamp system enters the Boteti River and later rejuvenates Lake Ngami and Lake Xau Floodwaters from the Angolan highlands achieve highest levels in the upper reaches of the delta during December and during June and July in the lower delta.

The cyclical pattern in water levels from north-to-south supports fishing throughout the year Fish catch size varies inversely with water levels During flood, fish migrate to shallow, reed-filled waters to spawn The lower delta serves as a hatchery for the system while the upper delta provides refuge during the dry season The fish retreat to large pools and deeper channels as swamp waters recede

Fish stock density is relatively low in the Okavango system when compared to other sub-tropical and tropical floodplain environments (Fox 1976 125) Although there are more than 80 species of fish in the Okavango Swamp region, only 19 species are valuable commercially Fox (1976) attributes this relatively low density to habitat instability, nutrient deficiency, and/or predator imbalance Nutrient deficiency results from oxygendepletion in reed choked areas In the delta region fish communities are dominated by three spot bream (Tilapia andersoni) and red-breasted bream (T melanopleura) Tigerfish (Hydrocynos vittatus) and mudsucker (Labeo lunatus) are taken by fishermen in the upper delta. Catfish (Clarridae) are also a relatively important game fish Fish yields vary from one metric ton per subsistence fisherman to 20-25 metric tons (wet weight) for commercial fishermen Interestingly, Fox (1976) points out that fisheries productivity increases near swamp margins adjacent to grazing lands used by domesticated livestock (i e , cattle)

In 1980, the Food Resources Department of the Botswana Government began to purchase salted fish from local fishermen in Ngamiland. This fish purchasing program was to serve two primary purposes First, the area had been struck by severe drought and needed a source of income At that time, less than 6% of Ngamiland's population were involved in a cash economy Second, salted fish resources were distributed through a government

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nutrition program to people exposed to nutritional risks, specifically mothers and children. In 1986-87, approximately 40 tons of salted fish were distributed by this program at clinics, schools, and mobile health stops In 1987, more than 50% of the population in this region received food rations from the Botswana government.

Food processing and storage techniques were important topics of consideration in the study Local fishing groups have used several different methods for processing and preserving fish from the Okavango Salted fish sales have risen sharply from a single Small Project Fund (AE-10) group (1 fish seller) in 1981 to 6 (154 fish sellers) in 1986-87 (the authors reversed these figures in Table 2) Total fish purchases in 1987-88 equaled 92,000 Pula. Sixty-three fishermen (63/158 or 40%) earned less than 200 Pula each in 1986/87

One source of risk, however, for the region's fishermen and women is the need to import salt. This salt currently is distributed by the Fisheries Unit of the Ministry of Agriculture Fresh fish sales in the region are very limited due to high perishability and limited marketing capabilities Smoked fish also has a relatively short shelf life (ca. 1-2 weeks) This technique apparently could be improved and the storage time for smoked fish could be extended (Skjonsberg and Merafe 1987 42)

In 1983, the Botswana Government initiated a grants program to encourage individuals to begin to fish, to increase their fishing and marketing skills, and to improve their equipment. The target group for this program included an estimated 20-30 commercial fishermen, 760 semi-subsistence fishermen, and between 2,000 to 4,000 women and children who procure fish in the Okavango Two hundred and eighty-four fishermen received Financial Assistance Policy (FAP) grants that were designed to provide economic aid to small scale producers The Fisheries Unit informed fishermen about the grant program, provided training in advanced fishing and processing methods, administered the grants, provided salt and purchased salted fish, assisted in gear maintenance, and delivered salted fish to clinics, schools, and health stops

Each FAP grant applicant was required to attend fisheries training courses and to supply 30% of the total equipment costs Approximately 66% of the FAP grants ranged between 490-600 Pula for fishing equipment. Within 4 years, the Fisheries Unit managed to attract 300 fishermen from more than 40 locations throughout the Okavango, particularly the eastern banks

The AE-10 (Small Projects) funded groups met with little long-term success Several reasons given for their failure include lack of equipment maintenance, exclusion of women (wives) from groups and fish camps, and preference for solitary fishing The authors also point out that fishing group payments for salted fish were frequently delayed for more than 3 months

The study identified six risk factors associated with fisheries in the Okavango These risks included. disappearance of wetlands, threats posed by hippos and crocodiles, reluctance to travel on major swift watercourses, net damage by crocodiles, theft of nets, and the need for salt to preserve fish A factor affecting fishing success is the degree to which people are able to balance their fishing activities with their other labor requirements (e g herding, crop production)

The report notes the importance of having access to appropriate technology for catching and for processing fish Making this technology more widely available would be a positive step in promoting fish production. Other proposals included subsidized purchases of low cost gillnets, development of improved smoking methods for fish preservation, and expansion of local markets for smoked fish

Access, Control, and Sustainability of Natural Resources

This study does not provide specific information regarding access to fish resources in the Okavango region Skjonsberg and Merafe (1987 56) state "Generally fishing grounds are open to everybody, but territoriality seem[s] to develop in areas that have been fished by certain groups or families." Commercial fishermen must be relatively

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mobile throughout the annual cycle due to fluctuations in water levels and the dramatic expansion and contraction of fishing grounds in the region The seasonal dynamics of the Okavango Delta and adjacent wetlands probably mitigates against the establishment of strictly defined territories Fishing equipment is owned individually, with the exception of some boats and nets which AE-10 groups have gotten

No mention is made of the need to obtain fishing permits or licenses Fishermen who apply for FAP grants or AE-10 (Small Projects Funded Groups) financial assistance must participate in fisheries training courses offered by the Fisheries Unit. Fishing activities in the Okavango region are controlled to a limited extent by the Fisheries Unit since the government provides financial aid, mandatory training, equipment (gillnets, boats, motors, etc), salt and salting pans, and a market for salted fish

Sustainability of subsistence and commercial fishing in the Okavango region is tied closely to the ecological dynamics of this vast riverine and lacustrine system Based on general estimates of fish productivity for African riverine systems, the authors propose that the Okavango system may produce 5,000 tons/yr Standing crop for the Okavango Delta itself vary between 100 to 700 kg/ha. The authors suggest that a "conservative" estimate of annual fish catch equals 8,000 metric tons Skjonsberg and Merafe (1987 51) base these annual yield estimates on the entire area of the Okavango system (ca. 10,000 square kilometers) Yet, they state that fish populations are unstable from year to year in the river floodplain, the Lower Delta, draining rivers, and Lake Ngami (1987 50) It would, then, be a mistake to assume that fisheries in the Okavango could sustain annual fish catches equaling 8,000 metric tons

Ultimately, annual yield estimates must be based on better quantitative studies Fisheries will ultimately be regulated in accordance with Liebig's Law of the Minimum, long-term cropping rates should perhaps be based on minimal productivity levels set by seasonal and interannual variations in regional precipitation Furthermore, management practices related to wild and domesticated animal populations play a significant role in the sustainability of the fisheries resources Increased human predation on elephant and hippopotamus populations adversely affects channel development and maintenance On the other hand, increased numbers of domestic livestock along the margins of the Okavango may serve to enhance fish production (Fox 1976 56)

Autonomy and Decentralization

The productive resource (fish) is considered to be a common property resource, however, individual groups and sub-groups within the Okavango did lay claim to areas where they obtained fish and other wild foods In practice, most individuals and groups did not pay much heed to traditional fishing territories

The administration of fisheries in the Okavango is done by the Fisheries Unit, which is under the Division of Animal Production in the Ministry of Agriculture Land administration is in the hands of the Tawana Land Board, a statutory body which allocates land or grazing, arable, residential, and business purposes If a fishing group wished to set up a commercial operation that required a plot of land, it would have to approach the Land Board. It would also have to seek support from the local chief's representative or ward head. By and large, however, most fishermen tend to be autonomous in terms of their fishing activities

It is interesting to note from the Okavango fisheries study that those people who received the most extension assistance and credit, the AE-10 groups and especially the individual fishermen receiving Financial Assistance Policy (FAP) grants, did not necessarily become successful fishermen There were other factors that affected the viability of their fishing and income generation activities These factors included availability of equipment, skill levels and training, and access to markets Unfortunately, there has been no systematic follow-up of FAP grant recipients to determine reasons for variance in success rates (Skjonsberg and Merafe 1987 24)

The AE-10 fishing groups have had problems, of the initial seven fishing cooperatives set up, only one, Etsha 13, continued to function reasonably well at the time of the study Some of the problems the cooperatives faced were

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institutional, in one case, the members could not come to agreement on how to share the one remaining boat that they had after the other was crushed by a hippo. In other cases, group members preferred to fish individually rather than as part of a group Low profit margins and heavy dependency on Fisheries Unit support are two other constraints faced by the groups

Another issue is that only men have formed AE-10 groups, Skjonsberg and Merafe (1987.26) note that group constitutions "actively exclude women." Two of the groups said that this restriction was an obstacle to their fishing performance Women do participate in fishing, the fishing done by women using baskets is often conducted in groups ranging in size from a few individuals to entire villages A major constraint to women becoming more involved in commercial fishing was that they did not own mekoro (dugout canoes)

Information on the structure and organization of the fishing groups and decision-making is relatively limited. There are local fishing committees in the Okavango which are made up primarily of fishermen and sometimes prominent individuals in the local communities (e g the Chief's representative) One important observation was that the vast majority of fishermen tend to be older people, often over 50 Information is usually transmitted to these individuals by Fisheries Unit staff on an individual basis

One suggestion made by Skjonsberg and Merafe (1987 36) was that more information be imparted to people through village (kgotla) meetings This strategy would ensure not only wider dissemination of information but would also help elicit support from community leaders and elders Greater communication between extension officers and fishermen was considered crucial Thus, a combination of greater participation, more consultation, closer monitoring of individuals and groups involved in fishing, increased involvement of women, and institutional strengthening would help provide fishermen in the Okavango with greater chances for success

Unique Features

A unique feature of the Okavango Delta is its low diversity in fish and low nutrient levels which result in low primary production A relatively small percentage of the population can be considered active fishermen, unlike other major wetland areas in Africa (e g the Bangweulu Swamps in Zambia) One reason given for this situation was the diverse nature of the economic systems of Okavango residents Another reason is that the areas where fishing is good are relatively limited.

Significant changes occur seasonally and over the long term in the Okavango Delta. The drying up of major bodies of water related to the Okavango system (e g Lake Ngami) has had significant effects on fishing productivity in the region

Related References

Bernacsek, G M. (1-984) "Approaches to Analyzing the Relationship between Catch and Effort in Tropical Artisanal Estuarine Fisheries Using the Example of Tanzania." In Management of Coastal Lagoon Fisheries, James M. Kapetsky and George Lasserre, eds Rome Food and Agriculture Organization pp 197-213

Bertram, C.K.R., J.J H. Borley, and E Trewavas (1942) Report on the Fish and Fisheries of Lake Nyasa. London: Crown Agents for the Colonies

Campbell, A.C (1976) "Traditional Utilization of the Okavango Delta." In Proceedings of the Symposium on the Okavango Delta and Its Future Utilization, pp 163-173. Gaborone Botswana Society

Fox, P J (1976) "Preliminary Observations on Fish Communities of the Okavango Delta." Proceedings of the Symposium on the Okavango Delta and its Future Utilisation, pp 125-130 Gaborone Botswana Society

Gilmore, K. S (1976) "Development Potential and Constraints of a Fishing Industry in the Okavango Delta." Proceedings of the Symposium on the Okavango Delta and its Future Utilisation, pp 175-178 Gaborone Botswana Society

Gilmore, K.S (1979) "An Investigation into the Decline of the Yambezi Fisherman's Cooperative Society." Botswana Notes and Records 11 97-102

Landberg, Leif C W (1975) Men of Kigombe Ngalawa Fishermen of Northeastern Tanzania." Ph.D dissertation, University of California, Davis, California.

Poewe, Karla 0 (1976) Religion, Kinship, and Labor in Luapula. Prosperity and Economic Stagnation of Lake and River Fishing Communities Ph.D. dissertation, University of New Mexico, Albuquerque, New Mexico.

Scudder, Thayer (1960) "Fishermen of the Zambezi " Human Problems in Central Africa 27.41-49.

Thompson, K. (1976) "The Okavango Delta and its Future Utilisation An Attempt at a Synthesis of the Proceedings " Proceedings of the Symposium on the Okavango Delta and its Future Utilisation, pp 3-12 Botswana Society, National Museum, Gaborone, Botswana.

United Nations Development Program (1976) Investigation of the Okavango Delta as a Primary Water Resource for Botswana Two Volumes Gaborone UNDP

UNM Kalahari Project (1987) "Botswana. Fishermen of the Two-Way River." Cultural Survival Quarterly 11(2) 35-39

17. An Investigation into the Decline of the Yambezi Fisherman's Co-operative Society
by K.S. Gilmore

Summary

Gilmore's paper documents the formation of the Yambezi Fisherman's Co-operative Society (YFCS) in the village of Satau in the Chobe District of northern Botswana This fishing cooperative was, in part, modeled after previous livestock cooperatives in Botswana, as well as the Yambezi Fishermen's Association that had formed during the late 1960s Operating funds for this early cooperative had been based on a tax paid for each fish caught Apparent mismanagement of these funds led to the demise of this initial cooperative enterprise

The Yambezi fishing cooperative was created in 1973 and bye-laws were approved by 115 charter members (50 active members) These bye-laws established the following goals 1) to promote and to market members' fish and fish products, 2) to assist in product improvement, 3) to arrange fish sales and to provide for requisite needs in production and processing, 4) to market basic foodstuffs in bulk to members, and 5) to encourage thrift and cooperation among members Funds for this operation were also raised via a levy imposed on numbers of fish caught.

Unlike the previous effort, the finances of the Yambezi Fishermen's Co-operative Society (YFCS) were managed by the Fisheries Section of Botswana's Ministry of Agriculture The Fisheries Section also provided a building and transportation, as well as practical advice and business management training Gilmore suggests that co-op members did not fully understand the implications of these bye-laws Community interest waned and active membership and attendance declined markedly between 1973 and 1976 Many members failed to pay levies placed on fish catch size and a number of the co-op members marketed their fish to Rhodesian fishmongers instead of to established co-op markets

It would appear that members of the fishermen's cooperative did not commit themselves to the principles outlined in the bye-laws Cash economies, markets, and non-kin based associations frequently create an over-riding interest in personal profits and mistrust in working with individuals that have little obligation to reciprocate

An additional problem was that the Fisheries Section of the Ministry of Agriculture was disbanded, their key role in administration and training dissolved, and supervision was transferred to the Department of Co-operative Development This lack of continuity in administration can also be seen as a contributing factor in coop member mistrust and lack of commitment Gilmore also points out that needed continuity and support for such co-operative efforts is difficult in Botswana due to geographical isolation and remoteness of villages such as Satau

Furthermore, the Yambezi Fishermen's Co-operative Society also was affected by several significant, interrelated environmental, economic and political factors First, Lake Yambezi covers more than 10,120 hectares, yet less than 400 hectares or 1 percent of the lake is situated within Bostwana's northern border The relatively shallow fringes of Lake Yambezi are subject to dramatic fluctuations in water depth and surface area Fish production declined in Lake Yambezi during the late 1970s Such a decline can perhaps be related to overfishing but the author suggests that it was more likely caused by the spread of floating aquatic weeds, particularly Salvinia molesta This aquatic weed supposedly reduces oxygen availability in the water column No explanation is given for the expansion of this plant, however, it has been introduced to a number of African lakes and has been the focus of an international control program in the region

Potential fishing areas declined as the result of political activities In 1972, armed patrols from the Caprivi Strip confiscated the boats and equipment of 26 Yambezi fishermen These patrols greatly restricted fishing activities based in villages in northern Botswana. Fishing areas surrounding small islands along the western edge of the lake have traditionally been productive This area was apparently made relatively inaccessible by Namibian patrols

Finally, Zambian Markets for fish collapsed as a result of economic recession. Prior to 1975, Zambian fish-mongers brought trucks of ice to the lake shores where they purchased the fish catches of the Yambezi Fishermen's Co-operative Society. Members of the YFCS had limited marketing alternatives, especially for fresh fish.

Access, Control, and Sustainability of Natural Resources

Although little information is offered regarding access to and control of the fish resources of Lake Yambezi in northern Botswana, we do see that political disputes regarding the Caprivi Strip (Botswana versus Namibia) played a significant role in the demise of the YFCS Access to the productive fish resources surrounding the western islands in the lake was quite central to sustaining a viable fishing enterprise in this region

It may also be that commercial fisheries in a number of the eastern and southern African lakes must maintain access to relatively large areas in order to insure use of core areas that are not threatened by water level changes In this case, access and control of fish resources involves two countries that have been engaged in warfare The economic risks associated with commercial fishing in this particular case were exacerbated by the fact that the major market for the fish involved a third country, Zambia.

Sustainability of fisheries resources in lakes like Yambezi and Ngami (Botswana), as well as swamp systems like the Okavango (Botswana) and the Bangweulu (northern Zambia) requires further investigation In these aquatic environments, fish catch size varies inversely with water level Marked seasonal fluctuations in water depth and lake size are also related to changes in fish density, nutrient inputs, water column stability, and nutrient content Instability in ecological systems is generally correlated with productivity Paradoxically, the environmental instability that enhances ecological productivity may also produce greater risks related to variation in fish catch, predictability of fish location, and so forth

Autonomy and Decentralization

The Yambezi Fishermen's Co-operative Society was made up of members from several Chobe District communities (Satau, Parakurungu, Yambezi, and Mazunawe), with the administrative center of the cooperative in Satau Co-operative funds were kept in the district capital at Kasane Assistance was provided by the Fisheries Section of the Ministry of Agriculture, which offered training in the principles of cooperative management and technical assistance

As Gilmore (p 98) notes, from the beginning the liaison between the government's Fisheries Section and the Yambezi Fishermen's Co-operative society was "more than advisory " Subsidies were provided by the government in the form of transport and fishing inputs The disbanding of the Fisheries Section led to problems within the co-operative, in part because of the dependency relationship that had been created Participation in co-operative activities declined between 1973 and 1976, as did the economic returns from levies

One of the reasons the community failed was, according to Gilmore, because the members had a genuine lack of understanding as to how a co-operative should function Many members believed that the co-operative was simply an extension of the Fisheries Section There were also internal political dynamics, including distrust of those who assumed leadership roles The withdrawal of support from the Fisheries Section essentially undercut the co-operative, leaving the members to try and make it on their own Eventually, the community support for the cooperative was withdrawn, and the cooperative faltered The decision to expand the YFCS into a consumers co-operative society in 1977 renewed flagging interest in the co-op

Related References

Fox, P J (1976) "Preliminary Observations on Fish Communities of the Okavango Delta. Proceedings of the Symposium on the Okavango Delta and its Future Utilization, pp 125-130 Gaborone, Botswana. Botswana Society, National Museum, Gaborone, Botswana.

Jansen, R.H , Th Riezebos, et al (1990) The Chobe Enclave Development Profile and Land Evaluation, Final Report. Utrecht, The Netherlands University of Utrecht and Gaborone, Botswana. Ministry of Local Government and Lands

Sir M. MacDonald and Partners (1989) Prefeasibility Study of the Agricultural Potential of the Chobe Enclave Final Report. Cambridge, England. Sir M. MacDonald and Partners and Gaborone, Botswana. Ministry of Agriculture

North West District Council (1990) Chobe Enclsave Land Use and Development Plan (1989-1995 Maun, Bostwana. North West District Council

Thompson, Keith (1976) "The Okavango Delta and its Future Utilization. An Attempt at a Synthesis of the Proceedings " in Proceedings of the Symposium on the Okavango Delta and its Future Utilization, pp 3-12. Gaborone, Botswana. Botswana Society

Gilmore, K. S (1976) "Development Potential and Constraints of a Fishing Industry in the Okavango Delta." In Proceedings of the Symposium on the Okavango Delta and its Future Utilization, pp 175-178. Gaborone, Botswana. Botswana Society

Ichikawa, Mitsuo (1985) "A Comparison of Fishing Strategies in the Bangweulu Swamps". African Studies Monographs 4 25-48

Skjonsberg, Else and Yvonne Merafe (1987) The Okavango Fisheries Socio-Economic Study Report Commissioned by the Ministry of Agriculture, Botswana and the Ministry of Development Cooperation, Norway (Gaborone, Botswana and Oslo, Norway)

18. Socioeconomic and Environmental Impacts of International Tourism among Kalahari San

by Robert Hitchcock

This paper assesses the cultural, economic, and environmental effects of tourism among San populations in the Kalahari Desert region of Botswana and Namibia. As the pace of development in the Kalahari has increased, a variety of suggestions have been put forth that are geared toward increasing incomes, enhancing employment, and promoting conservation One such suggestion is the expansion of tourism activities which local people can benefit from more than they have in the past.

Much of the tourism in Botswana is wildlife-related Visitors come to Botswana frequently to visit national parks, game reserves, and national monuments More land has been assigned park or reserve status than in any other country in southern Africa. Data on land zoning in Botswana reveal that a total of 101,335 square kilometers have been set aside specifically for these purposes These areas represent a wide variety of habitats including wetlands, pans, forests, and open savannas

Some of the areas where rural communities in Botswana exist are in land defined as Wildlife Management Areas (WMAs) WMAs are regions where wildlife utilization and management represent the primary forms of land use According to the various policy papers on WMAs by the Department of Wildlife and National Parks and the Botswana Government's white paper on Wildlife Conservation Policy (1986), people in rural areas will be encouraged to utilize resources sustainably in these areas As the white paper notes, special emphasis will be placed upon wildlife-related development activities, including tourism, the improvement of hunting skills, enhancement of processing abilities, wildlife domestication, and game ranching

Regulations are being drawn up by the Botswana government which will stipulate the kinds of activities that can be carried out in WMAs Types of land use which might jeopardize the environment and especially wildlife resource will either be limited or not permitted The districts are making decisions as to whether or not people will be allowed to remain in the WMAs It is also open to question whether or not they will be allowed to keep livestock there

Thus far, seven districts have set aside land for WMAs, with about 20 percent of the land area in the country having been zoned as WMAs The breakdown of the various WMA's by districts is as follows: Chobe Nunga (2,234 km^2) and Masama/Kanyu (12,938 km^2), Central Tamafupa (11,138 km^2) and Kedia (3,234 km^2), North West. Ngamiland (22,440 km^2), Ghanzi Groot Laagte (3,908 km^2), Matlho-a-Phuduhudu (8,816 km^2), and Okwa (13,618 km^2), Kgalagadi Kgalagadi (34,481 km^2), Kweneng (6,075 km^2), Southern Western Ngwaketse (2,672 km^2) The total amount of land zoned as WMAs in Botswana as of mid-1991 is 121,546 km^2 None of these areas has been gazetted officially by the government of Botswana

Part of the reason for the fact that no WMAs exist on the ground is that the processes of planning and consultation have been relatively extensive, and the DWNP has had to spend considerable amounts of time talking to District Councils and Land Boards Some of the district meetings indicated that there continues to be an element of concern among some some individuals who feel that there may be insufficient amounts of land available for communal purposes if the present plans for commercial ranches and WMAs are implemented Questions have also been raised as to who would manage and oversee the WMAs Most district land boards feel that they are too short-staffed to take on additional responsibilities

Discussions at both national and district level reveal that there may be some potential problems with some of the ways in which the WMA concept has been envisioned One example can be seen in the position of DWNP, which has stated that the boundaries of the areas designated for communal activities within WMAs would be determined on the basis of land in current use for those purposes This stipulation essentially would prevent the expansion of

land use activities that would be required as population grows around settlements

Resistance to the WMA concept at the local level has come about in part because of the stipulations that (1) seasonal grazing of livestock by non-local people would not be permitted in these areas, and (2) no new development of permanent water points would be permitted in a WMA. These restrictions all have implications for the potential of promoting community-based resource management, especially tourism, in the WMAs

One suggestion by several San communities in the Ghanzi District of western Botswana (Chobokwane, Hanahai, and Goo'n Laagte) was that game ranching be attempted as a means of encouraging tourists to visit their communities In 1989, three ranches were allocated to the communities by the Ghanzi District Council Subsequently, however, the Ghanzi District Council's decision was reversed by the Ministry of Local Government and Lands Eventually, the ranches were allocated to rural people, but the three communities who had requested them originally were told that they could not have exclusive rights to them

Other development personnel have noted the availability of handicrafts as a means of generating income in rural Botswana communities Non-government organizations such as Gantsicraft are purchasing crafts in remote areas, and tourists are also buying crafts in places such as Tsodilo One community in western Botswana, Ukwe, sold over P10,000 worth of crafts in a single visit by Gantsicraft. Remote Area Development Program (RADP) personnel have encouraged people in local population centers to expand production of such items as wooden chairs, stools, and other items for sale to tourists in order to raise income levels In a few cases, Rural Industrial Officers (RIOs) and Business Advisors working with the RADP have held small-scale workshops and training activities for local people in order to assist them in improving the quality of their products Again, remoteness from markets has meant that the costs of these items have ended up being prohibitive

Another area where tourism was recommended as a strategy was the Central Kalahari Game Reserve In 1985, the CKGR Fact Finding Mission recommended that the Department of Wildlife and National Parks take steps to tap the tourism potential of the reserve One way to do this, it was noted, was to expand the number of San game scouts

Most of the tourists who visit the CKGR note that they wish to see wildlife in a relatively undisturbed habitat Some of them have been attracted to the region because of the attention that has been paid to it in both scientific and popular books, articles, and films Others come because they wish to see "unacculturated hunter-gatherers " Some tour operators take their clients up through Khutse Game Reserve to the remote area dweller settlements of Kikao, Menoatshe, and Metseamonong Some tourists also came in from Ghanzi to the west and visited the !Kung settlement at Xade Botswana government figures indicate that there were 181 tourist vehicles in 1986 and approximately 300 in 1987 (Department of Wildlife and National Parks information) It is important to note that a number of these tourists visited the CKGR expressly to "see Bushmen "

Cultural tourism is having increasing impacts in Botswana. The problem is that the local people generally are not benefitting greatly from the expansion in tourism numbers in their areas No rural communities at present have any agreements with safari or tourism companies to get fees from tourism At the same time, those communities that do have large numbers of tourists complain that they get few jobs and that the tourists overexploit local resources such as firewood In addition, San do not like having to change their clothing for tourists who wish to take photographs of "traditional Bushmen "

One of the difficulties with expanding tourism in the Central Kalahari is the relatively underdeveloped nature of the infrastructure there The roads are usually sand-choked tracks that are sometimes hidden by high grass growth The grass itself poses a danger to vehicles, since it sometimes catches fire, and trucks have been burned out completely, leaving the occupants to wait for rescue or to undertake extensive treks to settlements or the game scout camp at Khutse There are few patrols by the Department of Wildlife and National Parks which could provide assistance to tourists, and many of the DWNP vehicles do not carry spare parts or sufficient extra fuel or

water to supply to people who get into trouble The maps of the area are extremely rough, and numerous changes have occurred due to the drought and the expansion of mining exploration and other kinds of human activities in the region An additional problem relates to the nature of the animals in the region. many of the predators have had difficulty during the drought, and some of them could pose threats to humans unless extreme caution is exercised. It is clear that extensive preparatory work will have to be undertaken by the government before the CKGR can be considered safe for expanded numbers of tourists

One of the problems with tourism in the Central Kalahari is that it is being used as a reason for people being resettled outside of the reserve Discussions have been held with reserve residents in an attempt to convince them of the efficacy of moving to new areas Several reasons were given by government officials to CKGR residents as to why the resettlement was necessary First of all, they noted that the move would help ensure conservation of the resource base in the reserve Secondly, they argued that it would enhance the tourism potential of the region A third reason given by government officials for removal of local populations was that it would enable them to have direct access to development assistance

It has been suggested that an underlying reason for the decision to remove people from the reserve was to respond to the interests of environmentalists who were pressuring the European Economic Community to withdraw financial support for Botswana unless greater efforts were made to conserve wildlife and other natural resources A second suggestion is that the mining companies wish to have complete access to the reserve for mineral exploitation purposes, and it would be easier to have people out of the way in order to carry out their operations A third suggestion is that some individuals in Botswana feel it important to "villagize" remote area dwellers and thus bring them into the mainstream of life in the country Finally, a few people have suggested that livestock owners would like to see large portions of the reserve de-gazetted, they would then be turned into communal areas, and new cattle posts could be established in these areas

Whatever the reasons behind the decision to resettle people outside the reserve, attention must be paid to the potential impacts of population relocation There is a danger that the removal of people from their ancestral lands could serve to erode their socioeconomic status Assessment of the areas surrounding the reserve reveal that there are few, if any, places that are unclaimed by other groups or individuals Special efforts will have to be made by the Land Boards in Botswana to adjudicate land claims prior to any decision to move people District Councils will also have to see to it that economic assistance is provided to people who are relocated so that they are able to sustain themselves in their new areas

Access, Control, and Use of Resources

This study shows that although in theory San have rights to land, in fact they do not have security of tenure. No San communities have leases, and even those situations where leases were promised, as in the case of the three Ghanzi farms, the decision to allow them to have the land was reversed. There are also numerous cases in the Kalahari where San have been told that they have to move to new areas

It is also apparent that increased numbers of tourists will have significant environmental impacts. In the Okavango Delta and parts of the Kalahari, large amounts of trash and serious firewood depletion are evident. San say that they have no control over the numbers of tourists visiting their areas, which is one of the reasons that they want exclusive rights to blocks of land in WMAs and communal areas

Overall, rural communities in Botswana do not have sufficient control over land to be able to start community-based tourism projects Without this control, the chances for their benefitting from increased tourism are small.

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Autonomy and Decentralization

At present, it cannot be said that San communities are autonomous in the sense that they can make decisions about where they want to live and which areas they wish to collect resources in Hunting is restricted to specific Controlled Hunting Areas (CHAs) and people must have licenses in order to hunt. Collecting of resources such as grapple plant is controlled by the Agricultural Resources Board (ARB), and again people must have permits in order to exploit these resources

Without further steps being taken toward allowing San and other rural communities in Botswana to have land and resource access rights, the chances of establishing a viable community-based resource management system are minimal.

Related References

Almagor, Uri (1985) "A Tourist's 'Vision Quest' in an African Game Reserve. Annals of Tourism Research 12(1) 31-47

Borge, Lila, William C Nelson, Jay A. Leitch, and F Larry Leistritz (1990) Economic Impact of Wildlife-Based Tourism in Northern Botswana. Agricultural Economics Report No 262 Fargo, North Dakota. Department of Agricultural Economics, North Dakota State University

Campbell, A.C (1990) The Nature of Botswana. A Guide to Conservation and Development. Gland, Switzerland. International Union for the Conservation of Nature and Natural Resources

Campbell, A.C and W von Richter (1976) "The Okavango Delta and Tourism In Proceedings of the Symposium on the Okavango Delta and Its Future Utilisation Gaborone, Botswana. The Botswana Society. pp 245-247

Domestic Technology International (1991) Botswana Low Impact Eco-tourism Development Plant. Report to the U S Agency for International Development (USAID), Washington, D C pp 38

Ecosurv (1988) Field Investigation into the Makoro Industry Report to the Kalahari Conservation Society, Gaborone, Botswana.

Fowkes, J D (1985) The Contribution of the Tourist Industry to the Economy of the Republic of Botswana. Report to the Kalahari Conservation Society, Gaborone, Botswana.

Gordon, Robert (1990) "The Prospects for Anthropological Tourism in Bushmanland." Cultural Survival Quarterly 14(1) 6-8

Hitchcock, Robert K. (1990) "Tourism and Sustainable Development among Remote Area Populations in Botswana." In Tourism in Botswana, Linda Pfotenhauer, ed. Gaborone, Botswana. The Botswana Society pp. 161-172

Hitchcock, Robert K. (in press) "Socioeconomic and Environmental Impacts of International Tourism among Kalahari San " In International Tourism and Cultural Geography, a special issue of Journal of Cultural Georgraphy, Geoffrey Wall and Klaus Meyer-Arendt, eds pp 15

Hitchcock, Robert K. and Rodney L Brandenburgh (1990) "Tourism, Conservation, and Culture in the Kalahari Desert, Botswana."Cultural Survival Quarterly 14(2) 20-24.

Johnson, P G. (1976) "Wildlife as a Basis for Future Tourism Development." In Proceedings of the Symposium on the Okavango Delta and Its Future Utilisation, Botswana Society, ed. Gaborone, Botswana. The Botswana Society. pp 235-243.

Ministry of Commerce and Industry (1989) Tourism Policy in Botswana. A Draft Paper Produced for Purposes of Consultation Gaborone, Botswana. Government Printer

Ouma, Joseph P.M.B (1970) Evolution of tourism in East Africa (1900-2000). Nairobi: East African Literature Bureau

Pfotenhauer, Linda (1991) Tourism in Botswana. Gaborone, Botswana: The Botswana Society.

Popovic, Vojislav (1972) Tourism in Eastern Africa. Munchen Weltforum Verlag.

Republic of Botswana (1986) Wildlife Conservation Policy Government Paper No. 1 of 1986 Gaborone, Botswana. Government Printer

Snowy Mountains Engineering Corporation (1989) Ecological Zoning, Okavango Delta. Report to the Ngamiland District Land Use Planning Unit, the Ministry of Local Government and Lands, and the Kalahari Conservation Society, Gaborone, Botswana.

19. A Review of the Western Ngwaketse Wildlife Utilization Project
by Natural Resources Management Project

This report describes the western Ngwaketse Wildlife Utilization Project in southern Botswana. Established in April, 1990, the project is located in a Wildlife Management Area (WMA 40), which is 2,510 square kilometers The project is being implemented by a Botswana-based NGO, CORDE (Cooperation for Research, Development, and Education), with support from the Norwegian Agency for International Development (NORAD), World Wildlife Fund, and the Southern District Council The total amount of funding allocated to the project was P77,110 (approximately $30,000) These funds were to be used for purchase of a vehicle, tools, office, hunting, and camping equipment, saddles, and running costs

The Western Ngwaketse Wildlife Utilization Project consists of technical assistance and financial support provided to a set of rural communities in southern Botswana. Originally conceived in 1988, the project was designed to help remote area dwellers (RADs) in the Ngwaketse (Southern) District generate income and expand job opportunities The original project memorandum called for the establishment of five game harvesting units (GHUs) in western Ngwaketse These units were to be made up of subsistence hunters from the local area who would be allowed to hunt on a rotational basis Each of the hunters was to be given a Special Game License (SGL) Training in firearm usage and preparation of trophy skins was provided by the Department of Wildlife and National Parks through a short course held in August, 1990

The second component of the project was to have Village Crafts Production Units involved in handicraft manufacture and sale The resources for the crafts would be obtained either from the wildlife utilization component (e g skins) or from the local area (e g ostrich eggshell beads) These crafts would be purchased by non-government organizations, local people, or by tourists travelling through the area

The idea for the wildlife utilization project came originally from discussions between local community members and the Assistant Game Warden in Kanye Feasibility studies were then conducted by a consultant (Environmental Services Botswana) and a team from the World Wide Fund for Nature (WWF) in 1988-89 An economic evalution was done by the Department of Wildlife and National Parks in December, 1989 Funding was sought for the project from LG 32, the Remote Area Development Program of the Ministry of Local Government and Lands in 1989-90 The project is being implemented in part by an NGO in conjunction with the Eastern Ngwaketse Wildlife Committee District and local-level extension officers (e g the Business Adviser to the Remote Area Development Program) also provide assistance

The project was structured in such a way as to include a Game Extension Officer (GEO) who had the responsibility for overseeing some of the project activities Decision-making was to be done in conjunction with local people through a group of individuals drawn from the participating communities This committee, which is known as the Western Ngwaketse Wildlife Committee, is composed of eleven men, two each from the settlements of Kutuku, Thankana, Mahotshwane, Kanaka, and Itholoke, and one from Moksochudi These individuals were appointed by the headmen of their communities after a public meeting was held to explain the goals and objectives of the project by the project manager, who works for the NGO implementing the project.

The Botswana Government and USAID-supported Natural Resources Management Project was requested to undertake an assessment of the Western Ngwaketse Wildlife Utilization Project in February, 1991. A review of relevant literature was undertaken, project participants and district and central government officials were interviewed, and field investigations were carried out.

The review of the project identified a number of key issues (1) the distribution of benefits from wildlife enterprises, (2) the need for participatory planning and implementation capacity, and (3) rights of access to resources and sustainability One of the findings of the assessment team was that only a small number of people

took part, something which caused a certain amount of resentment in the area. Secondly, the degree of consultation was not as extensive as it might have been Thirdly, it was found that only two hunts had taken place, during which 23 animals were obtained (from a project quota of 795) Hunters used vehicles rather than horses or donkeys, and the effiency of firearm usage was low

Originally, the project was designed so that hunting units would range out from their settlements in pursuit of game It was found, however, that this strategy was impractical, and the hunts were mounted from Mabutsane, the sub-district center The hunters observed by the NRMP team members kept to the well-travelled tracks and fired from the backs of the vehicles, something which is illegal in Botswana. The hunters tended to fire at long range and they missed many of their targets Once they did kill an animal, butchering took place under relatively hygienic conditions No provisions were made, however, for shading the carcasses from the sun nor to prevent damage to the skins, something that lowered their value Poor shot placement also contributed to a reduction in the utility of the skins The overall conclusion was that project participants benefitted only from relatively minor income generated through sales of fresh meat. The communities in the area had yet to benefit in any significant way from the project.

Access, Control, and Use of Resources

In the past, the people of the western Ngwaketse region had relatively open access to wildlife and plant resources within their own areas This situation changed, however, with the movement into the area of Bakgalagadi agropastoralists and, later, with establishment of the Bangwaketse chiefdom The Bangkwaketse divided the land in western Ngwaketse among wardheads who oversaw allocation of grazing, arable land and water rights there The majority of the residents of the region, who were ethnically Basarwa or Balala, were not allocated land under the traditional Bangwaketse land allocation system

Access to land has continued to be problematic for Basarwa and Balala even under the post-colonial Botswana state A portion of the area to the east was allocated to individuals and small groups as ranches under the Tribal Grazing Land Policy Those people who lived in ranch areas but who did not work for the leaseholders were required to move elsewhere A similar type of situation was seen in the western Ngwaketse area. Some of the current residents of one of the settlements, Kanaku, were displaced from the area around Mabatusane, reportedly at the suggestion of the Sub-District Council there A number of the people in the area felt that their land rights were by no means secure and that they could be required to move at any time

Control of resources on a community basis in Wildlife Management Areas has yet to become a reality in Botswana. The Western Ngwaketse WMA has yet to be gazetted, so it is still possible for livestock owners to move their cattle into the area. Given the impacts of livestock on the grazing and the effects that the presence of domestic animals have on wildlife, it would seem that there is a definite need for immediate gazetting of the Western Ngwaketse WMA and promulgation of regulations concerning land and resource use

Access to resources on a communal basis is supposed to be guaranteed in tribal land areas of Botswana. One problem, however, is that rights to wildlife belong to the state In 1985, a ban on hunting was imposed in the area by the Southern District Council. The only people who were exempt from the ban were Remote Area Dwellers, some of whom were able to get Special Game Licenses on the basis of their being heavily dependent on wild resources Not everyone can get access to these licenses, something which has caused a certain amount of dissatisfaction At the same time, people with the Special Game Licenses did not have the right to transfer them to other people, thus, the hunting units could not take advantage of the fairly sizable number of animals available to the community

Impact on Resources and Sustainability

Assessments of the area within where the project was being implemented indicated that the numbers of game

animals were relatively low, so much so that some people suggested that having a culling project was not a viable idea. The game populations in the region had recovered somewhat from the drought of the 1980s, but the numbers were still not very high It was difficult to tell whether or not the project was ecologically sustainable because of the lack of high-quality data on wildlife numbers The findings of the NRM team indicated that the project was not sustainable technologically and the hunting techniques were both poorly implemented and illegal

From a socioeconomic standpoint, it cannot be said that the project was viable While a small number of hunters were able to get meat and a small amount of income from their hunts, other people in the community faced reduction in access to wildlife resources This situation resulted in resentment of the members of the wildlife committee, who were seen as attempting to enrich themselves at the expense of the community It was also felt that the project was being administered in a top-down manner and that some community members had no say in how it was managed. Economically, the project was very expensive relative to the returns produced

The institutional viability of the core feature of the Ngwaketse Wildlife Utilization Project, the wildlife committee, is, at best, uncertain Judging from assessments of the backgrounds of the members of the wildlife committee, most of them came from families who traditionally had been hunter-gatherers Only two had been to school. One of these men was appointed to be the project's bookkeeper There were indications that the members of the committee were not necessarily representative of their settlements None of the committee members were women, and it is unlikely that they were even considered for membership

Autonomy and Decentralization

The people of western Ngwaketse were affected to a significant degree by the land tenure and resource use policies of the Botswana government. There were those who felt that the imposition of wildlife regulations had negative effects on local people There were also those who had been resettled as a result of government policies and programs and who felt that they had little control over their lives

While the Botswana government stated clearly to the team that designed the Natural Resources Management Project that communities would be allowed to have control over local resources this has yet to occur Local people in western Ngwaketse cannot dictate who can and cannot have access to the resources in the areas surrounding their communities

A crucial issue in community-based resource management is the degree to which there is participatory planning and project implementation Interviews by the NRMP team suggested that not all of the residents of the various western Ngwaketse communities were familiar with the wildlife project. This situation raises a question as to how effective the consultation process was in the project area. There is also a question concerning the level of input of local community members in selecting members of the committee Some of those interviewed saw the project as something imposed by the Southern District Council or by the NGO working in the area.

There was no discussion in the report on the ways in which members of the wildlife committee enforce rules or regulate the activities of individuals The distribution of the income generated by the two hunts was also not spelled out, so it is impossible to tell whether it was done equitably or according to who actually shot the animal. A detailed study of the operation of the wildlife committee is clearly in order

A key issue in the western Ngwaketse study is how the "community" is defined. Judging from the results of the NRM study, the "community" consisted primarily of the project manager and the wildlife committee No women were involved in the project. The people who benefitted from the meat produced by the hunts tended to be the better-off members of the community In a sense, then, the project was providing a kind of hidden subsidy to already well-to-do individuals

Another issue relates to the potential for competion to increase among various land users in the region If the

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project does indeed serve to expand the viability of wildlife usage in the area, what effect will this have on livestock producers and agriculturalists? One must examine the effect of the project not only on the participants but also on the non-hunting members of the surrounding communities

Decentralization is crucial in ensuring the success of most community-based resource management projects In the case of the Western Ngwaketse Wildlife Utilization Project, most of the decisions are made by a small group of people One of the suggestions of the NRMP team was that the project be redesigned to incorporate a broader range of segments of the Western Nwaketse community Another suggestion is that women be incorporated more fully into the project's activities

The flow of information between local, district, and national level-bodies can sometimes be extremely important in providing access to data which could be useful in project management. In the case of the western Ngwaketse project, it was found that there was little communication between the committee and members of the communities as well as between the project manager and the sub-district council Having greater consultation among all those involved in the project and the management and use of natural resources in western Botswana would undoubtedly be beneficial

Community-based resource management planning should be based on detailed assessments of local people's perceptions, goals, and objectives They should also be based on a comprehensive understanding of the socioeconomic and environmental situations of the areas concerned. Rapid surveys and occasional public meetings are insufficient methods of determining what the problems and needs really are A combination of strategies, including public meetings, interviews, discussions with project personnel, examination of records, and assessment of policy papers and reports can help ensure that a thorough understanding is gained of what is happening in a project or an area.

Related Literature

Campbell, A.C (1989) Central Ngwaketse Remote Area Dwellers Socio-economic Survey, Remote Area Development, Central Ngwaketse Kanye, Botswana. Southern District Administration

Cumming, D H.M. and R.D Taylor (1989) Identification of Wildlife Utilization Projects for the Department of Wildlife and National Parks, Government of Botswana. Gaborone, Botswana. Ministry of Commerce and Industry and World Wide Fund for Nature (WWF)

Department of Wildlife and National Parks (1989) Western Ngwaketse, Southern District, Game Harvesting Project. Financial and Economic Analysis Gaborone, Botswana. Ministry of Commerce and Industry

Environmental Services Botswana (1988) Proposed Game Harvesting and Crafts Production Project. Feasibility Study Kanye, Botswana. Southern District Land Use Planning Unit.

Ministry of Local Government and Lands (1989) Project Memorandum Game Harvesting and Crafts Production Project, Remote Area Dwellers, Western Ngwaketse Gaborone, Botswana. Government of Botswana.

Murray, Mark L (1978) Wildlife Utilization and Investigation and Planning in Western Botswana. Gaborone, Botswana. Department of Wildlife and National Parks

van Swieten, Koos (1988) Southern District. In Sustainable Wildlife utilization The Role of Wildlife Management Areas, Peter Hancock, ed. Gaborone, Botswana. Kalahari Conservation Society pp. 70-72.

20. Pilot Project on Silk Production in Botswana

by Geoffrey Bailey and A.M. Ashby

Summary

This report is based on an investigation of several varieties of silk moths to determine the feasibility of their producing silk under prevailing environmental and socioeconomic conditions in southeastern Botswana The work was carried out by Tshwaragano Brigade Trust, a non-government organization, for six months between October, 1981 and April, 1982 Support for the study was provided by the U S Agency for International Development, and it was overseen by Botswana's Ministry of Commerce and Industry The main objective of the work was to assess the utility of raising silk worms as a means of enhancing employment and increasing incomes in rural Botswana.

Insects and insect products are utilized extensively by people in rural Botswana both for subsistence and cash generation purposes A potentially profitable natural resource utilization activity is the exploitation of certain species of moths which can be used for the production of silk, including Argema mimosae, the African moon moth The cocoons of these moths can be soaked in a solution of water and caustic soda, degummed, and then threads of silk extracted This silk was tested and was found to be of high quality

In the late 1970s and early 1980s, a private individual, Geoffrey Bailey, began collecting cocoons from local people in rural parts of southeastern Botswana After some initial experimentation, it was decided to undertake experimental trials with several types of silk moths, Bombyx mori, Philosamia ricini, Antheraea mylitta and Argema mimosae The work was done by a small group consisting of a consultant (Bailey), two women who served as staff assistants, and a student with an agricultural background The collection of the cocoons of the Argema mimosae, which is indigenous to Botswana, was organized through private schools in four communities, Gabane, Kumakwane, Mogoditshane, and Mochudi The trials were conducted on land that was provided for this purpose by Tshwaragano Brigades Trust in Gabane, a rural village in southeastern Botswana. The exotic cocoons were purchased from suppliers outside Botswana (e g India)

Surveys in southeastern Botswana revealed that the appropriate types of plants were available to serve as food for the exotic moth species, including castor (Ricinus communis and Ricinus africanus) and mulberry The shrubs and small trees were then replanted at Tshwaragano In general, there was sufficient leaf yield to allow cropping, although drought and goats did destroy some of the plants Local drought-resistant plants were also planted in the experimental area, including Terminalia sericea, marula, (Sclerocarya caffra, and Ziziphus zeyheriana.

Experiments were done on the breeding of the four species of moths in captivity, and records were kept on the stages of larval development Rearing was done in netted pens and plantations Once hatched, the young larvae were reared to first moult in the brood boxes and then transferred to growing food plants in the pens Some of the production constraints included drought and ants which got into the pens and consumed some of the cocoons

Tehnical analysis of the results of the silk production experiments revealed that two of the three exotic species did not do very well under Botswana's climatic conditions The seri silk moth Bombyx mori produced silk but it was found that the conditions had to be kept fairly humid The local species, Argema mimosae, did well when conditions were close to being natural

Overall, it was concluded that the prospects for silk production are generally very good, one reason being that Botswana's eight month hot and rainy season with a short cold and dry season is ideal for both production and processing The investigations also indicated that it is relatively inexpensive to make the structures and containers for raising silk moths Degumming, spinning, and reeling can be done with materials and equipment that can be obtained locally

From the standpoint of the rural economy in Botswana, collection of the cocoons averages around 25 thebe The profit margin is high, after taking into account processing and transport costs, profits range between between 50% and 300% Cocoon-collecting can thus be a useful source of income either for individuals or for groups such as 4-B Clubs

Access, Control, and Use of Resources

Insects are resources which are available to anyone who chooses to exploit them Most of the areas where people obtain cocoons are held communally, and thus they do not need to seek permission to carry out collecting activities Problems could arise in cases where the insects are on trees or shrubs in the fields or yards belonging to other people, but generally individuals and tribal authorities were willing to allow cocoon collection if people approached them and asked permission

Collection of shrubs and trees to serve as food plants, on the other hand, is somewhat more complex Castor, mulberry, and marula plants were obtained in agricultural areas ("lands"), along roads, and from individual families' yards In most cases people were willing to allow the plants to be taken, but there were instances where they refused because no payment was made

As the report notes (p 24), silk production activities might best be established in agricultural areas because of the quantity of food required. These areas are controlled traditionally by chiefs, headmen, and ward heads who allocate arable land to families or individuals The house where the experiments were undertaken belonged to a trust which had built it on land granted it by the local headman. If individuals decided to establish their own production facilities on tribal land, they would need to seek permission from the wardhead or the local chief

Impact on Resources and Sustainability

Additional research is necessary to determine the levels at which sustainable cocoon exploitation can occur Bailey (p 8) noted that there were significant differences over time in the numbers of cocoons purchased. This variation may be due to labor factors (e g people involved in other activities, such as agriculture) It also may reflect variation over time in the availability of the cocoons due to environmental factors

Since the time this work was done, Botswana Game Industries (BGI) initiated a major silk production project in Botswana. In the first three years of the BGI silk project, over a hundred tons of cocoons were bought from 3,000 local producers, mostly in northeastern Botswana. More recently, however, it was found that the numbers of cocoons available declined considerably It is possible that the wet conditions of the late 1980s encouraged the growth of parasites which affected the cocoons It is clear that in future insect exploitation and development projects, careful attention must be paid to environmental factors

Related Literature

Ashby, A.M. and Geoffrey L Bailey (1981) Feasibility Study and Technical Brief on Silk Production in Botswana. Report to the Ministry of Commerce and Industry, Gaborone, Botswana. pp 10

Bailey, Geoffrey L (1982) An In-Depth Study of the Aspects Involved in the Production of Silk in Botswana. Report to the Ministry of Commerce and Industry, Gaborone, Botswana. pp 16

Bailey, Geoffrey L and Robert K. Hitchcock (in press) "The Potential Value of the Saturnid Argema mimosae for the Production of Marula Silk in Botswana." Botswana Notes and Records, Volume 24 pp 20

Botswana Game Industries (1987) "Wild Silk from Botswana's Rural Areas -- A New Industry " Kalahari Conservation Society Newsletter 17.9

Botswana Game Industries (198') "An African Wild Silk Industry " Kalahari Conservation Society Newsletter 25 6

Pinhey, Elliot (1972) Emperor Moths of South and South Central Africa. Cape Town C Struik.

van den Berg, M.A (1975) "Development of the African Lunar Moth Argema Mimosae (BSD) (Lepidoptera. Saturnidae)."Phytophylactica 7 71-72

21. Rural Swazi Women in Development: A Report on the Zenzele Women's Project Survey

by Home Economics Section

Summary

In 1986-87 a survey was conducted of women's associations in Swaziland as part of the on-going development efforts of the Home Economics Section of the Ministry of Agriculture and Cooperatives. Support for the survey, which was conducted by Home Economics Section personnel, was provided by USAID/Swaziland through the traditional sector training component of the Swaziland Manpower Development Project (645-0218)

The Kingdom of Swaziland, through the Home Economics Section of the Ministry of Agriculture and Cooperatives and the Community Development Section of the Office of the Tinkhundla, had been involved in promoting the well-being of rural Swazi populations through extension efforts for a number of years In the 1980s, the government of Swaziland became involved increasingly with development-related training Using innovative non-formal, adult education techniques, efforts were directed toward increasing incomes, improving agricultural production, enhancing leadership skills, promoting conservation, and raising standards of living

Until the 1970s, relatively few of these training programs had rural women as their direct beneficiaries Those programs that did exist concentrated primarily on domestic skills such as cooking, sewing, child care, and sanitation While these skills were definitely important, they did not address some of the larger issues of women's participation in the economy and society of the country in which they lived.

In Swaziland, a small, landlocked kingdom in southeastern Africa, women had become more vocal about their desire for development-related training According to a Government Minister, women were the backbone of rural development in Swaziland. Most of the participants in community-level development projects were women Yet many women felt that they had difficulty in gaining access to training opportunities, particularly ones involving provision of skills that would help generate income and employment Some of them also felt that they lacked secure access to land and natural resources

Analyses of the socioeconomic status of women in Swaziland by researchers and by the Home Economics Section revealed that women played key roles not only in the domestic and agricultural spheres but also in the formal wage-earning sector Many of the professional positions in the government were held by women Nearly half of the traditional healers in the country were female The number of women in business was also on the rise, in spite of the fact that they usually had great difficulty in obtaining credit.

The Home Economics and Community Development Sections worked with groups of women who came together to carry out communal and mutually beneficial activities These groups, which are known in Swaziland as zenzele ("do-it-yourself") associations, are multi-purpose in nature They allow women to work together to solve common problems, such as running daycare centers or marketing handicrafts Some of them engaged in income generating activities such as sewing school uniforms, making bricks, or raising and selling crops Others met simply to discuss problems facing women

The idea for such informal, voluntary women's groups grew out of the traditional Swazi custom of labor sharing known as the lilima, or communal work party Women (and sometimes men) would come together to construct a building or harvest a field These get-togethers were frequently highly festive occasions, and they helped to promote social cohesion at the local level

Some of the zenzele associations served as a kind of savings club Women contributed a specified amount of money each month This money is then given to one of the members on the basis of need, such as when a family

member dies and funds are required for a funeral. In some ways, there are similarities between the zenzele groups and burial associations (masingcwabiane) which provide funds to needy individuals and families Money was kept by the treasurer of the zenzele group, and reports were made at each meeting on what the funding levels were In some cases, funds were used for community projects such as paying for books and materials for schools

Zenzele groups are widespread in rural Swaziland. In late 1986, figures obtained by the Home Economics Section revealed that there were 187 active zenzele associations in the country Membership ranged from 6 to 73, with an average of 21 persons per group The associations meet about once a week and sometimes more often Each group has elections on an annual or bi-annual basis in which a chairperson, secretary, treasurer, and committee members are chosen

A major constraint to the economic development of rural Swazi women is the lack of access to information on skills, marketing, and the availability of development assistance The Government of Swaziland has attempted to get around this problem by setting up extension programs in rural areas Many agricultural extension workers tend to be male and as a result have relatively little contact with women's groups

Zenzele groups have been described as the most active and progressive development organizations in rural Swaziland. Home Economics officers, known as bolomakhaya, have helped to set up zenzele associations and to strengthen those already in existence Community Development workers collaborate with local committees, many of which are comprised mainly of women, in activities such as education, health, water, and agriculture The Community Development Section also oversees a Women in Development (WID) Project, which by the end of 1986 had trained over 2,000 women in income generating skills and appropriate technology

In spite of the assistance given to women's associations in Swaziland, many members felt that they were not receiving the kinds of training necessary to make them self-sufficient. Training programs in small enterprise development and income generating activities, in particular, were singled out as not being as successful as they might be in raising the level of entrepreneurial skill among rural Swazi women One of the reasons cited frequently for the failure of training programs is that they tend to be top-down in nature and not to involve the participants in the learning process

It was apparent that planners in Swaziland had to incorporate women much more fully into the development planning process A survey of extension workers in 1984 showed that zenzele associations were considered some of the most convenient groups to work with in the rural areas The experiences of the Home Economics Section revealed that the energy, enthusiasm and skills of rural women represent enormous resources which were largely untapped.

Given the importance of zenzele associations in development and their potential to manage resources at the community level, it was decided by the Home Economics Section that additional data on these groups were necessary Accordingly, a survey was conducted in early 1987 of 118 zenzele associations Data were obtained on income generating activities, agriculture, storage, household food expenditure, radio ownership, and zenzele group membership, fees, and administration These data were analyzed by Sipho Fernando Dludlu of the Ministry of Agriculture of Cooperatives

The results of the survey showed clearly what some of the constraints were for women in rural areas These ranged from lack of capital for materials, seeds, and tools to heavy labor demands, especially during the planting, weeding, and harvesting periods Zenzele groups sometimes had difficulty getting access to land from chiefs, who they believed were not favorably inclined toward women becoming more independent financially

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The survey found that gardening activities were undertaken by about half of the homesteads interviewed. Women were well aware of the need for timely planting and the use of inputs such as fertilizers and pesticides It is clear that the notion of Swazi women farmers knowing little about modern agricultural management practices was far from correct.

Some of the zenzele association members took pride in the ways that they managed land and natural resources The surveyors learned that zenzele women brought social pressure to bear on individuals who were overexploiting certain plant species or who were watering too many cattle at springs and thus fouling the water used by people Women in local health and water committees sometimes raised questions about how poorly their communities were doing in taking care of waste disposal and pollution

The one area where women continued to have problems was in the establishment of small businesses Only two associations had reached the stage where they could be considered even marginally successful group enterprises Lack of access to credit was a major constraint. Another difficulty relates to the apparent need for relatively frequent contact with extension workers

Strengthening of the leadership and organization of rural women's groups turned out to be a major priority for the Swazis Problem solving activities in the meetings of zenzele associations were especially useful in this regard. Women were encouraged to decide for themselves which areas were most in need of improvement. Many of them identified the problem of delegation of authority as a major issue Others pointed out that officers tended to be reluctant to take responsibilities for their decisions The group activities served to enable the women to gain more self-confidence in their own abilities both as leaders and members of associations

An important aspect of the rural training programs in Swaziland was the production of materials which could be used in the training sessions Handouts, posters, and booklets were designed by the participants in the workshops These materials were heavily illustrated and were tested extensively before being used in training Emphasis was placed on topics which people identified as being of crucial importance, such as the prevention of erosion and the construction of storage facilities for grain and water at rural homesteads

The survey results indicated that there were a number of ways in which to measure the impact of rural development training for women One impact could be seen in the wide variety of new projects that were being undertaken by zenzele groups Several groups have begun poultry projects, and they have been able to get loans through the Swaziland Development and Savings Bank to purchase chicks and build chicken houses Others, such as the women of the Nkaba area in Hhohho Region, started fish ponds and are raising bream, some of which they sell locally Still others constructed sheds which they used as meeting places and as daycare centers At least two groups were running consumer shops, one was running a pig production project, and one was involved in planning the establishment of a bakery

One goal of many women in Swaziland was to have regional women's associations Two regions, Hhohho and Manzini, had been successful in this endeavor In the Manzini Region, the women's association, which was made up of chairpersons of local zenzele groups, had established a storage facility for handicrafts and was in the process of setting up a marketing outlet. The Hhohho Region's association had a handicrafts store at Motjane, and they were discussing entering into a business agreement with a handicraft purchasing organization Judging from the comments made to surveyors, there were setbacks as well as successes In one case, women were not able to purchase pigs which they built houses for because they ran out of money In another case, women in the Shiselweni Region who began a block manufacturing business were forced to quit because the cement was too expensive to transport to their remote locality Several women's enterprises failed because proper records were not kept of income and expenditures Some groups foundered due to lack of support by traditional leaders at crucial times

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The zenzele women, surveyors, and extension workers reported on the results of the training they had received. Some of the associations were found to be better organized, and the numbers of members had increased, in some cases, by as much as fifty percent. Meetings were held more frequently, and some groups had established sub-committees which oversaw specific projects Women in the Makwelela area of Shiselweni Region, for example, had committees which had undertaken handicrafts, pottery manufacture, and grass collection projects

One advantage of the training was that it fostered improved cooperation between women's groups and both government and non-government organizations in rural Swaziland. Agricultural extension workers in the Ministry of Agriculture and Cooperatives assisted zenzele groups in crop production and marketing The Rural Water Supply Board cooperated with local-level Rural Health Motivators (RHMs) and Community Development Workers in running workshops on spring protection and drinking water purification KatSabeze Community Center in Manzini Region worked with local women in setting up courses on sewing, farming, nutrition, and health The Family Life Association of Swaziland (FLAS) attended zenzele meetings at the women's request so as to explain family planning practices

In spite of the difficulties, women are becoming more involved in rural development projects The quality of products has improved, most notably the sisal fruit baskets which are so popular in international markets There is no question that Swazi women are intent on bringing about positive, sustained socioeconomic development in their communities The training has given them the opportunity to set their own goals and has facilitated the identification of potentially useful group enterprises

The next step in the Swaziland training efforts for rural women is to embark on enhanced leadership and business management development. Tototo Home Industries, which has been successful in its rural economic development program for women's groups in Kenya, along with World Education of Boston, will be conducting learner-centered training of Home Economics officers and zenzele women in Swaziland in late 1987 This kind of inter-African cooperation in training promises to be an extremely useful and potentially exciting means of promoting sustainable socioeconomic development among rural women

Access, Control, and Use of Resources

A popular conception of women's access to land and other natural resources in Swaziland is that it is limited. Swazi women often see themselves as being subject to the authority of males who have control over their activities, including exploitation and use of natural resources Some women told the surveyors that they had to ask permission of their husbands before they could go out and collect thatching grass or sisal for baskets Firewood, grasses, clay for pots and medicinal plants were considered communal resources, and women had relatively unrestricted access to them, depending in part upon their location Permission had to be sought from homestead residents for the rights to exploit resources in their fields and yards

Women reported that they exploited a wide variety of plants which had nutritional, medicinal, or manufacturing value The most common species exploited was ligusha (Corchorus confusus), a leafy vegetable found in agricultural fields Wild fruits and berries were utilized by the majority of the women interviewed. Plant gathering generally was seen as a "women's activity" None of the zenzele associations mentioned hunting of wild animals as a means of generating income or subsistence Women did have control over fields, although the allocations generally were made to their husbands by traditional authorities Some women said that the chiefs sometimes did not give them land when they requested it for zenzele association activities because "it make them independent." Several zenzele associations were able to get land for horticultural projects, a fisheries project, and a pig project. Chiefs and their deputies (tindvuna) also allocated land to zenzele associations so they could build meeting halls, some of which served as daycare centers and storage facilities for goods At least one women's group used its contacts with women in the royal family to influence decisions about land allocation. There was also mention of zenzele association members approaching government officers (e g the Regional Secretary) for land rather than going to the chiefs One group was considering purchasing freehold land so they could set up a

large-scale agricultural project.

The members of one association said that they were unable to get land from the local imisumphe (a respected traditional authority who sometimes oversees land issues) because he wanted the land for his relatives Another group said that they got land allocated to them but were denied access to a nearby spring to water their vegetables In general, however, women in the zenzele associations felt that opportunities for getting access to land and water were improving

Impact on Resources and Sustainability

There is limited discussion of impacts of natural resource utilization in the report. It was noted that some zenzele groups were concerned about overexploitation of sisal in their areas so they purchased it from groups in other areas One constraint on the productivity of some of the zenzele groups' horticultural plots was that they were sometimes granted land that was not very fertile

Autonomy and Decentralization

The institutional sustainability of zenzele associations is high While they sometimes lack administrative, management, and technical skills, they know where to obtain them, and many of the groups actively seek assistance The training activities of the Swaziland Manpower Development Project, the Peoples Participation Program (FAO), and the Women in Development Project were helping promote autonomy and decision-making, according to a number of the respondents.

The weakest aspect of many of the zenzele groups, according to statements made to the surveyors by both trainers and association members, was their ability to plan projects and to manage them once they have been initiated. Financial administration was especially difficult. This is not surprising given the fact that a significant percentage of zenzele group members were non-literate and non-numerate While virtually all groups kept records of accounts, most of the members were not aware of the actual amount of funds which the groups possessed. Project planning was often haphazard, and feasibility studies were rarely conducted. It was clear from the findings that new initiatives were necessary in the area of women's training in Swaziland.

The zenzele associations are the strongest women's organizations in Swaziland. They are recognized at the community level and sometimes at the regional level At the national level, on the other hand, zenzele associations have relatively small effects The decisions of the zenzele groups are not always respected by other community members or by traditional and modern government authorities Dispute resolution is sometimes done through appealing to chiefs and other traditional authorities, something the women said they would prefer to avoid if they could.

There are two national women's organizations active in Swaziland. Lutsango LwakaNgwane is an organization established by King Sobhuza II in 1967 Sometimes referred to as the "women's regiment," its purpose is to improve the lives of Swazi women It has provided assistance to nursery schools and creches, and it has provided bursary awards to students There are relatively few linkages between this national association and local women's groups, who see it primarily as a "dance group" that performs at cultural functions

The other national women's organization, Asibonisane Bomake, is a philanthropic organization geared toward supporting development and education of women A major focus of their work has been to provide a forum for discussing ideas, experiences, and problems of Swazi women and to disseminate information based on research, interviews, and evaluations of projects Some of the women active in Asibonisane Bomake are Home Economics Officers who have regular contact with zenzele associations

The two national level non-government women's organizations have tacit government support. As of 1987 there

was no national women's organization in the Swaziland government, although there were ongoing discussions concerning the setting up of a National Women's Office in the Ministry of the Interior. Overall, there are still questions as to the degree of support for women's efforts to assert their rights and promote development.

Unique Attributes

A unique feature of the Swaziland case is the dispersal of the homesteads in the communities where zenzele associations existed. People's homes often were far apart; thus, the opportunities to get together for zenzele association meetings had an added significance

A second unique feature of the Swaziland situation was the existence of a dual system of government (traditional and modern) and a dual legal system (Western and Swazi customary law). Women thus had to operate in a complex sociopolitical context.

The existence of the Swaziland Manpower Development Project, which was funding many of the zenzele association training activities, was also somewhat unusual, especially in terms of the degree of financial and technical assistance support provided to the Home Economics Section in its development efforts.

Related Literature

Armstrong, Alice K and R.T Nhlapo (1985) Law and the Other Sex The Legal Position of Women in Swaziland. Mbabane, Swaziland. Webster Print.

Armstrong, Alice and Margo Russell (1985) A Situation Analysis of Women in Swaziland. Mbabane, Swaziland: UNICEF and Social Science Research Unit.

DeVletter, Fion, ed. (1983) The Swazi Rural Homestead. Kwaluseni Social Science Research Unit, University of Swaziland.

Green, Edward C (1990) Assessing the Impact of Development Education for Rural Women's Organizations and Traditional Leaders An Evaluation of the "Traditional Sector" Training Component of the Swaziland Manpower Development Project (1985-90) Mbabane Government of Swaziland and USAID/Swaziland.

Hitchcock, Robert K. (1986) "Zenzele Swazi Women Say, 'Do it Yourself'" Ndiza Natsi 3(11) 21-24

Hitchcock, Robert K., ed. (1987) Human Resource Development in the Traditional Sector of Swaziland. Mbabane, Swaziland. Swaziland Manpower Development Project.

Hughes, A.J.B (1962) "Some Swazi Views on Land Tenure" Africa 32(2) 253-278

Hughes, A.J.B (1964) Swazi Land Tenure Durban Institute of Social Research, Natal University.

Hughes, A.J.B (1972) Land Tenure, Land Rights, and Land Communities on Swazi Nation Land: A Discussion of Some Interrelationships between the Traditional Tenurial System and Problems of Agrarian Development. Monograph No 7 Kwaluseni. Social Science Research Institute, University of Swaziland.

Kuper, Hilda (1947) An African Aristocracy Rank among the Swazi London Oxford University Press for the International African Institute

Loughran, Lisbeth and Jan Argo (1986) Assessment of Handicraft Training Needs for Rural Women in Swaziland. Swaziland Manpower Development Project, Occasional Papers, No 1 Mbabane, Swaziland. Webster Print.

Malaza, Thandi Millicent (1985) Women and Development in Swaziland. M.A. thesis, University of Manchester, Manchester, England.

Nhlapo, R.T , ed. (1983) Women and the Law in Swaziland. Kwaluseni: University of Swaziland.

Nkambule, Noah Mtsenjwa (1983) A Diagnosis of Adverse Effects of Customary Land Tenure on Land Use in the Kingdom of Swaziland. Is a Land Privatization Policy the Answer? M.A. thesis, University of Wisconsin, Madison, Wisconsin.

Rose, Laurel (1988) "'A Woman Is Like a Field' Women's Strategies for Land Access in Swaziland." In Agriculture, Women, and Land. The African Experience, Jean Davison, ed. Boulder, Colorado, Westview Press pp 177-201

Russell, Margo (1986) "High Status, Low Pay Anomalies in the Position of Women in Employment in Swaziland." Journal of Southern African Studies 12(2)·293-307

Sachs, Carolyn and Christine Roache (1983) Women and Agricultural Production on Swazi Nation Land. Mbabane USAID/Swaziland.

Tabibian, Nasrin (1983) Swazi Women's Income Generating Activities Kwaluseni· University of Swaziland.

Tomlinson, Jane (1987) An Assessment of the Business Training Needs of Zenzele Associations in Swaziland. Mbabane· Government of Swaziland and USAID/Swaziland.

22. Involving a Local Community in Wildlife Conservation: A Pilot Project at Purros, Southwestern Kaokoland, SWA/Namibia

by Garth Owen-Smith and Margaret Jacobsen

Summary

This paper describes a project involving Himba and Herero pastoralists in a conservation and wildlife-related development project in Purros, a community in northwestern Namibia The work involved local people in northwestern Damarland and western Kaokoland and staff from the Endangered Wildlife Trust. Some of the funding for the project was provided by the World Wildlife Fund (WWF) and other funds came from a tourism company that brought tourists to the area

The community of Purros consists of approximately 60 semi-nomadic Himba and Herero pastoralists Meetings between community members and representatives of the Endangered Wildlife Trust led to the formulation of a pilot project that involved a levy on tourism and a craft market The tourism company that visits the area, Desert Adventure Safaris, pays the Purros community R25 per night for every tourist who stays at Purros This money goes directly to the community as a whole, and decisions about how the funds are to be divided are left to the community

The people in the area decided who were considered as residents Six extended families were identified These families divided the cash from the tourist levy among them equally At first, the young men of the community said that it should be shared among all adult males Later, when women joined the discussions, it was decided that the funds should go to each family head, older, responsible individuals, who then would use it for the benefit of their families

The second part of the Purrpos project was the setting up of a craft market to sell Himba and Herero goods (e.g milk pails, neckbands, wooden spoons, and neck pillows) to tourists These sales have provided women with access to cash they did not have previously

An auxiliary game guard system has been operating successfully in the area for six years These game guards are local people who were chosen by the headman or respected leaders in the community, not by the Directorate of Nature Conservation or the Endangered Wildlife Trust. The game guards get a monthly ration and a small cash payment for their work

Access, Control, and Use of Resources

Purros, is located in an area that was part of Game Reserve No 2, which was deproclaimed in 1970. It has a strong spring of sweet water, and the area supports substantial wildlife populations, including elephant, giraffe, gemsbok, zebra, and lion The area has been occupied intermittently for generations but permanent occupation began in 1980 when furrow-irrigated gardens were planted in the alluvial plain after drought wiped out most of the people's herds of livestock.

One of the problems in the past was the presence of large numbers of tourists who came into the village without permission and who utilized local resources extensively (e.g firewood) The numbers of tourists are now more controlled due to the relationship between the tourism company, Endangered Wildlife Trust, and the local community.

The Himba and Herero operate by consensus, other Himba and Herero wishing to move to Purros or use resources in the area such as grazing have to obtain agreement from the residents of Purros.

Impact on Resources and Sustainability

Wildlife numbers in the region had begun to increase after the serious drought and poaching of the 1970s and early 1980s The densities of wildlife, however, were still low, something which made the idea of game cropping or trophy hunting infeasible

One of the impacts of the project is that it has helped to reverse a trend away from semi-nomadism and toward permanent occupation of the area. It has facilitated a process whereby people can get income from tourism and craft sales and still herd stock and raise crops

The community actively manages the land in the area, moving their stock from one grazing area to another, and seeing to it that the keeping of livestock permanently in the area is discouraged so as to prevent overgrazing

The people of Purros opposed the idea of establishing a tourism lodge in the area because they felt it would increase pressure on local resources They also feared that the tourist camp would attract non-residents seeking food and employment, thus possibly causing social disruptions

Autonomy and Decentralization

The traditional authorities at Purros are overseen by a ward headman based at Warmquelle The relationship between this ward headman and the local authorities was not spelled out in the report, although it was stated that a representative of the ward headman attended the initial meetings where the project was discussed and was supportive of the ideas generated.

Some of the concession fees from the area are paid by tourism companies to the Damara Second Tier Authority which oversees northwestern Damaraland. It is not known whether this authority then provides some of those concession fees to any of the local communities The relationship between the Purros community and the Department of Nature Conservation is also something that is not clear from the report.

Unique Features

The Purros situation is somewhat unique in that the population being dealt with was relatively unacculturated. The low population density of the area and its remoteness is also fairly uncommon

Some of the conclusions reached concerning resource management, autonomy, and decentralization were as follows

- the community must have at least some control over resources (in this case, land, water, and wildlife) in order to make such a project feasible,
- if one wishes to gain the support of a community, it is essential to work through their own recognized political structures,
- when a traditional system of chiefs and headmen exists, one must remember that they are not the only ones who make decisions, and their decisions are not autocratic; thus, it is crucial to ensure that as many members of the community as possible are present at any discussions,
- meetings must include women as well as men,
- participants in projects must have real decision-making power in the management and running of all activities,

- conservation efforts should bring tangible benefits, both material and non-material, to the community,
- some of the ways that local communities can benefit from nature conservation include employment as game guards, guides, and wage workers, sales of crafts and other produce, levies from companies bringing tourists or hunters to their areas, and increased access to wild resources (e g game meat),
- a crucial aspect of the project involved setting up the channels in the community to receive the cash levy;
- one must have a good understanding of the social, economic, and environmental situation in an area before entering into a rural development project; and,
- in some cases it is useful to set up a liaison body, a village council, or a group of community representatives who will serve as the links between the community as a whole and project workers, this liaison body must be seen by the community as representative of their interests and must be selected by them

Related Literature

Jacobsohn, Margaret (1986) A Study of Himba Space in Kaokaland. Honor's Thesis, University of Cape Town, Cape Town, South Africa.

Owen-Smith, Garth (1971) The Kaokoveld. An Ecological Base for Future Development Planning. Report to the Department of Bantu Administration and Development, South West Africa.

23. The Constitution and Communal Lands in Namibia. Land Rights and Local Governments. Helping 33,000 People Classified as "Bushmen": The Ju/wa Case

by John Marshall

Summary

This report deals with the situations of Bushmen (San) in Namibia. It is based on data compiled by Marshall over a period of nearly four decades, from 1951 to 1989 Written in part as an appeal for land and resource access rights for Bushmen, the most poverty-stricken people in Namibia, it outlines the socioeconomic statuses of a number of different groups Part of the report concentrates on the Ju/Wasi Bushmen in Eastern Bushmanland in northeastern Namibia, one of the few areas in the country where Bushmen groups were able to retain a portion of their own land

Numerous Bushmen were dispossessed and forced out of their traditional areas when land in Namibia was turned into freehold farms, mining areas, and townships Others lost access to land when portions of the country were turned into national parks and game reserves Still others were relocated as a result of the military activities in northern Namibia during the 15-year long war between the South African Defense Force and the South West Africa Peoples Organization (SWAPO) A substantial proportion of the Bushmen of Namibia are now landless laborers who live and work on farms Most of these people are marginalized, and relatively few of them can be considered socioeconomically self-sufficient

Although little was done to promote the interests of Bushmen in the 19th and early 20th centuries, efforts to assist them began in the 1950s The programs aimed at Bushmen have taken several forms Some of the projects were initiated by the South West Africa Administration and had as their goals the settlement, education, and development of Bushman populations These projects were designed and implemented by outside agencies, with little or no Bushman participation Others were started by non-government organizations and were geared toward enhancing the well-being of Bushman groups

Change over time in the socioeconomic status of Bushmen can be seen in the case of Tsum!kwe in the Eastern Bushmanland region of Namibia. In 1959-60, the South African government established a settlement scheme at Tsum!kwe in order to provide Ju/Wasi Bushmen with water, social services (e g schools and health facilities), and housing The purpose of this scheme was to turn San into settled food producers and wage laborers The scheme had a number of consequences people moved in to the settlement in substantial numbers, wild plant and animal resources in the vicinity of Tsum!kwe were depleted, poverty increased, and there were high rates of mortality, social conflict, and alcoholism At the same time, children were able to go to school, the numbers of jobs available in the region increased slightly, and income levels of a few households rose

In 1982, Ju/wasi in Eastern Bushmanland began to move back to the bush in an attempt to get away from the fighting and drinking that was so common at Tsum!kwe Three groups returned to their n!ores, or territories, where they hoped to establish themselves as independent units pursuing a mixed economy of foraging, pastoralism, and agriculture, with some food obtained either through purchase or in the form of government allocations By the late 1980s there were 16 such groups, many of them with their own herds and agricultural fields The percentage of wild foods in the diet of these groups increased, as did their health and nutritional status

The Ju/Wasi groups that set themselves up in their original territories were based on traditional social arrangements The groups were made up of kin (families related through blood and marriage) Known in Ju/Wasi as a band (n//abesi), each of these units comprises people who live together and who hold rights of access to resources in a specific area. The bands are formed around cores of people who are considered owners of a territory (ketai k'xausi), these individuals have long-standing rights to areas which they have inherited from their

parents and grandparents

In Ju/Wasi bands, there are individuals known as k"ausi n!a who are respected and who are influential, to a limited degree, in band activities These individuals are recognized by others in the group as being important, especially in terms of their connection with ownership of resources It is these individuals to whom people from outside the band go if they wish to seek access to a group's resources Decisions on whether or not outsiders will be allowed access to resources are made on the basis of consensus among group members Resource use thus is controlled by the group Eastern Bushmanland is not owned communally in the sense that all Ju/Wasi have access to its resources, rather, it is divided among bands, each of which controls the resources in its own territory

The Ju/Wasi communities ranged in size from 12-49 people Their livestock herds ranged from 15 to 77, with an average of 37 cattle per location Infrastructure at the settlements included corrals (kraals), troughs, and gardens Foraging activities increased after people moved away from Tsumlkwe

The Ju/Wa Bushman Development Foundation (JBDF) (known in Namibia as the Nyae Nyae Development Foundation) a non-government organization started by anthropologists John Marshall and Claire Ritchie, has helped to provide funding, technical assistance, and information to the Ju/Wasi in Eastern Bushmanland. The objectives of the JBDF include (1) the establishment of self-sufficient communities where Ju/Wasi can pursue mixed economic strategies, and (2) the promotion of self-help and local control over land and decision-making The target group of the project consists of approximately 1,000 Ju/wasi

The JBDF has helped to arrange for the drilling and equipping of boreholes, and they have provided technical advice, tools, equipment, pumps, seeds, and livestock purchased at subsidized prices In order to ensure that dependency was not created, the JBDF encouraged the members of the various Ju/Wasi communities to participate in decision-making regarding development action Some of the Ju/Wasi have invested funds gained from sales of handicrafts and wage labor in livestock and other goods

In 1986 the Ju/Wasi formed the first Ju/Wa Farmers Union (now the Nyae Nyae Farmers Cooperative), an organization which has assisted local people in livestock production and other development activities This organization has representatives elected by each of the communities in Eastern Bushmanland. It serves as a forum for discussing development issues and problems facing the Ju/Wasi The Ju/Wa Farmers Union was also instrumental in lobbying against the establishment of a nature reserve in eastern Bushmanland in the early 1980s The Ju/Wasi have gained valuable experience in running their own affairs and have done relatively well in raising their incomes and improving their standards of living The question remains as to whether they will get to keep the land on which they established their communities

Access, Control, and Use of Resources

The Ju/Wasi communities are living in areas that they occupied traditionally and which they have customary rights over They exploit a wide variety of natural resources in these areas The livestock are owned by individuals Some of the constraints which potentially could affect the success of the development efforts in Eastern Bushmanland include environmental factors (rainfall deficiency, low quality grazing, and the presence of predators and elephants which destroy pumps and other borehole facilities) The Ju/Wasi have requested that the Namibian government allow them to kill lions, but thus far they have not been given permission to do so

At the time Marshall's report was written, the Ju/wasi were continuing to seek the right to protect their assets. They were attempting to protect their water points and livestock herds through construction of fences and placing large rocks around the boreholes to discourage elephants from getting too close to the equipment. Some of the communities have been more successful than others in constructing elephant-proof facilities Electric fences powered by solar batteries have proven useful in some places

The biggest problem facing the Ju/wasi of Eastern Bushmanland was the uncertainty of the land tenure status of the area. While the immediate threat of the declaration of the area as a nature reserve was alleviated, there were still Department of Nature Conservation plans to expand wildlife numbers in the area through creation of new water points and to promote tourism There was also the threat of conservationist arguments which were pushing for removal of livestock herds The k'ausi n!a of some of the communities and the members of the Ju/Wa Farmers Union have spoken to Namibian government officials and have made appeals through the media in an effort to gain security of land tenure.

A concern of the Ju/Wasi at the time Marshall was writing was whether or not other people would be given permission to enter Eastern Bushmanland after independence One of the reasons for establishing the new settlements was to re-establish claims to the land in the area.

Impact on Resources and Sustainability

The natural resources in the Tsum!kwe area were overexploited, this was not the case, however, for the places twenty or more kilometers from Tsum!kwe Residents of the new communities had sufficient wild foods to form an important part of their diet. The main threat to the sustinability of the new settlements in the future will be growth in livestock numbers While herd sizes are relatively small at present, the calving rate is fairly high. As herds expand, problems of trampling,overgrazing, and bush encroachment could well become a problem It is not clear from the report whether or not the Ju/Wasi communities would bring social pressure to bear on those individuals who keep large numbers of cattle or who overexploit wild plant and animal resources for individual profit.

The institutional sustainability of the Ju/Wasi communities is high. They are based on traditional kinship relationships and social ties between groups Families are tied together through strong bonds, and clusters of families have intricate ties to other groups The cores of these groups, which include the "owners" of the territory in which the band resides, have long-standing rights to the region which are recognized not only by the Ju/wasi but by other people as well (e g the neighboring Herero)

Autonomy and Decentralization

There are several issues that arise from the discussion of the Ju/Wasi case material The first issue revolves around the equity of the distribution of livestock. The majority of the people who own stock are males Women do participate in herding and other livestock management activities but most women do not have cattle of their own Over the long term this gender difference in resource access potentially could lead to difficulties

The second issue revolves around leadership in the Ju/Wasi communities Marshall does not spell out in detail how the representatives of the Ju/Wa Farmers Union are elected, nor does he discuss the ways community leaders handle cases of resource mismanagement. It would be interesting to know how those who overexploit resources are treated.

The third issue relates to the egalitarian nature of the Ju/Wasi communities If indeed the Namibian government decides to grant land rights to Ju/Wasi, land might be allocated in the name of the head(s) of the community How will decisions be made about land allocation at the local level, and will the distribution of land be done fairly? What happens if individual community members decide that they want a substantial share of the land being allocated? More information on the changing nature of social and political arrangements within the Ju/Wasi communities would help provide answers to these questions

Unique Attributes

One of the unique aspects of the Ju/Wasi case, as compared to other Bushman situations in Namibia and, indeed, to many other parts of Africa, is that the apartheid system established by South Africa served to maintain a region, Eastern Bushmanland, for use by a single ethnic group

The degree to which the traditional social groups remained intact among the Ju/Wasi is also somewhat unique The social cohesion undoubtedly contributed to the success of the post-Tsumkwe development efforts

The presence of the Ju/Wa Bushman Development Foundation, with its participatory approach to development and its efforts on behalf of the land and resource rights of the Ju/Wasi, is also a bit unusual for Africa.

Related Literature

Biesele, Megan (1990) Shaken Roots The Bushmen of Namibia. Marshalltown EDA Publications.

Gordon, Robert J (1984) The San in Transition, Volume II What Future for the Ju/Wasi of Nyae Nyae? Cultural Survival Occasional Papers 24 Cambridge, Massachusetts Cultural Survival

Gordon, Robert G (1989) "Can the Namibian San Stop the Dispossession of of Their Land?' In We Are Here: The Politics of Aboriginal Land Tenure, Edwin N Wilmsen, ed. Berkeley: University of California Press pp 138-154

Gordon, Robert G (1990) " The Prospects for Anthropological Tourism in Bushmanland." Cultural Survival Quarterly 14(1) 6-8

Hitchcock, Robert K. (1987) Self-Help and Development among the Ju/Wasi of Eastern Bushmanland. Windhoek, Namibia. Ju/Wa Bushman Development Foundation

Marais, Francois, et al (1984) Survey of the Bushmen Population in South West Africa. Windhoek. Office of Development Co-ordination, South West Africa.

Marshall, John (1984) "Death Blow to the Bushmen " Cultural Survival Quarterly 8(3):13-16.

Marshall, John (1985) "Review of the Report. 'Survey of the Bushmen Population in S W.A.' by Francois Marais et al.'
Report for the Ju/Wa Bushman Development Foundation, Windhoek, Namibia.

Marshall, John and Charles Hartung (1986) Ju/Wa Bushman Rural Development Project. Report submitted by the Ju/wa Bushman Development Foundation to the Government of Namibia, Windhoek, October 1986

Marshall, John and Claire Ritchie (1982) Husbandry in Eastern Bushmanland. Development Plan Submitted to the Namibian Government, Windhoek, Namibia.

Marshall, John and Claire Ritchie (1984) Where Are the Ju/Wasi of Nyae Nyae? Changes in a Bushman Society 1958-1981 Communications No 9, Center for African Area Studies, University of Cape Town Cape Town. University of Cape Town.

Marshall, Lorna (1960) !Kung Bushman Bands " Africa. 39(4):325-355.

Marshall, Lorna (1976) The !Kung of Nyae Nyae Cambridge· Harvard University Press

Ritchie, Claire (1986) "From Foragers to Farmers The Ju/Wasi of Nyae Nyae Thirty Years On." In The Past and Future of !Kung Ethnography· Critical Reflections and Symbolic Perspectives, Essays in Honour of Lorna Marshall, Megan Biesele, ed. pp 311-325. Hamburg Helmut Buske Verlag

Ritchie, Claire (1987) The Political Economy of Resource Tenure in the Kalahari. San Survival in Namibia and Botswana. M.A thesis, Boston University, Boston, Massachusetts

24. Fire and Grazing Project
by Drakensberg/Maluti Mountain Catchment Conservation Program

Summary

The Drakensberg/Maluti Mountain Catchment Conservation Program is an interdisplinary research and development program that has conducted investigations in the Drakensberg and Maluti Mountains Regions of South Africa and Lesotho The project has been implemented by personnel from the University of Durban, Westville in Natal, South Africa and the Ministry of Agriculture, Maseru, Lesotho This particular study concentrates on the impacts of fire and grazing in mountain ecosystems

A major problem in the Drakensberg and Maluti Mountains is sheet erosion This study demonstrates that this problem is due to prolonged overuse of the region which has led to a loss of the vegetation cover. In the study species composition was used to determine the make-up of the range resources The study area was part of the Themeda-Festuca Alpine Veld

There were three classes of key alpine zone species (1) Species which decline as grazing intensity increases (e g Themeda triandra, which is the most palatable and important) This is so-called sweet veld -- in peak condition in the 2,000-2,700 meter zone -- the warmer slopes (2) Species that increase up to intermediate grazing intensity and then decrease (e g Festuca caprina, Merxmuellera distica, and Harpochloa falx) These are moderately productive grasses that cover large tracts and provide excellent protection to soil They facilitate infiltration and "with the cohesive properties of the basalt derived soils, may be the reason why the alpine zone is in relatively good condition in spite of excessive grazing pressure" (P 109) (3) Species which increase with grazing intensity (e.g. Chrysocoma tenuifolia, Catelepsis gracilis, Pentzia cooperi, and Selago flanagani These species usually are shrubs and indicate bush encroachment in areas that are grazed heavily and which have not been burned off regularly

In the study area animals needed 10 kg of dry matter per day In areas where there was overgrazing more palatable grasses were replaced by "a dwarf karroid shrubland with associated low basal cover and accelerated erosion" (p 171) This vegetation was largely unproductive The overgrazing was related in part to cattle post density "on average valleys had 50% more cattle posts than the proposed maximum of 4-6 kraals per 1000 hall in the Sanqebethu-Mokhotlong Range Management Area." Thus, overstocking in these areas was approximately 150% One recommendation of the study was that it was important not to increase grazing intensity in the upper mountain zones

Access, Control, Use, and Sustainability of Resources

Livestock owners belonging to specific wards are granted access to grazing areas in the mountain zone. Management of the number and distribution of cattle posts ostensibly is done by chiefs, but in practice livestock owners make their own decisions about placement, numbers of livestock kept at each cattle post, and distances between cattle posts Even with careful efforts to ensure equitable allocation patterns by chiefs, there are still disputes between people with livestock in the various grazing areas

In some cases, rotational grazing is practiced, with people using the mountain grazing areas in the summer and the valley grazing areas in the winter Fire is also used as a management technique by Basotho agropastoralists Fire can be used, for example, to get rid of 90% of such scrub vegetation species as Chrysocoma tenuifolia. It is also used to cause flushes of new growth which livestock prefer.

The study notes that fire should not be used indiscriminately to manage mountain grasslands Efforts should also be made to keep from grazing stock too heavily on the new flush In addition, the study notes that burned areas should be rested for two seasons followed by careful re-stocking, conservative grazing, and rotation One other

point was that cattle posts need to be reorganized so that users in adjacent areas come from the same communities, something that is not the case at present. This would help bring about a system whereby users are part of a "community of interest" which hopefully would cooperate more effectively

There are three main use areas that vary by season (1) winter grazing areas in the mountains, (2) early summer grazing areas, and (3) late summer and early autumn grazing localities. Stock returns to the village areas in about mid-April As the study notes, a simple rotational grazing system is one which will have the best chance of success

Autonomy and Decentralization

The relevant units are chiefly grazing areas, wards, and districts, while the most significant Lesotho Government institutions are the Range Management Division and the Agricultural Research Division of the Ministry of Agriculture In most cases, grazing allocations are made by chiefs to ward livestock owners

As the study notes, past formation of grazing associations at Thaba Tseka and Mphaki were not successful as a result of "a poor understanding of the prevailing patterns of range use and existing social structures of the organizers" (p 118) Development strategies will continue to fail if they are based strictly on technical concepts "that are foreign to the people "

There are examples of decentralized associations which have had some success Sehlabathebe Range Management Area, for example, "is a good example of a grazing association that has been largely successful" (p 119) One reason for its success was that the program was based on a knowledge of traditional social and resource management structures The program also encouraged appropriate habitat management including deferring use until the optimum time One mechanism proposed for bringing about stock reduction is a stock tax which is in the process of being developed in Lesotho There are also additional resources being invested in range management programs which include providing development assistance to grazing associations and communities The question remains as to the best ways in which to get communities to manage their resources sustainably

Related Literature

Afolayan, T A. (1978) "Savanna Burning in Kainji Lake National Park, Nigeria." East African Journal of Wildlife 16(4) 245-255

Bogdan A.V (1954) "Bush-clearing and Grazing Trial at Kisokou, Kenya." East African Agricultural Journal 19.253-259

Boughey, A.S (1963) "Interaction between Animals, Vegetation, and Fire in Southern Rhodesia." Ohio Journal of Science 63 163209

De V Booysen, P. and N.M. Tainton, eds. (1984) Ecological Effects of Fire in South African Ecosystems New York. Springer-Verlag.

Langlands, B.W. (1967) "Burning in East Africa with particular Reference to Uganda." East African Geographical Review 15 21-27.

Lemon, P.C. (1968) "Effects of fire on an African plateau grassland." Ecology 49.316-322.

Phillips, J. (1974) "Effects of fire in Forest and Savanna Ecosystems in Sub-Saharan Africa." In Fire and Ecosystems, T T Kozlowski and C.E Algren, eds New York: Academic Press

Sweet, R.J (1982) "Bush control with Fire in Acacia nigrscens/Combretum Savanna in Botswana. Proceedings of the Grassland Society of Southern Africa 17.25-28

Sweet, R.J and G Takcheba (1985) "Bush Control with Fire in Semi-Arid Savanna in Botswana." In The Ecology and Management of the World's Savannas Canberra: The Australian Academy of Science

West, 0 (1955) "Veld Management in the Dry, Summer Rainfall Bushveld." In The Grasses and Pastures of South Africa, D Meredith, ed. Johannesburg Central News Agency.

25. The Livestock Economy in the Mountain Zone of Lesotho

by T. Quinlan

Summary

This report for the Drakensberg/Maluti Mountain Catchment Conserveration Program in Lesotho and South Africa assesses the environmental and socioeconomic aspects of livestock production in highland ecosystems The study began in November, 1987, with fieldwork initiated in January, 1988. Investigations were conducted in two alpine areas in Mokhotlong District for a period of twelve months One objective of the study was to determine the extent of range deterioration and the reasons for it

Part of the study was devoted to socioeconomic and political conditions in the mountain zone Both traditional and modern institutions were assessed Councils were established in Lesotho as a "means for political parties to recruit popular support for the general elections in 1966 (p 8) Although they were supposed to be elected popularly, in effect "They became instead party political platforms" In 1967 Land Committees were established Like councils, they were supposed to be elected at the ward level to provide assistance and advice to traditional authorities (chiefs and headmen) on land allocation In practice, however, chiefs tended to ignore them With the suspension of parliamentary rule in Lesotho in 1970 the Land Committees became largely inoperative

In 1973 Councils/Land Committees were revived as Village Development Committees with broader terms of reference, but they "soon became political organs of the ruling Basuto National Party regime" (p 8) These institutions have managed to survive and today are known as Village Development Councils As Quinlan (p 8) notes, "Currently, they constitute a lower rung of popularly elected representatives to foster development projects " Land Committees were also revived to carry out their original work and by the late 1980s there was an institutional hierarchy involved in development activities in Lesotho (village, ward and district)

The traditional sociopolitical system in Lesotho is headed by the king, under whom there are a number of paramount chiefs Under these chiefs are ward and subward chiefs, and below them are village headmen. Chiefs and headmen are involved directly in the daily life of their ward constituencies They take part in social and ritual activities, including negotiations for marriage payments and presiding over funerals Headmen are only the "trumpet" of chiefs Their job is to administer local affairs and to keep order; they do not have the right to allocate resources The key local authorities are ward chiefs These chiefs oversee land and other resource allocations As Quinlan points out (p 11), "Chiefly authorities are the key for government access to, and work, in the rural areas "

Democratically elected councils have done little to reduce the impact of chiefs and other traditional authorities in rural Lesotho In many cases the chairs of the village development councils are usually chief or headmen The allocation of agricultural fields and residential sites is a regular function of land committees, although their utility usually depends on the will of the chiefs or headmen

Land and livestock are the key assets in the rural socioeconomic system Grazing areas are allocated by chiefs to livestock owners Livestock represent the most important way that rural residents can gain access to wages of labor migrants Stock are also the means by which migrants gain security for retirement.

The percentage of households owning livestock in the mountain zone in 1978 was as follows cattle = 59%, sheep = 45%; goats = 47%, horses, donkeys and mules = 79% There was quite a bit of differentiation 51% all sheep were owned by 7% of the households, 51% of the goats were owned by 6% of the households, 48% of the cattle were owned by 9% of the households Herd sizes were small, in the case of cattle, the large majority had 10 or less All had ten or fewer horses and 10 or fewer donkeys Seventy percent of households in the mountain zone owned some stock Due to heavy snow fall and various other reasons 30% had no stock at the time of Quinlan's surveys

Some people gained access to livestock through the mafisa system (long-term loans) Of the population surveyed by Quinlan, 8% had stock on mafisa and 12% had stock which they had loaned out under mafisa. In effect the rich are now benefitting from herding stock of the poor whereas in the past Chiefs allocated out stock to their followers to assist them and get their clientship

Livestock production is a dynamic system controlled by local people The lack of stock is often a temporary condition for households Costs of rearing livestock, once acquired, are relatively low Sharing allows the poor to receive assistance in herding while chiefs protect land access of those people who move away as labor migrants The balance of the report summarizes the conditions in mountain ecological zones and discusses the implications of changes in land use patterns seen in the past decade

Access, Control, and Use of Resources

Traditionally, all tribespeople had the right to land for grazing, arable, and residential purposes All land is vested in the nation, and under customary law land could not be bought or sold. In effect use rights to land (residential sites with accompanying gardens and fields) could be inherited. Married males had usufructuary rights to arable land. The traditional entitlement of arable land per household was three, although many households have one or two fields About one out of every five households lacks arable land. Women usually could not obtain land in their own right. Widows do, however, retain some of the land of their deceased husbands

All people with stock have right of access to range land. Winter grazing areas were subject to control by ward chiefs, and only ward residents could use them (p 15) Summer range land was subject to the control of district chiefs Chiefs could decide to allow access to grazing land to outsiders, but in general allocation was for members of their own communities The grasslands were categorized into at least 16 categories including fields that have been fallowed for 1-2 years (for winter grazing only) and those fallowed for longer periods (all year grazing) In the grazing areas, people had access not only to the range resources but also to the wild plants for food, medicine, construction, and manufacturing of implements

There were chiefly restrictions on the use of range land. In theory, anyone could approach the district chief for use of summer range land. If approved, people could graze stock only in the vicinity of their cattle posts Grazing rights could be inherited, and there is some evidence that rights were sold. Since the 1970s district chiefs were required to issue grazing permits which defined the number of stock that can be kept at a cattle post.

One of the changes in Lesotho was the introduction of grazing associations Lesotho established Range Management Areas (RMAs) with attendant legally constituted resident grazing associations These institutions were experimental, they were made up of people who got grazing rights to an area as part of an organization which had legal recognition The associations were a product of "the recent shift in government policy which aims to introduce tighter controls over use of rangeland, including the establishment of grazing fees and culling programs" (p 40)

Impact on Resources and Sustainability

One of Quinlan's concerns relates to ownership and use of grazing areas and cattle posts A growing problem in the mountain areas of Lesotho is lack of sufficient winter grazing In some cases, people keep stock, especially sheep, at summer grazing posts year round. In general, more and more people are keeping their stock close to their villages in spite of laws to the contrary The winter cattle post areas generally were in the valleys immediately above the villages In the past, these areas were used much less extensively than areas around the villages Now, however, there is greater use of the more ecologically sensitive alpine areas, and there has been a rapid increase in cattle posts in these regions over the past decade

The worst overgrazing is in subalpine winter cattle post areas around villages, the extent of overgrazing decreases as one ascends However, increasing numbers of stock being retained in alpine areas throughout the year, will have a significant impact.

Autonomy and Decentralization

In Lesotho the government is playing more and more of a role in shaping the system of range management, but it has yet to control it. While the chieftainship generally is held in disdain by government officials, it is an integral part of range management. Range conservation projects began in the 1930s in order to control overgrazing and reduce soil erosion As Quinlan points out, "A technicist orientation in the work of government agencies has outweighed broader philosophical considerations about the purpose, role and welfare of livestock and rangeland in Lesotho" (pp 17-8) Although control remains largely at the local level, local people are very dependent on government services

Although locals must share the blame for deterioration of the mountain grazing areas, government policies which emphasize increasing productivity through the introduction of new breeds and disease control are also responsible These policies provide the incentive to rear more stock. "The hidden cost of the system is that it has not promoted use of intensive fodder production to support the livestock" (p 14) Harsh conditions and high mortality rates reinforce the desire also for greater numbers of animals as opposed to a strategy of keeping fewer highly productive animals In the mountain environments of Lesotho and South Africa, greater investments in management rather than culling is the way to proceed.

Several conclusions can be drawn from Quinlan's study (1) In Lesotho the chieftaincy is still of major importance in resource management, especially the ward chiefs who are the center of customary life and who often chair the various development and land committees Though they may be distained by officials, they are the key link. Any livestock development and range resource management programs must take the traditional authorities into consideration (2) The pastoral system in Lesotho is dynamic, it is undergoing changes (e g in livestock loans, in the numbers and distribution of cattle posts, and in livestock ownership and management practices) Populations are increasing, and there are changes in wealth and household socioeconomic status, especially with shifts in the political economy of southern Africa. Land use systems are undergoing transformations, as are community organizational patterns These changes must be taken into consideration in planning (3) Significant increases in productivity are possible with some changes in livestock production and management systems These increases can be brought about with an expansion in livestock extension systems, government and private sector inputs, programs that promote better range management, and government and traditional authorities allowing local communities to have a greater say in the management and use of resources

Related Literature

Ashton, E H. (1967) The Basuto Second Edition London Oxford University Press.

Breytenbach, W.J. (1975) Crocodiles and Commoners in Lesotho Continuity and Change in the Rulemaking System of Lesotho Pretoria. Africa Institute

Duncan, Patrick (1960) Sotho Law and Customs Cape Town Oxford University Press

Division of Range Management, Ministry of Agriculture, Lesotho (1986) Proceedings from the Workshop on Grazing Associations in Lesotho Maseru, Lesotho Ministry of Agriculture and Land Conservation and Range Development Project, USAID

Greenhow, Timothy (1989) Lesotho Community Land Use Plann A Manual. Maseru, Lesotho. Institute of Land

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Use Planning, Ministry of Agriculture, Cooperatives, and Marketing

Hennessy, G (1991) Assessment for USAID of the Palaneng Range Management Area. Maseru, Lesotho: USAID

Lawry, Steve (1986) Livestock and Range Management in Sehlabathebe A Study of Communal Resource Management. Maseru, Lesotho Ministry of Agriculture

Lawry, Steve (1988) Private Herds and Common Land. Issues in the Management of Communal Grazing Land in Lesotho Ph.D dissertation, University of Wisconsin, Madison, Wisconsin.

Murray, Colin (1981) Families Divided. The Impact of Migrant Labour in Lesotho Johannesburg· Ravan Press

Perry, J A.G (1983) "Land and Politics in Lesotho " African Studies 42(l) 57-66. Sheddick, V G.J. (1954) Land Tenure in Basutoland. Colonial Research Studies, No 13. London Her Majestyfs Stationery Office

Tshabalala, M. and S.D Turner (1988) Socio-Economic Census of the Lesotho Highlands Water Project Phase 1A Areas, Volume I Main Report. Maseru, Lesotho Environmental Division, Lesotho Highlands Development Authority

Turner, Stephen D (1982) "Soil Conservation: Administrative and Extension Approaches " Acfricultural Administration 9(2) 147-162.

Turner, Stephen D (1988) "Land and Trees in Lesotho " In Whose Trees? Proprietary Dimensions of Forestry, Louise Fortmann and John W Bruce, eds. pp. 199-203.

Williams, John C (1972) Lesotho Land Tenure and Economic Development. Pretoria: Africa Institute.

26. Community Institutions in Resource Management. Agroforestry by Mobisquads in Ghana

by Clement Dorm-Adzobu, Okeyeame Ampadu-Agyei, and Peter Veit

Summary

As part of the From the Ground Up program of the Center for International Development and Environment of the World Resources Institute (WRI), an evaluation was conducted of community-based agroforestry efforts in southeast Ghana. The present government of Ghana determined that the decentralization of power is critical to the effective participation of communities in the management of their own resources, including natural resources Several "revolutionary organs," such as the 31st December Women's Movement, have been established in order to increase public participation in the development process One such organization, supported by government, is village mobilization squads Mobilization squads, or mobisquads, result from the National Mobilization Programme (NMP) of 1984 and are intended to be the vehicle for channeling human and natural resources of communities towards self-help rural economic activities Mobisquad efforts initially concentrated on relief of immediate disasters, but eventually shifted attention to more economically remunerative project activities such as the construction and running of day-care centers, the restoration of feeder roads, and the construction of schools Funds were often supplied by government agencies but often were supplemented or supported by income from cash cropping or the manufacture and sale of fuelwood and charcoal

WRI evaluated the effectiveness of a mobisquad in Goviefe-Agodome for the development and management of an agroforestry and nursery operation The mobisquad was started by six former residents of the village who were repatriated to Ghana from Nigeria in 1983 These original members of the mobisquad approached the traditional leadership of the village and were allocated 40 hectares (ha.) of communal (stool) lowland (savanna) land on which they established a communal farm The land was previously considered marginal and unproductive by the community and, therefore, was unutilized

In 1986, the mobisquad (with a membership of 41 members or households) cleared and planted a 4 8 ha. farm of cassava, cocoyam, and maize These food crops were interplanted with 2000 *leucaena* seedlings received free from the Department of Forestry An additional 1000 teak seedlings were planted in a separate nursery The sale of crops and the fuelwood and charcoal (from clearing the farm) earned the mobisquad 750,000 cedis (US$ 2500) the first year

Between 1986 and 1990, when WRI concluded its evaluation of the community's activities, the original mobisquad grew to 71 members It has developed a 37 6 ha agroforestry farm, approximately 20 ha. of monocropped cotton, nursed 14,000 tree seedlings, and transplanted another 17,000 seedlings From the farm and related economic activities, the mobisquad realized a return of 3 28 million cedis (US$ 9850), which has been shared among the members and used to build latrines and a clinic The mobisquad has applied for and been granted cooperative status, and has developed plans for other community projects, such as day care centers, repairing the school and construction of a community dam

The group has received numerous citations and awards from government, including the Certificate of Achievement for being the most successful in the Volta region

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Access, Control, and Use of Resources

The mobisquad was granted customary rights to use the stool land for the purposes of developing the communal farm The rights were allocated (and sanctioned) to the group by the traditional leadership of the community -- the village chief, the council of elders and the queenmother There is no additional information on the time frame associated with the allocation rights for the group and whether the usufruct rights were dependent on the continued use of the land, i e whether the land could be reclaimed by the community if the group did not use it according to a set of predetermined and agreed upon conditions However, it appears that the group had a limited, but secure, access to a piece of land

The degree that the community could control the land, or the security of land tenure that the community held for the land, is unclear from the report. It appears that the group had secure rights to control the land However, it would be interesting to understand more about the evolution of the group, in terms of access to membership and growth, and continued control of the land In other words, would the mobisquad have retained control of the land if membership in the mobisquad was closed or restricted? This is true for the continued use of the land -- not enough is known about the rules and interactions among the institutions and individuals to know about the restrictions and conditions placed on the group with respect to the continued use of the land.

Impact on Resources and Sustainability

The natural resources, the land (soil structure, nutrients, etc), vegetation, and ground water, probably benefitted from the community intervention Approximately 38 ha. of marginal land was put into productive agroforestry and an additional amount of land into nurseries However, this has to be weighed against the amount of land that *appears* to have developed for monocropped cotton and its impacts on the soils Basically it appears that the project has increased not only the potential for the land resources, but has increased the potential sustainability of this stool land However, as this points out, neither teak or *leucaena* are indigenous to Ghana, and makes the agroforestry farm and the nursery vulnerable to problems of any exotic species that is monocropped. Impacts outside the communal farm area are so far negligible, since few farmers have transferred the agroforestry techniques onto privately held farms

The institutional sustainability of the mobisquad (later cooperative) appears high The group lacks managerial and administrative skills, but has invested in training WRI speculates that the equitable distribution of the benefits of the farm and associated economic activities has helped The fact that the enterprise has shown a net return so quickly also improves the potential for sustainability

Autonomy and Decentralization

The productive resource (land) appears to be a common property resource. However, other goods or services could also be the focal point of analysis, such as the *leucaena* or the teak nurseries and/or the agroforestry farm The following issues apply to that resource

- The working rules by which the group operates are not clearly outlined in the case study. Therefore, the rules under which the mobisquad operates are unknown However, it appears that, at a minimum, the mobisquad identifies the users of the resource and has established rules for the equitable distribution of the benefits to the members The boundaries of the resource are clearly bounded and identifiable

- It appears that the rules that the group operates under are well adapted to the attributes of the resource For example, the stool land is not divisible among the users and the structure of the mobisquad is established on the fact that the returns from economic activities on the stool land

comes to the entire group. Work schedules and requirements are also developed to insure the equal and continuous participation of all members of the mobisquad It would be interesting to know more specifics on the operational rules and the interaction of imposed institutions (such as the mobisquad) and the traditional institutions in the community in order to determine how well the institutions are adapted to the attributes of the resource

- The extent to which users have operational rules is unclear The Goviefe-Agodome mobisquad organizes meetings to discuss and determine needs and members for specific tasks. However, it is not known how open these meetings are and how the decisions are made

- The members of the mobisquad monitor compliance with the rules

- Penalties for infractions of the rules can be quickly applied and potentially severe For missing a scheduled communal work day without a reasonable excuse, a fine of two bottles of local gin *(akpeteshie)* is imposed to be shared by the rest of the work crew The cost to the fined party is high (1200 cedis)

- Resolution of disputes or conflicts (either intra- or intergroup) is not clearly explained in the case study

- The interaction of the mobisquad and other institutions is not completely understood by the reader The authors mention that a number of overlapping institutions exist in Ghana and in other villages the roles of each often have become confusing, and sometimes antagonistic. Within Goviefe-Agodome, traditional institutions clearly have supported the establishment of the mobisquad and provided it with resources, such as land The traditional institutions have also lent credibility to the mobisquad as it was being established Over the last 6 years, the mobisquad has grown to include almost every household in the village However, it is recommended that the government develop guidelines on institutional relationships and responsibilities in order to reduce tensions and confusion

- Central government in Ghana has supported the development of community institutions, in the form of mobisquads, for increasing the participation of communities in rural development. However, the authors recommend that government could be more actively involved in assisting the most viable local institutions in the management of resources Training and focused discussion groups involving members of numerous communities could be supported by government and increase the awareness and dissemination of successes between and among communities

Unique Attributes

It appears that Goviefe-Agodome had excess communal (stool) land available for community development projects It may be that the land was considered of such marginal quality (as implied in the case study) that it was previously unallocated

A second characteristic of the community that may have provided the impetus for social action is the return of the original eight mobisquad members from Nigeria. They returned to their home community after several years of absence (and continual employment) to face limited economic opportunities in Goviefe-Agodome

The structure of community involvement that has been supported by government, through the NMP, increased the possibility of group action Inputs and extension services appear to be more accessible to groups than to individuals

Finally, the nature of land tenure contributes to the necessity for social action. The mobisquad was allocated exclusive rights to use the land for the group. Therefore, the group was assured tenure security, in the case of their capital improvements to the land (trees, structures, etc). The land apparently was not further divisible, thereby increasing the need for the group to cooperate for the purposes of the agroforestry farm and the nursery

Related Literature

Dorm-Adzobu, C , and Peter Veit, *Popular Participation in the National Environmental Action Plan in Ghana A Preliminary Analysis of the Roles of Community Level Institutions*
Washington, D C . World Resources Institute, 1990

Government of Ghana, *National Mobilization Programme Guidelines for Mobisquads*. Accra: NMP, 1985.

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27. Report 5: Community Woodlot Study. Land Tenure Project. Mopti, Mali

by R. McLain, B. Ba, and M. Koloma

Summary

The report evaluates the success of village woodlot plantations (an AID/Service des Eaux et Forets [EF] project) in the Fifth Region, central Mali A team of three (land tenure, forestry and legal specialists) conducted a rapid rural appraisal in mid-1991 in six villages to determine roles of villagers and project agents in setting up woodlots, incentives to encourage participation, mobilization of labor to create and manage woodlots, present use and future expectations of woodlots Study villages were selected to reflect level of success of woodlots, ethnic composition, history, physiography (floodplain/upland) and land-use patterns

Almost all trees are exotics Neem predominates in five woodlots, *Prosopsis* in the sixth Villagers prefer fruit trees or native species Woodlots were established between 1983 and 1985 and range in size from 0 25 - 2 5 ha. All originally had protective live or dead fences which have subsequently fallen into disrepair or disappeared Three had on-site wells installed, one a nearby village well and the remaining two were serviced by more distant wells In five villages crops are grown in the woodlots, in one of the five livestock forage in the dry season

Four woodlots were virtually unused and unmanaged when studied Villagers saw no value in the plantations, had obtained virtually no forest products and had no plans for expansion The remaining two woodlots seemed more successful for several reasons First, food aid and development loans were provided coincidentally at the time of establishment. These were perceived as being related to work on the woodlot though in actuality were not Second, local tree experts were in charge of management and some harvesting had taken place Third, village associations functioned smoothly These successful woodlots had been expanded on village initiative

Three underlying objectives of the project were to make EF a community extension as well as regulatory body, to provide villages with a sustainable self-managed wood supply, and to thereby reduce degradation of local vegetation The image of EF remained regulatory and largely adversarial. Limited technical extension was provided and little effective educational effort was evident Villagers perceive little use for the plantations now or in the future since they are afraid to cut trees They asked for fruit trees and native wood species and received neither National law vests native and planted trees under state ownership Provision is made for free cutting permits, even if wood is to be sold These provisions were not clearly understood by villagers Pruning was only undertaken when requested by EF

The report makes recommendations to manage existing woodlots and guidelines for establishing new ones based on failings of the project to date In existing woodlots it is recommended that EF inventory and assess harvest potential, help villagers develop harvest schedules and issue free cutting permits.

Evaluation

Wood resources are in short supply, particularly in floodplain villages Woodlots represent a clearly bounded resource in contrast to wood collected from the bush Even where native vegetation is severely depleted, woodlots were virtually unused. The current use of native vegetation and woodlots is clearly unsustainable The two more successful woodlots were in floodplain villages where local vegetation is more depleted than in the upland This fact may have been an additional contribution to success (not stated in paper) All three upland woodlots, where native woodlands are more abundant, were relative failures (see below for third floodplain village) Clearly the project had little impact in reducing resource degradation

Although potential woodlot users are well defined by village, most are ethnically and economically diverse and virtually disconnected from the woodlots as a productice resource. The two successful woodlots are in villages with individuals knowledgeable of tree husbandry. In other villages technical knowledge was inadequate, although simple training would have been adequate

Institutions to create a woodlot movement were non-existent Concerted action by village associations and EF was not sustainable Jurisdictions, access, tenure and distribution of costs and benefits were unclear or negative in the perception of participants Government rules, including penalties inhibit woodlot management since they were designed to prevent cutting from the bush Users did not think that they were able to use rules to their advantage Jurisdiction over trees was seen to rest with EF, not with villagers Tree species (aliens) and products (no fruit) were not adapted to village needs Two woodlots were more successfully managed on individual initiative rather than by institutional success

The authors make no substantive suggestions as to types of individual-oriented activities or community-based institutions that might be more successful. Re-orientation of EF to community-oriented extension rather than purely regulatory functions will be a major undertaking Yet it is a prerequisite to effective local management of community woodlots The issue of management of native forest resources, where presumably most forest resources come from, is not addressed

Autonomy and Decentralization

Although a major objective was to localize woodlot planting and management, EF provided the initiative (subject to village agreement) chose the species and was perceived as remaining the controlling agency Village associations (or other self-help groups) were successful in mobilizing labor to establish woodlots, but subsequent interest in management was poor in most cases No new institutions were created Hopes that EF would become a technical and educational extension service were not realized The agency remained the prime regulator (and disincentive to effective management) Most villagers maintained a "hands off" attitude to woodlot management to avoid fines for pruning or other cutting They were reluctant to request cutting permits Success depended upon strong village associations, allocation of responsibility to village tree experts, and perceived incentives (food for work, provision of wells, desired species)

Overall the authors suggest that individual-oriented forestry activities may be more effective than community based woodlots Recommendations aimed at autonomy and decentralization in community woodlots include the following

- a woodlot title be issued to the planting group with provision for pruning, cutting and sale of its products and no payment to EF clearly stated;
- villagers choose species to be planted,
- where village associations are weak or divided, alternative institutions may be more appropriate,
- each woodlot should have a local tree expert to be caretaker and to liaise with EF;
- EF should train tree experts where necessary and provide appropriate extension services.

Study-specific Attributes

Study villages were very diverse socioeconomically. Limited success was related to a complex of factors, some of which are controllable and reproducible, and some not For example, the one floodplain village woodlot that failed is short of land and politically dependent on a neighboring village, thereby limiting its autonomy. Some villages are short of labor at crucial times due to labor migration

Related Literature

None cited.

28. Le Sahel en Lutte Contre la Desertification - Lecons d'Experiences
by Rene Marceau Rochette

Summary

This volume is a collective effort carried out under the direction of its principal author Rene Marceau Rochette Its preparation was sponsored by the German aid organization Deutsche Desellaschaft fur Technische Zusammenarbeit (GTZ) under a joint program with the Comite Inter-Etat pour la Lutte Contre la Secheresse au Sahel (CILSS)

The book has two major sections The first presents a description and analysis of 21 cases of experience in desertification control, and natural resources management and improvement by local communities with support from bilateral and multilateral assistance organizations as well as NGOs Each of the cases was prepared by Sahelians and expatriates with guidance from Rochette and/or his principal collaborator Marie Monimart of the Club du Sahel The second section is an attempt to analyze the lessons learned from the cases in terms of 1) identifying the effects of drought and desertification on the Sahelian eco-systems, the Sahelian people, development projects, 2) the technologies that have proven successful under specific agro-ecological conditions, 3) how to initiate and support effective participation of local resource users and allow them to become masters of their own development, and 4) formulating concrete proposals for implementing a global approach for achieving a new "socio-ecological equilibrium" in the Sahel

The 21 cases were chosen from a larger sample of 97 initially identified Each case presents a description and analysis of

- the physical environment,
- the social characteristics of the community and the predominant production systems;
- the principal technological interventions, their costs and benefits; and
- the socio-economic impacts of the project or intervention.

The cases cover Burkina Faso (9), Mali (5), Niger (5), Mauritania (1), and Senegal (1) The technical interventions include water harvesting for agricultural purposes, agro-forestry, small water retention dams and dikes, irrigation agriculture, and anti-erosion structures The case studies are somewhat uniform in their detailed treatment of the physical environment (meterological and biological and geographic data), and in their decriptions of the technical interventions Although the human organizational and institutional aspects are discussed in each instance, the depth of this analysis is somewhat limited The socio-economic diversity of community members and the broader set of actors, institutions, and policies that could impact on the success of the interventions is rarely dealt with.

Conclusions

Rochette has assembled a valuable body of information on a wide variety of actions undertaken in response to drought conditions and desertification in the Sahel Among the cases one finds a number of

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"success stories" where the existing organizational structures combined with appropriate social mobilization methods and sound cost effective technologies have produced what appears to be sustainable improvements to NRM systems Where weaknesses exist, particularly with regard to local collective action, the case study authors are quick to point out that initial positive technological impact may not lead to long-term sustainable results

Rochette takes us along the "path of experience" in the section of the book following the case studies To set the stage he provides an analysis of the Sahelian drought with historical data on rainfall, vegetation, soil, and the effects of desertification on rural dwellers and their production systems An important and valuable part of his diagnosis is a breakdown by zone of the principal causes of desertification, the specific forms they take, the effects they produce on the environment and natural resources, and for each, the types of physical and social actions needed to mitigate their negative impacts

Perhaps the most thorough part of the synthesis of experience is the inventory of anti-desertification technologies Here Rochette not only provides extensive details on physical sturctures and construction techniques, he also demonstrates through graphic illustration how the various technologies work in relation to the environment. The technologies inventoried are taken from the case study material and cover the following areas

- dune stabilization,
- water harvesting - storage - distribution;
- water and soil conservation through mechanical and biological means;
- agro-forestry

The final two chapters of the synthesis focus on people In this analysis there are many parallels to the DFM NRMs analysis As opposed to the case studies, Rochette emphasizes the internal socio-economic diversity within village communities What is lacking however, is a discussion of how this diversity creates incentives for different actors to participate in collective action or to adopt improved NRM techniques The analysis of incentives is critical not only to the understanding of rural populations and how to mobilize their voluntary participation in NRM activities, but also to the agents of development (government service technicians and external advisors), and what incentives they have to engage local communities in effective problem solving dialogue and action

Under the heading of information, training, and organization, Rochette presents a number of important points He suggests that one of the most promising and cost effective methods to demonstrate the utility of NRM techniques and how collective action can be organized is through exchange visits among rural communities The opportunity for first-hand observation of successful action by peers is a powerful extension tool that allows people to draw on the experience of others and adapt it themselves to their specific needs and milieu The importance of knowledge and understanding of formal national laws and institutions is also stressed Rochette points out that there is a serious lack of understanding among rural Sahelians of the institutional and legislative framework that affects their daily lives

Rochette does not propose blueprints for village organization and recognizes the failings of standardized

models for local organizations that governments and donors have attempted to impose on rural Sahelians. He encourages the emergence of diverse forms of organization in response to the particular needs of collective action problems and suggests that outside interventions must have an organizational partner through which to work

On the subject of land tenure, Rochette recognizes the severe constraint the absence of clear tenure and use rights poses on rural people's willingness to invest in NRM improvements. Three specific cases where the land tenure issue is particularly problematic are.

1) women's access to land;

2) rented lands,

3) common property and open access lands

Rochette recommends that immediate legislative reform be promulgated in the Sahelian countries to guarantee equality to women under the law, and to give full property rights to local communities for collective lands including the right of the community to make decisions on use rights of improved lands

In a final chapter Rochette presents a new approach to the problem of environmental degradation in the Sahel The main objective of his "global approach" is the full and voluntary participation of rural people in the struggle against desertification The approach is similar in many ways to the "amenagement/gestion des terroirs villageois" (A/GTV) strategy that has become popular in the development community in promoting more effective local-level NRM by peasant smallholders and pastoralists

A/GTV is described as global, participatory, multisectorial, integrated, and long-term in orientation. It is concerned with the complex inter-relationships that link production systems and ecosystems, and attempts to integrate the local time and place knowledge and information of rural populations in dealing with their environment. Rather than focusing on a particular crop, sector, or production technology A/GTV focuses on the resources and productive activities undertaken on the totality of the private and collective lands socially recognized by a village community

Although A/GTV is an attractive and promising approach to the promotion of local participation in improved NRM, there are several shortcomings that should be pointed out. Firstly, A/GTV assumes that the presence of common property and private lands within the "terroir". In many cases, particularly with regard to pastoral production systems, lands are open access goods and therefore pose a markedly different set of problems from a management perspective Where pastoral communities and sedentary farming communities and their production systems overlap spatially, the problems of management and improvement become even more complex.

Secondly, A/GTV does not specifically take into consideration the high degree of socio-economic diversity found in rural villages Differentiation by gender, seniority, wealth and power, access to labor, etc can have profound effects on the incentives of individuals to manage resources and respond to A/GTV interventions Thirdly, by limiting the unit of analysis to the village "terroir" A/GTV fails to address the importance of non-farm income generating activities that for many Sahelians constitutes a significant portion of their economic activity and can take place at great distances from the village.

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Rochette's review of experience in improving NRM in the Sahel is a valuable source of technical information and suggests new ways of looking at popular participation in the development process To move beyond the individual success stories and intervention strategies to more policy relevant analysis, important questions on how to support the emergence of local self-governing NRM systems through broader institutional change must be studied.

29. Opportunities for Sustained Development - Successful Natural Resources Management in the Sahel

by Asif Shaikh, Eric Arnold, Kjell Christopherson, Roy Hagen, Joseph Tabor, Peter Warshall

Summary

In this four volume report are the results of an AID sponsored evaluation of " on-farm agricultural production practices that show promise for sustainable agricultural growth " in four Sahelian countries - Mali, Niger, Gambia, and Senegal The evaluation team visited approximately 70 sites in the Sahel to interview farmers/herders and extension agents to determine the type of intervention, the reasons for its introduction, and the success of the intervention The four volumes include the Main Report (Methodology, Summary, and Conclusions), Case Descriptions, Financial Analysis, and Biodiversity discussions.

An interdisciplinary team of NRM specialists toured sites in the four countries between November 1987 and January 1988 Prior to each country visit, team members sought evidence of ongoing successful NRM activities from knowledgeable professionals Considerable time was spent determing the kind of information to be collected and the criteria for measuring and classifying success Success can be difficult to define and methods for determining success are often difficult to develop For the site examinations, the team determined an intervention a success if it accomplished one or more of the following

- o improved soil fertility or halted its further degradation,
- o improved water use or water quality management,
- o increased vegetative cover, especially in order to increase soil stability (decrease erosion), improve soil fertility, or manage water quality,
- o maintained or improved conditions for biodiversity, and
- o saved or reorganized human energies so that individuals or communities had more time to devote to NRM

The interventions (or initiatives) included an entire range of technologies expected to accomplish the above NRM conditions Water retention and small irrigation dams, salt barriers, vegetative strips, contour plowing, diversion bunds, live fences, dune stabilization, natural forest management, community and individual woodlots, nurseries, agroforestry, and improved stoves represent some of the initiatives examined Some of the field sites demonstrated a comprehensive or multiple intervention strategy - e g water retention dams used for agroforestry techniques and contour plowing

A standardized approach to collecting field information was developed for each country and for each potential site, which included

- o intervention (activity) should have been on the ground for at least three years;
- o sample should include each major natural resource - water, soil, fauna diversity, flora diversity, and human energy,
- o logistics

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Upon arrival in each country, the team spent a few days with national officials, USAID and other key contacts in the capital in order to select sites, review documents, make appointments with field personnel and integrate AID and others into the team

In each country, teams of two to three natural and social scientists were developed. In conducting the field work, the teams focused on NRM interventions, not projects
Over 70 interventions in the four countries were visited, most of the visits lasting one-half day and many of them only a few hours

At each site the following information was determined.

Basic Information

- o Location
- o Participants in the visit
- o Major characteristics of the location (soils, vegetation, water)
- o Number of hectares affected
- o Special characteristics of the case
- o Traditional land use practices
- o Nature of the initiative

Description of the Initiative

- o Technical measures taken
- o Social organization of the initiative
- o Economic incentive system
- o Socioeconomic data

Conclusions

The results of the field studies indicate that successful interventions have been initiated in a number of broad NRM sectors The Opportunities Study highlights some of the reasons for the apparent success of these initiatives In conclusion, the team presents a series of ***NRM themes for success*** emerging from the assessment. These themes are divided into four categories and have direct relevance to the DFM NRMs analysis, mainly because they reflect observations regarding human and institutional interactions

Values, Interest, and Knowledge

- o information transfer must harmonize with local experience and knowledge
- o popular support in stabilizing and improving NRM activities must exist
- o value changes in NRM develops from rapidly changing environments and economic contexts
- o a thirst for NRM and agricultural biodiversity knowledge is strong
- o cultural and religious settings play an important role in NRM
- o long-term success of NRM activities is dependent upon improved conservation education

Conflict Resolution

- Conflict resolution is an important, under-emphasized and under-funded aspect of NRMS,
- Resolution of resource tenure issues is critical to NRMS success,
- NRMS has not found an institutional home in Sahelian government structures,
- NRMS activities needs to be coordinated with existing governmental activities, and
- farmers need to be involved in design, implementation, management, and evaluation of any initiative or program

Human Energy for Natural Capital Formation

- Labor intensive actitivities are replacing capital intensive
- Conventional NRM financial analyses do not accurately take account of the dynamics of the rural economy
- Managers are being hired from local areas (this is advantageous)
- Technologies that can be taught farmer to farmer are beneficial

Initiatives and Techniques

- Many workable appropriate NRM techniques exist in the Sahel
- It is often better to intervene at several levels or in several sectors rather than at a single level or in a single sector
- Multiple benefit, risk-minimizing interventions produce tangible results
- NRMS initiatives can catalyze local organizational development
- All things being equal, choose small scale, incremental, diversified NRM projects

Volume II of the Opportunities Studies provides more detail on the field sites and the interventions of the 70 case studies It is clear that the results of the case studies lend themselves to further institutional analysis The information collected by the teams provides insight into the socioeconomic and institutional reasons for the development and/or acceptance of the technologies used within the communities An institutional approach as employed under the DFM framework would follow-up by assessing in more detail the social, cultural, and economic working rules that the community (or groups or members of the community) develop and use The DFM approach also would be interested in determing the relationship of individuals and groups to the good being utilized within the community (i e natural resource or commodity)

30. The 'Bouna Agreement'

by Asif Shaikh

Summary

The Bouna Agreement entails ongoing negotiations, with assistance from the IUCN over a period of years, to promote agreement among members of communities that are involved in a variety of production systems (herding, fishing, agriculture, hunting), within a highly diverse ecosystem in Mali's Interior Delta region, on the use of common resources and approaches toward handling conflicts over resource claims

The agreement aims to "create a new series of common property laws to replace the current contradictory mix of local village lineage claims, rules promulgated by the Fulani Dina in the nineteenth century, French colonial law, and more recent national common property access rules" (II 26)

"The agreement 1) vests rights of forest ownership to local villages, 2) places power of local management into the hands of the dioros and village chiefs who are the managers historically, 3) formalizes fishing rights that already exist, 4) enforces a no cutting policy for trees for enclosures or browse, 5) forbids harvesting of heron nestlings for two years, 6) restricts entry of goat herds (destructive overgrazing of the bourgou grass and trees), and 7) obtains backing for the agreement from the appropriate administrative entities of the Malian government (II 26)

Summary and Evaluation

No details are provided by the case study description on results of the agreement.

Issues related to autonomy and decentralization

To what extent will participating populations buy into the new laws that result largely from negotiations among diverse user groups under conditions where each user group stands to gain and lose relative to overall provisions of the agreement?

As a means of orienting actions by user groups relative to NRM and to their co-relations are resource users, how effective is the agreement as an organizing structure? Where, in terms of particular groups or individuals, does final authority reside, and how clearly do different levels of government provide clear-cut backing for the compromises and provisions of the agreement?

To what extent are user groups, either individually or in some combination relative to the agreement, able, and perceive themselves as being able, to make decisions relative to resource management and conflict resolution? Given the limited amount of detail provided by the case study description, a closer look is needed

Additional references

Skinner, J. (1988) "Towards better woodland management in Sahelian Mali." Pastoral Development Network Paper, No. 25, March. [see abstract in ARDT, 5(2), #7613.

31. The Guesselbodi Natural Forest Management Experiment

by Asif Shaikh

Summary

The Guesselbodi Natural Forest Management project, which began in 1981, and was financed by USAID until 1989, endeavors to promote local-level management of natural woodstock and rehabilitation of a degraded forest area through a focus on appropriate technical and organizational approaches toward ensuring participation and commitment by user populations

The project is widely considered a successful example of local-level management of natural resources based on a combination of top down and participatory approaches (Thomson et al. 1988), and appears to have inspired aspects of initiatives to promote improved local level management of woodlands elsewhere in the Sahelian region (see, for example, the CCCE/FAC-financed Projet d'Appui a la Gestion des Terroirs, Dan Gna, Niger; and the FAO/SNV- financed Projet Gestion Forestiere et Amenagement du Terroir Villagois, Banamba, Mali)

Evaluation

The project appears to owe its success to date to the ability of local populations, with technical and donor assistance, to obtain privileged status relative to existing and restrictive government regulations and practices relative to access and use of renewable resources in the forest area. The positive response of user populations in the area's communities has resulted from benefits from several project initiatives, including the following

- Assistance from the Cooperative League of the U S.A. with establishing cooperatives that comprise credit mutuals and a marketing cooperative for fuelwood sales
- The status of the woodcutters' cooperative as the first such structure in Niger where local groups have obtained management rights over natural resources
- Project activities that are oriented toward promoting, on the one hand, a combination of longer-term natural resource management objectives, and, on the other, responding to shorter-term community needs, by, for example, providing income through employment opportunities, benefits from the cooperative marketing of fuelwood, cutting permits, etc , which are exempted from commercial taxes
- Exempting woodcutters in participating villages from paying cutting permit fees.

Issues related to autonomy and decentralization

Of particular significance to the sustainability of the Guesselbodi experience and similar initiatives elsewhere in Sub-Saharan Africa, are the following points and questions

- To what extent is success dependent on special technical and political support?

- Land tenure issues remain unresolved, and the state retains its position as final arbiter of land disposition

- Are the provisions that cover the participating communities continuing exceptions to existing government practice on natural resource management, or are these a harbinger of more fundamental changes in government policies on NRM? If Guesselbodi is an exceptional case, thanks to the leverage made possible by USAID financial and technical assistance, what are the obstacles to generalizing the enhanced local ability to make decisions concerning renewable resource management in other areas some 15 years after the advent of Niger's Societe de Developpement, and after several years of effort by the government to elaborate a Rural Code?

- More generally, to what extent do rural populations elsewhere in Niger have multi-level state backing (legal authority) to manage renewable resources and negotiate patterns of use, investment, and conflict relative to renewable resources?

- If Guesselbodi (like Damana, Mali) is an exception, what lessons can we learn from it relative to local and super-local conditions that are conducive to local autonomy, and which provide the basis for legal and policy reforms that support local initiatives in the area of natural resource management? To what extent are these lessons embodied in current formulations of Niger's RuralCode?

Additional references

Heermans, John G (1986) "The Guesselbodi Experiment in Improved Management of Brushland in Niger," IDA Development Anthropology Network, 4(1) January, pp 11-15

Thomson, James T, Alfred Waldstein, Sheldon Gellar, and Jerry Miner(1988) Options for Promoting Governance of Sahelian Renewable Natural Resources, Burlington Decentralization Finance and Management Project, Associates in Rural Development, Inc. pp 77-84

32. Contribution a la mise en place d'un nouveau systeme de credit rural. Banh, Burkina Faso

by Modou Diop

Summary

Diop's thesis describes efforts by the not-for-profit Burkinabe association, Sahel Action (est. 1990), to use elements of the Grameen Bank approach to facilitate access to small loans by agropastoral populations in the Banh department, which is located in the extreme north of the Yatenga province The introduction describes major factors in the breakdown of longstanding structures for managing access to a large forested area (the Foy forest) which has been used by generations of Fulani herders, former Fulani captives (Rimaibe), and other resident populations (Dogon and Bella)

For more than one hundred years, Fulani chiefs from the Tangawbe lineage of the FoynankoBe clan, which settled in the Banh area after migrating from Macina (Mali), managed access by agropastoral populations to the Foy forest, cattle passageway areas, and nearby grazing areas

Successive droughts from 1974 to 1984 caused major changes in the organization of agropastoral production Pastoralists shifted emphasis from herding cattle for dairy products to herding small ruminants for marketable meat Also, cultivators became more involved in raising livestock, while herders become more involved in agriculture Off-farm, often long-distance, income-generating activities proliferated as area inhabitants endeavored to reduce reliance on rainfed agriculture and pastoralism as source of real income in the face of agricultural decline, drought and serious herd losses

Population pressures increased as drought-stricken populations from Mali moved into the area. In 1984, the Burkinabe Reforme Fonciere abolished the authority of local chiefs, hence the Fulani chief in Banh lost his ability to manage access to renewable resources in and around the forest area.

While the Burkinabe state claimed to have ultimate authority in land and resource issues, it did not provide a viable local alternative to earlier Fulani management structures, or an effective means of handling conflicting interests and claims on local resources Relying more on rainfed grain production, the Rimaibe gained greater autonomy during the drought years relative to their ex-masters whose herds were decimated. Rimaibe also gained access to new power via integration into the state backed Comites de Revolution (CR) and the Comites de defense de la Revolution (CDR)

This enabled Rimaibe to forge political alliances with Mossi, whom they sponsored as settlers in the area, leading to disruptive clearing and land used practices by Mossi settlers in the forest area, and Rimaibe and Mossi gains in access to and control over productive resources at the expense of resident Fulani Mossi also gained access to local state-backed decision-making bodies.

Evaluation:

Loss of autonomy by Fulani leaders due to policies of the Burkinabe state to centralize control through the overthrow of local authorities has produced a situation where preexisting arrangements for management of access, control and use of renewable resources in the Foy forest area, and for handling conflicting claims, have broken down

Former management criteria, which no doubt reflected the interests of the Fulani, but which are described implicitly as equitable relative to multiple use claims, appear to have been replaced by criteria that more closely reflect the interests of two competing groups These are resident Rimaibe who may have an ax to grind with their former masters, and settlers from the Mossi ethnic group, which is hegemonic in the Burkinabe state, and which is widely known for its expansive colonization patterns and arguably non-sustainable agricultural practices

Issues related to autonomy and decentralization

Under conditions of increasing user pressure in the area, and in the management vacuum created by state intervention in 1984, and subsequent loss of local resource management autonomy, there is a need for a constitution or reconstitution of representative local bodies to ensure more broadly responsive management of renewable resources, and for state backing of these local management bodies This promises to be difficult given the apparent shift in power relations and the insertion of new and competing claims on local resources as represented by Mossi settlers and resident Rimaibe

One can question the intervention priorities of Sahel Action, which decided to facilitate local access to credit rather than directly address problems with natural resource management. But Sahel-Action identified poverty and disrupted livelihoods as priority issues, and focused initially on measures to demarginalize pastoralists and reinsert them into potentially viable livelihoods The assumption is that positive movement in this direction will contribute to more effective local capacity to deal with NRM issues (cf Blaikie and Brookfield 1987, Koenig 1990)

Closer attention is required in the Banh case, to clarify the strategies (including rules of access and use) that were used by Fulani leaders prior to the breakdown of local management autonomy under the impact of the government's RAF, to mobilize populations relative to resource management, and to current resource management and conflict resolution practices (or lack thereof)

A closer look is also needed in the case of shorter-term possibilities for exploring mechanisms that enable local populations that are benefiting from Sahel Action-assisted economic recovery to engage in efforts to improve resource management in the forest area. This will require attention to the fact that the idea of "local community" must be redefined to reflect the changing demographic and ethnic composition of resident populations, as well as the fact that the Mossi in particular may have privileged access to state resources.

This closer look, which needs to examine the socioeconomic context of Sahel Action's credit programs, must also pay particular attention to actual processes (as opposed to government portrayals of these processes) of "decentralization" in Burkina Faso relative to the RAF, the nature of possible obstacles to effective power transfers and local decision-making autonomy that the government has introduced during the last decade, and the impact of recent changes

Will, for example, recent decisions by the Burkinabe government to reinstate local chiefs in development-related decision making have an effectively positive impact on the possibilities for local-level autonomy relative to NRM? This recent strategy by the government, and its effects on local-level processes requires close attention

Additional references

Adamou, D (1990) "Etude des systemes de culture en milieu "eleveurs". cas du territoire de Banh. Memoir DIAT Montpellier CNEARC, CIRAD-DSA.

Blaikie, Piers M. and Harold Brookfield (1987) Land Degradation and Society London Methuen and Co

Buju, J and Ellsasser, K. (1990) "Analyse ethno-sociologique des trames foncieres dans le department de Banh " Rapport final, Fascicule 1, Projet Vivrier Nord Yatenga. Ouhigouya. Juin.

Ehret, P (1988) "Contribution a une perspective de developpe ment d'un systeme d'elevage sahelien: cas de Banh, Burkina Faso " Memoire DAA/DAT, Dijon ENSSAA, CNEARC, CIRAD-DSA.

Koenig, Dolores (1990) Land Settlement Review Country Case Study Mali Binghamton. Institute for Development Anthropology

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Project Title: Agricultural Sector Development Grant II

Duration: 1990-1995

Location: Niger

Project Numbers· 683-0257 and 683-0265

This grant program has been used and tested as a vehicle for achieving USAID's principal policy reform objectives.[1] One of the principal findings that came out of ASDG I was the importance of political decentralization and the increased roles of the regions and sub-regions in development planning and implementation. Proposed areas of interventions for ASDG II were:

1. Support for regionalization and decentralization. Under this component, attention would be given to the means of involving local populations in the identification, implementation and management of small NRM projects. Also, training programs would be used to develop a body of qualified managers at the central, regional and sub-regional levels

2. Support for Code Rural preparation. The Code Rural governs the use and disposition of land and water resources. It could be a building block for the for a meaningful policy framework. Hence the importance of using it as a vehicle for significant policy reforms.

The existing political and administrative structures would be used as the basis for NRM policy changes. But ASDG II is also to capitalize on the change in regulation and practice brought about by ASDG I's community organization building. Since many NRM practices were implemented on common property, villages were obliged to organize their individual members and sometimes establish cooperative structures that included neighboring villages. Those collective structures were often based on traditional structures and were legally recognized not only to manage their natural resources but also to pursue other economic and social benefits in the interest of their members.

ASDG II was designed in light of the recognition that policy reform and political and administrative decentralization were needed to achieve sustainability in natural resources management. The Policy reform program is a major component of ASDG II. This program is to assist the GON to implement policy and

[1] October 1989. "Institutional Analysis for ASDG Planning." Management Systems International.

administrative reforms related to tenure and resource use, and to the roles of specific public and private sector institutions which can serve as agents of change in promoting rural development.[2] The following policy actions are to be accomplished by the end of the program:

1. Natural Resource Management

- *Development of a coherent national policy and action plan for NRM.* This entails: (a) the preparation, adoption and implementation of a National NRM Strategy (NRMS); (b) its integration with the National Conservation Strategy; (c) the adoption of the technical handbook on environmental impact studies; and (d) the move from plethora of discrete NRM projects to coordinated national NRM programs.

- *Substantially increased security of resource tenure guaranteed by GON.* This entails: (a) the preparation and adoption of the Code Rural (studies and other work); (b) the design and implementation of a national publicity campaign on the principles and procedures for applying the new Code; and (c) granting newly secured tenure and usufruct rights to individuals and communities for better NRM.

- *Decentralization and progressive transfer to local institutions of NRM rights and responsibilities for planning and implementation of NRM projects.* This involves: (a) designing and conducting NRM workshops for local leaders; (b) a joint GON/USAID study on administrative reform necessary to ensure effective decentralization; (c) pursuing the application of decentralization policy; and (d) supporting demand-driven NRM programs [no further details].

  With respect to decentralization of NRM, (a) local communities are to be given the responsibility to manage their natural resources; (b) the rights and responsibilities for NRM are to be transferred to local populations; (c) decision-making and executive powers for program development are to be transferred to local institutions; and (d) demand-driven programming for NRM projects is to be institutionalized.

2. Institutional Development: ASDG II will use a combination of policy reform and institutional strengthening to address existing constraints for service delivery. This is to improve government coordination and management of the resources put at its disposal

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[2]U.S. Agency for International Development. 1990. "Agriculture Sector Development Grant II." USAID/Niger. Project Nos. 683-0257 and 683-0265. Program Assistance Approval Document and Project Paper.

and to enhance the mutual understanding of NGOs, government and communities. NGOs' and other rural institutions' participation in NRM is to be enhanced.
For this purpose, the **Ministry of Agriculture and Livestock** (MAL) will receive assistance in (a) the development of information systems (personnel, equipment, infrastructure and Geographic Information System, sectoral and regional coordination of development actions); (b) establishing and installing a job description system, (c) establishing a training plan and assignment policy for personnel; (d) establishing a strategy for monitoring personnel careers; (e) designing a program budgeting system and a guide for conformity of donor projects with program budget objectives.

Also as part of the institutional development component, the participation of **NGOs and other rural institutions** in natural resource management is to be strengthened through (a) GON-NGO Roundtables and action plans for implementing recommendations; (b) technical assistance by USAID; (c) establishment of a NGO local currency fund and a project monitoring system for each project funded, (d) study tours of model NRM activities NGOs/GON/private sector; and (e) joint GON/USAID/NGO evaluations of sample NGO projects under the grant.

Bibliography:

USAID. 1990. "Agricultural Sector Development Grant (ASDG) II." USAID/Niger. Program Assistance Approval Document (683-0257) and Project Paper (683-0265), Vol. I.

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Project: Gambia Forestry Project

Project No.: 635-0305

Duration. August 1979 - March 1986

Location: The Gambia

A/ **INTRODUCTION:**

* According to the Project Paper, "[a]lthough no reliable estimate of forest and woodlands has been made since 1968, all indicators point towards a continued depletion of the forest resource. These indicators include: increasing demands for forest products from growth in population; increasing clearing of forest areas for shifting agriculture, continued damage of wooded areas as a result of uncontrolled fires started in order to prepare land for grazing and cultivation; soil desiccation and wind and water erosion; and the area's increasing vulnerability to drought."

* The purpose of the project is "to stabilize and reduce the gap between consumption and production of wood and wood products in The Gambia." The goal is "to slow and eventually reverse the accelerating depletion of the natural resource base of The Gambia."

* Five project components were laid out in the Project Paper: (1) **Training** to add to the Forest Department's skilled personnel with respects to establishment and management of village and large-scale plantations; wood utilization at the village level and commercial scale; techniques of forestry extension and village outreach, (2) **Outreach** for media campaign and extension activities on establishment, management, and utilization of woodlots and other village plantings; (3) **Technical assistance** for feasibility of mangrove exploitation and of wood production and utilization; (4) **Production** to support The Gambia's on-going program of establishing large-scale plantations for urban needs and (5) **Utilization** with focus on logging and milling equipment (purchase and installation) in Nyambai.

* The problems are: forest resource depletion, high population growth; shifting agriculture; uncontrolled fires; soil desiccation; wind and water erosion and vulnerability to drought. Later, a problem of water salinization was associated with increased irrigation.

* The resources are land and trees (woodlots and plantations).

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B/ **QUESTIONS**:

1.a. How are users organized? [Types of institutions].

Creation of users' cooperatives to manage the large-scale plantations was one of the recommendations made to the Project by the team who did the sociological analysis for the Project.

Meanwhile, communities have traditionally been organized in (1) Compounds, which include cooking units (women groups and relatives) and (2) agricultural work-units, which are groups of brothers or cousins--sometimes women--who decide to cooperate in agricultural production. These groups are not formally organized.

It was not clear from project evaluation documents which types of institutions were used by the Project as units of implementation.

1.b. What rules govern membership?

2.a. What role do the users have in formulating the rules governing access to, control and use of resources?

It is stated in the Project Paper that "the proposed project will not proscribe any resource to which the people currently have access nor alter the terms of that access... land allocated by a village for use as a woodlot will remain within the control of the village." (p. 22).

The compound head usually retains control over land allocation. Salient aspects of The Gambia land tenure are:

* Outside of urban areas there is no individual or collective ownership of land "in the sense that land is registered and title conferred."

* The right to allocate unused, unowned village land to immigrants is vested in the *alkali*. Once the *alkali* has given land away it is out of his control.

* Most land in The Gambia is under the jurisdiction of compounds. Within compounds the head possesses the right to reallocate any of the compound's unused land to outside individuals This land is merely loaned and must be returned upon request.

* Neither the *alkali* nor the compound head have the right to sell, rent, or mortgage land under their jurisdiction.

Note: (1) the *alkali* should in no way be treated as the village landowner, as there is actually very little land under his control;

(2) persons most likely to be adversely affected by transfer of lands from agriculture to forests are individuals who have merely asked compound heads for permission to exploit compound lands (these farmers are labeled "strange" farmers). Women can also be asked to leave the land they cultivate.

Access to land resources is controlled by villagers. In the case of a village whose land is sufficient to meet the needs of the community, it is not entirely clear what land or whose land would be allocated to the woodlot, nor how users of that land would be compensated (PP, p.22).

However, the Forestry Department would use the Forestry Law (1977 Forestry Act) to expropriate village land under its jurisdiction to establish large-scale plantations. Use of these forests for fuelwood will be restricted to cutting dead wood for parties who have paid a licensing fee of 30 dasalis (1985), i.e. about 15% of the average annual income.

2.b. Do the resource users have the authority to modify the rules; to monitor compliance to the rules; to inflict sanctions upon violators?

Implied above. It would seem that the Forestry Department's authority would supersede that of local authorities.

The rules vary according to types of plantations (woodlots and other plantations). Community rules apply for woodlots, whereas Forestry Service rules apply for plantations.

3.a. How is conflict among users resolved?

Not discussed

3.b. Is the project aware of existing conflicts; of the need to resolve them? Has it contributed to the development of mechanisms for conflict resolution?

Potential conflicts among resource users are discussed in the Project Evaluation Summary (see 4.a.).

4.a. What rules have contributed to equitable/inequitable results?

The Project did not entail expropriation of village or other land (Project Paper, p. 22).

* woodlots: it is not inconceivable that village heads and their elite entourage might manipulate woodlots to their advantage.

* plantations: the Forestry Department utilizes what is called a "contractor" system, whereby the FD selects a person, the contractor, and gives him a piece of work in the plantation; the contractor then recruits and supervises laborers. He is paid by the FD but pays his laborers by the job. This system can create the following situations: (1) laborers are underpaid; (2) they do not enjoy job security; (3) they are at the mercy of their contractor.

Note: It is not in AID's mandate to create a class of seasonal workers. It is in AID's mandate to develop an equitable and efficient labor system for plantations.

* Cutting dead wood from plantations is restricted to parties who can afford the licensing fee, which represents a high percentage of the average annual income.

4.b. What actions has the project taken towards equity?

None found

5. Does the communication system (across the various levels and between institutions and individuals involved) allow transaction costs to be low?

Communications costs were minimal.

Recommendations were made that the *kafo* system, or some adaptation of it (e.g., farmers' clubs) be utilized for village woodlots. A management structure for woodlots would involve four parts:

1. The village head (*alkali*) would be the main point of articulation between the village and the project's extension agents.

2. The village council would be the group to inventory village opinions concerning woodlots.

3. The *alkali* and the village council would transmit decisions concerning woodlots through the head of the young men's age grade and it would be the latter's responsibility to direct actual *kafo* members.

4. Finally, *kafo* members would perform the activities decided upon by the villagers.

[Note: these are the most specific recommendations found in project documents]

6.a. What was/is the community's contribution to the design of the project?

None indicated.

6.b. What was/is the community's role in implementing the project?

See Question 5.

The key to a village woodlot is that villagers are expected to manage their forest resources themselves. As for plantations (gazetted on forest land), it appears that all decisions relevant to the management of the Forestry Department Resources are made by members of the Forestry Department. In this particular case, participation is restricted to doing what you are told.

7. Is the community willing to mobilize resources to finance NRM? Is it capable of mobilizing those resources? Is external assistance provided regardless of the community's matching contribution?

Communities have a long tradition of self-help principle (referred to as "tesito"). Communities' most significant contribution was labor. Fence posts were another common form of community contribution.

C/ **REMARKS**:

* The Project's achievements were uneven, depending on the components. The successful components of the Project were sawmill upgrading and extension. Plantations and woodlots, however, did not produce the expected outcomes.

The problem with the plantations was that, the Forest Service had replaced natural forests to establish monocultures of exotics that were not solicited by the Project communities and

not valued by the locals in general. Also, technical assistance was lacking in the first two years, and maintenance of plantations consequently suffered.

As for the woodlots, they were not perceived as a need by the people within the Project area. As a result, there was little community involvement in both project design and implementation.

* In general, limited human resources (trained foresters, community organizers, etc.) could not keep up with the demands of the Project.

* Overall, success was modest in including local institutions in the design and carrying out of the Project.

D/ **BIBLIOGRAPHY**:

U.S. Agency for International Development. 1985. "Gambia Forestry Project." USAID/The Gambia. Project No. 6350205, Project Evaluation Summary.

____. August 1985. "Gambia Forestry Project. Evaluation #2." USAID/Gambia. Project No. 6350205, Special Evaluation.

[Personal communication with Julia Morris, Forestry Service (USDA), Washington, DC. May 7, 1992.]

Project Title: Action Program for the Environment (APE)

Project Number· 617-0123

Location· Uganda

Duration 1991-1995

APE was designed to assist Uganda's policy and institutional systems to more effectively and sustainably manage its natural resource base The Program is structured to respond to the immediate need for conservation while developing processes for natural resources policy reforms.

The two components of the APE program are.

- Policy Review and Reform: policy component for the policy-related activities. This initiative will utilize both non-project and project assistance. The non-project assistance will support the adoption of vital policy reforms. This will be done to encourage the GOU to upgrade the status of three forest reserves to national parks. Project assistance will provide technical assistance to the to the GOU in the development of NEAP (task forces, training and institutional support), and support to PVO/NGOs working in protected areas and adjacent buffer zones.

- Local Level PVO/NGO Natural Resource Activities for specific projects. A Natural Resources Grant will be established to support PVO/NGO activities. The NGO umbrella organization would assume management of the existing portfolio of PVO/NGO activities in NRM in U Buffer-zone activity would include conservation education, training, agroforestry demonstrations, land management planning, tree nurseries, buffer-zone management, tourism development, land tenure analysis/pilot projects, etc. Rural subsistence farmers around the parks and reserves will receive benefits through better land use and management practices geared to reverse the pace of deforestation and soil erosion.

APE program components cover the following:

(1) policy development and implementation, including the development of a National Environmental Plan;

(2) institutional support for carrying out the development of policy and its implementation;

(3) reorganization/consolidation of existing national

institutions and administrative bodies for better natural resource management;

(4) carrying out specific studies and

(5) improving incentives for local participation in environmentally-sound natural investments.

The policy component combines non-project assistance with project assistance to provide a framework for integrating environmental considerations into the nation's overall economic and social development.

The NEAP will be developed through broad, country-wide participation involving both those within and outside of the government. It is expected that the NEAP will produce policy recommendations and activities in the areas of tenure legislation; public and private investment; institutional administration, budgeting and support; and public infrastructure. The NEAP is to determine natural resource policy changes.

For the strategy for PAAD, "an institutional analysis will examine the organizational structure of each entity, evaluating how the levels of autonomy in each affects their operations. . The analysis will also consider the incentive structure of each organization and will examine land tenure and use questions." (p. 30)

RESOURCE TENURE

In the economic analysis (Annex C), the impact of policies regarding land and forests are discussed in the Socioeconomic/infrastructure Degradation/Policy section.

"The failure to institutionalize a rational land tenure system...gives rise to deforestation, land clearings, and unsustainable agricultural practices." In 1975, the government passed the Land Reform Decree, which converted all land holdings in Uganda to leaseholds, under the ownership of the country. (33) Despite such regulations, the traditional tenure system, based upon ethnic and tribal associations, retains its hold. Under customary tenure rules, land around settlements is reserved by the tribal or ethnic group. Ownership of land is possible only through being a part of such a tribal or ethnic group. (24) This accounts for the anomaly in Uganda that while 53.3% of the country's arable land remains uncultivated, much land has been cleared within forest reserves and on other public land.

Likewise, the 1971 Forest Policy adversely affected natural resources management. Under this policy, forests are treated as

an economic resource to be exploited for maximum monetary gain. The 1988 Forest Policy reestablished forestry protection and multiple use as legitimate goals, but these goals have not yet been accomplished.

INSTITUTIONAL SYSTEM

The APE program calls for the reorganization of some of GOU's executive functions. Three institutions under two ministries were in charge of protected areas: the Forest Department, the Game Department and Uganda National Parks. Overlapping responsibilities and poor coordination among the three agencies has hampered natural resources management.

In the "Preliminary Institutional Analysis of Natural Resource Sector" (Annex D), government institutions, legislation, NGOs and local structures are presented. The following local structures are discussed as potential units of implementation:

- *traditional institutions*--Local Chiefs, who were granted authority under the Local Administration Act of 1967, largely regulate and oversee the implementation of GOU policies. The abuse of this traditional hierarchy during the Amin administration has changed the way these institutions are perceived.

- *GOU Resistance Committee structures* are a recent creation of the GOU; they are well established, active and apparently well received by the rural population. Their purpose is more to mobilize and initiate activities in response to national directives.

- *hundreds of NGOs*, both indigenous and international, have different agendas and capabilities. (pp. 8-9).

<u>Decentralization of NRM decision-making is not addressed in the program</u>, although some activities that it undertakes are conducive to decentralization.

<u>Bibliography</u>:

U.S. Agency for International Development. March 22, 1991. "Action Program for the Environment (APE)." USAID/Kampala. Project No. 617-0123, Program Assistance Initial Proposal.

Project Title: Village Reforestation

Project No.: 688-0937

Duration 1980 - 1987

Location: Mali - 5th Region

A/ **INTRODUCTION**

* An ever-increasing population and periods of droughts have led to the deterioration of the environment in Mali. Mali's Fifth Region's environmental harshness--caused by low rainfall and poor soils--, its economic, ecological and political significance made this area the ideal site for a pilot project with the VRP's objectives.

* The purpose of the project was "to identify successful and cost-effective processes for achieving reforestation and more efficient use of wood resources at the village level in Mali's Fifth Region."

* The VRP was designed to try out and evaluate ways and means for the Forest Service to evolve from a "police force" protecting Mali's natural resource base through repression to an "extension agency" teaching villagers how to build up and protect the natural resource base and fostering villagers' participation in the task.

* The problems identified in the Fifth Region were: (1) soil erosion, particularly severe in the Dogon region where land is more scarce than in other regions; (2) land scarcity; and (3) deforestation and scarcity of forest products.

* Activities carried out under the VRP included (a) tree planting (for fruit, landscape, shade, living fences and fuelwood); (b) mini-nurseries; (c) dissemination of improved wood stoves; and (d) land tenure studies.

* Trees and land were the resources at hand.

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B/ **QUESTIONS**:

1.a. How are users organized? (Types of institutions)

There are no formally organized user groups within the communities of the VRP.

For the establishment and maintenance of plantations, the Village Council or Committee **[members and member selection?]** mobilizes village efforts. Work on plantations (or woodlots) is performed collectively, by groups or by individuals.

At Karbaye (Fatoma) villagers have chosen to recruit a laborer to maintain their woodlots. The laborer is paid, lodged and fed by a fund collected from the villagers.

1.b. What rules govern membership to groups of natural resource users?

NB: The information below was taken from Mclain's report, which was done in four zones of the fifth region: Bandiagara, Fatoma, Koro, and Konna.

* Rights to the land are defined in laws established by the government, or they are dictated by customary (unwritten) law. Access to land is controlled at four levels: the state, the village, the extended family, and the household or individual.

* Land:

There are four ways to access land in a community: 1) inheritance; 2) gift; 3) loan, either on a short-term or 4) on a long-term basis. The three most common types of land concessions found in communities are 1) extended families' fields; 2) households' or individuals' fields; and 3) communal land.

* Trees and Tree Products:

The land tenure system dictates the rights that community members have on trees and tree products, depending on whose land is used for tree planting (see Figure 1 for rules). All members of the community have access to the various types of plantations, but there is a clear and acknowledged separation between private and communal plantations. Private plantations (or woodlots) are owned, established and maintained by individuals, whereas communal plantations are owned and maintained by the whole community. This customary

distinction was reinforced by the Project, in agreement with the Forest Service.

Private owners have exclusive tenure on their woodlots. They have the right to exploit and market their products. Communal woodlots are not exploitable.

The problem of land is associated with the complexity of the land tenure system. Agricultural land does not always belong to those who till it. Most often, the land is under long-term loan to the cultivator, and cultivators hesitate to make large investments on land if they are not sure they will share the possible benefits. As to the owners, they are not always willing to accept establishment of certain plants which might put in question their ownership rights (Sociological Evaluation of the VRP, Annex B of the 1988 Final Evaluation).

The following table summarizes rights on land and trees:

Figure 1: Access to Land and Rights on Trees and Tree Products.

Rights	Inherited Land	Given Land	Long-Term Loan	Short-Term Loan
Can appoint heirs	Yes	Yes	Yes	No
Risk of Land Loss	Very low	Low	Low to Moderate	Moderate to High
Has the Right to Plant Trees	Yes	Yes	Sometimes	Must get Owner's OK
Has the Right to Cut Trees	Yes	Yes	Sometimes	Must get Owner's OK
Has the Right to Cut Branches	Yes	Yes	Yes	Yes
Has Rights on Valuable Fruit	Yes	Yes	Yes	Sometimes
Has Rights on Less Valuable Fruit	Yes	Yes	Yes	Yes
Can Pick Branches/Fruit Off the Ground	Yes	Yes	Yes	Yes

(Source: Mclain, p. 21)

2.a. *What role do the users have in formulating the rules governing access to, control and use of resources?*

Users have no role in the formulation of rules. Control over village land (on the village territory, which is geographically defined) remains in the hands of the chief or of the village council, who distribute unclaimed land to families or individuals; resolve conflicts over territory, and decide on how village fields, fishing zones and grazing areas will be used.

For land and trees, the customary rights of communities under study are:

* Land: On communal lands, the rights to clear the land, to harvest valuable fruit and valuable trees were usually granted to the whole community. With time and the introduction of colonial rules, those rights became overridden by Eaux et Forêts' power to grant permits to outsiders.

* Trees and Tree Products:

Rights on trees and tree products are intricately linked to land tenure. The owner of a plot of land is also the owner of trees planted on that plot. Those rights include: planting trees, cutting down trees, and cutting branches off the trees. In addition, the owner has exclusive rights to harvest the fruit from the trees and to pick up fruit and branches off the ground. In practice, the right to plant and cut down trees are the most rigorously applied. It appears that private owners' authority over the natural resources they own has been established or confirmed with the introduction of project rules to the communities. Access to resources is controlled by individual owners or by project authorities at the local level.

When land is borrowed, the occupant usually has to obtain permission from the owner to plant and/or cut down trees on the land. The occupant usually has the right to harvest tree products.

2.b. *Do the resource users have the authority to modify the rules; to monitor compliance to the rules; to inflict sanctions upon violators?*

The communities at large have no such role. Before the Project was introduced, forest agents were entirely responsible for compliance to the rules and for inflicting sanctions upon violators. With the Project, a provision for sanctions was introduced, but it is not clear from project

and other documents who is responsible for inflicting sanctions upon violators. What is clear is that, since the Project started, the authority to inflict sanctions on violators is no longer the exclusive responsibility of Forest Service agents. In fact, fining for infractions of the Forest Code was banned in the areas where the VRP is active. It is not clear from the Project and other documents who is responsible for this variance in fining regulations.

(Note: For areas outside the VRP, the Direction Nationale des Eaux et Forêts--or DNEF--changed policy regarding collection and distribution of fines has changed: The field agent's percentage has been reduced and a proportion of the collected fine is now pooled to be shared at the station level).

3.a. How is conflict among users resolved?

Conflicts over access to the land tend to be solved at the village level by the village chief and/or the village council. No further details were given in the documents.

3.b. Is the project aware of existing conflicts; of the need to resolve them? Has it contributed to the development of mechanisms for conflict resolution?

Primarily there is the conflict between the Forest Service agents and the village natural resource users. This conflict is at the core of the VRP One of the ways the VRP has dealt with this conflict is by banning fining in VRP areas **[as pointed out in 2.b. it is not clear whether or not the Government had a say in this matter]**.

The Project documents indicate that the project is well aware of potential for conflict in the development of collective village woodlots. First, establishing collective woodlots is perceived by some villagers as land expropriation **[why? whose land is expropriated?]**. Second, the villagers are not willing to invest into a resource that benefits the whole community, including those individuals who do not take care of the resource. Villagers see collective woodlots as the least beneficial of VRP activities. One of the specific recommendations of the final evaluation team is to reduce the number of collective woodlots.

4.a. What rules have contributed to equitable/inequitable results?

To tackle the problem of communal woodlot access, a sensitive issue, the Project has proposed the following: (a) trees are sold to individuals at a fixed price; the proceeds go to the community who decides on their use. (b) any farmer who wants to crop a tree has to provide, plant and nurture five seedlings for the community and ten seedlings for himself; replacement of trees should favor the planting of fruit trees; (c) some trees have to be protected to enhance village landscapes and can be exploited only for shade, fruit and seeds sources for everyone.

4.b. What actions has the project taken towards equity?

Nothing mentioned

5. Does the communication system (across the various levels and between institutions and individuals involved) allow transaction costs to be low?

As seen earlier, the project has focused on communications between villagers and Forest Service extension agents. The latter are now seen as "planters" (as opposed to policemen) who provide much valued technical assistance to the villagers. Farming communities work closely with the project. Some farmers even act as demonstrators and extension agents.

Nevertheless, it was specifically laid out that " a 'decentralized' extension team structure which would make each Forestry agent responsible individually would permit savings of both time and money because the current team of three (Project Director at the national level, Technical Director at regional level, and Chief of Station at the Cercle level) would be broken up to develop the same extension theme in different villages." (Final Evaluation, 29).

It was noted that the VRP does not interact much with other extension organizations. The impacts of such a state of affairs is not discussed in any of the reports found on the VRP.

6.a. What was/is the community's contribution to the design of the project?

The community's contribution to the design of the Project is not discussed in any of the project documents.

6.b. *What was/is the community's role in implementing the project?*

"It is the entire village which carries out reforestation activities." It is not clear from the Project documents whether work is voluntary or mandatory. For private plantations and woodlots, one can assume that the work is voluntary.

7. *Is the community willing to mobilize resources to finance NRM?*

Members of the community are willing to buy pots from the VRP for mini-nurseries (Note: the reason that the villagers are interested in village mini-nurseries is that they are seen as providing an element of independence allowing them to produce species of their own choice and in sufficient quantity). Pots would be sold to the villagers at subsidized prices. Eventually villagers will buy their pots outside the project.

Is it capable of mobilizing those resources?

Issue not discussed (but one would expect private owners to make enough profits to be able to mobilize resources needed for NRM.)

Is external assistance provided regardless of the community's matching contribution?

The project is funded by USAID. Funding seems to be provided regardless of whether or not the community provides funds.

D/ **REMARKS**:

1) The (final) evaluation team found that the VRP has created a better image for the Forest Service agents as "environmental extension agents." In addition, the villagers have gained a greater awareness of environmental improvement and protection; they devote more and more efforts and thought to it. Also, they have become fairly knowledgeable about the basics of conservation legislation, including the Forestry Code.

However, the VRP was found not to have achieved the purpose of the VRP in terms of the higher accomplishments implied by the project paper (in particular, training activities, the development of a useful information system, and the utilization of available technology for further project ends.).

2) Some of the issues we are looking at are definitely

addressed in the Project Paper's research proposal (Amendment #1). For instance, the following were to be studied:

- Impacts of Forest Code on Tree and Forest Management;
- Tree Use and Forest Management Practices on Individual Farms;
- Local Management of Natural Forests and Woodlots and
- Policy Dialogue.

(Note: Recommendations in the Final Evaluation Paper include support for this type of sociological research. As of 1987, however,such studies had not yet been conducted).

3) Sources of disincentives for VRP target communities can be identified. Some are project-related; others are national policy-related Here are some examples:

* The collective nature of woodlots, as discussed above. "The collective nature of the woodlots has a negative influence on the behavior of individuals by making them realize that it is not necessary to work hard in view of the fact that the products of their work might be shared among other members of the village who might not have participated in the production." This is often the case with migrants and laborers.

* Mise en Défense, whereby VRP-designated areas are protected for the regeneration of vegetation. This is viewed by villagers as a restriction on usable land.

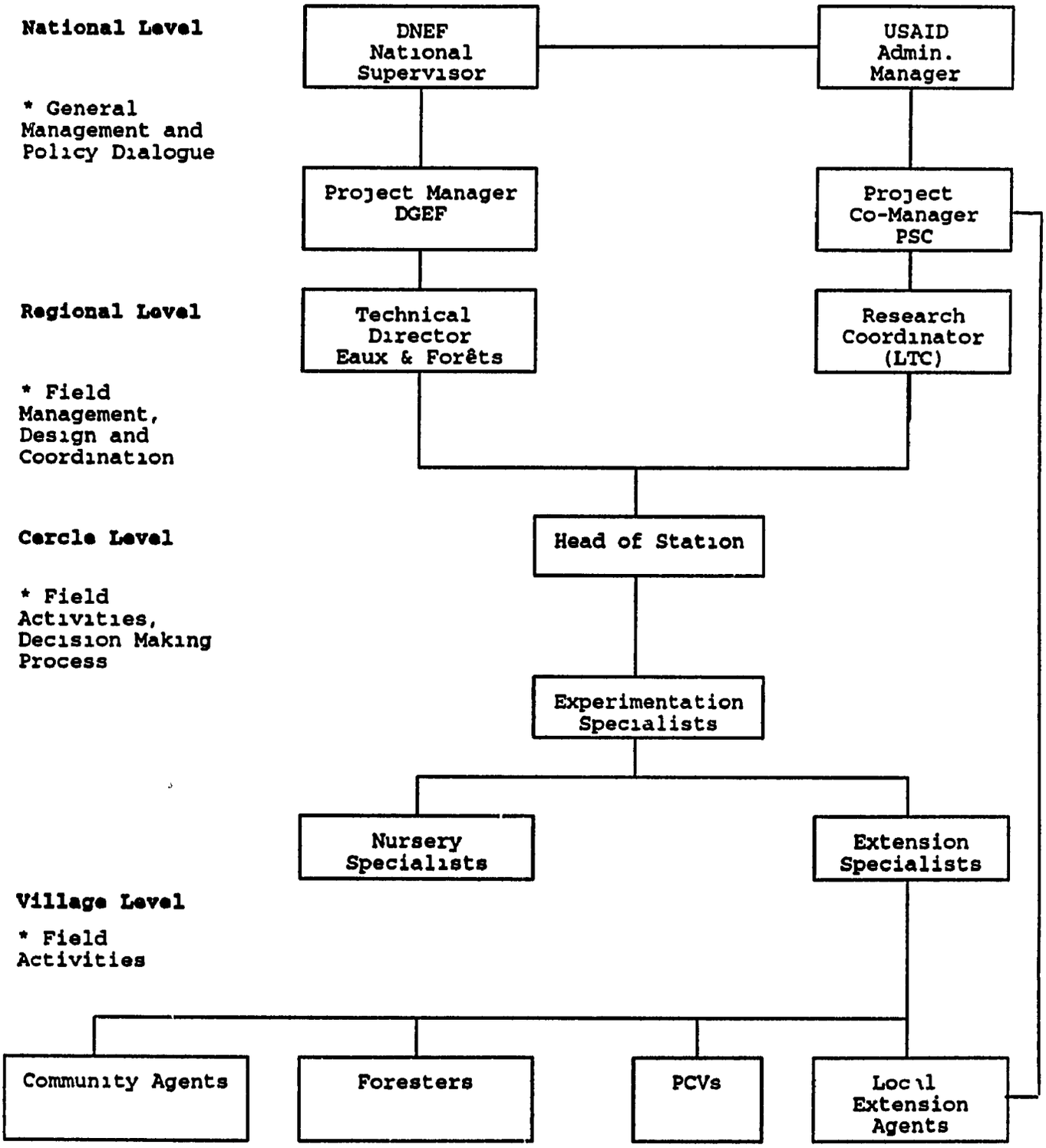
* The land tenure system: agricultural land is not necessarily given to those who till it. Cultivators do not enjoy full ownership. In general, land insecurity prevails.

4) Project policy constraints sometimes go against village needs. For instance, production quotas for nurseries inhibit the smooth distribution of seedlings.

5) Women's participation is limited. This is attributable to culture (religion, tradition and attitude).

6) Three types of resources are found in this case private ; common property; and public. There are different customary rules for the first two types of resources and written laws for the latter type.

Figure 2: Project Organization Chart



(Source: Project Paper Amendment No. 1, p. 11)

E/ **BIBLIOGRAPHY**.

Mclain, Rebecca. October 1990. "Rapport du Trimestre. Projet Tenure de la Terre. Projet de Reboisement Villageois/MOPTI." Land Tenure Center. University of Wisconsin; Madison, Wisconsin.

U.S. Agency for International Development. 1988. "Village Reforestation." USAID/Mali. Project No. 688-0937, Project Evaluation Summary.

___. Aug. 1988. "Village Reforestation. Amendment no. 1." USAID/Mali. Project No. 688-0937; 625-093709, Project Paper.

___. Jan. 1987. "Final Evaluation: Mali--Village Reforestation Project." USAID/Mali. Project No. 688-0937, Special Evaluation.

Project Title: Sustainable Approaches to Viable Environmental Management (SAVEM) Project

Duration: 1990-1996

Location· Madagascar

Project No 687-0110

SAVEM is an illustration of AID's new orientation (in the 1990s) towards non-project assistance that deals with NRM policy reform, with an emphasis on biological diversity. SAVEM focuses on systems for the management of protected areas on their peripheral zones on a sustainable basis. Under this project, the following units were created: (1) ANGAP (Association Nationale pour la Gestion des Aires Protégées), and (2) GMU (Grant Management Unit) Under GMU, there are two types of grants the large Protected Area Development Grants (PADGs) to local and/or international PVOs for interactive development and conservation efforts, and the small Conservation Action Grants (CAGs) to local PVOs, government agencies, and individuals for more locally-initiated activities in zones peripheral to protected areas.

The issue of decentralization is not explicitly addressed in the project documents. There is only one mention of political centralization in the Social Soundness Analysis (Annex D). However, local communities involvement in project design and implementation is discussed under different sections. For instance, criteria for rewarding grants under GMU cover inputs of communities living around protected areas Concerns such as the following are laid out in the Project Paper

* Are there local institutions in the area which could implement SAVEM-funded activities? Are the needs that are addressed perceived locally? Are there any requirements for subsequent maintenance by the local communities of the various interventions?

* What violations (to the sustainable management of resources around protected areas) are most likely to occur? Who is most likely to be behind these violations? What measures will be taken when violations are detected?

* What provisions will be made for dealing with the conflict-of-interest situation generated by the hiring of local rangers who may be forced to report violations by their own kin?

For PADGs, grantees must demonstrate that the communities on the periphery of protected areas have been contacted; proposals must

document that the participating community has declared its interest in a particular project, that a reasonably large percentage of the community will benefit from the project, and that no unintended intracommunity or intercommunity conflict is likely to occur as a result of the project, proposals must demonstrate that villagers have been involved in the identification and design of proposed activities; SAVEM will make funds available for implementing NGOs to select at least one community member to be an "animateur." Women's role in the project is another important consideration.

CAGs will support activities by indigenous groups or individuals that demonstrate a concern for conservation and will be used to encourage such interest.

Project Title: Knowledge of Effective Application for Environmental Management (KEAPEM)

Project No.: 687-0113

Duration 1991-1996

Location Madagascar

KEAPEM is a natural resources management program that was designed to complement SAVEM. The thrust of the KEAPEM program is to address policy, administrative and institutional constraints which limit sustainable and effective environmental management. As part of the National Environmental Action Plan (EAP), KEAPEM has four components:

(a) *economic policy framework for revenue generation and utilization* to develop a comprehensive and fiscal policy on forest asset conservation and use.

(b) *institutional strengthening and role clarification* to help the Government of Madagascar (1) establish its capacity in formulating, coordinating, implementing and monitoring EAP policies through the operating agencies, (2) develop a comprehensive institutional framework that mobilizes and supports local initiatives by reorganizing operational agencies engaged in the EAP, thereby establishing a decentralized, sub-regional capacity for technical, financial and organizational services. Government decentralization will consist of.

- relocating key technical/professional personnel to sub-

regional working units;

- delegating management authority to unit managers;
- revising procurement procedures and
- revising the civil servant compensation system.

(c) *local initiatives* for the Government of Madagascar to focus policy reform on mobilizing local action. To this end it will establish the legal framework required to eliminate impediments to local initiative. Under this effort,

* Local associations are to organize as NGOs, cooperatives, or quasi-public entities; to form taxing and user-rights districts based on local referenda; to establish common property domains, to set user fees, taxes, user or access charges; to enter into market activities; to seek and receive both public and private technical and monetary assistance to support their NRM activities,

* NGOs and other local associations would operate within a simple and transparent regime of accountability.

The government of Madagascar is also to establish the legal framework that encourages NGOs to mobilize and support local initiatives in NRM activities. Laws relating to NGO formation and action are aimed at (1) simplifying and clarifying rights of association, legal incorporation and official recognition of NGOs, (2) establishing rights as well accountability for receiving public and private grants, fees for services, etc.

Decentralization is a core issue of the program. It is discussed in great length in the Institutional Analysis (Annex V). In this analysis, the following are discussed (not all points are presented here):

1. Centralization of staff and resources. Technical support people are lacking; there is no field authority over personnel, resources and program execution; there is little or no interagency coordination, collaboration and interdisciplinary assistance at the community level of projects and programs.

2. What forms might decentralization take? Decentralization is to achieve the following: (a) better and more technical people physically located within working reach of rural communities; (b) managers of field services delegate authority over personnel assignment, supply and equipment, support budgets, etc. (c) the central authorities reorient the reward system to new criteria that include community feedback.

3. Can GDRM policy changes create incentives that will generate a sustainable NRM response at the local level? The goal of the GDRM has been defined as achieving a voluntary, self-interested shift from resource destructive production systems to new form of natural resource management that are sustainable and will contribute to tangible and fairly rapid returns. The issue at hand is how to mobilize the social organization capacities of rural communities to incrementally embrace new behavior, provide continuous incentives to maintain this behavior, and institutionalize it in lasting patterns of socio-economic self-governance

Bibliography:

1. USAID. 1990. "Sustainable Approaches to Viable Environmental Management (SAVEM)." USAID/Madagascar. Project Identification Document (687-0110).

2. ___. 1990. "Knowledge and Effective Application of Policies for Environmental Management (KEAPEM)." USAID/Madagascar. Project Identification Document (687-0113).

BIBLIOGRAPHY OF ANNOTATIONS

Bailey, Geoffrey L. and A.M. Ashby (1982) Pilot Project on Silk Production in Botswana. Report to the Ministry of Commerce and Industry, Gaborone, Botswana. Tshwaragano Brigade Trust, Gabane, Botswana

Barrow, Edmund G.C. (1990) "Usufruct Rights in Trees: The Role of Ekwar in Dryland Central Turkana, Kenya." Human Ecology 18 (2):163-176.

Diop, Modou (1990) Contribution a la mise en place d'un nouveau systeme de credit rural. Banh, Burkina Faso, Memoire de Diplome d'Ingenieur d'Agronomie Tropical, Ecole Superieure d'Agronomie Tropicale, 2 Vols., Dakar, Senegal, pp. 1-18.

Dorm-Adzobu, Clement, Okeyeame Ampadu-Agyei, and Peter Veit (1991). Community Institutions in Resource Management Agroforestry by Mobisquads in Ghana. From the Ground Up Case Study Series - No. 3, Washington, D.C.. Center for International Development and Environment, World Resources Institute (WRI).

Drakensberg/Maluti Mountain Catchment Conservation Program (1989) Fire and Grazing Project Drakensburg/Maluti Mountain Catchment conservation Program, Document 4. Westville, Natal, South Africa: University of Durban, Westville

Gilmore, K. S. (1979) "An Investigation into the Decline of the Yambezi Fisherman's Co-operative Society." Botswana Notes and Records 11.97-102.

Helland, Johann (1980) "Social Organization and Water Control among the Borana " In Five Essays on the Study of Pastoralists and the Development of Pastoralism by Johann Helland. Occasional Paper No. 20. Bergen: Institute of Social Anthropology. Pp.4775.

Hitchcock, Robert K. (in press) "Socioeconomic and Environmental Impacts of International Tourism among Kalahari San." In International Tourism and Cultural Geography, a special issue of Journal of Cultural Georgraphy, Geoffrey Wall and Klaus Meyer-Arendt, eds.

Hogg, Richard (1983) "Irrigation Agriculture and Pastoral Development: A Lesson from Kenya." Development and Change 14:577-591.

Home Economics Section, Ministry of Agriculture and Cooperatives, Kingdom of Swaziland (1987) Rural Swazi Women in Development: A Report on the Zenzele Women's Project Survey. Mbabane, Swaziland: Ministry of Agriculture and Cooperatives

Ichikawa, Mitsuo (1985). "A Comparison of Fishing Strategies in the Bangweulu Swamps" African Studies monographs 4:25-48.

Lewis, Dale, Gilson R. Kaweche, and Ackim Mwenya (1990) "Wildlife Conservation Outside Protected Areas -- Lessons from an Experiment in Zambia." Conservation Biology 4(2):171-180.

Marks, Stuart A. (1984) The Imperial Lion Human Dimensions of Wildlife Management in Central Africa. Boulder, Colorado, Westview Press.

Marshall, John (1989) The Constitution and Communal Lands in Namibia. Land Rights and Local Governments Helping 33,000 People Classified as "Bushmen": The Ju/wa Case Windhoek, Namibia: Nyae Nyae Development Foundation

Mascarenhas, O. (in press) Traditional Water Management and Irrigation Systems in Tanzania Case Study of Msanzi Village, Rukwa Region From the Ground Up Case Study Series" (Forthcoming). Nairobi: World Resources Institute

McDowell, William (1981) Hadza Traditional Economy and Its Prospects for Development and A Brief History of Mangola Hadza Reports to the Rift Valley Project, Ministry of Information and Culture, Division of Research, Government of Tanzania and District Development Directorate, Mbulu District, Arushu Region, Mbulu, Tanzania. pp. 35 and pp. 14

McLain, R., B. Ba, and M. Koloma (1991) Report 5: Community Woodlot Study Land Tenure Project Mopti, Mali Madison, WI: Land Tenure Center. University of Wisconsin-Madison.

Natural Resources Management Project (1991) A Review of the Western Ngwaketse Wildlife Utilization Project. Gaborone, Botswana: Department of Wildlife and National Parks

Owen-Smith, Garth and Margaret Jacobsohn (1989) "Involving a Local Community in Wildlife Conservation: A Pilot Project at Purros, Southwestern Kaokoland, SWA/Namibia." Quagga 27:21-28.

Parkipuny, M.L (1989) Pastoralism, Conservation, and Development in the Greater Serengeti Region Occasional Paper No 1 Ngorongoro Conservation and Development Project (Tanzania).

Quinlan, T. (1989) The Livestock Economy in the Mountain Zone of Lesotho. Drakensberg/Maluti Mountain Catchment Conservation Program, Socio-Economic Project, Document 6. Westville, Natal, South Africa: University of Durban, Westville.

Rochette, Rene Marceau (1989) Le Sahel en Lutte Contre la Desertification - Lecons d'Experiences. CILSS/PAC, Weikersheim: Magraf.

Seger, N. (1986) "Organization of the irrigated agricultural economy amongst the small farmers of the Mubaarak/Lower Shabelle region." In P. Conze and T. Labahn (eds) Somalia. Agriculture in the Winds of Change, pp 153-163. Saarbrucken-Schafbrucke· epi Verlag GmbH.

Shaikh, Asif, Eric Arnold, Kjell Christopherson, Roy Hagen, Joseph Tabor and Peter Warshall (1988) Opportunities for Sustained Development - Successful Natural Resources Management in the Sahel Washington, D.C.: U.S. Agency for International Development.

Skjonsberg, Else and Yvonne Merafe (1987) The Okavango Fisheries Socio-Economic Study Report to the Ministry of Agriculture, Gaborone, Botswana and the Ministry of Development Cooperation, Oslo, Norway. 69 pp.

Swift, Jeremy (1977) "Pastoral Devlopment in Somalia· Herding Cooperatives as a Strategy Against Desertification and Famine " In Desertification Environmental Degradation in and Around Arid Lands, Michael H. Glantz, ed. Boulder, Colorado: Westview Press. pp. 275-305

Thomas-Slayter, B., C. Kabutha, and R. Ford (1991) Traditional Village Institutions in Environmental Management. From the Ground Up Case Study Series" No 1 Nairobi: World Resources Institute.

Thompson, J (1991) Combining Local Knowledge and Expert Assistance in Natural Resource Management Small-scale Irrigation in Kenya. From the Ground Up Case Study Series No. 2. Nairobi: World Resources Institute.

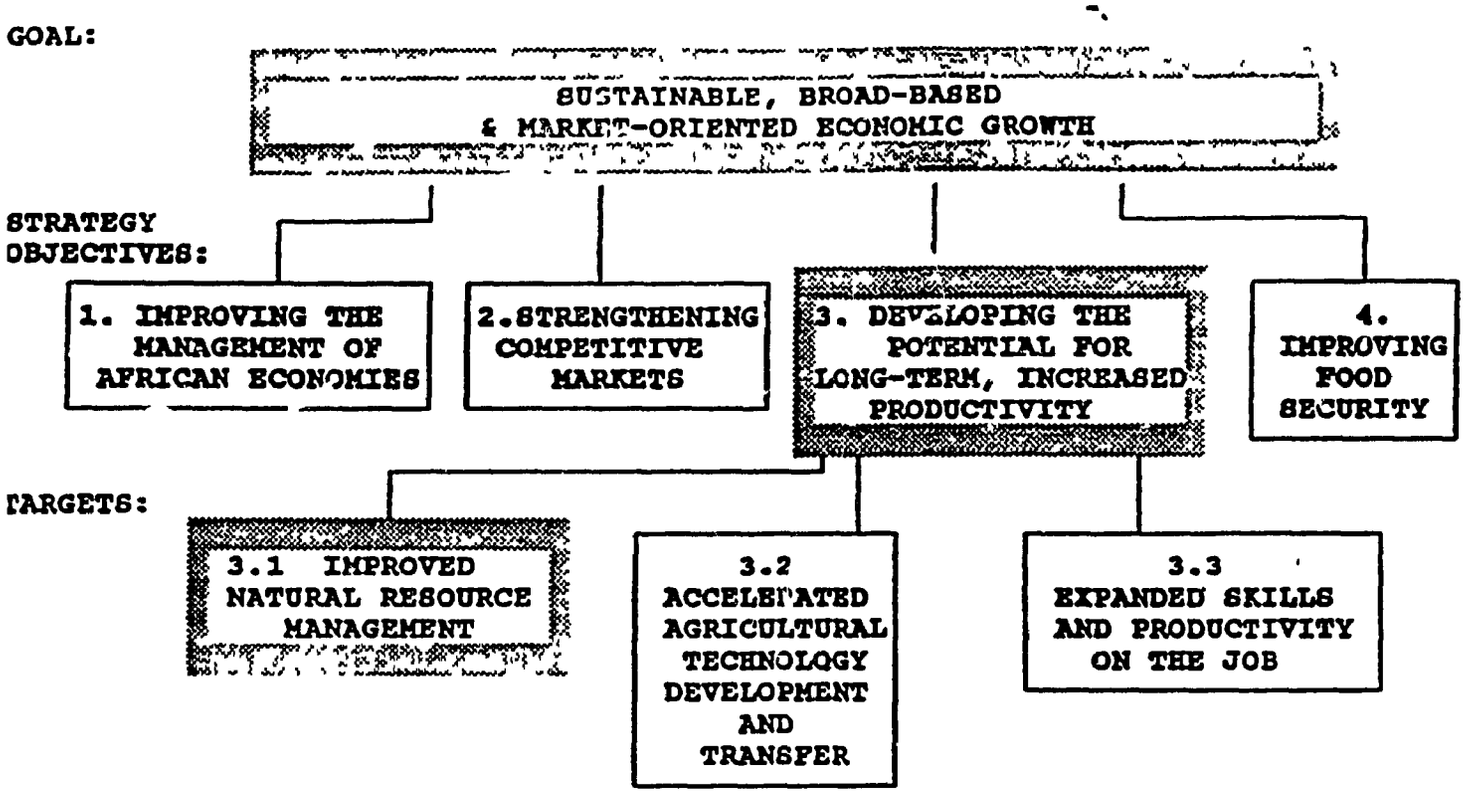
Western, David (1976) "A New Approach to Amboseli." Parks 1(2):1-4

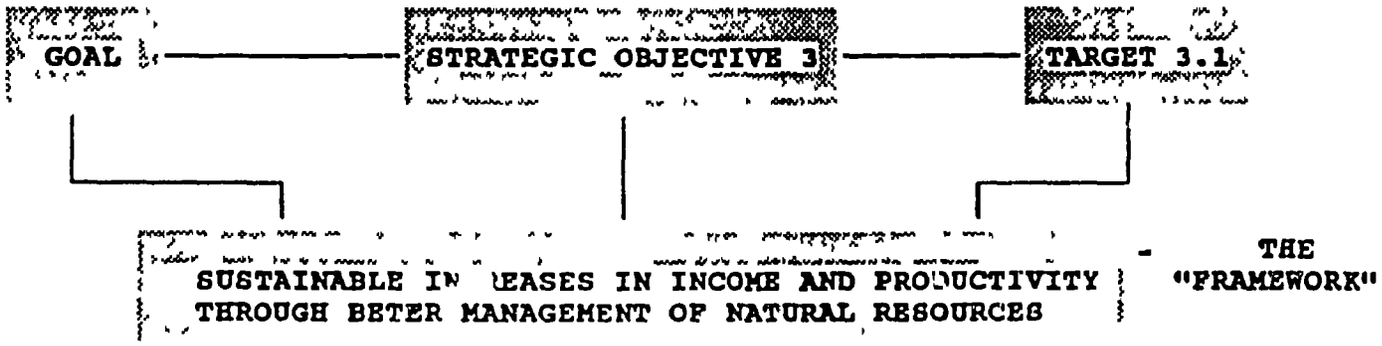
Western, David (1984) "Amboseli National Park. Human Values and the Conservation of a Savanna Ecosystem." In National Parks Conservation, and Development The Role of Protected Areas in Sustaining society, Jeffrey A McNeely and Kenton R. Miller, eds. Washington, D.C.. Smithsonian Institution Press. pp. 93-100.

Yellen, John E (1974) The 'Kung Settlement Pattern· An Archaeological Perspective. Ph D. Dissertation, Harvard University, Cambridge, Massachusetts.

Appendix C: Africa Bureau NRM Framework

NRM FRAMEWORK ELEMENTS
(Source: AID, DFA)





Organizing Framework for Natural Resource Management Indicators

Level V Strategic Objective – Developing the Potential for Long-term Increases in Productivty through Better Nat Res. Management

MEASURING INCREASES IN INCOME AND PRODUCTIVITY

Increases Nationally	– GNP change, increased production, sustained production over time	DFA Benchmarks
Increases by Household	– Increases in income, health, nutrition, improved economic viability	
Increases by Individuals	**– Increased income, etc. by gender and and economic group.**	

Level IV· Biophysical Changes that Produce Increases in Productivity

MEASURING BIOPHYSICAL CHANGES.

Soil Fertility	– Improved fertility, improved yields per inputs	DFA Benchmarks
Soil Moisture	– Improved water retention, resistance to drought	
Vegetative Cover	– Quantity and quality of forest/vegetative cover	
Biodiviersity	– Biodiversity maintained	

Level III. Adoption of Practices that Produce Biophysical Changes

MEASURING ADOPTION OF IMPROVED PRACTICES

Practices emphasizing Soil Fertility Soil Moisture Vegetative Cover Biodiversity	(short, medium & long term) Number of adaptors, spatial impact, potential for diffusion, change in adaption over time	DFA Benchmarks: – Number of community/ individual initiatives – Areas under management – Number of voluntary users of improved practices

Level II: Conditions that Lead to Adoption of Improved Practices

MEASURING CHANGES IN POLICY

Tenure/usufruct –	Land/tree ownership policy	DFA Benchmark: Public policy revisions providing incentives for more sustainable resource management
Financial/economic risks–	Credit, markets, pricing policies	
Extension assistance –	Extension/outreach systems	
Technology –	Agroforestry, biodiversity systems	

Level I Actions that Establish Conditions

MEASURING INSTITUTIONAL CHANGES

Forest laws reviewed/revised, management plans developed Credit systems revised, credit unions established Ag technologies extended, extension mechanisms improved	DFA Benchmarks

AN IMPACT INDICATOR FRAMEWORK FOR
TARGET 3.1 OF STRATEGIC OBJECTIVE 3
(Adapted from NR's September 14, 1990 memo
to the AFR/TR division chiefs)

I. Introduction

A. Overview: Accountability and Responsibility Under the DFA

The Development Fund for Africa (DFA) requires accountability based on impacts at the grassroots level. This Annex describes a framework to monitor progress toward Target 3.1 of the DFA Strategic Objective 3 (SO3) which is paraphrased as follows:

> **Achieving sustainable increases in income and productivity through better management of natural resources.**

The NRM Framework relates to natural resources management (NRM) activities with respect to how they contribute to achieving Target 3.1 and SO3 as shown in Figure 1.

In addition to providing an impact-reporting structure for the DFA, the NRM Framework also provides a monitoring structure for the Bureau's Plan for Supporting Natural Resources Management (PNRM). Under the PNRM, the Bureau is to support better management of natural resources as it contributes to sustainable economic development.

The Africa Bureau Technical Resources Office (AFR/TR) is undertaking work to validate causal relationships within the Framework and will provide leadership for using the Framework in collaboration with field missions in Africa. In this collaboration, the primary use of the Framework will be to assist the Bureau in monitoring progress toward DFA Target 3.1.

Even though the NRM Framework was developed to monitor DFA targets, AFR/TR/ANR/NR suggests that the Framework structure be considered by missions as both a monitoring and information organizing tool, especially where objectives similar to SO3 are included within a mission's CPSP. Missions, of course, can amend the Framework to fit their own objectives: the essential logical structure of the objective tree, however, can be useful in assisting missions in linking field actions to large programmatic objectives.

B. The NRM Framework: A Five-level Continuum of Intermediate Indicators

1. Establishing Linkages to Target 3.1

Field experience shows that having an impact at the level of Target 3.1 is a long-term process, involving in most cases, a lag of five to ten years between AID program input and target achievement. Even then, it may be possible to evaluate sustainability only as an indication of the potential to sustain the change, that is, a lessening of the risk of resource degradation or destruction.

Such factors underscore the need for intermediate indicators to track and measure progress. However, these intermediate indicators also must have plausible linkages to Target 3.1.

The plausibility of the linkages was established by AFR/TR/ANR/NR, condensing objective tree analyses of field data from 40 Natural Resources Management assessments (NRMS project 698-0467). Increases in income or productivity were put at the top and working backward, elements contributing to those outcomes in a step-wise, hierarchical fashion, were identified. In response to "what else" questions of the objective tree, it was noted that sustainable biophysical constraints were addressed, including soil fertility, soil and moisture conservation, and management of vegetative cover. Further down in the objective tree, it was observed that certain conditions existed before smallholders and groups would or could adopt appropriate new practices. These included:

* Tenure and use agreements giving resource users a share in the benefits of better resource management.

* Reduced financial risks through access to markets, credit, cost-sharing, etc.

* Availability of appropriate technologies (through transfer from another site or through research).

* Access to knowledge about the technologies through such extension strategies as site visits and on-farm technical assistance.

Finally, the analyses identified a number of actions which governments and donors could undertake to remove these constraints.

2. Summary of the Five Levels

It was also found that there is no single NRM "indicator"; rather, there is a continuum of elements that contribute to sustainable increases. Based on the objective tree analysis, AFR/TR/ANR/NR

organized the continuum into the following five levels:

* Level V: Increased income or productivity (Target 3.1).

* Levels IV: The biophysical changes that increase income or productivity.

* Level III: The adoption of practices that produce (or show promise of producing) these biophysical changes.

* Level II: The establishment of conditions that contribute to adoption of better practices.

* Level I: Actions that promote the above conditions.

The analysis showed that Levels III through V generally relate more to smallholders or villages while Level I and II changes are influenced by donors and host governments. This, in turn, suggests the need to (a) establish plausible correlation between indicators at Levels I and II and the adoption of practices in Level III, and (b) monitor changes at Levels IV and V. The next section describes these levels in more detail.

II. The Five Levels of Intermediate Indicators

A. Level V: Increases in Income and/or Production

Target 3.1 is represented by Level V and is expressed in terms of increases in production or income. Field records show that these targets may not be fully achieved for five to 15 years after initial inputs. Since this is longer than most AID program or project planning and monitoring periods, interim measures are needed to show progress. Moreover, collecting and organizing intermediate data provides further insight into the dynamics involved in the development process.

<u>Indicators</u>

(a) In those countries where the Country Program Strategy Plan (CPSP) puts emphasis on better management of natural resources, AID needs to perform or support periodic regional or national agricultural sector surveys that include components to regularly measure the following:

* Direct and indirect benefits of crop- and range-land activity;

* Farm- or animal-generated income levels of individuals, families, or group enterprises.

(b) Individual NRM projects or programs should include

periodic, unstructured but "targeted" visits or interviews of a carefully selected sample of farm/herd families. This will also provide a mechanism to collect data for indicators at other monitoring levels described below.

B. Level IV: Biophysical Changes

Sustainable increases in income and/or production at the project/program level depend upon short-, medium- and long-term improvements in (1) soil fertility and conservation; (2) vegetative cover; (3) maintenance of the existing biological diversity; and (4) introduction of new or improved crop varieties. If improvements are only short-term or address only one biophysical feature, it is doubtful that productivity increases will be sustainable.

[Note: the PPC publication, Preliminary Indicators for Monitoring Changes in the Natural Resource Base (AID Program and Design Methodology, Report No. 14), contains suggestions for basic indicators at this level.]

Indicators

* Soil losses due to water or wind erosion: top soil; gully, channel or bank erosion; moving dunes, etc.

* Soil productivity: chemical and physical soil properties; yield measurements of sample plots (crops, range, wood, etc.).

* Permanent vegetation ratio: areas with permanent vegetation cover compared with open (bare) or cropped land.

* Composition and density of natural vegetation cover.

* Percentage of tree/shrub cover in farm or range landscapes.

* Number and density of wildlife species.

* Extent (size and area) of wildlife habitat.

* State of unique areas (geologic, historic, archaeologic, species diversity, etc.).

Periodic observations will reveal changes in the resource base, but comparison checks also must be made on "untreated" control samples to determine what changes are the result of NRM interventions as opposed to changes that may have occurred for other reasons (more rainfall, for example).

C. Level III: Adoption of Resource-Friendly Practices

Improvements in resource management occur when improved practices are adopted at the local level. Farmers, herders, or wood cutters adopt the practices (not donors); such changes, therefore, are only indirectly attributable to donor efforts. To be sure, actions by the community, parastatal, agribusiness, or governmental organizations may contribute to Level III changes and these should be also be monitored, but there is an abundance of data to suggest that smallholders hold the key to achieving Target 3.1 in much of Africa. Donor and host-government inputs that cause farmers (or other resource users) to adopt better practices are monitored at Levels I and II.

The issue of linkage between Level III changes and Level IV and V outcomes requires continuing study. Nonetheless, substantial data have been compiled by AFR/TR/ANR/NR showing such linkages do exist.

Indicators

* The number of farm (or herd) operations in which new (and better) practices have been adopted.

* How much land (surface area) is affected by these new practices.

It is important to know to what extent an ideal, 100 percent adoption rate is achieved. More than absolute numbers are needed; one needs to show what percentage of the total farming population is now using new practices and how much land is covered by the use of these practices.

These measurements, too, must include observations of a control sample, to better assure that the desired changes indeed result from donor or host-government actions and not from other factors.

Periodic, unstructured but targeted visits/interviews among a sample of all potential clients/users is recommended as a method to collect data for this level [See indicator (b) of Level V].

D. Level II: Conditions Contributing to Adoption of Better Practices

Analyses of case studies show that small holders are likely to adopt better NRM practices if certain conditions exist:

* increased use rights to products/benefits of better management,

* reduction of financial risks,

* increased access to technologies that increase efficiency and/or labor constraints,

* broadened local representation and participation in government, affecting decisions on investments and service delivery.

Indicators

* Changes in policies (new laws, rules, regulations).

* Institutional reforms (decentralization, passing authority to local levels, development of local organizations).

* Number of farmers/herders exposed to promising new technologies (measured by field days, site visits, demonstrations, etc.); number of acceptances of the technology or expressions of interest by local people (also, objections, constraints, reservations expressed).

* Economic incentives to which local people have responded.

E. Level I: Actions that Contribute to Establishing the Above Conditions for Adoption

This is the level where most donor actions are directly measurable. The analytical challenge is to make plausible linkages between changes in Levels I and II and the adoption of good resource management practices in Level III. The possible measures are wide-ranging, but Level I actions must be shown to contribute to establishing conditions in Level II.

Indicators

* Number of resource management plans (forest, range, watershed, etc.) that include smallholder benefits, tenure and resource-use agreements.

* Number of credit unions established; number of smallholders trained in enterprise management; number of commodity banks being managed by local groups, etc.

* Number of promising technologies developed by regional research centers or imported from similar agroecological zones; number of extension agent visits, etc.

* Number of local site visits by host-government policymakers to promote tenure policy changes, help organize credit unions, etc.

Appendix D: Seminar Summary

DECENTRALIZATION: FINANCE AND MANAGEMENT PROJECT
NATURAL RESOURCES MANAGEMENT SEMINAR

SUMMARY REPORT

On October 9, 1992, the findings of the Decentralization: Finance and Management (DFM) Project's research on the topic of "Decentralization and Local Autonomy Conditions for Achieving Sustainable Natural Resource Management" (see Volume I of the final report) were presented at a seminar held in Washington, D.C. In attendance were A I.D officials and representatives of organizations and projects which (like the DFM Project) collaborate with A.I.D.'s Africa Bureau Office of Analysis, Research, and Technical Support to conduct research on topics related to the sustainable management of natural resources.

The Agenda for the one-day seminar was:

1. How DFM/NRGM[1] Fits into the Overall AFR/NRM Analytical Agenda
2. The Governance Dimension of Natural Resources Management
3. Operational Applications of DFM/NRGM Findings as Exhibited by AID Programs
4. Future Research Directions
5. Closing Remarks

The following summarizes the key points made during the seminar by the presenters, and those raised during the course of the discussion periods

1. <u>How DFM/NRGM Fits into the Overall AFR/NRM Analytical Agenda</u>

As the Africa Bureau has attempted to respond to the mandates of the Development Fund for Africa (DFA), in part through its natural resources analytical agenda, it has relied on the collaboration of various projects, such as DFM These collaborations help AFR/ARTS to understand the constraints to sustainable management of natural resources, and to determine what questions need to be asked in order to reach the goals of the DFA

There is a growing recognition of the importance of local autonomy for resource management and the need to address questions about people-level impacts, versus the more traditional measuring of technology dissemination. This recognition is based on the

[1] NRGM - natural resources governance and management

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understanding that the root causes of development failures are more institutionally oriented (governmental, political and judicial) than technically oriented. The AFR/ARTS natural resources analytical agenda reflects these understandings.

Nonetheless, AFR/ARTS requires the answers to some fundamental questions regarding the role of decentralization and local autonomy in sustainable management of natural resources. In particular, under what conditions does decentralization make sense? How can local autonomy be promoted? It is important that the implications - the risks as well as the advantages - of decentralization and local autonomy for natural resources management be understood

2. The Governance Dimension of Natural Resources Management

To further elucidate the problems posed by decentralization and sustainable management of natural resources, and to explain the links between natural resources management and governance, a case study from the project's field work was presented.

The case study of a community in Mali illustrates several major issues: (1) people are cognizant of the connections between sustainable natural resources management and economic prosperity, (2) local communities and institutions can and do, under the proper conditions, implement sustainable resource management practices, and, (3) a virtual necessity for sustainable community resource management is that communities are able to control access to their resources and membership in their resource governance and management institutions.

Therefore, to make local autonomy "work" in regards to sustainable management of natural resources (i e., to assure that people are more able to manage their resources), requires an understanding of and willingness to deal with i' 'es such as incentives, rules, enforcement and monitoring procedures, and legitimization cial jurisdictions. In other words, sustainable resource management necessitates de...g with issues of governance

Local institutions are important in discussions about governance because they reflect people's governance decisions at the constitutional, collective choice and operational levels In addition, they are often flexible and can adapt to changing biophysical and socio-political conditions. Donors can support sustainable natural resources management by helping to establish conditions that promote the efficient and effective operation of local institutions The DFM NRGM research activity led to the articulation of six conditions that appear to be conducive to achieving sustainable natural resources management, including the promotion of local institutions

1. Incentives for users to govern and manage natural resources sustainably are present, including a recognized capacity to control access and membership
2. Management of natural resources capitalizes on local knowledge, or an effective blend of scientific knowledge and local knowledge

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3. Self-governing institutions exist and members have a voice in natural resource management decision-making.
4. Low-cost, fair mechanisms for conflict resolution are available.
5. Resource governance and management institutions take account of diverse, legitimate interests
6. National and regional policies and institutions create an enabling environment

There is a risk that local institutions will degrade resources, especially if incentives promote unsustainable use. Local institutions also, however, offer great potential for sustainable resource management. Support for local autonomy should not therefore be withheld in an effort to avoid the occasional abuse of power.

3. Operational Applications of the DFM/NRGM Findings as Exhibited by AID Programs

In Namibia, the design of the Living In a Fragile Environment (LIFE) Project was partially revised based on the information collected by the DFM NRGM research team. The information on local autonomy was especially relevant for the LIFE Project because to a great extent that project will depend upon relationships between communities, local NGOs, the Namibian government, and USAID

The DFM NRGM investigations reiterated the importance of local institutions being empowered to manage their own resources, specifically in regards to land tenure. Though local organizations exist in Namibia, USAID's support for them is likely to be ineffective if they are not empowered to make and implement resource governance and management rules. Additionally, the DFM NRGM research reconfirmed the importance of local institutions having a supportive framework in order to be able to operate autonomously In Namibia, that framework would include, for example, guaranteed rights and profits from resources (such as a share of tourist revenues for the community)

In Lesotho, USAID's Community Natural Resources Management (CNRM) Project recognizes that the sustainability of natural resources requires local involvement The project is therefore working with herders to form range management associations that will be responsible for their own range resources. The success of that effort requires an understanding of the constraints to local range management, and the conditions under which sustainable local management is likely to occur

The issues confronting the CNRM have informally been analyzed within the context of the conditions which promote sustainable management (as described by the DFM NRGM research) An understanding of the conditions, as applied to the CNRM, may lead to a greater understanding of how to enable and promote involvement and autonomy. For example, four of the conditions described by the DFM NRGM research are as follows

1. Self-governing institutions exist and members have a voice in natural resource management decision making.

2. Incentives for users to govern and manage natural resources sustainably are present, including a recognized capacity to control access and membership.
3. Resource governance and management institutions take account of diverse, legitimate interests.
4. Low-cost, fair mechanisms for conflict resolution are available.

Analysis of the situation confronting grazing associations in Lesotho, in comparison to the "ideal" conditions described above reveals several relevant issues.

- Grazing associations have legal status but limited experience in planning their own activities.

- The sense of autonomy among the various associations varies.

- The program has demonstrated benefits for association members, but the costs of membership are not currently known.

- Currently, the associations may not represent the interests of all classes of resource users because not all are association members, interactive consultation is not taking place, and, the program's focus has been on livestock/range management and not necessarily on management of a broader set of range resources, even though many in the communities have no animals and depend for their survival on a variety of resources (some of which are considered to be unimportant only because they are unsuitable cattle forage)

- Transaction costs for dispute resolution are high for individuals and for associations

The challenge for both the LIFE and CNRM projects is to operationalize the conditions described above in order to help promote sustainable management of resources.

4. Future Research Directions

Discussion of the future research directions that a study of local autonomy and sustainable resource management might take focused on two related questions.

1. How can USAID projects promote the conditions which DFM research reveals are important for the sustainable management of natural resources?

2. How are the conditions, once they are evident at a site, linked with increased economic development at that particular site?

In order to answer these questions, it was agreed that there is a need to organize data to be able to understand just how a change at the actions level leads to a change in conditions, which in turn affects what practices are adopted One possibility may be the development of a database to help organize information on a variety of variables for a great number of sites. Analysis could then further reveal what conditions lead to which outcomes under what circumstances. An interactive database of this type would be valuable for conducting further analysis of the issues raised during the present study.