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LTC Research Paper

Popular Participation in the Management of Natural Resources:

Lessons from Baban Rafi, Niger

by

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**POPULAR PARTICIPATION IN
THE MANAGEMENT OF NATURAL RESOURCES:
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All views, interpretations, recommendations, and conclusions expressed in this publication are those of the author and not necessarily those of the supporting or cooperating organizations.

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ABBREVIATIONS

English

CLUSA	Cooperative League of the USA
DANIDA	Danish International Development Agency
DESCON	Consultative Group for Desertification Control (established by UNEP)
Du	Economic Intelligence Unit (based in London as a unit of <i>The Economist</i>)
FAO	Food and Agriculture Organization
FLCD	Forestry for Local Community Development (sponsored by the FAO)
FLUP	Forest and Land Use Planning Project (the best known of FLUP's sites is Guesselbodi, Niger, where a management plan has been in force since 1983, and which provided the model for the NFM Project at Baban Rafi)
GNP	gross national product
GoN	Government of Niger
IAWGD	Interagency Working Group on Desertification (established by the UN)
ICDP	Integrated Conservation-Development Project
IcRAF	International Council for Research in Agroforestry (Nairobi)
IITA	International Institute of Tropical Agriculture (Madan)
ILO	International Labor Office
IRD	integrated rural development
LTC	Land Tenure Center (Madison, Wisconsin)
LwR	Lutheran World Relief
NFM	Natural Forestry Management
NGO	nongovernmental organization
NRM	natural resources management
OECD	Organization for Economic Cooperation and Development
SALAMA	Semi-Arid Lands Management (project administered by CARE-Niger and GoN, initiated in 1988)
UNCOD	United Nations Conference on Desertification (Nairobi, 1977)

UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNSO	United Nations Sudano-Sahelian Office
USAID	United States Agency for International Development
VMG	Village Mutual Group

French

AFN	Association Féminine Nigérienne
AG	Assemblée Générale
AO	Afrique Occidentale Française
CA	Conseil d'Administration
CILSS	Comité Permanent Inter-États de Lutte contre la Scheresse dans le Sahel
CMS	Conseil Militaire Suprême
CNCA	Caisse Nationale de Crédit Agricole (government agency active in Niger from 1967 to 1986)
CNCR	Conseil National du Code Rural
CND	Conseil National de Développement
CTFT	Centre Technique Forestier Tropical (based in Nogent-sur-Marne, France)
DDE	Départementale de l'Environnement; or Directeur de l'Environnement
DE	Direction de l'Environnement
DE	Direction des Eaux et Forêts
DFF	Direction des Forêts et de la Faune
GM	groupement mutualiste
GMV	groupement mutualiste villageois
INRAN	Institut National de Recherches Agronomiques du Niger
IPDR	Institut Pratique du Développement Rural
IRSH	Institut de Recherche en Sciences Humaines
MAE	Ministère de l'Agriculture et de l'Environnement
MAG/EL	Ministère de l'Agriculture et de l'Élevage
MDR	Ministère du Développement Rural

MER/CAP	Ministère de l'Économie Rural, du Climat et de l'Aide aux Populations
MHE	Ministère de l'Hydraulique et de l'Environnement
MI	Ministère de
MNSD	Mouvement National pour la Société de Développement
OCDE	Organisation de Coopération et de Développement Économiques
ONAHA	Office National des Aménagements Hydro-Agricoles
ONG	organisation non-gouvernementale
ORSTOM	Office de la Recherche Scientifique et Technique Outre-Mer (Paris)
PcMS	Président du Conseil Militaire Suprême (chef de l'état)
PNUE	Programme des Nations Unis pour l'Environnement
PUSF	Projet Planification et Utilisation des Sots et Forêts (a major site of which is Guesselbodi, Niger)
SD	Société de Développement
UDC	Union Départementale des Coopératives
ULC	Union Locale des Coopératives
UNC	Union Nationale des Coopératives
UNCC	Union Nigérienne de Crédit et de Coopération (1962-1984)

PREFACE

I first visited the Baban Rafi forest in August 1989, approximately two months after the Baban Rafi Cooperative had held its first election of officers. At the time, Baban Rafi was one of a small number of locations in the Sahel under consideration as the field research site of the present study. The list of possible sites for this study was small, given that in the Sahel the concept of socially oriented natural forestry management had only recently begun moving into its implementation phase. I was lucky, though, to locate a site with the built-in advantages of the Baban Rafi forest: (1) a committed effort was already under way in 1989 by CARE International in collaboration with the Nigerien^{*} government, further benefiting from the technical support of the Cooperative League of the USA, to implement a natural forestry management cooperative based on the principles of popular participation in natural resource management and devolution of rights to profit from forest resource exploitation; (2) the cooperative would have been in existence over a year prior to the commencement of field research, during which time it was hoped that a group identity as well as organizational trends and any accompanying problems would have become evident; (3) Baban Rafi is located in a Hausaphone region (at the time I first visited the site, I was studying Hausa at Bayero University, Kano, Nigeria, having already spent two years studying Hausa at the University of Wisconsin-Madison); and (4) Niger had already built a solid record of research into and support for the ideals of popular participation in natural resource management and decentralization of property rights to resources.

Having identified Baban Rafi as a suitable site for the present study, I moved to Maradi Department, of which the Baban Rafi forest occupies the southwest corner, in October 1990 and stayed until October 1991. The present document makes no attempt to describe the full array of rewards I gained as a result of 12 months spent among the welcoming inhabitants of Baban Rafi as well as the diverse populations of the departmental capital of Maradi and the national capital of Niamey. In terms of research, however, if the rewards reaped over the 12 months are not evident in these pages, the flaw is certainly one of style and presentation rather than the result of a fruitless search for meaningful data. As a consequence of an almost shocking level of openness, tolerance, and helpfulness on the part of nearly all persons encountered, field research conditions could be described as nearly ideal.

Perhaps the overriding impression I carried away from Niger in October 1991 is a deep appreciation of the social and institutional complexities that may characterize societies undergoing rapid transformation. But a dizzying social complexity (rendered ever more resistant to superficial analysis by the speed with which social structures are being transformed in response to changing economic and political conditions) must be sharply

* This study has adopted French usage as a means to distinguish the adjective derived from the country of Niger, "Nigerien," from the adjective derived from the country of Nigeria, "Nigerian."

distinguished from social chaos, which might lead to very different conclusions. In sum, my experience at Baban Rafi has left me even more committed than before to the principle of popular participation as the appropriate guide to all facets of development. My conception of popular participation, however, has been substantially modified in the process. In a word, participation has lost the strictly "local" orientation with which I had earlier identified it. While I would not dispute that participation may at times be enhanced through the definition and enforcement of exclusive rights (e.g., property rights), it might also be expanded through inclusive strategies directed toward a wide range of actors operating within an increasingly interconnected economic and political system. Put another way, I have come to doubt whether simply choosing the right team (whether of farmers, herders, small or large businessmen, or the state) will, on its own, significantly advance the cause of development—however this elusive term might be defined.

Field research for this project was funded by a grant from the Fulbright-Hays Doctoral Dissertation Research Abroad program. Write-up was funded by a grant from the John D. and Catherine T. MacArthur Scholars' program at the University of Wisconsin-Madison, and by the Land Tenure Center of the University of Wisconsin, where I worked as a research assistant during a portion of the write-up period. In Niger I received guidance and/or logistical support from the Institute for Research in Human Sciences (IRSH), the Ministry of Water Works and the Environment, the American Cultural Center in Niamey, USAID/Niger, CARE International-Niger, as well as representatives of a variety of government agencies and private organizations. Of course, all views expressed in this document are my own and do not necessarily reflect those of the sponsoring organizations.

[Ed.: This research paper is an edited version of Elbow's Ph.D. thesis, of the same title, submitted in partial fulfillment of the requirements for a doctoral degree in Development Studies at the University of Wisconsin-Madison in 1992.]

Chapter 1

DEVOLUTION AND IMPROVED NATURAL RESOURCE MANAGEMENT: Is THERE A LINK?

1.1 GENERAL INTRODUCTION

About three-quarters of the villagers and herders responding to a questionnaire on forest resource use at Baban Rafi believe the region's forests will cease to exist by the year 2000. Living memory affords ample precedent on which to base such a prediction. Local people approaching middle-age and older recall similarly wooded regions elsewhere in Niger and Northern Nigeria that have disappeared, and further recall that the local forest was once much denser and used to harbor abundant wildlife. Periodic drought and a growing population are commonly cited by local inhabitants as the crucial factors explaining the demise of the forests of the Sahel.

However, upon further questioning of local inhabitants, drought generally emerges as a supporting rather than a leading factor in the current process of environmental degradation. In spite of the relatively high rainfall period that spanned the 1950s and most of the 1960s, drought has long been viewed by the populations of the Sahel as a chronic condition. Moreover, the uncertain climate of the Sahel is generally regarded as more threatening to populations seeking to secure subsistence than as directly destructive of vegetation, thus leaving the bulk of the blame for deteriorating natural resources to be assigned to human activities. The environmentally taxing activities most often identified by the populations of the Baban Rafi forest include the clearing of the forest for crop production, the use of the forest for grazing and browse for livestock, and the harvest of fuelwood destined for market. These three activities correspond to the forest resource user groups having the greatest environmental impact on the area's resource base: farmers, herders, and fuelwood merchants and consumers.

The population of the Sahel is growing at a rate of roughly 3 percent each year, yielding a doubling of people in about 24 years. In other words, there are approximately twice as many Sahelians in 1992 as there were in 1968 just prior to the onset of what might be termed the modern age of drought. The consequences of such growth in terms of increased demands placed on a fragile resource base are apparent.

An obvious question arises: Can institutions arise that are capable of reconciling growing demands with limited supplies, and, if so, how? The first part of the question can only be answered through demonstration, leading those who study the management of natural resources in settings such as the Sahel to concentrate on the "how." At Baban Rafi, and increasingly throughout the Sahel, a balance between supply and demand is thought to be

attainable on the basis of an assumption that it will ultimately be the **rational choice** of local populations to achieve such a balance, and, therefore, local populations must be allowed the authority to decide how resources will be regulated and used as well as how benefits are to be distributed. Since such authority is currently claimed by the state, the empowerment of local populations through the granting of decision-making authority in the realm of natural resource use and management is commonly considered to be a transfer of authority from the state to civil society.

Such a transfer of authority is referred to in this study as "devolution," and its predicted outcome remains largely hypothetical. One notes, for example, that the prediction of a number of developmentalists and natural resource managers (that devolution might preserve the ecological health of the forest) **assumes** that the set of conditions responsible for the prediction of local residents (that the forest is on the road to extinction) may be significantly transformed. This study is motivated by the suspicion that this assumption of the "devolution-ists" has yet to be adequately analyzed or explored.

While the transformation of conditions leading to degradation are obviously essential to the long-term ecological health of forests such as the one at Baban Rafi, strategies unleashed toward this end may or may not lend themselves to generic formulas such as devolution. Perhaps the most promising avenue toward illumination of these considerations is through theoretically informed, in-depth examination of individual sites. The present document is a record of one such examination.

This paper is divided into six chapters. The first chapter introduces the central issue under investigation (the hypothesized relation between devolution and sustainable exploitation of natural resources) and briefly situates the issue within its physical and intellectual contexts. This chapter also provides a discussion of the research methodology employed in the course of the investigation. A special appendix (see Annex 1) is judged necessary as a result of the interdisciplinary nature of the inquiry. This appendix features a list of definitions of terms relevant to the present study but whose meanings may be nonstandardized or confusing across disciplines.

Chapters 2 and 3 constitute a unit compiling a broad composite of social and (to a lesser degree) physical traits relevant to locally prevailing resource exploitation practices and patterns. Thus chapter 2 consists of a detailed physical and social profile of the site of Baban Rafi, while chapter 3 focuses on past and present resource use and tenure systems.

Chapters 4 and 5 address the broad institutional issues that, it is argued, will substantially determine the potential for success of policies based on devolution of forest resource use and management rights. Such issues include present and past legislation and policy, the nature and strength of state structures, state-civil society relations, social structures and organization, intercultural relations, and markets. Chapter 4 describes the institutional and policy environment from a national perspective, while chapter 5 investigates the composition and impact of institutions at the site of Baban Rafi.

Chapter 6 summarizes the findings and states the conclusions of the study. This chapter comments especially on policy issues and warns of the potential dangers inherent in the uncritical translation of theory into policy.

1.2 RESEARCH AGENDA

1.2.1 PEOPLE-CENTERED FORESTRY AND DEVOLUTION

On an international level, the search for solutions to continuing resource degradation in the Sahel and elsewhere has been moving in a defined and generally agreed upon direction. A consensus has emerged among representatives of international aid agencies and experts in development with an interest in natural resource management that the physical problem of resource degradation—particularly in forest environments—can be solved only through the application of social solutions. This understanding has been especially evident since the United Nations Conference on Desertification was held in Nairobi in 1977, followed by the World Forestry Conference convened in Jakarta in 1978. The new approach to forestry has been heralded as "Forestry for the People" (Noronha and Spears 1985, p. 227). Terms such as "social forestry" and "community forestry" have since come to be commonplace in the planning of donor-sponsored forestry projects throughout the world, and recipient country national policies are sometimes adjusted to reflect the new emphasis.

Nevertheless, people-centered forestry remains new and largely untested as an international development initiative, and it remains exceedingly broadly defined. There is a need to understand better the way in which the initiatives are being defined and implemented at specific sites, along with the way in which people are responding or might be predisposed to respond. In particular, one needs constantly to question, preferably armed with empirical evidence, whether one or another particular definition of people-centered forestry is effective or potentially effective in achieving its central objective—the attainment of sustainability in the use of forest resources in conjunction with the satisfaction of local development needs. The present study is intended as a contribution toward answering this question. The definition of people-centered forestry adopted for this purpose is embodied in the concept of **devolution**.

In the context of the present study, devolution² takes on a somewhat specialized meaning. A conventional understanding of the word³ considers the term within the context of the balance of power between local and central government. Devolution is used in the present

1. While some observers **and practitioners** tend to lump these terms (as well as such **phrases** as farm forestry or even agroforestry) together as interchangeable components of the same general strategy toward reforestation **through popular participation**, others insist on technical distinctions between the meanings of the terminology (see annex 1).

2. For a fuller discussion of "devolution," refer to annex 1.

3. See, for example, **Bryant and White** (1982, "Decentralization and **Coordination**," pp. 177ft); and **Henry Maddick**, *Democracy, Decentralization and Development* (London: Asia Publishing House, 1963), cited in **Sherwood** (1967, p. 7).

discussion, however, as a handy label for an increase in the rights and responsibilities of local **nonstate** agents and leaders—most especially and generally, local populations. In this sense, devolution as a policy initiative is buttressed by the concept of popular participation in development, that is, participation in decision-making on the part of civil society. Devolution is also supported by the theory of common property, since common property provides a framework in which to effect a transfer of rights from the state to civil society, particularly in the domain of natural resources. In sum, the term "devolution" in this work refers to the decentralization of decision-making (management) authority or property rights regarding natural resources and, further, to the transfer of authority and rights from the state to civil populations.

1.2.2 POLICY OF DEVOLUTION AND STUDY'S OBJECTIVES

The policy of devolution is intended by its sponsors to allow greater flexibility to local populations in the management of natural resources. It is expected that local initiatives undertaken in view of increased local participation and security of holdings will lead to long-term sustainable management.

Although the policy under consideration is referred to in this study as **devolution**, the term appears nowhere in the policy statements (e.g., the decree of 16 May 1990, discussed below) of the particular case under investigation. The policy statements refer, rather, to "participatory management" and increased use rights and benefit flows to be captured by local populations. Prior to such recent policy statements, all rights regarding management and use of forest resources were clearly within the prerogative of the Nigerien State, which "owned" all untitled forests.⁴ The specialized meaning attributed to the term of devolution is a function of this policy history. It is especially important to retain the notion of devolution as a **transfer** of rights and authority from the state to local populations.

The current policy context of the study is as follows. Niger, in common with neighboring Sahelian countries, is engaged in a reassessment of government policies regarding natural resource management. In response to the alarming natural resource degradation observed in the Sahel throughout the 1970s and 1980s, Niger and its Sahelian neighbors now concede that the state has failed in its efforts to preserve the natural resource base solely by legislating and enforcing sets of rules (e.g., forest codes) to be imposed on local populations of resource users. The forest cooperative of Baban Rafi, established July 1989, represents an attempt to devolve forest resource use and management rights from the state to local populations in the hope that this will lead to sustainable forest resource exploitation practices.

On a national scale, the policy of devolution achieved legal expression in the form of a legislative decree issued by the Nigerien Ministry of Agriculture and Livestock on 16 May 1990. The decree represents a radical departure from pre-existing forest legislation (the latter assumes an undisguised "enforcement orientation" as contrasted to the "rights orientation" of

4. République du Niger, Law 74-7, 4 March 1974, ARTICLE 1.

the decree) and remains at the time of this writing as the single piece of legislation in Niger that embodies the notion of devolution. The first article of the decree reads as follows:

ARTICLE 1 - In order to encourage **participatory management of natural** resources, together with a concern for their rational exploitation following established (or to be established) technical norms, **the following usufruct rights are granted to village communities who participate in forest resource management on their traditional lands:**

Harvesting of all types of wood (timber, **building** poles, firewood) as well as bark, leaves, fruits, gums, medicinal plants, food plants, and all other secondary forest products [emphasis]

The first paragraph of ART. 1 summarizes the philosophy underlying the decree. Two goals are named—one, developmental (participatory management), and the other, ecological (rational exploitation)—and the strategy chosen to achieve the goals (the granting of usufruct rights to village communities) is specified. To further reinforce local rights (as contrasted to the pre-existing system of state-held rights), a later article adds:

ARTICLE 3 - The benefits incurred from the exploitation of forest resources mentioned in ARTICLE 1 are reserved in priority for the involved village communities.

Baban Rafi is one of a handful of sites in Niger at which policies similar to the national policy outlined above are in the early stages of implementation. The Natural Forestry Management (NFM) project, jointly administered by CARE International and the Nigerien government's Service of the Environment, established its office in Maradi (the provincial capital of the region including the Baban Rafi forest) in March 1989. The project's zone of intervention includes over 40,000 hectares of natural forest at Baban Rafi as well as an extensive "buffer zone" of village and farmland along the forest's periphery.

The Baban Rafi Forestry Cooperative, sponsored by the NFM project, is intended to function as the vehicle whereby local populations will assume management and property rights to forest resources as incentives to invest in those resources in accordance with ecological objectives. Such a strategy conforms to the basic precepts of devolution and the supporting concepts of popular participation and common property. The linkage between local rights and ecological goals is made explicit in the preliminary management plan for the Baban Rafi forest produced by the NFM project in July 1991.⁶

The policy context described to this point suggests three assumptions on the part of policymakers. These three assumptions define the core issues for investigation in this study:

5. This English translation of the French original as well as the one below (from **ART. 3**) are reproduced from a news release, dated 3 July 1990, prepared by Barry Rands of the United States Agency for International Development in Niger. The news release emphasizes that this is an unofficial translation. The original text is included in the present study as annex 3.

6. See discussion, "NFM project and the cooperative," in ch. 5, p. 80.

- ▶ the state is both willing and able to surrender to local populations use and management rights it has long claimed;
- ▶ the reinforcement of use and management rights to forest resources at the local level will unleash incentives to exploit resources on a "rational" (i.e., sustainable) basis; and
- ▶ indigenous sociopolitical organizations either exist or may be created to manage forest exploitation according to the notion of rationality intended by policymakers.

In summary, this study's primary goal is to evaluate the assumptions listed immediately above along with the general strategy of devolution in light of a particular case in which both national and local policy has been fashioned accordingly.

1.3 FIELD RESEARCH METHODOLOGIES

Field data on which this study is based were collected in Niger between October 1990 and October 1991. Information priorities were established and collection techniques devised according to the research objectives noted in the above statement describing the research agenda and as a function of the investigation's intention to take the form of an in-depth case study. The site of the inquiry is the western portion of the Baban Rafi forest, south-central Niger. Although the NFM project holds jurisdiction over the entire Baban Rafi forest, the western portion was chosen as the study site since it is the location of the first and, throughout the research period, only Baban Rafi Forestry Cooperative. The primary administrative seat of the NFM project is the departmental capital of Maradi, though the project is also overseen by Nigerien government officials and CARE representatives based in Niamey.

At the site of Baban Rafi, early application of rapid rural appraisal techniques yielded information that guided subsequent random and nonrandom sample surveys and interviews. The random sample survey is described below. Nonrandom sample surveys and interviews of key informants were designed to collect information on such topics as local tree use; existing tree species in the Baban Rafi forest; water rights; the existence of sacred trees and forests; inheritance rules; village structures, boundaries, and history; and the social and wealth status of specific groups (e.g., cooperative officers).

Periodic residence in the villages of the cooperative allowed for extended and repeated sessions as a participant observer in village life, as did attendance at cooperative meetings and activities. Residence in the departmental capital of Maradi facilitated formal and informal interviews of government and NFM project officials as well as interviews of the primary wood merchants of Maradi (most of the fuelwood consumed in Maradi originates in the Baban Rafi forest). Many of the archival sources relevant to this study are also located in Maradi; others were exploited in Niamey.

The largest survey exercise consisted of the formulation of a multiple-sectioned questionnaire which was subsequently administered to a population of randomly selected

Hausa (sedentary farming) heads-of-household and their wives between April and August 1991. A slightly modified version of this questionnaire was administered to herding (semi-sedentary)' heads-of-households, while a somewhat abbreviated version was administered to wives of the randomly selected household heads (the reason for the brevity of latter being the greater time constraints generally characteristic of married women in the region relative to men, and, to some extent, the relative inaccessibility of married women to a male researcher).

The random sample survey questionnaire was designed on the basis of information collected in the course of the data-collection exercises noted above. Following about four months of data collection and analysis, approximately one month was devoted to the formulation and testing of the random sample questionnaire. The process of questionnaire formulation for the random sample survey was guided at the outset through reference to two model questionnaires employed in somewhat similar research settings and attempting to obtain broadly similar categories of information.⁸ .'

Following extensive testing of the questionnaire on farmers from villages outside the research area and on NFM project assistants, the list of respondents was compiled by random selection to include respondents from each village or herding camp roughly in proportion to the total population of the village or settlement and with a geographical spread reflecting ethnic, religious, or family patterns.'

The questionnaire was also administered to several individuals not included in the random sample, but whose responses were judged to be of potential use as a result of a particular

7. Although often referred to in this study as either "farmers" or "herders," all of the respondents to the questionnaire produce agricultural crops, and most raise at least some livestock. The distinctions between these two major categories are discussed at length in ch. 2. It is sufficient to mention here that "farmers" almost always speak Hausa as their first language and live in villages; while "herders" usually speak Hausa as a second language, live in small groups scattered outside of the Hausa villages, and may be absent from their farms for portions of the year.

8. The most important model influencing formulation of the questionnaire used in this study was that devised by LTC Associate Researcher, Rebecca McLain, who formulated her questionnaire in the course of a study examining forest-code and resource-tenure issues in central Mali (see McLain 1992). The second model contributing to the present effort is that found in an annex to Delehanty et al. (1985).

9. In at least twelve cases the randomly selected individuals were either unavailable or unwilling to be interviewed. In most cases replacements were selected by returning to the census list to choose the name following that of the **unavailable individual**. In two cases a married son filled in for his aged father who **had** been included on the original sample list. In one case (Garin Ali) a replacement was not found, resulting in the interview of four instead of five **heads-of-household**. In one case (the Buzu herders residing outside of Mamouri) the small **population** resulted in only two respondents' appearing on the list, and a third was added by choosing an **available individual** upon arrival at the camp. Also among the **Buzu** of Mamouri, one of the wives interviewed was not married to any of the male **heads-of-household** interviewed, but was selected on the basis of availability. In general, in cases in which a male **head-of-household** had two or more wives (in 21 of 68 cases, or 31 %), the wife interviewed was selected on the basis of availability. Finally, upon discovery of a herding group living outside of Garin Ali that **had** not been included in the census conducted by the NFM project, three **respondents** were **nonrandomly** selected by NFM project assistants to **be included among the otherwise** randomly selected **respondents**.

social position or status. Thus all village chiefs, a number of unmarried adult men, and most of the officers of the Baban Rafi Cooperative were interviewed on the basis of the standardized questionnaire. However, the responses of these nonrandomly selected respondents are not included (unless otherwise indicated) in the data quoted throughout this study.

The majority of the interviews were conducted by a team of two bilingual (French and Hausa) NFM project assistants: one posed the questions, and the other recorded answers directly onto the questionnaire form. Although the questionnaire was in French, an attempt was made to standardize the oral translation into Hausa during earlier work sessions with the project assistants. The average interview lasted between 2 and 2½ hours, but a number of them lasted much longer because topics were pursued that had not necessarily been foreseen. In other words, the questionnaire format was not strictly adhered to, though all of the questions included on the standardized form eventually were posed.

The total of 130 randomly selected respondents are divided as follows among the primary categories: 40 farmers; 28 herders (25 Fulani and 3 Buzu); 37 farmers' wives; and 25 herders' wives (22 Fulani and 3 Buzu). The sample represents slightly over 20 percent of heads-of-household listed in census records pertaining to the villages and settlements of the Baban Rafi Forestry Cooperative.

I would briefly note here the manner in which some of the diverse categories of data (i.e., random sample survey data, nonrandom sample survey data, participant observation data, archival data, and interview data) influence data analysis and contribute to the present study. Given the multiplicity of viewpoints (e.g., researchers, project implementers, government officials, and villagers), wherever possible an attempt was made to combine a variety of information sources related to each individual topic. For example, villagers, herders, and state officials were questioned on the fining patterns for violations of the forest code, and forest service documents were also consulted on the matter of fines.

A wider variety of information sources is, of course, more available on some topics than on others. For example, the early settlement history of western Baban Rafi must be pieced together on the basis of a few oral histories somewhat subject to exaggeration of some details (such as dates) or other selective inaccuracies. Fortunately, such details are often less important than are particular trends regarding resource exploitation (e.g., the evolution of forest policy and its implementation at Baban Rafi), and it is often possible to substantiate or refute broad trends since information may be collected across a wider range of sources. Nevertheless, in the final analysis, a portion of the study's presentation is based on my own educated guesses.

A final note is on the use made by the study of information collected via the random sample survey. The difficulties in implementing a true and scientifically rigorous random sample survey are well known. In the present case, some defects were discovered in the census list earlier used for sample selection. For example, a number of family compounds listed in census records as comprising two or more households (a household is defined as an

adult male, his wife or wives, and their children) were found in fact to consist of two or more independent households, that is, two or more compounds.¹⁰ The resulting bias probably takes the form of an overrepresentation of older, more established household heads since younger heads-of-household were not always listed separately in the census records. In addition, it was found that the project census probably underestimated Fulani populations, a group that proves to be particularly elusive in the course of attempts to obtain census information.

Nevertheless, a wealth of valuable information was obtained in the course of the random sample interviews and, unless otherwise indicated, numerical data referred to throughout this study regarding socioeconomic characteristics of the populations of western Baban Rafi are derived from these interviews. In general (as mentioned above), the information obtained through random sample interviews that is used in the present report is also supported by data collected through other means. The random sample survey is thus intended in this investigation to be one data collection method among several, though the information it yields is particularly useful for illustrative purposes since it allows for the convenience of presenting trends in terms of numbers, that is, percentages and averages, which in this report are better considered as rough indicators than as literal measurements.

10. I had begun by considering a compound to be a domestic unit sharing a defined set of agricultural fields and including one or more households. What I found was that some compounds thus defined were not included in the census from which I had compiled my random sample because of the establishment of separate agricultural fields by some of the married males who had been considered by the census to be part of a listed compound.

Chapter 2

BABAN RAFI: PHYSICAL AND SOCIAL SETTING

2.1 NATURAL BACKGROUND

Baban rafi is a Hausa phrase meaning "big stream." The misfit between the name and the setting is striking. Nonetheless, for three or four months out of twelve, the forest and fields of Baban Rafi bloom, and during this period it is not difficult to imagine the proximity of great bodies of water. By contrast, for about eight months of the year the area of the Baban Rafi forest blends easily into the Sahara Desert to its north. One's impressions of life and nature in the forest depend very much on the season.

2.1.1 LOCATION, **SIZE**, AND CLIMATE

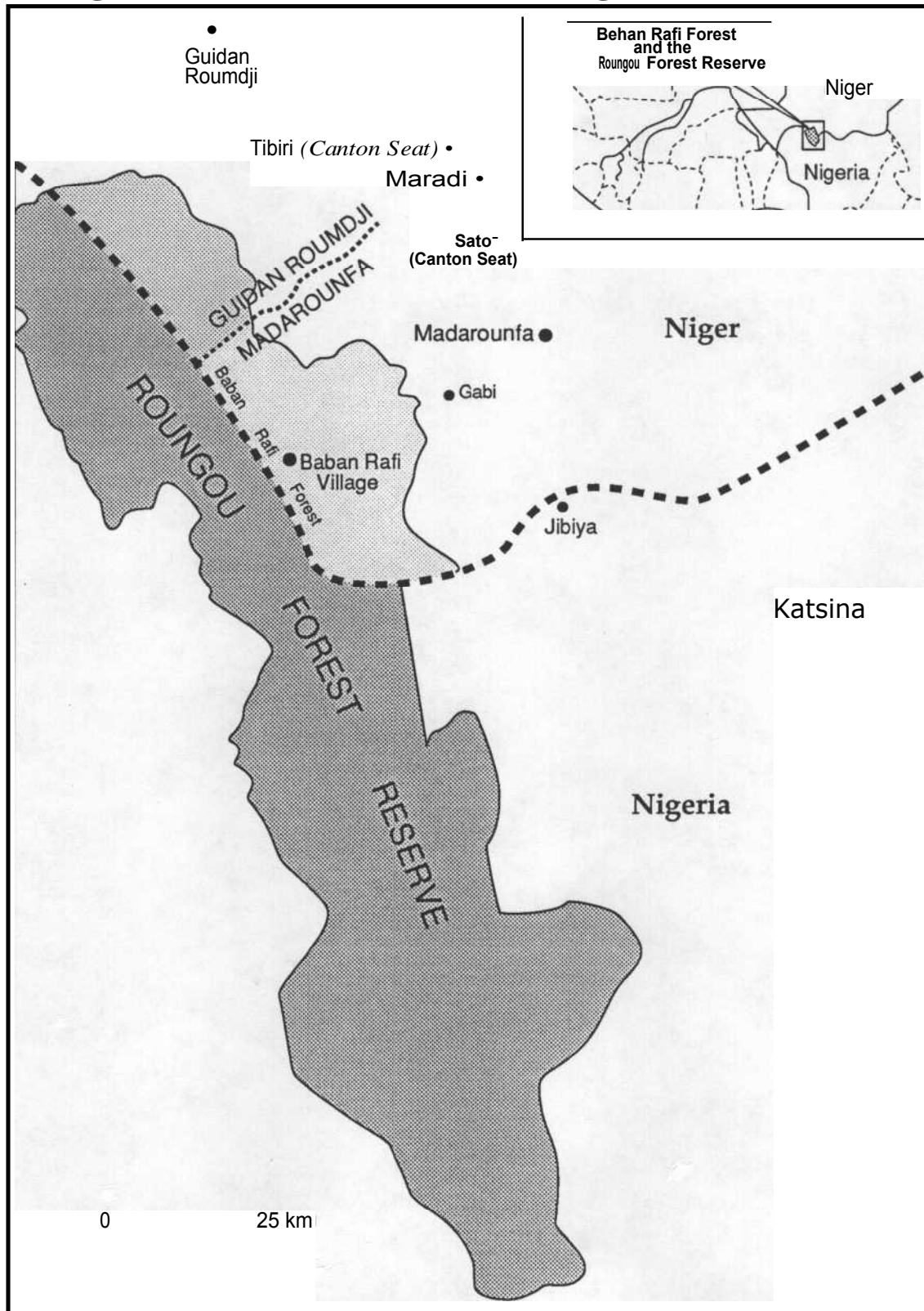
The Baban Rafi forest is located in the south-central region of the Republic of Niger, with the southern and western boundaries of the forest defined by 51.9 kilometers of the border between Niger and Nigeria (Angoh 1989, p. 3). In administrative terms, the forest occupies the southern portion of Maradi Department. Further, the forest straddles two subdistricts (arrondissements), Madarounfa and Guidan Roundji, occupying the western and southwestern portion of the former and the extreme southern tip of the latter. In terms of local settlement patterns, the village of Baban Rafi (the largest of the settlements under investigation in this study), located in the west-central portion of the forest, is 62 kilometers southwest of the city of Maradi; 42 kilometers west-southwest of the subdistrict seat of Madarounfa; and 25 kilometers west of Gabi, a large village on the eastern border of the forest (Abass 1990, p. 3).

The Baban Rafi forest constitutes the northeastern region of a much larger ecosystem, the majority of whose 2,000 square kilometers lie to the south and west of the Baban Rafi forest and across the border with Nigeria (Puccioni 1991, p. 2). On the Nigerian side, the forest has been designated as the ROUNGOU Forest Reserve.

As is the case with many of the physical characteristics of the Baban Rafi forest, the size of the forest has been subject to various debatable assumptions and widely varying estimates since the inception of the Natural Forestry Management (NFM) project. Prior to FLUP's preliminary investigation of Baban Rafi in January 1987,¹¹ no documentation on the site

11. The site of **Baban Rafi** was identified in Jan. 1987 by the **Forest and Land Use Planning** project (FLUP, of which the Guesselbodi site outside of Niamey is a component) as **a candidate for the implementation of a forest-management system having** as its objective the production of fuelwood [Projet **SALAMA** (1991, p. 18); Angoh (1989, p. 9)].

Figure 1. Baban Rafi Forest and Rongou Forest Reserve



Source: After Puccioni (1991).

existed (Projet SALAMA 1991, p. 18), beyond a series of aerial photos dating from 1962 that reveal a large wooded region with a surface area in excess of 80,000 hectares.¹² The figure of 80,000 hectares is included in an early draft of the proposal for the Semi-Arid Lands Management (SALAMA) project—of which the NFM project at Baban Rafi was to be a component.¹³ The final version of the SALAMA project document, however, also prepared in 1987, cites a figure of 39,000 hectares as the size of the Madarounfa portion of the forest, to which it adds 16,000 hectares—the estimated surface area of the portion of the forest in Guidan Roudji.¹⁴

The surface area figure routinely quoted in studies carried out in the Baban Rafi forest from 1987 through 1989 is 65,479 hectares, of which 40,575 are attributed to Madarounfa and 24,904 are said to be in Guidan Roudji (Djibo and Price 1990, p. 2; Angoh 1989, p. 1; Abass 1990, p. 2). Angoh (1989, p. 1), however, adds that over 5,000 hectares of the Madarounfa portion of the Baban Rafi forest have been put to agricultural production, and, moreover, the forest is characterized by multiple "empty pockets" (*poches vides*). The Baban Rafi forest, then, is not necessarily defined in terms of the extent of its "wooded" area.

A map based on aerial photos (1:25,000) was completed under the direction of INRAN in March 1991. The project's preliminary management plan, unveiled in July 1991, defines the forest as the zone photographed and provides the figure of 45,983 hectares as the surface area of the forest—almost all of which is located in Madarounfa subdistrict. This figure is significantly less than the 80,000 hectares of wooded area believed to have existed in 1962. Nevertheless, in spite of resource degradation and farmer encroachment, the NFM project management plan asserts that currently in Niger only the wooded region near Dosso (southeastern Niger) and W National Park (extreme southeastern Niger) could be considered as being of comparable "national value" (*valeur nationale*) to the Baban Rafi forest (Projet SALAMA 1991, pp. 18-20).

Some maps locate the region of south-central Niger containing the Baban Rafi forest as slightly south of the Sahel,¹⁵ while others depict the Baban Rafi forest as just within the Sahel and well within the region defined by the Sahelian drought and famine of 1968-1974

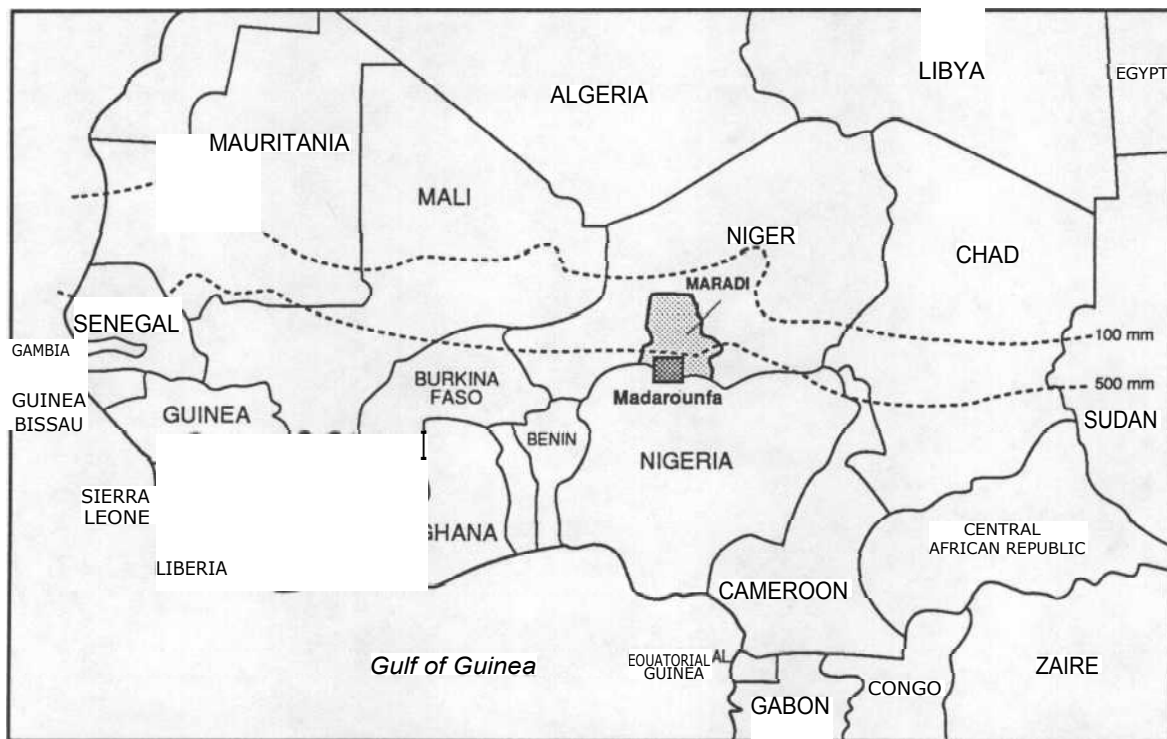
12. See Angoh (1989, p. 9). The 80,000 ha are described as "la brousse de Baban Rafi" (the woods of Baban Rafi).

13. See Projet SALAMA (1987, p. 13). The draft proposal mistakenly stated that the Baban Rafi Forest consisted of a 15,000-ha forest reserve (the French equivalent is *fort classée*) plus another 65,000 ha of woodlands to the north and northwest of the reserve. In fact, the proposal to create the Baban Rafi Forest Reserve in 1955 was never enacted (Angoh 1989, p. 9).

14. See Projet SALAMA (1988, p. 22). The figure for the surface area quoted above apparently refers to the wooded (or at least unfarmed) part of the forest, since a separate figure of 40,000 ha of "multiple use" land is listed as the buffer zone (*zone tampon*) of the project (*ibid.*, p. 23).

15. See, for example, Gritzner (1988, p. 3) (fig. 2 of this study is based on Gritzner's map); or Grainger (1990, p. 15).

Figure 2. The West African Sahel



Source: After Gritzner (1988).

(Franke and Chasin 1981, p. xv).¹⁶ The conflicting cartographic presentations of the Sahel result because the Sahel is generally defined as a function of rainfall, but the isohyets defining the region have not been standardized." In view of the climatological confusion, it is useful to note that the Sahel is often considered as a political grouping that includes the nine member countries of Cuss.¹⁸ It is important to note that more important than the average amount of rainfall received by an area is the **variability** of rainfall, and one of the defining characteristics of the Sahel is a very high degree of rainfall variability (Gritzner 1988, p. 4; Delehanty 1988, p. 49). Although within the time frame of a single year one can expect virtually all rainfall to occur in the Baban Rafi forest between May and September—with July and August generally receiving 60 percent of the total (Projet SALAMA 1991, p. 2)¹⁹—the variation between years is striking.

In addition to the rainfall variability common between years, the NFM project's "Management Plan" cites evidence of a long-term reduction in average rainfall in the Baban Rafi forest (Projet SALAMA 1991, p. 2). The management plan adds that the decreasing level of rainfall has had an adverse impact on the region's vegetation.

Temperatures are quite high in the department of Maradi (which includes the Baban Rafi forest) resulting in rapid moisture evaporation. The average annual temperature is 27.45°C (81.4°F). The average annual high temperature is 35.11°C (95.2°F) and the average annual low temperature is 19.80°C (67.6°F) (Projet SALAMA 1991, p. 8). The hottest months are April and May with the coolest being December and January.

2.1.2 TOPOGRAPHY, FLORA, AND FAUNA

The most significant topographic feature of the Baban Rafi forest affecting possibilities for the exploitation of natural resources is the lack of permanent surface water points, rivers, or streams (Projet SALAMA 1988, p. 30). Wells in the area are between 35 and 70 meters in depth.²⁰ The absence of wells except in the villages located on the periphery of the forest limits pastoral and other activities in the forest during the eight-month dry season. According

16. Also see the map reproduced in Franke and Chasin (1981, p. 25), which includes the region **containing** the **Baban** Rafi forest as within the boundaries of the Sahel.

17. For references to some of the **various** isohyets **adopted by** different observers, see **Franke and Chasin (1981, p. 24)**; Grainger (1990, p. 14); and Gritzner (1988, p. 4). A **helpful summary discussion** of the Sahel as a climatic region is contained in Delehanty (1988, pp. 45-51).

18. Cuss is **an acronym** for *Comité Permanent Inter-États de Lutte contre la Scheresse dans le Sahel* (**Permanent** Interstate Committee to Fight Desertification in the Sahel). CILSS was created in 1973 following several years of **devastating drought** in the Sahel, and since 1976 has **been** associated with **and aided by** its Paris-based sister **organization**, the **Club du Sahel**, an organ of the OECD. The nine countries of Cuss are: **Burkina Faso, Cape Verde, Gambia, Guinea Bissau, Mali, Mauritania, Niger, Senegal, and Chad.**

19. The figure of 60% is **an average, and** it masks the **variation that** may occur within single years, which also constitutes a **significant** risk factor for farmers and herders.

20. The higher figure is cited in Projet SALAMA (1988). The lower figure is based on figures quoted by foresters and villagers in the first cooperative region of the **Baban** Rafi forest.

to the first NFM project manager, the forest exists today as a result of the lack of available water throughout the forest during the dry season (Mana Diakite, personal communication).

According to many of the area's residents, the absence of any year-round reservoirs of surface water has not always been a feature of western Baban Rafi. The name, *Baban Rafi*, translates as "big stream" or even "big river." It is unclear at what point in history the name may have been an accurate description of local geography. However, older residents sometimes attest to the former existence of year-round ponds or swampy areas, such as one in the ancient region of Tielawa to the south of Baban Rafi Village, another to the east of Garin Maigiya, and a number of swampy regions at various locations around Mamouri and Goulgoussao. Today such areas contain water only during the rainy season. Village elders also attest to the ease with which subterranean water was tapped at some sites in low-lying valleys in the past: "It was enough to dig about 1 meter down and one found water." This condition, too, has disappeared.

Land forms of the Baban Rafi forest include both steppe and savanna, the latter containing the richer and more densely packed stands of naturally occurring vegetation. The vegetation of the steppes is concentrated in depressions between dunes and consists especially of tree species such as *Guiera senegalensis*, *Combretum micranthum*, *Combretum glutinosum*, *Piliostigma reticulatum*, and *Acacia mimosoides*, and the herbaceous species, *Chrozachyrium exile* (Projet SALAMA 1991, p. 14). The savanna lands of the Baban Rafi forest are variously dominated by trees, bushes, or grasses depending on humidity retention and soil characteristics. Some of the more prized tree species found on the richer savanna lands include *Vitellaria paradoxa* (*Butyrospermum parkin*), *Ficus platyphlla*, *Adansonia digitata* (baobab), *Parkia biglobosa*, and *Ficus dekdekena* (ibid). Other notable and valuable species found at Baban Rafi include *Bombax costatum*, *Prosopis africana*, *Tamarindus indica*, *Vitex donana*, and *Isobervillea doka*.²¹

Each of the *non-Combretum* species listed above is currently in decline in the Baban Rafi forest, the increasing rarity of which is attested to by local residents and preliminarily confirmed by recent censusing. According to a tree census carried out by an intern of the ÉNERGIE II project,²² *Guiera senegalensis* (a member of the *Combretum* family), *Combretum micranthum*, *Combretum nigricans*, and *Acacia macrostachya* currently represent up to 97 percent of standing trees in the Baban Rafi forest—*micranthum* and *nigricans* alone constituting nearly 80 percent (Niger 1990b).²³ The abundance of certain species might in part result from a double-edged-sword effect of selective exploitation of individual species: not only are favored species removed but unfavored species move in to fill the void. For

21. With the exception of *Isobervillea doka*, these species are listed as present in the Baban Rafi forest in Projet SALAMA (1988, p. 30). The presence of *Isobervillea doka* is noted by Angoh (1989, p. 5).

22. The Énergie II project is a World Bank-sponsored initiative to study and reform fuelwood markets and management in Niger. This project receives some attention in the closing pages of ch. 6.

23. The total of all standing *Combretum* species are said to appear in the Baban Rafi forest at an average rate of 16 m³ per hectare (Projet SALAMA 1988, p. 22).

example, Hopkins et al. (1991?, p. 12) note that "Guiera senegalensis is generally viewed as a pioneer ligneous species colonizing disturbed sites."

A total of 38 species were identified in the course of the *nergie* 11 census. Nevertheless, the census report (Niger 1990b, p. 2) concludes the following:

one must underscore the significant degradation of this [Baban Rafi] forest soon [to be] mono-specific [single species], and in which all valuable trees have been exploited. The large number of species encountered (38)—but unfortunately each in very small numbers—bears witness to a forest **that should have been rich.**'

Not all of the decline in species diversity, however, is the result of overexploitation. At least one species, the important hardwood, *Prosopis africana*, has experienced an extremely high rate of mortality throughout the Sahel in recent decades. While some observers link the decimation of large stands of *Prosopis* to the droughts beginning in the late 1960s, others believe that some tree pathogen is involved, while still others suggest that the trees' sickness is linked to supernatural forces.²⁶ Whatever the cause, the death of this tree has visibly affected the species composition in the Baban Rafi forest. A number of forest parcels are currently dominated by the leafless white skeletons of these now dead trees.²⁷

Local residents also attest to a decline in the wildlife populations of the Baban Rafi forest. Formerly common species that are now extremely rare or nonexistent include the lion, the hyena, the cheetah, the giraffe, a type of buffalo, the ostrich, and the gazelle. Interestingly, a large mammal species—the elephant—that apparently did not inhabit the Baban Rafi forest prior to the 1980s, is now a seasonal visitor. These visits appear to be the result of increased habitat²⁸ destruction and other pressures applied to the elephant populations of Northern Nigeria.

24. In a separate exercise (one conducted as a part of the research project presented in this study), villagers listed a total of 59 natural forest-tree species known currently to be in the Baban Rafi forest. These species are discussed in ch. 3 (pp. 44—46) in the context of uses made of the natural resources of the Baban Rafi forest.

25. "En conclusion il faut souligner la forte dégradation de cette forêt bientôt monospécifique et où toutes les tiges de valeur ont été exploitées. Le nombre important d'essences rencontrées (38) mais malheureusement chacune en trop petit effectifs témoigne d'une forêt qui a du être riche."

26. The villagers of Baban Rafi generally believe that the drought is the direct cause behind the destruction of *Prosopis africana*. A number of older villagers, particularly current or past hunters, suggest that the *iskoki* (spirits) are angry and that they have killed the trees. The NFM project manager suggests that a tree disease has spread among this species across the Sahel.

27. Dead stands of *Prosopis africana* provided a ready opportunity for the NFM project to organize the first commercial woodcut to be undertaken by the Baban Rafi Cooperative in 1990. *Prosopis* was cut, stacked, and eventually sold as fuelwood. This cut is discussed in ch. 5 (p. 86).

28. A special study was commissioned by CARE International in 1990 to study the elephant "problem." The problem results from crop destruction perpetrated by elephants on the farmers of Baban Rafi (see Puccioni 1991).

Soils are said to be the primary constraint to agriculture in the region. The soils are very compacted and of poor quality. They are difficult to work and have poor water retention, but this aspect can be improved through hard work. Gravelly or rocky areas of little to no vegetation (*plages stériles*) are common. Yet one finds a dense woody vegetation in most settings. Primarily as a result of poor soil quality the general region of the forest is said currently to be more important for herders than for farmers, in spite of low levels of fodder production and mediocre pastures. The greatest possibilities for agriculture occur in sandy valleys and on sandy or clayey areas containing colluvial deposits (Raynaut et al. 1988, pp. 72-73).

2.1.3 REGENERATION

The lack of specific information concerning the natural resource base of the Baban Rafi forest is especially troubling insofar as it includes a lack of understanding of rates of regeneration of plant resources. Given that the primary commercial resource of Baban Rafi is considered to be fuelwood, it is particularly important that project planners be able to calculate feasible offtake rates of wood from standing trees on the basis of the regenerative capacities of the trees. Yet following nearly ten years of FLUP-sponsored activities,²⁹ the regenerative capacity of species belonging to the *Combretaceae* family (the dominant family in the Baban Rafi forest as well as at Guesselbodi) remains a matter of debate.

Hopkins et al., writing about 1991, point out that FLUP documents themselves are not in agreement on the matter, and further "note that the post cut regeneration was significantly less productive than was expected, and [study results] point to a change from more to less favored fuelwood species among the *Combretaceae*" (Hopkins et al. 1991?, p. 3) Dennison (1990, p. 1) also issues a warning on this matter: "There are ... serious concerns about how effectively the species being harvested are being regenerated. The long term effects of continued coppicing are unknown."

The Nfm preliminary management plan circulated July 1991 refers to a single attempt to inventory the vegetation of the Baban Rafi forest—that having been conducted by *nergie* II intern, Lawali Arzika, in 1990-91. The management plan "insists on the fact that these results are preliminary" (Projet SALAMA 1991, p. 15), yet is forced to use the same results as the basis of proposed strategies for fuel-wood exploitation. As is the case with most technical aspects of the Baban Rafi forest, there is clearly a need for more and better information regarding the rates of regeneration of indigenous tree species. Only time can solve this problem. One recalls that the Nfm project dates only from 1989, and that prior to its installation there existed almost no data on the area today known as the Baban Rafi forest. Allegría notes that the lack of information on growth rates is nationwide and proposes the following solution: "Permanent growth plots are critically needed throughout Niger. Forest

29. **FLUP** (Forest and Land Use Project sponsored by the United States Agency for International Development) was active at the site of Guesselbodi, 20 km southeast of Niamey, from 1981 to 1990. It is famous for its **groundbreaking** work in the domain of locally based natural forestry management and has provided the **inspiration** for current generation of such projects, including the NFM project of Baban Rafi.

management requires information which can only be gathered from monitoring permanent plots.... Monitoring the plots on a periodic basis would identify the rotation period necessary to maximize wood products" (cited in Hopkins et al. 1991, p. 13).

2.1.4 SUMMARY OF NATURAL CONTEXT

Although the natural resource base of the Baban Rafi forest historically has supported a rich diversity of plant and animal life, it has proved in recent years to be very fragile. Particularly significant in terms of ecological vulnerability are the low levels and variability of rainfall and the poor quality of local soils. Efforts to devise a technologically sound management system for the forest's fragile resource base are hampered by a lack of scientific data concerning many aspects of the forest's ecology, but especially troubling is the lack of knowledge concerning the regenerative capacities of local vegetation. By all accounts, both the native vegetation and indigenous animal life of the forest have suffered declines in recent years—both in diversity and in total biomass. The human population of the forest, meanwhile, is increasing.

2.2 SOCIAL CONTEXT

2.2.1 REGIONAL HISTORY AND BROAD SOCIAL CHARACTERISTICS

Regarding the period prior to the twentieth century and the installation of the French colonial regime, a great deal of speculation and debate characterizes historical accounts of the territory included today in the department of Maradi. It is clear, however, that the region has long formed a part of the entity that has come to be identified as Hausaland. It is also clear that there has been a great deal of turbulence and instability among the populations of Hausaland preceding and into the twentieth century. The history of Hausaland—particularly that of the nineteenth and twentieth centuries—has helped to determine the nature and character of specific societies one encounters at sites throughout Hausaland, such as the Baban Rafi forest. The purpose of the following brief account is to convey a sense of the social complexity, diversity, and movement characteristic of the region casually referred to as Hausaland.

Several variations of the Hausa myth of origin—the legend of *Bayajida*—exist, but all versions contain the same basic framework. The *Bayajida* narratives—named for the mythical progenitor of the seven Hausa states³⁰—describe the installation of a new class of leaders

30. The number "7" is of some significance in Hausa culture. The Hausa city-states, sometimes referred to as **kingdoms**, are customarily referred to as a group of 7—the **Hausa Bakwai** (literally: **the Hausa 7**). An **additional group** of Hausa states is referred to as the *Banza Bakwai* (the "**Bastard 7**"). The composition of the second **group**—and to a lesser extent the composition of the first **group**—is subject to **debate among scholars and appears to have been** somewhat modified over the centuries. **David** (1964, pp. 9-20) provides a full discussion of the **various versions of the Bayajida legends and the differing accounts within the legends** of the identities of the **Hausa Bakwai**. There **appears to be a consensus (though perhaps not unanimous) on the identity of 6 of the**

onto indigenous societies. *Bayajida*, or the group that is represented by the name *Bayajida*, is generally said to have emigrated to what is now Hausaland from North Africa, with Baghdad,³¹ Cairo, and Jerusalem sometimes listed as intermediary steps along the way to the region of modern-day Hausaland.³² According to the historical document known as the *Kano Chronicle*, the founding of Kano—currently and to a large extent historically the most prominent of the Hausa city-states—took place as early as A.D. 1000 (Hallam 1966, p. 49).

Whatever the origins of Hausa culture, the linguistic uniformity that today occurs across the large region of Northern Nigeria and Southern Niger identified as Hausaland is quite exceptional in Africa. Nevertheless, the social diversity characteristic of the region must also be emphasized. The *Bayajida* legend attests to a historical distinction between a once foreign elite and various indigenous societies.³³ Another elite was composed of the merchant class profiting from both trans-Saharan and domestic trade that was a central feature in the development of the Hausa states.³⁴ Slave raiding was an additional source of social differentiation and disruption.³⁵ Thus strong class divisions have developed and persist in the face of such distinctions as those between conquerors and conquered, commercial classes and others, and the historical prevalence of slavery. In addition, the Islamic religion has played a powerful and complicated role in the often turbulent relations and social structures within and between the Hausa kingdoms and throughout the subsequent period of the Sokoto caliphate.

Although Islam probably first appeared in Hausaland in the fourteenth century and had become firmly established by the end of the fifteenth century (Hiskett 1981, p. 131), it was in the nineteenth century that all of Hausaland was shaken and to a large extent transformed

original Hausa *Bakwai*, which includes Kano, Katsina, Zaria (or Zazzau), Daura (of special significance in the legend of *Bayajida* as the first Hausa state), Rano, and Gobir (see also Hallam 1966, p. 48). To the 6 may be added, for example, Zamfara (David), Biram (Hallam), or Ouangara (Grégoire, 1986, p. 16).

31. Hallam (1966, p. 48) mentions that in some versions of the legend, *Bayajida* is the son or grandson of the king of Baghdad.

32. The representative of the Nigerien Institute for Research in Human Sciences in Maradi, for example, has compiled a list of nearly two dozen sites at which the founders of the Hausa state (and more specifically, the Gobir state, one of several Hausa states) spent varying lengths of time before and after arrival in sub-Saharan Africa.

33. Fuglestad (1978, pp. 324-25) argues, for example, that relations between the external kings and indigenous "priest chief(s)" amounted to a delicate exercise in power-sharing that in many cases could "lead to a somewhat less [than] idyllic situation of conflict and rivalry between the two 'whole' of authority."

34. For an account of early economic development of Hausaland and of the commercial class that played a central role in the developing economy, see Lovejoy (1978, pp. 173-93).

35. The extent to which slavery was practiced in the pre-jihad era and the importance of slavery to the Hausa economies are not yet clearly understood. Levzion (1987, p. 19), for one, believes that farm slavery among the Muslims of Hausaland was well entrenched and growing in the eighteenth century. It is clear, however, that slavery was a central institution to the economy of the Sokoto Caliphate, which ruled practically the whole of Hausaland during the nineteenth century. Levzion (1985, p. 193), for example, quotes an estimate of 1:3 as the proportion of slaves to freemen among the population living in the Caliphate's emirates in 1890, and that in the regions within and around capital cities such as Kano and Katsina, the ratio was closer to 1:1.

as a result of Islamic holy war—or jihad. Perhaps most significant in the jihadic movement was a new West African Muslim aristocracy composed of a non-Hausa and relatively recently arrived group to Hausaland—the Torodbe clerisy, a subgroup of the Fulani.

The Toronkawa conquest of the centuries-old Hausa kingdoms began in 1804 and was largely completed by 1807. Unrest and civil disorder, however, dominated until the installation of the European regimes—the British in the bulk of Hausaland, and the French in the northern and western extremes. The ostensible reason for the jihad was the nonadherence of the ruling elites of the Hausa city-states to Muslim tenets. However, the success of the conquest indicates that other factors were at play. Hiskett (1981, pp. 129-39) suggests that among the reasons for popular discontent with the ruling classes were increasing tensions between settled populations and nomads and the indiscriminate and violent process of enslavement practiced by the Hausa rulers. Such factors, along with growing religious fervor, helped convince many rural populations to side with the reformers. However, these factors did not altogether disappear with the establishment of the Sokoto caliphate, and factional conflicts between and among old and new rulers added to nineteenth century social instability.

The region of modern-day Maradi Department was a sparsely populated and marginal area within Hausaland prior to the jihad, constituting the northernmost province of Katsina (Fuglestad 1978, p. 327). It also borders the Hausa state of Gobir, which, according to David (1964, p. 39), over the centuries has shown little interest in the region around present-day Maradi. Maradi was established as a "rump state" when the ruler of Katsina—Dan Kasawa—took refuge there sometime after the fall of his kingdom to the Toronkawa about 1804. In David's (1964, p. 58) words, "It was war, and war only, that occupied the newly installed ruler ... [with the] supreme and definitive objective [being] the reconquering of Katsina and defeat of the Fulani." For better defense of Dan Kasawa's base at Maradi, the newly installed ruler moved the scattered pagan hamlets from the wooded plains to the heavily forested central valley of the region, including the present site of Maradi Town (David 1964). Thus, if sites such as that of the current Baban Rafi forest had been occupied prior to the nineteenth century, they were likely abandoned upon the arrival from Katsina of Dan Kasawa.

Maradi, a land on the border between the Hausa states of Gobir and Katsina and long neglected by both, achieved statehood in a time of turbulence and insecurity. Again the pattern of an alien power imposing itself on indigenous populations played itself out in Hausaland. One notes that, as is true of Gobir, Maradi was never transformed into an emirate of the Sokoto caliphate. Considering Maradi as a transitional unit from west to east Hausaland (a Hausaland writ small), one notes the contrast between the ancient principalities of Korgom (sixteenth century) and Tessaoua (seventeenth century) in the far east of Maradi, and the canton borders established much later during the colonial period that characterize western Maradi. It is the western portion of Maradi that includes Madarounfa and the Baban Rafi forest (Raynaut et al. 1988, p. 54).

With the installation of the French colonial regime in the early twentieth century and the resultant "pacification" of the region, boundaries were soon to be fixed throughout Hausaland and the department of Maradi (Gregoire 1986, p. 16). It was noted above that Maradi existed as something of a hinterland between the Hausa states of Gobir and Katsina and received little attention from the two power bases, though parts of Maradi were variously under the influence of one or the other state. According to the Maradi representative of the Institute for Research in the Human Sciences (*Institut de Recherche en Sciences Humaines*, **IRSH**), it was the French desire to organize groundnut production that led to the establishment of a defined administrative division between the newly defined provinces of Maradi and Gobir in 1924-1926. The division was redefined in 1944 in the course of a reorganization of groundnut production, at which time current boundaries were established.

An additional effect of the French pacification was the opening of new territory for settlement. Prior to 1900 the majority of villages in the department of Maradi were either in the eastern third of the territory or in or near the Maradi valley (Raynaut et al. 1988, p. 49; Gregoire 1986, p. 26). It is almost certain that all the villages of the Baban Rafi forest have been established since the beginning of the twentieth century.

2.2.2 HISTORY AND SOCIAL CHARACTERISTICS OF BABAN RAFI FOREST

Population and demography: Madarounfa subdistrict and Baban Rafi. The imprecision characteristic of estimates of the physical dimensions of the Baban Rafi forest also applies to demographic data. Nevertheless, both the quality and quantity of demographic information available from Baban Rafi have greatly improved since the installation of the NFM project in early 1989.

Censuses conducted prior to 1989 that included populations of the Baban Rafi forest have followed administrative (i.e., canton and subdistrict) boundaries and ignored forest boundaries. The result has been the somewhat arbitrary nature of forest-area population estimates. The SALAMA project document, for example, prepared prior to the initiation of project activities, without elaboration states, "The region of the [NFM] project has a population of approximately 120,000 persons" (Projet SALAMA 1988, p. 30).³⁶ If this is the case, one could conclude that the project-area population was to include a sizable population living well beyond the borders of the forest since the immediate forest-area population is well below 120,000. Census figures published by the Nigerien government in 1988 list a population of 193,816 (Niger 1989, p. 44) for the entire subdistrict of Madarounfa, of which the Baban Rafi forest occupies a relatively sparsely populated portion, less than one-eighth of the land area.³⁷

36. The project document does not specify borders or cite the source of the population figure.

37. The total area of Madarounfa is 3,500 km² (350,000 ha), of which the Baban Rafi Forest contains approximately 45,000 ha (Niger 1986b).

The population of Madarounfa is divided into five cantons and two *groupements* (herders belong to a traditional grouping), of which three cantons (Safo, Serkin Yama, and Gabi) and both *groupements* (Douban and Kandamo) extend into the Baban Rafi forest.³⁸ In each case, the cantons and *groupements* have their administrative seats and population majorities beyond the borders of the Baban Rafi forest.

The figures recorded in table 2.1 do not take account of the numerous distinct subgroups of Hausa. It is also possible that the herding populations (especially the Fulani), because of their relative mobility, were significantly undercounted and, therefore, are underrepresented in the table. At any rate, the herding populations represent a much higher percentage of total population in the Baban Rafi forest than indicated by these official figures—the Fulani alone accounting for approximately 40 percent of total population according to the NFM management plan (Projet SALAMA 1991, p. 18).

TABLE 2.1 Ethnic composition of the population of Madarounfa

POPULATION	PERCENT
Hausa	91.9%
Fulani	4.6%
Buzu	1.4%
Other	2.1%

Source: *Département de l'Arrondissement de Maradi* (Maradi, Niger: de Maradi, Arrondissement de Madarounfa, 1986).

Further to complicate demographic classification, in addition to the cantons of Madarounfa, one canton, Tibiri, of the subdistrict of Guidan Roumdji, also extends into the Baban Rafi forest. At least two of the villages included in the NFM project census as villages within zones to contain forest cooperatives—Garin Gado Chawey in the northern zone (population: 232), and Garin Labou in the western zone (population: 255)—are included in

38. Although the office of the *sous prefecture* at Madarounfa keeps a census of subdistrict populations for tax purposes, these were not useful for compiling past and present censuses of forest populations since these records are classified according to administrative and not natural boundaries, i.e., villages considered to be within or on the border of the Baban Rafi forest are not identified as such. The need to compile a complete village and hamlet census of the Baban Rafi forest was discussed at a NFM project meeting held in Baban Rafi on 5 Aug. 1991. I received a preliminary draft of an effort to complete a census of the villages and hamlets of Baban Rafi, dated Oct. 1991, shortly after departure from Niger. The Oct. 1991 draft lists 44 villages and 30 herding hamlets, compared to the 29 villages and 5 herding hamlets acknowledged in the preliminary NFM management plan dated July 1991. Such data-gathering activities on the part of the NFM project are necessary not only for the reason stated above, but also since the government census figures are updated sporadically and appear to be incomplete—particularly regarding herding populations.

the canton of Tibiri. In spite of these exceptions, the Baban Rafi forest is treated throughout this report as primarily within the subdistrict of Madarounfa.

Part of the demographic confusion results from a mobile and shifting population. Many of the herding populations of the Baban Rafi forest are only part-year residents of the forest. Additionally, large populations of herders have settled in recent years into farming in various pockets spread throughout the forest and have not been systematically enumerated. Finally, census figures gathered for administrative purposes are sometimes classified by social grouping more than by territorial grouping, thus contributing to demographic confusion. The village of Garin Labou, for example, is considered a part of the canton of Tibiri in spite of its location in the midst of villages of Safo canton. The anomaly is explained by the origin of the founders of Garin Labou in the canton of Tibiri.

The completion by Djibo and Price (1990) of a socioeconomic study of the Baban Rafi forest commissioned by the NFM project was a major step toward providing the demographic background necessary for the planning of project activities. Djibo and Price provide a social context of the forest based on survey and site visits of eight villages chosen from the western, eastern, and southern regions of the forest. Based on censuses conducted in the course of the socioeconomic study and subsequent censuses sponsored by the project in the northern region of the forest, the preliminary management plan divides the forest into three proposed cooperative areas with respective populations of 2,114 (western region), 5,135 (northern region), and 6,524 (southern region)—the latter two figures, however, do not include any of the extensive herding populations since they were not included in the census exercise (Projet SALAMA 1991, pp. 32-35).³⁹ In each case, populations are likely to be higher as a result of uncounted or undercounted herding populations.⁴⁰

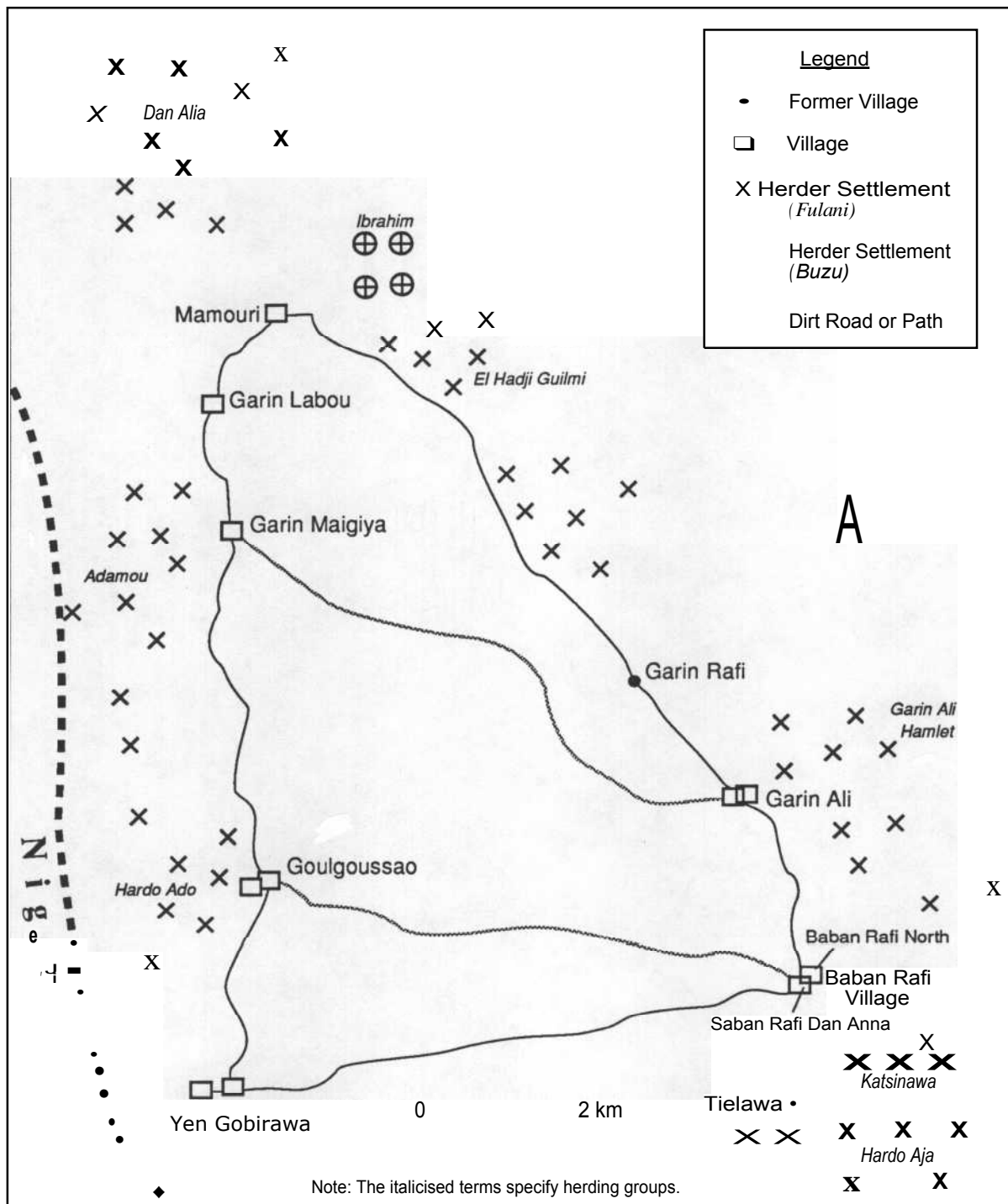
Population and demography: Western Baban Rafi forest. The present study relies almost entirely on field data collected in the western region of the Baban Rafi forest. This region was chosen since it is the site of the first (and, at least through 1991, only) Baban Rafi cooperative. The cooperative, which held its first election of officers on 14 June 1989, was conceived to include the entire population of the western part of the forest, consisting of seven villages and several herding/farming hamlets.

Virtually all inhabitants of western Baban Rafi are Hausa-speaking; village inhabitants speak Hausa as a first language and the Fulani and Buzu have adopted Hausa as their second language. Inhabitants of the seven villages are referred to and refer to themselves as members of the Hausa ethnicity, but are subdivided into a variety of Hausa subgroups. The majority of the inhabitants of the herding/farming hamlets are Fulani—but they, too, are subdivided

39. A later project document, dated Oct. 1991, redivides the latter two cooperative regions into five cooperative regions (see Idrissae 1991, pp. 18-19).

40. For example, a village included in the study area, Garin Ali, had no dependent herding population (a dependent herding population relies on the water sources of the village with which it is associated) according to census data collected in 1989, but in 1991 (in the course of research conducted for the present study) was found to have a dependent herding population in excess of 20 families.

Figure 3. West Baban Rafi: Baban Rafi Forest Cooperative



Source: Sketch provided by Maibougé Tanko (of CLUSA)

into more precise ethnic affiliations. The hamlet to the east of the village of Mamouri is inhabited by members of an ethnic group known as the Buzu, who, like the Fulani, have historically provided for their subsistence as herders and only recently have settled into farming. The Buzu are thought to be descendants of past slaves of the Tuareg peoples, the historical lords of the desert, and have adopted the language and many of the customs—such as camel breeding—of their former captors. The total population of the first cooperative region is given in the NFM management plan as 2,114, about one-third of whom inhabit the herding/farming hamlets on either a year-round or a seasonal basis (Projet SALAMA 1991, p. 32). Population figures by village and by hamlet are presented in table 2.2.

TABLE 2.2 Villages and hamlets of the first Baban Rafi cooperative (western region of the Baban Rafi forest)

	NUMBER OF HOUSEHOLD HEADS	ACTIVE" POPULATION	TOTAL POPULATION
Village			
Baban Rafi	69	140	299
Garin All	56	144	247
Garin Maigiya	36	107	138
Goulgoussao	41	93	197
Yen Gobirawa	34	97	171
Garin Labou	48	140	255
Mamouri	37	121	187
Subtotal	321	842	1,494
Hamlet			
Tielawa (Fulani)	68	200	290
Ado (Fulani)	18	53	79
Guilmi (Fulani)	19	61	84
Dan Alia (Fulani)	29	74	132
Ibrahim (Buzu)	11	24	35
Subtotal	145	412	620
Grand total	466	1,254	2,114

- a. "Active" population refers to the nondependent population, i.e., individuals contributing to production as well as consumption. Both girls and boys are generally active in productive activities by about age 8.

Source: Projet SALAMA, "Plan provisoire d'aménagement de la forêt de Baban Rafi" (Maradi and Niamey, Niger: Direction de l'Environnement/CARE International, 1991).

Research conducted in the course of the present study in the summer of 1991 indicates that herding/farming populations in the forest (those referred to as residents of hamlets in table 2.2) are growing faster than village populations since increasing numbers of former transhumant herders have taken to clearing land and settling in the forest to farm. In spite of their current mixed occupational status, residents of the herding/farming hamlets are often

referred to throughout the present study as "herders," while residents of the villages (who also generally raise livestock) are referred to as "villagers" or "farmers."

Western Baban Rafi has been home to a settled population for a relatively short time. According to random sample data, only 42 percent of Hausa compound heads and 39 percent of Fulani and Buzu compound heads were born in the Baban Rafi forest, while only 13 percent of the fathers of Hausa compound heads and 14 percent of the fathers of Fulani and Buzu compound heads were born there.

Both before and after the first settlements appeared, perhaps between 1910 and 1920, this area was known as a rich reserve of game and traditionally had been exploited as such by hunters residing outside of the forest. The early settlers are often depicted by today's villagers as farmers from other regions who became acquainted with the Baban Rafi forest during hunting trips and eventually decided to clear parts of the forest to establish farmsteads. One recalls that this was the period by which the French occupation had enforced a general security that had heretofore been lacking.

Probably by the end of the 1920s, small villages had been established at three or four sites in the western section of the forest. Taking the current site of Baban Rafi village as a reference point, one notes that the site itself was the northern limit of the millet fields cultivated by the inhabitants of Tielawa, a now-defunct village located a couple of kilometers to the south. Less than 3 kilometers to the north and slightly to the west of Baban Rafi village was and is the site of Garin Ali, by some accounts the oldest village in this part of the forest. Another 3 kilometers to the north-northwest from Garin Ali is the site of the former village of Garin Rafi, often referred to today as Tsohon Rafi (literally, "old stream," referring to a natural feature that no longer exists and in contrast to Baban Rafi—"big stream"—which also no longer exists). The current village of Garin Labou, which some claim was founded earlier than the village of Garin Ali, is located about 10 kilometers directly northwest of Baban Rafi village, with the slightly more recently established village of Mamouri being little over 1 kilometer to the northeast of Garin Labou. A more-or-less continuous agricultural corridor—running from the southeast to the northwest—today occupies much of the territory from a couple of kilometers south of Baban Rafi village to a couple of kilometers north of Mamouri.

Although little else can be stated with certainty, it is clear that the early (and later) settlers of the western portion of the Baban Rafi forest neither came from the same location nor shared identical ethnic backgrounds. However, whether or not their ancestors spoke Hausa and considered themselves to be Hausa in the past, contemporary individuals are fully integrated into Hausa culture. Of the groups listed, only the Beri Bed., originally from the Lake Chad region, have in some cases retained a knowledge of their ancestral language and customs. Practically one-third of the Hausa residents of western Baban Rafi originated on the Nigerian side of the border, specifically those calling themselves Katsinawa and Zamfarawa. The predominance of Gobirawa, Katsinawa, and Zamfarawa among the populations of western Baban Rafi—70 percent of the total—is explained by the Baban Rafi forest's

geographical position at the confluence of the three traditional Hausa states of Gobir, Katsina, and Zamfara.

Those who do not connect their ancestry to one of the three traditional Hausa states of Gobir, Katsina, or Gobir or count themselves among the Beri Beri, are in one sense the **displaced** populations of western Baban Rafi. Buzu is a name signifying the ex-slaves of the Tuareg peoples of the desert. **Hausacized Buzu** have settled into farming and life in a Hausa village. The Tagamawa and Adarawa, like the Buzu, most likely are descended from the slaves of the Tuaregs⁴¹ and are the only Hausa peoples (along with the Buzu) to come to the Baban Rafi forest from north of Gobir—the northernmost of the traditional Hausa states.

The origins of the two early villages of western Baban Rafi that no longer exist—Tielawa and Tsohon Rafi—are somewhat mysterious. Nevertheless, local oral histories⁴² indicate that the core populations of these now-defunct villages probably had come (though indirectly) to the Baban Rafi forest from the neighboring region of Zamfara in what is today part of Northern Nigeria. A number of the early residents later abandoned the villages and returned to Zamfara. Others migrated from Tielawa and Tsohon Rafi to other villages of the forest, especially to Baban Rafi (specifically, the southern quarter of Baban Rafi) and Garin Maigiya—sites at which one finds today that the Zamfarawa constitute the largest ethnic concentration. Tielawa was abandoned in stages, the primary reason cited being the constant attacks of birds, which devoured much of the millet produced by Tielawa farmers. Residents remaining in Tielawa village in 1961 moved at that time to the present site of Baban Rafi village, where a well had been constructed by the Nigerien government. Today the site of the abandoned village is surrounded by Fulani farmer/herders. Garin Rafi is said to have been abandoned upon the death of its founder (referred to as "Rafi"), perhaps in the early 1950s, at which time most of the villagers of Garin Rafi returned to Nigeria.

In the cases of Garin Ali and Garin Labou, the origins are much less subject to dispute. Both villages were established at about the same time by family units whose descendants continue to reside in the villages. Garin Labou is a village of Gobirawa (people from Gobir) originating in the canton of Tibiri. Garin Ali continues to be known as the village of the Tagamawa family that arrived in the Baban Rafi forest from Dakoro (located in the northern section of modern Maradi Department).

Over a period of perhaps 50 years following the establishment of the first settlements in the western Baban Rafi forest—Tielawa, Garin Rafi, Garin Labou, and Garin Ali—five additional Hausa villages have appeared. The earliest of these, Mamouri, was founded by a Katsinawa from Safo who came to the forest to live near his friend, Labou (of Garin Labou).

41. This is the opinion of the Nigerien social scientist who is the Maradi **regional representative** of IRSH.

42. Because of the relatively short history of the villages of western Baban Rafi, it is still possible to collect information directly from a number of the earliest settlers. The current elder of Garin Ali, who gives his age as 87, arrived with the pioneer settlers as a child. The current chief of **Baban Rafi** village is the nephew of the **87-year-old elder** of Garin Mi. **Similarly, the** *chef du quartier* of Yen Gobirawa is the same **man who founded** the village about 21 years ago.

Mamouri remains among the more ethnically homogeneous of the villages, continuing to be dominated by the Katsinawa descendants of the founder.

Garin Maigiya (founded circa 1940) and Goulgoussao (founded circa 1950), on the other hand, are today more ethnically mixed than the villages so far discussed. Maigiya (literally, "possessor of alcohol") was a native of Zamfara who had resided in both Tielawa and Tshohon Rafi before establishing the new village of Garin Maigiya. Similarly, the founder of Goulgoussao (the name signifies "movement," in this case movement away from Garin Ali) was a Katsinawa from Garin Ali, who, for whatever reasons, wanted to distance himself somewhat from his formerly adopted village. Garin Maigiya and Goulgoussao, along with Saban Rafi village, are the only three of the villages of western Baban Rafi forest established by people already residing in the forest. The populations of each of these villages have increased and diversified since their founding as they have attracted additional immigrants from outside of the forest.

The most recent of the five villages established in western Baban Rafi since the time of the first Hausa settlements is Yen Gobirawa, founded about 1970. The founder (as the village name implies, a Gobirawa) arrived in Baban Rafi in search of arable land after he was fleeing drought conditions in Katouma (near Chadakori), subdistrict of Guidan Roudji. The village has remained remarkably homogeneous ethnically, with a good number of the current residents related to the village founder.

A pivotal event in the settlement history of western Baban Rafi was the construction of a modern concrete well by the government around 1961 at the present site of Baban Rafi village. Securing adequate water supplies had long been a problem at sites such as Tielawa, Garin Ali, and Garin Labou. Upon installation of the well, the canton chief of Safo, the titular chief of the populations of Baban Rafi (with the exception of Garin Labou), instructed the people of Garin Ali to move to the site of the new well. A significant portion of the population did so (though also a significant portion of the population remained at the old site) and currently constitute the majority of the northern quarter of Baban Rafi village. The current chief of Baban Rafi, named by the canton chief of Safo, also came to the well site from Garin Ali at that time. The population that had not earlier abandoned Tielawa for Nigeria at that time deserted it for the site of the new well, where they today constitute much of the population of the southern quarter (*Dan Anna*—literally, sons of pagans) of Baban Rafi village. A well was also constructed at Mamouri. The establishment of permanent and secure water sources in the western Baban Rafi forest in the early 1960s has been a major factor in influencing subsequent settlement patterns.

No new village has appeared in western Baban Rafi since the founding of Yen Gobirawa about 1970. Perhaps one factor in stabilizing village configurations was the internationally funded installation in the 1980s of mechanical water pumps in each of the existing villages, thereby increasing the security of access to water at these sites (though the pumps frequently break down in some villages). The risk inherent in establishing a village in the Baban Rafi

forest is typified by the early experience of Garin Labou, a village that had to change its site ~~on three~~ ^{at least three} times subsequent to failed attempts at well

Perhaps surprisingly for an area that otherwise exhibits the characteristics of a **pioneer** region, populations at a number of the villages of western Baban Rafi, particularly those having retained relative ethnic homogeneity, appear to have remained fairly stable in the sense that increases have been as much or more a result of natural increase than of in-migration (though, as noted above, in-migration has been a factor in certain villages). That village populations have been relatively stable in very recent years is attested to by the lists of household heads kept for tax purposes by the subdistrict office at Madarounfa, most of which date from 1985, and most of which differ only minimally from the lists of household heads compiled by the NFM project in 1989. Villagers do note, however, that immigrants tend to arrive especially during times of drought, the most recent having taken place in 1984-85. Moreover, random sample data suggest that in-migration has continued to be a factor since only 42 percent of Hausa heads-of-household (of whom the average age is 44) in western Baban Rafi were born in Baban Rafi, while 13 percent of the fathers of current heads-of-household were born in Baban Rafi.

Just as significant as Hausa settlement in the western Baban Rafi forest, but much less understood, is the settlement of herding populations. The pasture and leafy vegetation of the Baban Rafi forest have long been exploited—perhaps even for hundreds of years—by transhumant, usually Fulani, herders on a seasonal basis. A significant and recent trend is the settling of many of the herders into farming. As long as 60 years ago a number of the Fulani herders began clearing fields in the western portion of the forest for crop production.⁴⁴ Since then the population of agro-pastoral Fulani in the western Baban Rafi forest has increased steadily, but especially since the droughts of the early 1970s and 1980s.

In contrast to the Hausa, most of whom originate on the Niger side of the Niger-Nigerian border, the majority of the Fulani populations came to Baban Rafi from south of the border. Fully 55 percent of the Fulani call themselves Katsinawa

In contrast to the village-dwelling Hausa, the Fulani generally live adjacent to their agricultural fields in domestic units composed of a family or an extended family. A **hamlet** is defined as a group of family units and their fields clustered within a loosely defined geographical area (e.g., southeast of Mamouri) and dependent on a particular village for water supplies for its inhabitants and their herds. The hamlets are usually referred to by the name of the most prominent resident, the exception being one of the two hamlets attached to Baban Rafi village, which is referred to simply as the *Katsinawa*. Although the division into hamlets is somewhat arbitrary, one might compile a mapping as follows: two Fulani hamlets are attached to Baban Rafi village and collectively known as the "Tielawa" Fulani or

43. Earning for its persistence the often-used nickname, *Na Koka*, "I tried."

44. This is **according** to the testimony of the Fulani farmers currently settled **near** the **abandoned village** of Tielawa. Those in other parts of western **Baban Rafi** **generally** cite a more recent date for the arrival of the first **Fulani farmers to the area**.

singularly referred to as the *Katsinawa* and the *Hardo Aja* Fulani; one hamlet is attached to Garin Ali (a commonly used name for this recently settled group has yet to emerge); one hamlet is attached to Goulgoussao and is known as the *Ado* Fulani; one hamlet is attached to Garin Maigiya and is referred to as the *Adamou* Fulani; and two hamlets are attached to Mamouri and known, respectively, as the *Dan Alia* and the *El Hadji Guilmi* Fulani.

The dispersal of Fulani households makes it difficult to compile reliable demographic statistics. As noted above, the size of the populations of both Fulani herders and Fulani herder/farmers are likely to be seriously underestimated if one relies on available information. Herders have generally taken up farming after loss of all or part of livestock holdings in times of severe drought—a recurrent condition of recent decades. In the 1990s, the population of Fulani herders settled in the western Baban Rafi forest may equal or surpass the Hausa population.

Another herding group, the Buzu, established a hamlet outside of Mamouri in 1984 after fleeing a drought in Abalak (north of Maradi Department). As noted above, the Buzu are descended from the slaves of Tuaregs. They have retained the customs and lifestyles of the Tuareg people and continue to breed camels rather than cattle as is customary for the Fulani. Also in contrast to the Fulani, the Buzu live in what might be described as a small village rather than dispersed homesteads, though they remain dependent on Mamouri for their water supplies.

2.2.3 STRUCTURES OF SOCIOECONOMIC AUTHORITY AND DECISION-MAKING

Gandu. *Gandu* refers to the set of relations that collectively define the basic production unit in traditional Hausaland. Most often these relations express themselves among the members of the *gida*, the basic household unit of rural Hausaland. The *gida* corresponds roughly to the common understanding of the extended family. Thus the nucleus of a *gandu* is an extended family, but accounts such as the classic *Baba of Karo* (M. Smith 1954) make it clear that the nineteenth century *gandu* also included slaves and descendants of slaves. Sutter's (1982) review of the literature points out that some writers stress the *gandu's* importance as a hedge against famine and food insecurity, while other writers emphasize its role as a defense against the slave-raiding parties prevalent during the pre-colonial era—and especially menacing in the nineteenth century under the Sokoto caliphate.

Ega (1980) suggests that the traditional *gandu* probably consisted mostly of slaves, but stresses that the *gandu* was a work unit in which the owner and the slaves had mutual obligations. The owner had the right to a certain number of hours of labor from his slaves each day, and in return he was expected to provide them with land and the time to cultivate it. The slaves had full rights over the product of their "private" plots. It is thought that the elaborate and detailed mutual rights and duties between the *gandu* head and his younger brothers and sons—such as those enumerated by Hill (1970)—have evolved from the traditional mutual duties characteristic of master/slave relationships in the nineteenth century. For example, in most *gandu* arrangements the father assumes the responsibility of paying the taxes charged to his sons and may even be obligated to pay his sons' brideprice.

Prevailing production and domestic configurations. Current populations of the Baban Rafi forest exhibit only slight resemblance to these descriptions. It is no longer necessary to secure protection against slave raids, and in an increasingly monetized economy young men are becoming economically independent of their fathers. The nuclear family, rather than the extended family, is quickly becoming the model for the agricultural production unit today encountered at Baban Rafi. And even within the nuclear family one finds a significant level of autonomous decision-making authority over productive resources at the level of the individual household member.

The domestic unit that corresponds to the *gandu is* referred to in this study as a compound.⁴⁵ A compound includes one or more households—a household is defined as a married male, spouse(s), children, and other dependents. The average number of households included in a compound appears to be shrinking. It was found, for example, that by 1991 many of the compound heads included on a census list of western Baban Rafi compiled by the NFM project in 1989 were technically heads-of-households rather than of compounds, since married younger brothers or married sons had since formed independent domestic/production units.⁴⁶ Random sample data indicate that the average number of households in a compound in 1991 was 1.4 for the Hausa of western Baban Rafi and 1.6 for the Fulani (including the Buzu), while average total population for each compound was 7.4 for the Hausa and 7.3 for the Fulani (giving an average household population of 5.2 for the Hausa and 4.5 for the Fulani and Buzu).

Ninety-five percent of Hausa household heads and their wives questioned on the matter agree that the *gandu* system is in decline. To some extent, the older and the younger generations blame each other for the decline: the former citing a lack of respect and sometimes greed among the young, and the young men claiming they are encouraged by their parents to move from the compound once they marry. Other commonly cited reasons for the decline include: the widespread adoption of animal traction which makes communal labor less necessary; disputes between related households; and simply the growth of a money economy and the increasing individualism the new economy appears to promote. As one farmer put it, "It used to be that the *gandu* bought the sheep to celebrate the marriage of a male member of the compound; now the groom has to buy the sheep himself."

The situation among the Fulani is slightly different since most Fulani farmers are only first or second generation farmers. As herders the Fulani tended toward small family units compatible with a mobile lifestyle. Some of the Fulani farmers questioned stated that *gandu*,

45. Compound is here considered to be a more neutral term than the *gida*, which, in turn, implies a *gandu*—the latter signifying a specific domestic and production unit that, arguably, no longer exists. *Ganda* continues to be a term commonly used by both Hausa and Fulani, however, and will be used in this study to refer to the commonly held fields of the household or of the compound as contrasted to the individually held fields of family members.

46. It is also possible that the married brothers and sons already lived separately from the head-of-compound recorded on census figures in 1989, but that the listing of a single head-of-compound reflected past tradition rather than current reality.

by which they understand large or multifamily units, are actually on the increase since the time that they or their fathers have become farmers. Nevertheless, 85 percent of Fulani farmers and their wives complain about a contemporary individualism—sometimes articulated in terms of a lack of respect, laziness, or greed—among the young that makes it increasingly difficult to hold the family together as a cohesive unit.

Whether cause or effect, entry into a market economy by Hausa farmers clearly has been coincident with the fragmentation of the traditionally centralized decision-making apparatus of the *gandu*. Nearly 70 percent of Hausa males age 15 or older have worked as field laborers, 21 percent have herded for wages, and 38 percent have worked as wage laborers outside of Baban Rafi (mostly in Nigeria) during the nonfarming season. Individuals earning their own salaries are no longer dependent on their parents for payment of taxes or brideprice. No figures are available to indicate the past incidence of wage-earning activities among the Hausa farmers of western Baban Rafi, but it is certain that the current significant incidence is recent and growing.

The Fulani are, so far, less experienced as wage earners than the Hausa. Only 15 percent of Fulani men age 15 or older have earned wages as field laborers; 16 percent have earned wages for herding; and 16 percent have earned wages outside of Baban Rafi.⁴⁷ In contrast to the individually earned wages becoming common among Hausa adult men, Fulani adults are more likely to contribute to production understood to be under the control of a more senior household head. For example, while only 16 percent of Fulani adult men have earned wages outside of the Baban Rafi forest, 45 percent have traveled with the family livestock herd during its seasonal transhumant migrations—much of which normally extends beyond the boundaries of the Baban Rafi forest.

The small population of Buzu herders settled to the northeast of Mamouri presents a rather special case in terms of wage earning among the herding populations of western Baban Rafi. The majority of adult males in the eleven Buzu families have earned wages outside of Baban Rafi as well as participated in transhumant livestock raising. Many of the Buzu families travel seasonally as a group to Douala on the coast of Cameroon where some men work as menial laborers (many of them stated, for example, that they polish shoes) while other men stay with the herds.

Economic diversification. Table 2.3 is a tabulation of the responses of Hausa, Fulani, and Buzu household heads when asked to name their primary, secondary, and tertiary economic activities. One notes especially the relative lack of economic diversification of the Fulani (88% of male household heads list no tertiary economic activity) relative to the Hausa (33% of male household heads list no tertiary economic activity).

It is interesting that in comparing the Hausa to the Fulani, the contrast in occupational diversity is much less noticeable among the women than among the men. Only 46 percent of

47. These figures do not include the Buzu.

TABLE 2.3 Economic activities: male heads-of-household of western Baban Rafi ^a

ECONOMIC ACTIVITIES	HAUSA (n=40)			FULANI (n=25)			BUZU (n=3)		
	1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd
Farming	35	5	0	17	8	0	1	2	0
Herding	0	17	13	8	17	0	2	1	0
Trading	1	4	3	0	0	1	0	0	0
Tailor	1	0	0	0	0	0	0	0	0
Woodcutting	2	3	6	0	0	1	0	0	0
Wage labor	0	2	1	0	0	0	0	0	3
Religious leader	1	0	1	0	0	0	0	0	0
Blacksmith	0	2	1	0	0	0	0	0	0
Weaver	0	1	0	0	0	0	0	0	0
Butcher	0	1	1	0	0	0	0	0	0
Musician	0	1	0	0	0	0	0	0	0
Sculptor	0	1	0	0	0	1	0	0	0
Barber	0	1	0	0	0	0	0	0	0
Mason	0	0	1	0	0	0	0	0	0
Hat cleaner	0	1	0	0	0	0	0	0	0
None	0	1	13	0	0	22	0	0	0

- a. All figures are numbers of respondents answering affirmatively in view of a given category. For example, 35 of 40 Hausa heads-of-household list farming as their primary economic activity, while the equivalent figures are 17 of 25 Fulani heads-of-household and 1 of 3 Buzu heads-of-household.

Hausa married women and 41 percent of Fulani married women list no tertiary economic activity. Women are particularly active in trading (51% for the Hausa and 77% for the Fulani) and livestock raising (89% for the Hausa and 91% for the Fulani). Although conventional wisdom states that Fulani women generally do not work in the fields, random sample data do not support this impression since 77 percent of the Fulani women questioned **are** involved in farming. Buzu women, on the other hand, may come closer to conforming to the conventional wisdom (only one of the three questioned is a farmer, and she as well as others state that this is quite exceptional among Buzu women). All Hausa married women questioned on the matter are active in farming (table 2.4).

The separate household economy of women will be further discussed in the following chapter, as will be the distribution of arable land between households and among household members. Here it is sufficient to note that domestic economic decision-making is not exclusively the preserve of male heads-of-household, and it especially is not centralized under the control of a male head-of-gandu—as it may or may not have been in the past. Rather, domestic decision-making is characterized by a high degree of fragmentation relative to the portrait provided in the literature of the "traditional" system of *gandu*.

TABLE 2.4 Economic activities: wives of household heads'

ECONOMIC ACTIVITIES	HAUSA (n=37)			FULANI (n=22)			Buzu (n=3)		
	1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd
Farming	36	1	0	13	3	1	1	0	0
Herding	0	28	5	6	14	0	0	2	0
Trading	1	6	12	2	4	11	0	0	0
Weaving	0	0	3	1	0	0	2	0	1
Hairdressing	0	1	0	0	0	1	0	0	0
None	0	1	17	0	1	9	0	1	2

- a. All figures are numbers of respondents answering affirmatively in view of a given category. For example, 36 of 37 Hausa women listed farming as their **primary** economic activity, while the equivalent figures are 13 of 22 Fulani women and 1 of 3 Buzu women.

2.2.4 NONFAMILY AUTHORITY STRUCTURES

Nonfamily authority structures in place in western Baban Rafi may be enumerated as follows: the village chiefdom (the *hardo* in the case of the Fulani); the canton chiefdom (the *lamido* for the Fulani); Islamic religion and authorities; traditional religion and authorities; and the structures of the Nigerien state.

Village and canton chiefs. In view of the recent settlement history of western Baban Rafi, it is not surprising that coherent traditional authority structures have failed to firmly entrench themselves. In spite of their weakness, however, traditional structures are in place—though they appear to be firmly integrated into and dependent on state institutions. The canton seats are in each case far removed from the Baban Rafi forest; nevertheless, each village in Baban Rafi is ostensibly under the jurisdiction of a canton chief.

Of the seven villages of western Baban Rafi, only three are recognized as autonomous administrative units by the Nigerien state, that is, only three of the villages have village chiefs. These three villages are Baban Rafi, Mamouri, and Garin Labou. The remaining four villages—Garin Ali, Garin Maigiya, Goulgoussao, and Yen Gobirawa—are considered by the state to be "quarters" of Baban Rafi village. In the case of the village quarters, a subchief is appointed for each quarter by the village chief of Baban Rafi for purposes of tax collection.

The Fulani of western Baban Rafi are divided between the jurisdictions of two Fulani *lamidos*—the Fulani equivalent of the Hausa canton chief. As is the case of the Hausa, the *lamidos* are seated outside of the Baban Rafi forest. The Fulani equivalent of the village chief is the *hardo*, of which there are only two in western Baban Rafi. One *hardo* lives in the Tielawa area south of Baban Rafi village, and another, west of Goulgoussao, but they do not represent the majority of the Fulani living in the region. Other hamlets generally have an

"influential person" who is responsible for communication between the hamlet and the *lamido*.

To a striking degree the authority of contemporary "traditional" chiefs appears to be tied to the state. The establishment of canton and provincial borders by the French colonial administration was mentioned above. An additional illustration of the interlinking between traditional and state authorities is that in reference to contemporary populations of Baban Rafi, the first function of traditional chiefs mentioned by villagers and state functionaries alike is tax collection.⁴⁸ Perhaps more than any other topic, taxation illustrates the threat posed by the state (referring not only to the colonial state but also to the Sokoto caliphate before it) to the sovereignty of traditional village and household authority structures.

Viewed from a regional (across Hausaland) perspective, the preoccupation with tax collection appears to be an inheritance from the colonial administration, which had inherited it from the rulers of the Sokoto caliphate before it (Hill 1977; Ega 1980; Shenton 1986). There was no role to be played at the local level by community heads or village chiefs. The responsibility for the collection of taxes at the village level was in the hands of an army of civil servants collectively known as *jakadu*—a word meaning "messengers." Taxes went to support several levels of administration: *jakadu*, *hakimai* (the city-based overlords of the *jakadu*), emirs, and, finally, the caliph. Each level had some interest in exacting the highest rate of tax from the level below while passing on fixed or rising amounts to the level above. Only the villagers had no say in this process and so were subjected to increasingly burdensome demands. The legal basis of the Sokoto tax system was the Islamic precept of landownership and the right to demand tribute on the part of a conquering, Islamic state (Oluwasanmi 1966).

Although just beyond the borders of the Sokoto caliphate, Maradi did not escape the tax burden imposed by the French colonial administration, whose right to establish a tax system was also based on privileges established by conquest. French tax policies were designed to accomplish more than the collection of revenues. In contrast to the tribute collected in kind by the Fulani administrators of the Sokoto caliphate, the French required that taxes be paid in cash. The result, of course, was the region's entry into a cash economy and the emergence of the state as a rival to local institutions, such as *gandu*, and village chiefdoms as managers of local production and, therefore, of regional economies. Groundnut production was not always sufficient to meet tax obligations, and grains also began to circulate in the growing market economy. Raynaut reports that 50 percent of farm heads-of-household in Maradi sold

48. Djibo and Price (1990, p. 36) list the responsibilities of canton chiefs as follows:

- ▶ porte parole de l'administration et collecteur des taxes et impôts;
- ▶ arbitre des conflits non seulement entre particuliers mais encore entre villages et des groupes ethniques divers;
- ▶ détenteur du pouvoir d'accéder ou d'opposer une fin de non recevoir à la demande d'installation de nouveaux venus sollicitant des terres.

Although these responsibilities correspond substantially to those listed by the populations of Baban Rafi, at least the second and third appear to be somewhat idealized—at least according to the accounts related below and in the following chapter concerning conflict resolution and land distribution.

35 percent of their subsistence crops (millet) in order to meet tax obligations.⁴⁹ Significantly, village and canton chiefs were assigned roles as middlemen in the transmission of taxes from family heads to the state.

Today the major tax affecting the populations of Baban Rafi is an annual head tax in the amount of CFA 700 (approximately \$2.80) applied to all individuals fifteen years of age and older. Table 2.5 illustrates the proportions of tax revenues to be awarded to the middlemen acting between the populations of Baban Rafi and the Nigerien state according to current state regulations.

TABLE 2.5 Distribution of tax revenues among those responsible for tax collection'

RESPONSIBLE FORS	PERCENTAGE
Hausa populations	
Village chief	10%
Canton chief	5%
Provincial chief	1 %
Fulani populations	
Fulani hamlet representative (e.g., <i>hardo</i>)	12%
Fulani "canton" chief (<i>lamido</i>)	5%

- a. Figures are percentages of revenues collected that are legally retained by the agents listed. These figures were obtained during an interview with the *sous préfet* of Madarounfa on 26 September 1991. The *sous préfet* further explained that the monetary incentive offered to the base-level Fulani tax collectors is set at slightly higher rates (12% as compared to 10%) to compensate for the difficulty of their task in working with a mobile and scattered population. Examination of the tax records kept by the *sous préfecture* confirm the disarray of census figures regarding the Fulani as compared to those of the Hausa.

After tax collection, the second most often cited function of traditional chiefs is conflict resolution. Two categories of common conflicts are those over the distribution and use of land, and domestic or marital disputes such as divorce settlements. The latter category was not systematically investigated in preparing this study, although some anecdotal evidence indicates that domestic disputes may not be brought to the attention of the local chief until after a resolution has been reached.⁵⁰ Judging from incidents involving land disputes

49. As cited in Harriss 1982.

50. The two **known** female **heads-of-household** in western Baban Rafi—both living in Garin **Maigiya**—**reside in the house and** village **abandoned by** their **husbands, who** left **unilaterally in the absence** of any reported interaction with traditional village authorities. Reports of additional marital disputes indicate they were settled with the **participation** of members of the extended family but not of village chiefs. Perhaps also relevant here is mention of a young village chief who was himself involved in a marital dispute leading to the threat of wife **abandonment** on the part of a man who was reacting to the discovery of an affair between his wife and the village chief. It hardly seems likely that the incident inspired confidence in the abilities of the chief to mediate the marital problems of others.

occurring in western Baban Rafi, the functions of traditional authorities as dispute regulators appears to be largely illusory. Part of the explanation may be that contemporary land conflicts are often between groups not under the authority of a single village chief.

Two land-use disputes arose during the research period. Both disputes pitted a Hausa village against a herding group. The first took place in the village of Garin Maigiya, the village of the western portion of the Baban Rafi forest that has the least amount of unoccupied arable land. The dispute involved the clearing of a parcel of land by a newly arrived family to Garin Maigiya whose relatives already resided in the village. The parcel was wedged between two parcels long-established and farmed by the newly arrived family's relatives, but also located adjacent to the farms of the Fulani hamlet located to the east of Garin Maigiya. The Fulani farmers immediately protested, claiming that the newly-cleared parcel was within the sphere of influence created by the Fulani when they cleared their present farms.⁵¹ The Fulani took their case to the *lamido*, who, like the Hausa canton chiefs, is a nonresident of Baban Rafi. The chief arrived in Baban Rafi to discuss the affair with the villagers of Garin Maigiya as well as with the village chief. No statement or ruling was issued, however, and the affair has never been resolved to the satisfaction of the Fulani farmers who continue to feel that their rights were violated. Apparently, the *lamido* has made no further effort to involve himself in the dispute.

The second land-use dispute was between the villagers of Mamouri and the herder/farmers of the Buzu hamlet located to the east of the village. The dispute was sparked by the relocation of the Buzu settlement from directly east to northeast of the village in an effort to cut off the agricultural expansion in that direction on the part of Mamouri's farmers. The Buzu intended to preserve the large parcel in question as a forest where they could herd their camels and other livestock, rather than to allow it to be converted to farmland. This time it was the Hausa farmers of Mamouri who took their complaint to the canton chief at Safo. If any decision was made by the canton chief, it was simply to remain uninvolved in the affair, and the Hausa farmers of Mamouri remain slighted.

Interestingly, the village chiefs of western Baban Rafi failed to play active roles in the land use disputes cited above. Both complaints were made at a level of authority beyond the Baban Rafi forest, a level at which the complaints could be conveniently ignored.

Another possible indication of weakness of the chiefdoms of western Baban Rafi is the lack of noticeable gift-giving to village chiefs. Although the chief of Mamouri states that he continues to receive gifts of grain and small amounts of cash from Mamouri's household heads, NFM project assistants believe that such gift-giving is negligible compared to "traditional" levels of gift-giving. The gifts are used mainly to enable the chief to provide hospitality to newcomers and guests to the village.

51. Such a "sphere of influence" is explained in ch. 3 of this study under the heading of the "land clearing rule" (see pp. 53ff.).

It is unclear whether the observed weakness of the village chiefdom in western Baban Rafi reflects a general decline in the institution, a reflection of the recent installation both of society and chiefs in western Baban Rafi, or an inability of current chiefs to assume the authority inherent in their office. One notes that the latter possibility is not counted out given the characteristics of current chiefs. Of the three chiefs of western Baban Rafi, one is old, in poor health, and head of a strikingly diverse ethnic population; another is young and dynamic—having recently inherited the office from an old and ailing father—but prone to "adventures" that are not always upholding of the dignity of a village chief; and the third is widely said to be encumbered with personal problems, as well as hampered by a longstanding dispute with his canton chief.

Yet the "pioneer" character of the settlements of Baban Rafi probably contributes as well to the lack of authority attributed to the chiefs of western Baban Rafi. Populations have settled at Baban Rafi in a haphazard and self-directed fashion. Few farmers, for example, inform a village chief prior to clearing new fields in the forest.

The apparent lack of recourse to active traditional dispute settlement proceedings may be more characteristic of the populations of Baban Rafi than is true of many settings. A visit to the seat of the canton of Safo, for example, is likely to find the canton chief involved in hearings concerning disputes that have arisen much closer to home than the distant Baban Rafi forest. The canton chief, however, is also recognized as an Islamic scholar and religious authority, a status not enjoyed by any of the village chiefs of western Baban Rafi.

The Fulani appear to maintain family units that are even more independent traditional chiefdoms as well as vis-à-vis each other than is true of Hausa society. Social cohesion between and among Fulani families is not evident even when they are under the authority of the same *lamido* and within the same region of western Baban Rafi. A case in point consists of an attempt a few years ago to organize the Fulani into a *Samarya*⁵² unit similar to the one previously formed among the Hausa of Baban Rafi. The effort consisted of the convocation of the area's Fulani heads-of-household to a meeting that included the participation of the *lamido* and an assortment of government officials. According to the Fulani who were called to the meeting, scheduled elections of officials to a Fulani *Samarya* unit were finally canceled when the Fulani could not be convinced of the utility of an organization that was to include a large number of unrelated families.

2.2.5 RELIGION

There exist in western Baban Rafi a variety of religious figures—representing both Islamic and indigenous denominations—who enjoy varying levels of patronage. These figures, however, appear to function more as consultants than as popular leaders or authority figures.

52. The *Samarya* is a **government-sponsored youth organization**.

53. This incident is reconstructed from the early notes (and later **verbal accounts**) of the **CLUSA agent** who arrived in western **Baban Rafi** in late 1988 to lay the groundwork for the **Baban Rafi Forestry Cooperative**. The incident was said to have taken place a year or two before the arrival of the agent.

It is universally recognized by the residents of Baban Rafi that the traditional religious beliefs are in decline. For example, rites initiated at the sites of sacred trees to assure bountiful harvests—if they take place at all—are no longer the pivotal events in village life they might have been in the recent past.⁵⁴ Djibo and Price (1990) note two factors responsible for the decline of indigenous religions: the Islamization of the population, and participation in a money economy.

Islamization is a recent development in the Baban Rafi forest. Although the vast majority of the population—Hausa and Fulani alike—of western Baban Rafi profess to be Muslim, many villagers call themselves animist as well. In contradiction to Islamic precepts, a significant number admit openly to the consumption of locally produced alcohol. *Garin Maigiya*, for example, translates as "village of the possessor of alcohol." Another revealing place name is that of the southern quarter of Baban Rafi village—*Dan Anna*—which translates as "children of pagans." One villager noted that she could no more lose or denounce her animism than she could erase the scars that were carved into her face in her infancy to proclaim it. Nevertheless, few would not also claim to be Muslim for fear of being taken for

An Islamic Association has been organized at Baban Rafi. The leading members of the association reside in the northern quarter of Baban Rafi and in the village of Garin Ali—both units dominated by the same ethnicity and linked to each other by family ties. The teachings, practice and rites of Islam are quite visibly a central part of the lives, beliefs and routines of a large number of families, and the philosophy of Islam is, in a general sense, a central part of the popular philosophy of Baban Rafi. But does Islam function as an organizing force in systems of social authority and decision-making? A general forestwide answer to this question probably does not exist; the role of Islam in Baban Rafi presents a means for the division and segregation of particular populations at the same time as it supplies a force for social cohesion in specific instances.

Islam has had an impact on social institutions such as *gandu* similar in some ways to that of capitalism and the modern state: it has promoted commerce, that is, a money economy, and individualism—developments that appear to be destructive to social or family groupings such as *gandu*.⁵⁶ Perhaps the best example is the conflict between the inheritance rules of traditional Hausa society and the laws of Islam. The *gandu* system dictates that holdings are inherited in their entirety by the eldest son who will assume the role as *gandu* head. According to Islamic law, land that is to be passed on is to be divided between all sons and daughters, with the sons receiving equal portions and the daughters entitled to one-half the

54. Such rites are described by Djibo and Price (1990, pp. 19-20).

55. See, for example, Djibo and Price (1990, p. 20). One should not assume, however, that the two **contrasting** sets of religious beliefs represented by local animism **and international** Islam are absolutely **mutually** exclusive. Greenberg (1946), in his classic **book** on **Hausa** religion, discusses the **hybrid** religious forms **that may** result from a synthesis of indigenous and imported beliefs.

56. Greenberg (1947) draws a direct correlation between the introduction of Islam and the decline of Hausa **clan organization**.

amount inherited by their brothers. Although this rule is not practiced to the letter in western Baban Rafi, it is undoubtedly an encouragement to the fragmentation of living units that used to include wider extended families—a fragmentation that was noted above. Thus Islam is added to the forces contributing to the transformation of indigenous society.

Chapter 3

USE AND TENURE OF FOREST RESOURCES

The principal objective of the Natural Forestry Management Project is to establish a resource management system that promotes ecological sustainability while it benefits local populations. Success is seen to rest on the willing participation of local populations. In view of growing demands placed on a fragile environment it is clear that if sustainability is to be attained, access to resource use will need to be regulated. Incentives will play a key role, since expectation of benefits are to encourage respect for rules regulating access and use. In order to achieve maximum balance between incentives and regulation, this chapter provides an analysis of use patterns and systems of resource regulation already operating locally at Baban Rafi.

The methodology of the current study is an outgrowth of Bruce's (1990, p. 22) advice that it is appropriate to begin a tenure appraisal exercise by focusing on behavior and later move to tenure. Therefore, in addition to providing clues concerning appropriate incentives that will be central to a management system, land and resource use practices provide an important base for the study's analysis of tenure and management rules. The approach adopted here is not simply a case of the dictum that actions speak louder than words, but, rather, that words describing actions are likely to more accurately reflect reality than words describing abstract rules and principles. For example, many Hausa farmers state that they "own" the trees located in their agricultural fields. Yet many farmers also admit that Fulani herders have regularly lopped off the branches of the field trees for use as fodder, and further, that the farmers do nothing about this." What is one to understand by "ownership" in this case? The actual use made of the trees, and by whom, is often more revealing of tenure relationships than is categorization based on abstract labels such as "ownership" or "property."

The first half of this chapter is devoted to a description of how the resources of the Baban Rafi forest are used, that is, of who is using which resources and what they are used for. The second half of the chapter relates resource use to resource tenure and management and discusses authority structures active in the domain of natural resources at the level of the village and of the household. The focus in this chapter is especially on the use of resources by **local** populations—whether full-year or seasonal residents of the forest and its periphery.

57. One notes also, however, that these practices are currently in transition. The indiscriminate lopping of **branches by transhumant** herders is decreasing as farmers **increasingly** object to the practice. The NFM project has **played** a role in this transition.

3.1 USE OF FOREST RESOURCES

The natural resources exploited in the Baban Rafi forest fall into four primary categories: surface and groundwater, wildlife, soil, and vegetation.

3.1.1 SURFACE AND GROUNDWATER

Probably no class of natural resources could be described as abundant in the Baban Rafi forest (or, more generally, in the Sahel), yet it would be difficult to deny that the most crucial resource shortage is that of water. Of the two categories of uses made of surface and groundwater at Baban Rafi—domestic needs and livestock—the former is, of course, indispensable to human existence. Crop irrigation does not exist at Baban Rafi, agriculture being entirely dependent on rainwater.

It was noted in the previous chapter that nowhere in the forest does there exist year-round surface water. No one knows how many wells have been dug and later disappeared in the settlement history of western Baban Rafi. Although a small number of traditional wells continue to function, the largest portion of the water consumed in western Baban Rafi comes from wells that were constructed by the Nigerien state (with the financial support of international participants). Two of these wells—located in Baban Rafi village and Mamouri—are open, concrete tubewells from which water is drawn in buckets or animal skin bags. These wells are very heavily used by Fulani populations supplying water to their cattle and other animals. During periods of the dry season the wells may be continually in use nearly twenty-four hours a day. The continual presence of livestock in the area of the well degrades water quality for human consumption.

Most of the water consumed by the human populations of western Baban Rafi—whether Hausa, Fulani, or Buzu—comes from the mechanical wells in each of the villages. These wells tend to fall into disrepair from time to time leaving the villagers of the affected village with little choice but to rely on open well water (if the village is Baban Rafi or Mamouri) or travel to a neighboring village in order to meet water needs. During a series of open meetings held in each of the villages as part of the research program for this study, six of the seven villages expressed strong feelings of dissatisfaction with water availability, and considered the alleviation of water shortages as among the most pressing needs of each village (the exception is Mamouri, which has both a mechanical well and an open well). The NFM project gained a great deal of confidence on the part of the villagers by including among its first activities in the forest the repair of a number of malfunctioning well pumps. The census of the area's wells recorded in table 3.1 was compiled with the participation of villagers from each of the villages.

Domestic water needs of all groups are met through the labor of the women and girls of each household who draw water at the well and carry it home, often by donkey in the case of Fulani populations far removed from the village pump. Both men and women participate in the watering of livestock. The small tree nurseries, established with the aid of the project in each village near a well equipped with a mechanical pump, are tended and watered by males—often heads-of-households.

TABLE 3.1 Census of wells of western Baban Rafi

VILLAGE	MECHANICAL[*]	MODERN^{**}	TRADITIONAL^c (not installed by state)
Mamouri	1	1	
Garin Maigiya	1		1
Baban Rafi	2	1	
Garin Labou	1		
Goulgoussao	1		1
Yen Gobirawa	1		2
Garin Ali	1		1

- a. The mechanical wells of western Baban Rafi were installed in the early 1980s by the Nigerien government with the support of an internationally sponsored development project. The model adopted in this region consists of a pedal-operated pump mounted on an enclosed well.
- b. The two "modern" wells of western Baban Rafi were installed by the state about 1960. The wells consist of concrete tubes buried to a depth of 35 meters or more. The wells are open at the top and water is drawn by lowering buckets or other containers.
- c. Traditional wells generally fall into disrepair after a small number of years relative to concrete, modern wells. Unlike mechanical wells, which are also susceptible to breakdowns, traditional wells are more likely to be abandoned than repaired.

3.1.2 WILDLIFE

As noted in the preceding chapter, exploitation of the wildlife of Baban Rafi predates contemporary agricultural settlements of the area. Hausa farmers visited the forest from neighboring areas of Niger and Nigeria to engage in seasonal hunting. Little is known of the extent of the hunting that took place at Baban Rafi prior to the establishment of villages, but in terms of the region's later settled populations it is clear that until as recently as the 1960s game was considered plentiful and hunting was an important occupation for many local residents.

The significance of hunting in today's Baban Rafi forest appears to be negligible, though a small number of local hunters are known to travel periodically to some of the thicker forest regions of northern Nigeria, where there is more game than at Baban Rafi and where the hunting of most species is legal (though subject to acquisition of a paid permit from a game warden). Those hunters who continue to practice their occupation in the Baban Rafi forest are said primarily to target birds, since there is little else. The hunters themselves are hesitant to talk about the extent of their activities because they are in violation of Nigerien law (hunting of any kind has been illegal in Niger since 1972). There may exist a small, local underground market for various birds and possibly additional small game, but the dimensions of this market are very small. The small number of Hausa farmers who admit to occasional hunting are all age forty and above, are male, and represent a variety of ethnic backgrounds. The extent of hunting activities among the Fulani and the Buzu of western Baban Rafi was not explored by the research undertaken for the present study.

3.1.3 TREES AND VEGETATION

Residents of Baban Rafi village were asked during a village meeting in early 1991 to list the tree species with which they were familiar in the Baban Rafi forest. The list compiled during this meeting contains 68 Hausa names of tree species. Fifty-nine of the 68 names were later determined to be tree species of the natural forest.⁵⁸ Of the 59 natural forest species, 55 were later identified by their scientific names, while four remain unidentified except by their Hausa names. Forty-six of the natural forest species were included in a separate questionnaire designed to obtain information concerning tree

The most noteworthy of the findings of the tree-use survey⁶⁰ is the degree to which the majority of the 46 species researched serve a variety of purposes. For example, 72 percent of species are exploited for their wood, 61 percent for fruit, 87 percent for leaves, 63 percent for bark, 54 percent for roots, 37 percent for branches, and 7 percent for sap. Moreover, each of the tree parts exploited may serve a variety of purposes. It was found that of those species exploited for their wood, 91 percent provide fuelwood, 36 percent are used in the construction of dwellings or other shelters, and 55 percent are used in some type of sculpture (e.g., the manufacture of tools, utensils, mortars). The following observations reinforce the multiple-use nature of the trees of the Baban Rafi forest:⁶¹ 3 species of trees are of particular cultural significance, often functioning as "sacred" trees;⁶² 35 species (76%) are exploited for fodder, including (depending on the species) leaves, fruits, and twigs; 36 species (78%) provide local medicines, including leaves, fruit, sap, bark, and roots; 14 species (30%) have been actively encouraged by some farmers to regenerate naturally in their agricultural fields; and 25 species (54%) are said to be of commercial importance, including trade in wood, fruit, leaves, bark, roots, branches, and sap.⁶³ Although the questionnaire failed to distinguish between human and animal consumption of edible tree parts, it is clear that many trees are

58. Since some grasses and some woody species—such as **mango**—**recently** introduced into the village or farm setting but not found in the natural forest were also included among the names on the list originally provided by the Hausa farmers, the final list was reduced to 59.

59. The misplacement of part of the list by the team of enumerators prevented the inclusion of all 59 species in this exercise.

60. The following information on tree use is provided by Hausa farmers **and** includes no input from the **Fulani** or **Buzu populations** of the forest.

61. One will recall that this presentation focuses on trees of the natural forest **and** therefore ignores important uses of trees in villages and on farms where trees achieve such benefits as shade, soil enrichment, **and** **windbreaks**.

62. Trees designated as sacred are used in special ceremonies as the site for sacrificing small livestock or poultry in the hope of improving harvests or reaching other goals.

63. **Regarding** commercially significant species, it is striking that of these species a greater number contributes to trade in medicines (21 species, or 84% of commercially exploited species) **than** to trade in fuelwood (18 species, or 72% of commercially exploited species).

exploited by the inhabitants of Baban Rafi as a food source, with leaves, fruit, and sap contributing to local diets—the most prized ingredient probably being the leaves of the baobab.

In sum, the overriding observation concerning the use of natural forest trees at Baban Rafi is the wide variety of uses as indicated by the intensive use made of almost all tree parts. Although most forestry planners and developers active in the Sahel have traditionally focused on the production of fuelwood, the tree use findings presented above are consistent with the isolated though increasing appearances in Sahelian social science and natural forest literature since the early 1980s of books and articles drawing attention to the nonwoody products of African and Sahelian forests."

It would be difficult systematically to categorize the users attached to the uses described above, and such a task is not attempted here. One may, however, speak in general terms of users as classified by "occupational" group." Thus, for example, blacksmiths exploit certain hardwood species for fuel to operate their forges, while traditional healers seek out a variety of species, each known for a special ingredient to be used in the production of a local medicine. One may state with near certainty that the collection of wood to be used in construction or sculpture is the responsibility of men, while the gathering of dried wood for fuel or leaves for sauces is generally done by women. Trees providing fodder are much more heavily exploited by Fulani herders than by Hausa farmers, while the Hausa farmers are more advanced than their Fulani counterparts in integrating trees into farming systems (in part because they have been more receptive to the NFM project). Children are generally allowed to collect freely the wild fruits of trees such as *Lannea acida*, which sometimes are the objects of petty trade. Each "occupational" group enjoys a particular niche within the variety of uses made of trees in the natural forest of Baban Rafi. A list (certainly incomplete) of such occupational groups includes herders, farmers, women, men, children, traditional healers, blacksmiths, sculptors, cooks, and traditional religious leaders. (One notes that one has yet to mention harvesters and consumers of commercial fuelwood—a topic discussed below.)

In addition to the woody species (trees and bushes) discussed above, there are several species of grasses occurring naturally in the Baban Rafi forest which are heavily relied upon by local populations to fulfill needs for fodder and construction materials. *Andropogon gayanus* is perhaps the most notable of the grassy species in terms of use value to local inhabitants. Not only is *Andropogon* enormously prized as fodder, it is widely used as a material that can be woven into either mats to cover the ground or sheets for use in the

64. See, for example, Poulsen (1982); Sène (1985); Von Maydell (1990).

65. The qualifier is used very loosely. For example, "men" may be considered as an **occupation** insofar as membership in this category confers responsibilities such as the construction of **dwellings and** fences.

66. Unlike some of the longer-established farming regions of Niger—regions in which trees such as *Acacia albida* have long played a role in traditional agroforestry systems—by almost all accounts trees have traditionally been little integrated into the farming systems characteristic of the more recent farms of Baban Rafi.

construction of walls for hangars and housing units, or it may be used in the fabrication of baskets and other objects. Both men and women use *Andropogon* as a weaving material. In common with many useful tree species, *Andropogon* is becoming increasingly rare in the Baban Rafi forest.

3.1.4 SOIL: USE AND DEMAND

The use made of soil is, of course, crop production. Virtually every family residing year-round in western Baban Rafi provides for its subsistence by producing grains (millet and sorghum) and legumes (cowpeas and groundnuts). In addition to satisfying domestic needs, a portion of legume production is generally destined for local markets, as are grains in cases of bumper crops or particular cash needs. Groundnuts were established as the cash crop of the region during the colonial period, and they maintained this role until the decline of the international market in the 1960s and 1970s. In recent years cowpeas—produced primarily for local⁶⁷ rather than international markets—have started to overtake groundnuts as the region's primary commercial crop. Additional cash crops include cassava, sesame, sorrel, and corn, though the number of farmers producing these crops and the quantities produced are very small. Table 3.2 records the production choices effected in western Baban Rafi during the 1991 growing season.

TABLE 3.2 Production decisions by field and by crop: growing season, 1991
(n = fields included in census")

CROP	MANAGEMENT CATEGORY			
	Hausa men (n=239)	Hausa women (n=72)	Fulani and Buzu men (n=78)	Fulani and Buzu women (n =18)
Millet	192 (80%)	66 (92%)	76 (97%)	17 (94%)
Sorghum	190 (79%)	67 (93%)	76 (97%)	13 (72%)
Cowpeas	160 (67%)	54 (75%)	59 (76%)	14 (78%)
Groundnuts	93 (39%)	22 (31%)	12 (15%)	1 (6%)
Fallow	7 (3%)	1 (1-2%)	0	0
Other (cassava, corn, sesame, sorrel, or cotton)	10 (5%)	1 (1-2%)	2 (2-3%)	0

- a. Figures are based on information provided by random sample respondents regarding total fields under their management authority. The sum of percentages recorded in a given column exceeds 100 since many fields are managed to produce more than one crop at the same time.

67. In this case, neighboring villages in Nigeria are considered part of the "local" market since commercial channels established to supply this market remain informal. Marketing channels in place to circulate groundnut production were established and continue to be managed by the Nigerian state.

The first objective of Baban Rafi farmers is to satisfy domestic needs for grains. One will recall that agricultural production remains a risky undertaking in this resource-poor region. As a result of wide variations in annual amounts of rainfall, any given year is nearly as likely to witness a grain deficit as it is to experience a surplus. Nevertheless, needs for cash are increasing. According to local testimony, cash needs occasionally lead to crop sales in situations in which satisfaction of domestic needs is not entirely secure.

In addition to the seasonal risk of uncertain rainfall, the region is experiencing a long-term trend toward decreased production per unit of cultivated area. The region's soils, poor to begin with, are easily exhausted after a number of seasons of continuous agricultural production. In the past during an era of lower population densities, fields were routinely abandoned following a number of years of production, at which time the farmer cleared an alternative site for crop production. A few abandoned fields still exist in western Baban Rafi, though such sites today tend quickly to be reclaimed by neighboring farmers.

Most of today's farmers hold their fields as private property and bequeath them to their children upon death or old age. Consequently, fields are often continuously cultivated. Although 38 percent of Hausa heads-of-household state that they occasionally leave their fields fallow for an average of 3.8 years, only 3 percent of all fields managed by the Hausa heads-of-household were fallow in 1991. Twenty-two percent of farmer's wives say they leave their fields fallow for an average of 1.8 years, but only one of the 72 fields managed by the women questioned was fallow in 1991. Corresponding figures for Fulani heads-of-household are 20 percent who say they leave their fields fallow for an average of 2.9 years—but none of which were fallow in 1991. Similarly, Fulani wives included in the survey manage a total of 18 fields, none of which was in fallow in 1991. Finally, none of the fields cultivated by Buzu farmers—male or female—was fallow in 1991.

Fertilizers have never been widely available on an affordable basis to the isolated populations of Baban Rafi, and their use throughout Maradi Department has been in decline since 1981, presaging the suspension of many of the rural loan activities of the *Caisse Nationale du Crédit Agricole* (CNCA) in 1983 (Niger 1986a, pp. 21, 32).⁶⁸ Although the majority of area farmers state that they apply manure to at least some of their fields, many Hausa-owned animals are left to the care of Fulani herders, the latter benefiting disproportionately from the integration of livestock raising and farming. It is widely said that Fulani farmers consistently achieve higher yields per surface unit than Hausa farmers as a result of increased manuring. No accurate figures exist to support this claim, but it should be noted that increased levels of productivity achieved by Fulani farmers (if they exist) might also result from the generally younger age of the fields of the Fulani. Finally, agroforestry has not been an established practice at Baban Rafi. In fact, the argument that trees attract grain-eating birds is often cited as the primary motivation for removing nearly all trees from agricultural fields. The NFM project is working hard to convince local populations of the utility of field trees and so far prospects for success appear promising.

68. The CNCA is the financial arm of the state-sponsored cooperative movement discussed in ch. 4 (pp. 72-74).

The general observation relating to soil use and depletion at Baban Rafi is that local production figures appear to reflect regional trends toward decreased production per unit area. The Nigerian government, for example, estimates that millet and sorghum yields in Maradi Department decreased 30 percent between 1978 and 1983, and that only a part of the decrease can be explained by rainfall levels, adding that "the essential cause is poorer soils" (Niger 1986a, p. 19).⁶⁹ Research undertaken for the present study reveals an almost universal feeling at Baban Rafi that living standards have declined in recent decades, with diminishing average-per-hectare agricultural production mentioned along with the disappearance of valuable trees and game as the reasons for the decline.

In the face of declining yields and annual population growth in the range of 3 percent, there is tremendous pressure to expand the area put to agricultural production. Most farmers (93% of Hausa heads-of-household and 86% of Fulani and Buzu heads-of-household) believe there is wooded land available in the immediate vicinity to allow for expansion of existing fields. The NFM preliminary management plan estimates that an additional 4-7 hectares are put to agricultural production each year in the vicinity of each sedentary village, and that over 10 hectares additionally may be put to production around the semi-sedentary hamlets (Projet SALAMA 1991, p. 37). In the course of the present study, 45 percent of Hausa farmers and 54 percent of Fulani farmers admit to having cleared new fields during the five years prior to 1991. Further to illustrate the magnitude of agricultural expansion at Baban Rafi in recent years, one adds that 33 percent of Hausa fields and 73 percent of Fulani fields were cleared by the present occupants of these fields. The desire further to expand cultivated area is expressed by 39 of 40 Hausa farmers; 35 of 37 wives of Hausa farmers; 23 of 25 Fulani herders; 15 of 22 wives of Fulani farmers; and 2 of 3 Buzu farmers (the wives of Buzu farmers generally do not work in their husband's fields or manage fields of their own).

Another indicator of the importance accorded by local populations to increasing food production consists of responses to a request to prioritize local development needs. Forty-one percent of Hausa and 46 percent of Fulani stated that the first goal should be increased agricultural production.⁷⁰

The ability of the individual farmers of western Baban Rafi to cultivate ever larger surface areas has been enhanced since the mid-1970s through increased accessibility to animal traction. The most important agent for the diffusion of animal traction throughout many areas of Maradi Department was the Maradi Department Development Project active from 1977 to 1987. Seventy-nine percent of randomly selected heads-of-household questioned in 1991 state that they generally make use of animal traction when they prepare their fields.

69. See also Dumont (1986, p. 28); and Djibo and Price (1990, p. 47).

70. Respectively, 24% and 41 % believed the first **goal** should be forest protection; 20% and 5 %, **earn money** for local **populations**; and 15% and **8%, improve infrastructure**.

With the exception of the transhumant herding populations" (who are only seasonal inhabitants of western Baban Rafi), all local populations depend directly on the area's soils for their subsistence. With a few partial exceptions, all ethnic, gender, and age categories are directly involved in agricultural production. The exceptions include a fairly significant number of Fulani women who do not participate in crop production (23% of the Fulani women included in the random sample do not farm), and a number of young Fulani men who are full-time herders. In addition, by reputation at least, Buzu women do not farm (though one of the three Buzu women interviewed said she does farm). In each case, however, each of the ethnic, gender, and age categories contributes to a household that relies on farming either as its primary occupation or as one of its two central occupations (herding being the other). The division between farm management and labor within households, as well as the allocation of fields between households, will be discussed below under the topic of resource tenure.

In terms of environmental impact, one might summarize this first half of the present chapter by observing that currently there are but three significant categories of uses made of the forest resources of western Baban Rafi. These categories are use of forest resources for fuel, fodder, and the production of agricultural crops.

3.2 RESOURCE TENURE AND MANAGEMENT SYSTEMS

Resource use and resource users were discussed in the previous section. The present section of this chapter introduces the concept of tenure in an attempt to discern the extent to which tenure rules exist in western Baban Rafi and to determine how existing rules and management guidelines and objectives affect use and regeneration of (or, in terms of economic policy, investment in) resources. After briefly addressing tenure and management regarding the resources of water and game in western Baban Rafi, the bulk of this section will focus on tenure and management in the context of trees and soils.

"By 'tenure' is meant the set of rights which a person or some private or public entity holds in land or trees" (Bruce 1990, p. 1). One may also, of course, speak of "sets of rights" in relation to resources such as water and wildlife. A resource management or tenure system consists of the rules and the authority and/or decision-making structures in place to define and regulate rights of access. One needs, therefore, to relate indigenous structures of general authority to resource use as well as to identify tenure rules (e.g., the "land-clearing rule" discussed below) which have no apparent relationship (or perhaps a weakening relationship) to existing and identifiable authority structures or mechanisms of enforcement. These sets of considerations are respectively and loosely referred to below as "centralized" and "noncentralized" authority structures—though the distinction is not rigid or rigorously pursued in this discussion. An example of a centralized authority structure with a role to play in the tenure system is the village chiefdom, while an example of a decentralized authority structure is the land-clearing rule discussed at length below.

71. These populations are not included in the random sample survey cited throughout this study.

3.2.1 WATER

It was stated earlier that the major sources of water used in domestic consumption as well as livestock production are the government-installed wells in each village. When questioned as to the identity of the agent in charge of well management, most villagers and herders ascribe responsibility to the village chiefs. It is clear, however, that state-installed wells are exploited as an open-access resource. Moreover, when wells that are equipped with mechanical pumps break down they are likely to remain inoperational for indefinite periods of time—or at least this was the case until the arrival of the NFM project. Nor is any action taken when water from the open wells tastes of cattle manure. Neither the state nor the local chiefdom has been quick to assume responsibility for maintaining the wells.

A number of traditional, that is, privately constructed, wells still exist in western Baban Rafi. From an early date, some or all traditional wells were shared by Hausa and Fulani populations—in spite of the fact that the wells had been constructed by Hausa settlers. Permission to use these wells is granted by the elder village chief or well builder, and kola nuts or livestock are offered in recognition of authority over the well.

Given the critical and chronic shortage of water in the Baban Rafi forest, it is perhaps surprising that most use of available water is not more strictly controlled. There are two possible and partial explanations for the free and unrestricted access to most existing water resources accorded to virtually anyone. The first is the evolution of an attitude and tradition in this parched area that to deny water—"the source of life"—to anyone would be unthinkable. The second reason is that the majority of the wells currently functioning in western Baban Rafi were constructed by the state (though the villagers in most cases supplied most of the labor), and therefore authority over use and maintenance of the wells has not been established to be within the domain of local chiefs. The logic behind a lack of local authority over water drawn from state-constructed wells might be found in the following definition of "property" as articulated by a villager from Garin Maigiya: "Property is something someone has suffered to gain, and in the process, has established claims to its use."

3.2.2 WILDLIFE

Hunting has existed as a clandestine activity since a hunting ban was put into effect by the government of Niger in 1972. It is, therefore, difficult to gather information on local authority structures that might regulate the hunting that currently takes place at Baban Rafi. However, it is clear that hunting is no longer an important activity in the area, and its decline probably is the result more of a lack of available game than of the state's interdiction.⁷²

72. In **support** of this speculation one notes that the **banning** by the state of many uses of trees did not cease the **banned** activities as long as the trees **have been available**.

3.2.3 LAND

Trees and soils are treated here as a single block (land) to reflect customary practices and authority structures, which are not usually organized according to distinctions between individual resources,⁷³ and to reflect the reality of the ecological interrelationships between the two categories of resources. Again, the present topic is **customary** or **local** tenure and management arrangements. The use of trees is regulated in detail by the Nigerien Forest Code, which is discussed in the following chapter. Access to soils is regulated in the same legislation through restrictions to the removal of vegetative cover. Further, the use of trees destined to supply the fuelwood market of Maradi is discussed below, which also includes a discussion of the authority structures involved in the regulation of the wood trade. The following discussion considers the interaction between local authority structures and the use of trees and soils in western Baban Rafi.

The role of central authority at the village level: traditional land-use planning. One begins by asking whether there exist centralized customary authority structures that currently exert some influence over access to resources. By implication, centralized authority structures would be capable of some degree of "planning"—that is, the ability consciously to modify resource access rules and arrangements. The follow-up to the question of centralized authority will be to determine whether noncentralized, unplanned authority structures (e.g., customs or rules unattached to tangible structures capable of planning modifications to the rules) are operating as determinants of access to resources. The central task is to examine the working rules and enforcement mechanisms of either type of structure found to exist in western Baban Rafi. The investigation addresses two administrative levels of potential customary authority: the village and the household.

In spite of the case presented in the preceding chapter arguing that local chiefdoms are generally weak, limited land use planning—one might even call it "zoning"—has been a feature of the villages of western Baban Rafi since their inception. These land use rules continue to regulate the use of trees and soils in certain areas. Where land use rules exist, chiefs and elders or the village "ancestors" are cited as the authors. For example, each of the villages has one or more designated cattle trails designed to allow cattle to circulate between the village well or wells and the forest. The land designated as a cattle trail generally has no or few trees but cannot be put to crop production. Therefore, trees and crops are forfeited principally to allow for the passage of livestock herds without destruction to established agricultural fields. Each cattle trail generally dates from early in the history of the village it serves and is said to have been established by the early village chiefs and elders (though in the case of one of the two cattle trails serving Baban Rafi village, the *sous préfet* of Madarounfa is said to have participated in setting the boundaries the cattle trail).

73. See, for example, Shepherd (1988?, p. 1). The treatment of parcels as ecological systems rather than as a collection of discrete resources in traditional African tenure systems is also attested to by Alain Rochegude (personal communication), a specialist of both customary and modern legal systems in the Sahel [Rochegude is affiliated with the *Association Universitaire Partiellement et Entièrement en Langue Française* (AUPELF) based at the University of Montreal].

Most cattle trails are not marked in any formal way, but their location and borders are said to be generally known. Still, there is a degree of farmer encroachment said to take place on the fringes of land recognized as a cattle trail. Disputes periodically result when cattle enter fields and cause damage to crops. These disputes are, according to villagers, often resolved at the level of the parties involved without appeal to local or external authorities. But periodically such a case is referred to the village chief for adjudication. In such cases, the chief is said generally to rule in favor of the farmer, thereby instructing the offending herder to compensate the farmer for damages.

In addition to cattle trails, some wooded areas have been established as pastureland. Inhabitants of a number of the villages—Garin Maigiya, Garin Labou, Yen Gobirawa, and Mamouri—have claimed that sections of the nearby forest are officially recognized as pasture. The areas designated as pasture have been placed off-limits to crop production—though exploitations of trees, such as for fuelwood, are allowed. With the exception of Yen Gobirawa, it is further claimed that the areas in question have been designated as pasture since the time of the "ancestors." The designated pasture of Yen Gobirawa—a village in existence only slightly more than two decades and therefore exerting little claim to rulings inherited from "the ancestors"—is on the Nigerian side of the Niger-Nigerian border. The expansion of the farms of Yen Gobirawa into Nigeria would present a political and administrative complication, thus providing an alternative explanation for a land use designation of "pasture." In at least one of the remaining cases of designated pastures—that to the east of Mamouri—it currently appears that pressure is building for colonization by farmers, and that the area's designation as pasture will likely fade with the passage of time. In any case, the lines between pasture and forest (i.e., land eligible to be cleared for agricultural production) are somewhat blurred. Villagers participating in village meetings at Baban Rafi village and Garin Ali state that pasture and forest are the same thing.

A less significant example of resource use planning in terms of environmental implications consists of the trees reserved for religious ceremonies. Four of the seven villages declare the existence of such trees, and in each case the trees are protected from any use that might result in their damage. But in only one case does the religious or mystical designation extend beyond one or a small number of specific trees (often located in a farmer's field) to a unit referred to as an area rather than a tree.

Limits to village-level central authority: land-clearing rule. The feeling that currently forested land available for conversion to agricultural land is in short supply has come to Baban Rafi only recently. Even in 1991, with the exception of Garin Maigiya, assembled villagers in each village were largely in agreement that there remains plenty of forest into which to expand. Yet there is already a sense that the limits to agricultural expansion are not far away. Mamouri, for example, has been in dispute with the neighboring Buzu hamlet since the latter relocated its housing site in 1991 to cut off the expansion of village fields moving to the northeast. A similar dispute is pending between Garin Maigiya and the Fulani hamlet to the east of the village. One observes, then, that whatever mechanism is in place to regulate the clearing of new fields in western Baban Rafi, it is not always effective when confronted with expansion by each of two ethnically unrelated groups.

How is forested land allocated for agricultural production? Who has authority over land as yet unused in this way? Most major uses of the forest, such as the exploitation of fuelwood or fodder, are intended neither to permanently change the ecology of individual parcels (regardless of whether environmental degradation is the de facto result of exploitation) nor to claim individual ownership of the parcels. The clearing of the forest to create farms is unique in that it is the only use made of the forest intended to change the physical and "legal,"⁷⁴ or tenure, status of the land. Moreover, according to indications presented in the general discussion of forest resource use contained in the first half of this chapter, the expansion of agricultural production appears to be the primary development goal of local populations. The result is a strong pressure to clear new lands for production.

It does not appear that land clearings are regulated by some central authority of the village. In most cases, the only feasible representative of central authority at the village level is the village chief. Yet only 28 percent (5 of 18) of random sample Hausa farmers who admit to having cleared land in the five years prior to questioning state that they asked somebody's permission before doing so. Of the five Hausa farmers who asked permission before clearing land, four asked permission of the village chief and one asked permission of a forester. The corresponding figure for Fulani farmers is only 13 percent (2 of 15) who asked permission prior to clearing. One of the two Fulani farmers who asked permission before clearing land asked a village chief, the other asked *a harda*—a traditional Fulani chief. The majority of both Hausa and Fulani farmers who cleared land in the five years prior to 1991 informed nobody in advance of the action.

These farmers did not inform others of their intentions to clear new fields because according to local customary tenure rules they were not required to do so. In most cases, new clearings consisted of extensions of fields already put to agricultural production. The customary tenure regime dictates that by virtue of having established cultivation rights to a given parcel, one has also established future clearing rights to the adjacent wooded parcel lying on the forest's edge. From another perspective one could articulate the rule as follows: anyone other than the owner of a field bordering the forest would be required to ask the permission not of the village chief, but of the owner of the adjacent field before clearing a parcel currently forming the edge of the forest and bordering on an established field. The fact that the majority of clearings are extensions of existing fields, therefore, precludes the necessity to ask permission before clearing a new parcel. It should be noted, however, that such a rule stands in contradiction to national forest legislation which clearly states that all forested land belongs to the state, and that the removal of trees from the land requires the permission of the state.

In addition to the land-clearing rule, a factor which helps to explain the lack of necessity to ask permission or to inform anyone before the clearing of land by Fulani farmers was mentioned at the outset of this section on tree and soil tenure: that resources in the deep

74. The word "legal" appears in quotation marks since it is used in a broad sense to indicate a change in ownership status—even though the change **probably** includes no title, but rather is recognized on the local level according to customary practices.

forest are exploited as open-access goods. Again one notes that such access is open according to *de facto* rather than *de jure* criteria since the Nigerien state formally claims ownership of all forests.

The land-clearing rule is recognized across as well as within residential (i.e., a village or a hamlet) or ethnic groups. Within a group it tends to regulate land allocation over time in an orderly way. Families are allowed to expand their fields toward the forest as they grow. When a family does not need a parcel it has the rights to clear, it may accord clearing rights to an individual parcel to someone else—such as a newcomer to the village. This is just what happened in Garin Maigiya in 1991 when a newcomer that had cleared a parcel granted by a fellow villager was challenged by a family of a Fulani hamlet expanding its fields from the opposite direction. The incident illustrates the fact that while the land-clearing rule is reasonably efficient in intragroup land allocation, it is insufficient as an instrument for allocation between groups. Additional intergroup disputes over land probably are looming in the near future of western Baban Rafi as land available for clearing comes increasingly to be in short supply.

Another interesting characteristic of the land-clearing rule is that it confers the rights **not** to clear land just as it confers clearing rights on those who are able to take advantage of it. This characteristic was illustrated by the Buzu who in 1991 relocated their residential camp from directly east of Mamouri to directly northeast in an attempt to cut off the expansion of village farms moving toward the northeast. The result of the relocation was the establishment by the Buzu of rights over the section of forest now separated from Mamouri by the Buzu camp. Whereas the land would eventually have been converted by the villagers of Mamouri to farmland, the intention of the Buzu is to preserve the land as forest to be exploited for fodder by their herds of camels and other livestock. As mentioned earlier, the use of the tactic of relocation of their camp on the part of the Buzu has infuriated the villagers of Mamouri and the situation, at least in the view of the farmers, has yet to be satisfactorily resolved.

In summary, one may say of the land-clearing rule that it is more than a mechanism for the allocation of land, but rather, it signifies an instrument for the establishment of something resembling private ownership of land. The key to "private" ownership is the conversion of forest to farm. Through the act of conversion one establishes rights not only to the farm created but to the potential farm adjacent to the one created. As noted earlier, uses of forest resources such as for fuelwood or fodder do not exhibit a similar rights-creating capacity.⁷⁵ This is why the Buzu will not expand their rights (in a geographical sense) beyond those already established if they preserve the forest they intend to use for pasture. The land-clearing rule, in other words, has a built-in incentive for the clearing of new land (the incentive being

75. This is not to say that no rights are created in the course of **habitual** exploitation of forested parcels for fuelwood or fodder, since both herders and **wood merchants appear to have built up such rights**. However, the rights claimed by herders and wood merchants over forested parcels do not equal the extent of the rights claimed by farmers over recently converted parcels, since the latter category of rights **approaches the status of private property**.

the acquisition of property) and, therefore, creates a bias toward a particular land use—farming. Many farmers and herders of western Baban Rafi will readily attest to this observation.

Separate accounts: economies of women and men. Much of the following discussion revolves around gender roles within the family compound as an illustration of variable resource access by household member. Table 3.3 presents a demographic portrait of the "average" compound of the Hausa farmers, on the one hand, and the Fulani and Buzu farming-herders, on the other. One will recall that a household is defined as a married male, his wife or wives, and his dependents, while a compound includes members of a family grouping (of one or more households) who share a defined quantity of farmland (the bulk of which is usually under the nominal control of a male head-of-compound), and usually live together.

TABLE 3.3 Demographic characteristics of compounds

	HAUSA (n=40)	FULANI AND BUZU (n=28)
Total population	7.4	7.3
Population age 15 or older	3.8	3.8
"Active" population or total work force (age 8 or older)	4.8	5.1
Number of households (corresponds to married males)	1.4	1.6
Number of wives of married males	1.4 ^a	1.3'
Population/household	5.2	4.5

- a. In the case of married males, the random sample pertaining to Hausa farmers includes 37 instead of 40 respondents. One of the 40 respondents is a widower while 2 are single adults, having become household heads upon the death of a parent. If "household heads" rather than "married men" is used to determine average number of wives, the figure becomes 1.3.
- b. All of the 28 Fulani and Buzu heads-of-household included in the random sample are married.

Underlying the present discussion is the central observation that the economic activities and influence of women in the family compound are increasingly linked to women's participation in a market economy. To a striking degree, the production of women is managed separately from the general production of the compound or household. One must distinguish, however, between management and possession of a **productive resource** such as land, and management and possession of the **production** of the land. In most cases, the most permanent of tenure and management rights to the **productive resources** of a given compound remain in the possession of the male head-of-compound.

All farm production may be classified either as collective (multi-person) or individual (single-person)—all that is produced collectively being under the authority of the compound head. One observes first the extent of total—that is, nongender-specific—individual production by noting that of all agricultural parcels, 49 percent of Hausa fields and 39 percent of Fulani and Buzu fields are farmed **individually**—the remainder being worked collectively, again, under the managerial authority of the compound head.⁷⁶ The compound work force is composed of all individuals above the age of 7, or 64 percent of Hausa populations and 70 percent of Fulani populations according to random sample data. Random sample data further yield the following information regarding this **active** population:

- ▶ Of the Hausa work force: 91 percent of males and 67 percent of females work in the collective fields of the household while 43 percent of males and 93 percent of females manage one or more individual fields (whose produce remains, in general, under the authority of the individual and not the household).
- ▶ Of the Fulani and Buzu work force: 78 percent of males and 17 percent of females work in the collective fields of the household while 13 percent of males and 45 percent of females manage one or more individual fields.

One might also consider the gender composition of the respective work forces (as opposed to categorizing practices within genders). Among the Hausa, 37 percent of the work force participating in collective work is composed of women while 63 percent of individuals working individual fields are women. The comparable figures for the Fulani and Buzu are 15 percent of the collective work force is composed of women while 74 percent of individuals working individual fields are women.

One might use the information above to illustrate typical patterns of farm management and land allocation in "average" Hausa, Fulani, and Buzu compounds—keeping in mind that within each of the three groups there exist significant variations to these patterns. The average Hausa compound of western Baban Rafi controls 5.3 fields with an average size between 1 and 2 hectares.⁷⁷ Some of these fields may be further subdivided into individually managed parcels, but generally well over half of total hectares remain under the management of the compound head. Based on the figures cited above, one might assume that the average Hausa compound includes two men and two women of age 15 or older. Both men and one of the two women (probably a young, unmarried woman) work in the collective fields while one

76. The percentages refer to total fields and do not take account of the generally larger size of collectively worked fields as compared to individual fields. One notes as well that a field's classification as "individually managed" does not necessarily exclude the participation of one or more additional household members in performing agricultural tasks on the parcel, but does indicate that major management decisions, and especially control over production, fall largely to an individual of the household who is not the compound head.

77. This is according to random sample data. The size is a rough estimate since I made no attempt to measure the parcels. Djibo and Price (1990, pp. 44-45) note that field sizes at Baban Rafi vary from 0.5 to 5 ha, but agree that most are between 1 and 2 ha; they **add** that most Hausa households control fewer than 6 fields. **Individually** worked fields tend to be smaller than collectively worked fields.

man (probably a young, non-head-of-household) and both women probably manage individual fields, usually of no more than 1 hectare.⁷⁸

The average Fulani compound controls 2.9 agricultural fields. While one or both working-age men in a Fulani household work in the collective fields, it is highly likely that neither of the working-age women work there. Generally in a given Fulani compound there is no more than one parcel managed individually, and this field is likely to be managed by one of the two working-age women of the compound (probably the one married to the household head, perhaps with the participation of the other adult woman).

The Buzu, the most recent group to take up farming as a primary economic activity, depart from the patterns of the Hausa and Fulani in that Buzu women rarely participate in crop production. One may say of the Buzu that there generally is a single large field under the control of each compound, and that this field is worked collectively by male compound members under the direction of the compound head.

Among the Hausa and the Fulani, then, the women more than the men are engaged in crop production that falls outside of the authority of the compound as a single entity. A large number of men, however, also manage fields whose production is handled under a separate account from that of the compound as a whole. The individually operated fields of men generally tend to include local cash crops such as cowpeas, groundnuts, cassava, and corn to a much greater extent than do the individually managed fields of women, who concentrate on grains but also cultivate cowpeas. Men also take advantage of opportunities to participate in the monetary economy generally not available to women, such as employment as farm laborers or seasonal migration to cities. One speculates, then, that the greater participation of women than men in individually managed crop production is the result of women's attempt to satisfy individual cash needs through recourse to the most readily available means—farming (men often have access to monetary remuneration through the practice of specialized trades or as laborers). Such speculation is supported by anecdotal evidence from western Baban Rafi. Farming, however, is not the sole means available for women's participation in a monetary economy.

The intracompound fragmentation of economies is also evident in the livestock holdings of women as compared to men. The contrasting holdings are illustrated in table 3.4. It is clear that men's livestock holdings are generally more significant than those of women, just as the volume of land under the direct control of men is much greater than that directly managed by women. Nevertheless, women's investment and trade in livestock is recognized throughout Baban Rafi as an established and significant component of the local economy.

78. Persons in the "active" **age group—age 8 to 14**—are **ignored** here since they are rarely **assigned** an **individual** field; rather, they work in collective fields or **individual** fields **under the authority** of **another household** member or, especially in the case of women, **spend** much of the **working day at** tasks **such as** collecting **fuelwood** or drawing **and transporting** water.

TABLE 3.4 **Livestock holding?**

LIVESTOCK	HAUSA		FULANI		BUZU	
	Women (n=37)	Men (n=40)	Women (n=22)	Men (n=25)	Women (n=3)	Men (n=3)
Cattle	0.1	0.6	1.6	7.1	1.0	1.0
Goats	2.4	1.4	3.2	8.2	3.7	2.7
Sheep	1.6	1.7	2.0	16.0	2.0	5.0
Donkeys	0.1	0.4	0.9	1.6	1.0	0.3
Poultry	1.6	1.4	1.0	7.9	0.3	1.7
Camels	0.0	0.0	< 0.1	<0.1	0.3	1.7

a. All figures indicate average holdings.

Not only are women and some other compound members deeply involved in productive activities clearly distinguishable from those initiated collectively by the compound under the managerial authority of the compound head, they also appear to be largely-though not completely-in control of goods produced and profits realized through individual activities. It is generally expected that both Hausa and Fulani women provide for baptismal and wedding ceremonies using production or revenues gained from cultivation of individual fields. Beyond the preparation of celebrations, women use profits from individually managed production and trade to satisfy a variety of needs, including (in descending order of frequency with which they are mentioned) kitchen and household items, clothing for themselves and their children, spending money, helping a husband out of trouble if needed, and health care when illness strikes. Although women usually do not mention it, they are also known to use a portion of profits as investment capital for such items as small livestock or cooking oil and ingredients to prepare fried doughnuts to be marketed locally.

Acquisition of fields. Although women are recognized as the owners of their livestock, in most cases the land worked individually by women is ultimately under the authority of the head of the compound, who, theoretically at least, may reclaim and reassign the field at any time. With few exceptions,⁷⁹ each of the compounds of western Baban Rafi is headed by a male who is the titular manager of all of the land parcels recognized to be under the authority of the compound. The majority of parcels have come under the compound's authority through either the act of clearing or the operation of inheritance rules. It was suggested above that the act of clearing transforms land from open-access forest to something resembling private property. Land is always cleared by men. Rights to clear land are most often derived from rights established to currently cultivated land either through previous clearing or inheritance.

To the extent that the clearing of new fields becomes less feasible as a result of the decreasing availability of virgin land, other modes of land acquisition increase in importance.

79. Two compounds, both located in Garin Maigiya, are headed by divorced women.

In particular, inheritance rules as they apply to land will be instrumental in determining future land distributions and the composition of units of land-management authority.⁸⁰ Since Islamic rules of inheritance have largely replaced the indigenous Hausa practice of passing on large family farms as a single unit, land is increasingly divided between heirs—a process which over time will inevitably result in progressive land fragmentation (unless currently unforeseen levels of out-migration are to occur).

In addition, the monetization of the local economy may eventually result in increased land sales—a phenomenon of little importance in western Baban Rafi to present. That land sales have occurred at all, however, is testimony to the increasing permanency of private use rights associated with specific geographical locations—a virtual nonoccurrence as recently as two generations ago, when shifting cultivation was still an accurate description of land-use practices. The rising primacy of material inheritance (as contrasted to inheritance in terms of social or familial status) bears witness to the same trend as specific land parcels become resources to be transferred intergenerationally.

The vast majority of land transactions take place between men. While women are assuming a more visible role in commercial production and trade, there are few signs that women share directly in the increasing permanency of rights to land. While the male head-of-household is becoming more secure in his lifelong possessions of land and the right to name successors, women generally exercise use rights at the pleasure of their husbands and fathers. Nevertheless, women's important role in the monetary economy is widely accepted in view of the demands placed on women to provide for household needs such as clothing, kitchen utensils, and food to be consumed during celebrations.

The fact that many of the demands placed on women cannot be met without entry into the cash economy cements the need to guarantee the access of women to productive resources. This does not appear to be a standardized process, with some women successfully asserting the equivalent of private rights to individual farm parcels within the compound, while others view their rights as precarious and temporary. For the moment, the data needed to comment further with any degree of confidence on the direction of future trends in this regard are unavailable. It bears noting, however, that while women's market power is growing, the status of women within household compounds remains strictly subordinate to their husbands and fathers, and even to their married male children.

In spite of Islamic inheritance rules calling for the award of land shares to both male and female heirs (albeit with the proviso that the former receive twice the share of the latter), only 6 (8%) of the 72 fields currently worked as the individual fields of the Hausa women interviewed were inherited by those women, compared with an overall inheritance rate of 47 percent among the Hausa (none of the 18 fields worked individually by Fulani women had been inherited). One local village elder states flatly that Islamic inheritance rules do not apply to land, but only to livestock and other household possessions. Moreover, even when a woman holds a parcel through inheritance, once she enters another household (e.g., marries),

80. This observation is in part based on thoughts raised by Bruce (1988, p. 25).

her landholdings are generally considered to come under the management authority of the male head of her adopted household. The great majority of women working individually on a field state that the field was given to them by their husbands (or sometimes by their fathers)—variously referring to the land grant as a "gift" or a "borrowing."

3.2.4 TREES

In western Baban Rafi, there are very few examples of customary (long-standing) management controls being applied to tree use, whether trees occur on or off the farm. It was noted earlier that a small number of trees customarily have been protected in western Baban Rafi as a result of their status as sacred trees. To repeat an earlier observation, the trees of the natural forest of Baban Rafi—even the most valuable ones—appear to have been considered by both past and present local populations to be open-access resources. There remains at least one partial exception. In some cases, access to trees put to specialized uses—for example, the collection of ingredients needed for certain practices of traditional healing or hardwoods needed for special sculptured items—was and is limited on the basis of possession of specialized knowledge and skills.

The situation specifically regarding trees in farmers' fields is more complex, though for the most part these trees, too, appear historically to have been exploited as open-access resources (at least during the nonagricultural season). Fulani herders have long been free—even encouraged—to exploit farm fields for postharvest stubble in exchange for soil-enriching manure. By most accounts, field trees were (in the past) also open to the exploitation of Fulani herders, however limited field-tree resources generally may have been. Almost all farmers currently active in western Baban Rafi agree that in former times, few trees were left in farm fields—and those that were left were widely spaced and exploited for shade and little else. The domestic needs of the traditionally small populations of western Baban Rafi for most tree products were satisfied in the surrounding natural forest.

The contemporary context, however, is one of transition. There is an ongoing change in management practices, which appears to be encouraging a modification of tenure rules. One of the influences toward modification is the NFM project, which to a considerable extent has been successful in promoting tree planting among Hausa farmers. In addition to achieving a significant rate of success in its campaign to increase levels of local tree planting, the NFM project has been moderately successful among Hausa farmers in encouraging the natural regeneration in agricultural fields of naturally occurring local species.

The increasing interest of the Hausa populations of western Baban Rafi in establishing field trees has been accompanied by a process of tenure modification. Along with its promotion of tree planting and natural regeneration, the NFM project is encouraging the notion that field trees are to be placed under the control of the farmer on whose land the trees occur. The logic behind this modification of indigenous tenure rules is that planted trees and naturally regenerating trees occur only because of the choice of a farmer to plant or protect them. Such measures, it is reasoned, are not likely to be taken in the absence of property rights to the trees. Local populations universally express the idea that planted trees are the

property of the tree planter. Less than unanimous, though still significant among local populations, is the notion that naturally occurring field trees belong to the field owner. In sum, it is clear that whether planted or naturally occurring, the field trees of Hausa farmers are increasingly considered to be the private property of the owner of the field.

The differential progression of Hausa and Fulani farmers toward a sense of private property regarding trees in their fields is hinted at by the contrast between the two groups' reactions to the cutting or debranching of field trees by strangers without forewarning. Hausa farmers are many times more likely to complain of such "violations" than are Fulani or Buzu farmers—though the widespread use of field trees for fodder by transhumant herders has long been an established practice in western Baban Rafi.

According to Fortmann (1988, p. 21), "although tree and land tenure are distinct, each affects the other" The exclusive rights to land parcels that tend to develop in a production system composed of settled agriculturalists provide a base from which (especially with a little encouragement and support from influences such as the NFM project and an emerging commercial value in trees) private rights might eventually extend to trees growing on the land. This appears to be the process now in progress in western Baban Rafi.

The current discussion has thus far considered how rights in land influence rights to trees. One must also examine the effect of rights held in trees on the bundle of rights attached to the land on which the trees stand. In common with many socioeconomic institutions of Baban Rafi, the role played by trees in determining the exclusivity of rights to land is currently in the process of transformation. In the discussion above it was demonstrated that in Baban Rafi, the clearing of a parcel of land of its tree cover is the definitive step toward the assertion of exclusive rights to use the parcel for crop production.

Evidence from Baban Rafi supports the conclusion that "rights to the clearer" is generally a superior tenure rule to that of "rights to the tiller."⁸¹ For example, a number of household heads claim to hold property rights—most often rights held on the basis of inheritance or clearing—to more parcels than the household can put to production in a given season. Surplus parcels are regularly lent out to farmers in search of additional crop land with the understanding that the arrangement is temporary. A few holders of surplus parcels have adopted a strategy of varying the tenant on particular parcels on a yearly or multiple-year basis as a safeguard against the build-up of rights on the part of the tenant. Such a strategy attests to the threat perceived by rights-holders who also perceive that the relative positions of the principles of "rights to the clearer" vis-à-vis "rights to the tiller" are not viewed as immutably fixed.

81. One notes here that Nigerien official policy has not been consistent on this point. The French colonial regime introduced a legal system that allowed for the privatization of parcels regardless of who was to labor on them, with **nonprivatized** land reverting to state ownership. This policy **continued** into **independence** until 1974, when a new military government having won power through a military coup declared the principle of rights to the tiller, while at the same time adopting a forest code that upheld state ownership of forests.

The insecurity felt on the part of holders of rights based on clearing or inheritance plays a role in some cases in willingness to invest in tree planting. While rights to land are generally derived from the act of tree removal, rights to trees are derived from the act of planting the tree—and the long-term balance between the two sets of rights (rights to land versus rights to trees) is at least somewhat open to question. Furthermore, the role of trees in land tenure is likely to expand as reserves of forested land available for clearing decrease, causing inheritance to displace clearing as the primary mechanism of land acquisition. Whereas clearing is generally directly related to need (and, by extension, the capacity to put newly cleared land to crop production), holdings acquired through inheritance are less likely to correspond exactly to the work force of the inheriting household, possibly freeing up over time increasing numbers of parcels that might be made available for temporary transfer through such mechanisms as loans or pledges. It will be shown below that tree tenure rules sometimes affect willingness to plant trees (or to allow trees to be planted), particularly regarding parcels to which rights of crop production are temporarily transferred. A corollary observation is that the role of trees in land tenure may emerge as an important factor in determining the future extent of temporary land transfers.

Many farmers of western Baban Rafi who lend out parcels express uneasiness with the idea that a tenant engage in tree planting on a borrowed parcel. This is because, contrary to the traditional rights of the landholder established through the removal of trees, rights to land based on its improvement through tree planting are now gradually being recognized. Both tree removal and tree planting may be interpreted as an investment in the land, and investment in land is the basis of rights to the land. It remains to be seen how some conflicting trends will eventually play themselves out, since farmers are far from unanimous in terms of their current impressions on the topic of trees in land tenure.

3.2.5 INDIGENOUS ATTITUDES TOWARD FOREST OWNERSHIP

It was shown earlier that field research conducted for this study failed to reveal signs of traditional structures currently in place to regulate exploitation occurring in the forest beyond what may be termed the "spheres of influence" more or less subject to the control of the individual villages. The still predominant character of western Baban Rafi as a pioneer area probably explains the haphazard and chaotic use made of the resources of the natural forest beyond recognized village boundaries. The generally adequate availability of forest products provides a supplementary reason for the lack of a defined management regime. Thus, fodder and fuelwood are exploited in the forest as free-access goods. The same appears to be generally true of the soils of the forest, in spite of an emerging feeling that farmland will one day be in short supply in western Baban Rafi.

Table 3.5 summarizes the answers of local populations when asked who owns the Baban Rafi forest. It is particularly striking that traditional populations (indicated in the table by "we") and chiefs are infrequently considered to be the "owners" of the forest relative to modern institutions such as the state, the NFM project, and the Baban Rafi Cooperative—the latter which arguably remains a somewhat alien institution in the eyes of local populations.

TABLE 3.5 Who owns the forest?

	HAUSA (n=54)	FULANI AND BUZU (n=46)	TOTAL (n=100)^b
Foresters/state own the forest	44	52	48
Baban Rafi Cooperative owns the forest	30	9	20
NFM project owns the forest	13	7	10
"We own the forest"	6	17	11
Traditional chiefs own the forest	4	9	6
Villagers own the forest (stated by herders)	0	4	2
God owns the forest	2	2	2
Woodcutters own the forest	2	0	1

- a. Figures indicate percentages of respondents who answered in the affirmative.
- b. The sample includes both men and women. The question was added to the questionnaire while the survey was already in progress, thus including a smaller sample than is generally referred to throughout this paper.

No matter who "owns" the forest, local populations have shown by their actions that they consider the forest to be open for colonization and, therefore, transformation. Wherever soils are found to be suitable, farming hamlets increasingly dot the forest of western Baban Rafi forest. Each hamlet tends to expand outward from its center, thus creating a new sphere of influence. The forces and rules of colonization and transformation, then, become the relevant elements when considering tenure in a forest that otherwise is little subject to any active management regime.

One next turns to a number of institutional issues that extend beyond that of indigenous land and resource tenure systems. For example, the legally established responsibility of the state to manage the use of forest resources throughout Niger and the quality of its performance in this regard in western Baban Rafi have played an important role in forming current attitudes. Other important institutional factors in forest resource use and management consist of the conditions emerging around the commoditization of forest products, particularly fuelwood. The state and the economy are among the central topics of the discussion contained in the following two chapters.

Chapter 4

FOREST RESOURCE MANAGEMENT IN NIGER: STATE LEGISLATION AND POLICIES

This is the first of two chapters concerned with institutional issues in natural resource management at Baban Rafi and in Niger. These chapters are divided according to a distinction between national-level policies and site-specific manifestations of the policies. A major theme of this study is that issues responsible for this distinction do not always receive the attention they deserve. Such issues fit into categories of institutional realities in the form of state limitations and local economic and social conditions, the primary topics of chapter five. The present chapter provides the background to the following chapter by describing historical policies and current trends in forest resource management.

4.1 INTRODUCTION

Official state policies and politics in Niger sometimes appear to be remote and irrelevant in the context of the daily lives of rural inhabitants. The appearance of irrelevancy stems from: (1) the presence at the village level of nonstate authority systems and institutions; and (2) the general absence at the village level of resident administrative or advisory installations of the state. Elaborate legislative texts, such as forest codes and policies setting forth initiatives of the state (e.g., the movement to create a "development society") rarely arrive to the level of the village in unadulterated form. State machinery capable of delivering state policy to rural populations in implementable form is, in many cases, inadequate for the task or unavailable. Yet state policy is included as a major component of the present study.

In spite of the state's frequent inability to govern in the rural context in exact accordance with stated intentions in terms of legislation or policy statements, the state itself plays, and has long played, a central role in the lives of rural populations. The claim by the state to be the ultimate authority in the land appears not to have been seriously questioned in the context of rural Niger, or at least not for some time. The Nigerien state's strategy of integrating traditional authorities into state-directed networks responsible for tax collection and other functions of the state has created a powerful channel between central power and scattered populations. More direct, though fragmented, channels between the state and rural societies exist through the activities of state agents (e.g., agricultural extension agents, cooperative advisers, foresters) active in rural areas. To present, a common characteristic of nearly all of these channels is that they provide primarily for one-way communication: from the state to rural populations. This characteristic is now being challenged.

There is at present an apparently committed movement in Niger to arrive at a redefinition of state/civil society relations. The military government's peaceful acquiescence in allowing a national conference on democracy to take place in October 1991 opened new possibilities for increased popular participation in setting policy priorities. The policy profile of forest resource management in Niger is significant, therefore, not only for the legacy it has created among policymakers and (in distorted form) among rural populations, but it is particularly significant in the current context of evolving state/civil society relations that may finally make state policies directly and literally meaningful to rural populations. It remains to be seen, of course, to what degree—or even in what direction—state/civil society relations will evolve from historical patterns and, therefore, to what degree the policy trends toward increased popular participation chronicled below will come to typify state/civil society relations in the rural context.

4.2 FOREST CODE

In the legislative context, the trend in forest management policy in Niger to present has been quite clear. However, a new course has been promised for the near future. A groundbreaking legislative decree issued by the Ministry of Agriculture and Livestock was enacted into law on 16 May 1990. The entire current regime of natural resource legislation is eventually to be replaced by a new and precedent-setting rural code. These exceptional legislative developments appear to be reactions to wider policy debates set in motion following the onset of drought in the late 1960s and gaining momentum throughout the 1980s. Traditional—and, it should not be forgotten, still current—legislative policies are discussed below. This discussion of the Nigerien Forest Code provides background for the subsequent discussion of current policy debates and trends.

Since 4 July 1935—the date on which the original Forest Code for the region then known as French West Africa was enacted by the French colonial regime—management of forest resources in the region has remained the legal preserve of the state. The bulk of the Forest Code currently in effect in Niger dates from 1974. In common with the code of 1935, the current code establishes in its first article that untitled forests (virtually all forests in Niger are untitled) belong to the state. Postindependence forest legislation in Niger departs little from the precedent set during the colonial period in terms of approach to forest management. With the exception of a circumscribed set of use rights granted to local populations, forest exploitation continues to be regulated through state issued permits, and infractions are punished with fines or jail terms. The difference between the 1974 legislation and the 1935 code is that the regulations have become more elaborate and comprehensive—though fairly detailed elaboration of regulations was not absent from the text of the original code.

Some innovations of the Forest Code introduced by the French colonial administration in 1935 include:

- ▶ a legal declaration of state property rights over all untitled forested land of the national territory;

- ▶ the division of forested lands into "protected" and "classified" forests, including the establishment of procedures to "classify" additional parcels and therefore to greatly restrict use rights of local populations to forest resources found within such parcels;
- ▶ the formulation of a list of seven "protected species" of trees not to be exploited or mutilated without first obtaining a special permit from the state;
- ▶ the establishment of a permit system to regulate all commercial exploitation of forest resources in classified forests;
- ▶ a provision allowing for the option of increasing, on a temporary basis, local use rights in specified locations in exchange for local participation in reforestation efforts;
- ▶ an outline of fines and prison terms to be imposed for particular violations of the code; and
- ▶ the nomination of sworn forest agents as the enforcement officers in charge of code implementation and the empowerment of forest agents with considerable police powers.

Each of the innovations introduced in 1935 and listed above have continued as legislated policy into the 1990s. Many of them were refined and reinforced in 1974 with the enactment of the current Forest Code. The protected tree species list, for example, now numbers fifteen species. Permits must now be obtained before engaging in the commercial exploitation of forest resources in protected as well as classified forests. The list of penalties—fines and jail terms—to be imposed for violations of the code has been expanded, as have the police powers of forest agents. Moreover, an incentive to impose fines was added to the 1974 legislation through the stipulation that one-tenth of the revenues of each imposed fine is to be reserved for the agent responsible.

The current Forest Code is not only elaborate, it is also confusing and sometimes contradictory. For example, ART. 9 of Law 74-7 declares that customary rights are to be exercised freely in protected forests (over 90% of the "forest domain" of Niger is classified as "protected forest"). Customary rights in virtually any region of Niger would include the right to clear forested or fallow land for crop production, as long as farming rights to the plot are recognized by customary authorities. However, ART. 15 of Law 74-7 declares that the right to farm "after clearing and burning may be denied in protected forests." The grounds for denial are not specified.

Elsewhere, in the context of specifying the conditions for the exercise of customary rights, the code makes perfectly clear that the exercise of customary rights includes absolutely no rights to commercial exploitation, which always must be subject to the acquisition of a state permit (*Décret* 74-226, ART. 8). Continuing in the same context, the code affirms that the "harvest" of any tree, live or dead, requires the permission of the forest service. Thus it appears in the code—without being clearly articulated—that trees may normally be removed from a parcel without notifying the forest service for purposes of preparing the land for crop production, but a permit must be obtained in order to sell any trees removed. This interpretation may or may not be the intended one. In practice, according to accounts of villagers, fines are routinely imposed for tree removal whatever the intention of the exploiter concerning use to be made of the trees. The confusion and ambiguity between the affirmation

of unhindered customary rights, presumably including the right to clear fields for crop production, and the requirement to obtain state permission to "harvest" any tree, remains unresolved in the legislation. Such imprecision increases the distance between forest law and its application, and therefore renders parts of the law somewhat irrelevant.

Other subtleties of the Forest Code—e.g., distinctions between protected and nonprotected species of trees, varying regimes of use rights applied to protected as opposed to classified forests, procedures for classifying or declassifying parcels—are often lost on local populations as they appear to be lost on many of the enforcers of the legislation. Moreover, even those sections of the code which appear at first glance to be relatively straightforward in the legislative texts, such as the list of protected species of trees, become confused when the government issues conflicting statements that have not gone through the legislative process and do not—legally speaking—carry the force of law. For example, in 1984 the government issued a statement in response to a national seminar organized around the theme of fighting desertification. Among other pronouncements organized in the form of a directive, the government declared that it is forbidden to cut down any tree in the course of clearing or preparing a field for crop production or subdividing lots for other purposes, and that one did so at the risk of severe penalties.⁸² The possibility of cutting the tree with the permission of the forest service is not raised. If this government statement is to be taken as an addition to the Forest Code, the directives render meaningless pre-existing distinctions between protected and nonprotected tree species.

The current legislative regime concerning forest management is to be completely overhauled with the enactment of a new rural code currently under formulation. To date, a single legislative decree has been enacted to reflect the future natural resource code. However, the decree of 16 May 1990 remains somewhat out of context within the present regime. The decree is the result of recent domestic and international policy developments (discussed below), which have yet to reach their conclusion. Prior to discussing these changes-in-progress taking place within the forest management regime, the parallel and separate regime of state policies toward local-level organizing will be addressed. Given the growing emphasis on popular participation among forest resource policymakers, an inspection of the state view of what participation looks like should help to put the new policies into context.

82. This restriction was included in a statement issued by the government in response to the *Engagement de Maradi*, 21-28 May 1984. Note also the impact the statement has on the practice of customary rights which are, as noted above, upheld by the Forest Code in the context of protected forests. Protected forests constitute over 92% of the forest domain of Niger.

83. The statement ends with the note that enforcement of the directives is the **responsibility** of the organs of the Development Society (discussed below). No mention is made of the forest service or **any** other state agency **regarding** the enforcement of the directives. Nevertheless, this official government statement tends to carry the force of law in the eyes of field-level forest agents. It is **significant**, therefore, **that** it explicitly **discourages** farmers from clearing new or existing fields, regardless of customary rights. Moreover, the statement reinforces the lack of distinction between protected **and** nonprotected tree species **assumed by rural populations and, perhaps, by state forest agents applying the Forest Code.**

4.3 STATE-SPONSORED INSTITUTIONAL STRUCTURES FOR LOCAL-LEVEL ORGANIZING

4.3.1 DEVELOPMENT SOCIETY

On 29 October 1979, the military government of Niger issued Decree 79-165 to establish a commission to implement a national network of organizational structures to be known as the Development Society. This action (and its accompanying publicity) to install a democratic and peaceful (though claiming to be revolutionary) organizational framework to support and coordinate development and create the institutions needed for progress captured the imagination of domestic and international developmentalists alike. Government statements depict the new order as one that: (1) is tailored to the mentality of Nigeriens; (2) will provide security against famine; (3) will safeguard authentic values and civilization; (4) will promote harmonious and dignified development; and (5) accepts socioeconomic realities and rejects all development models based on universal ideologies (Niger 1988, p. 13).

Most striking about the Development Society is that, as it is presented in official documents, it provides for the participation of virtually all adult citizens of the nation in determining and implementing development priorities. The organization of the structures envisioned parallels the administrative division of Niger, that is, there is a hierarchy of structures at each level from the village to the locus of state power.

The Development Society is to be superimposed onto two pre-existing national networks of government-sponsored institutions, cooperatives and the *Samarya*. At the village level, representatives of the Village Mutual Group (VMG)—the basic unit of the national cooperative network—and local representatives of *Samarya* are to combine to form a Village Development Council (VDC). In principle, the VMG and the local unit of the *Samarya* continue to function as independent and autonomous organizations within their own defined sphere of activities and interests, even as they combine to form the VDC. Development councils also exist at the level of the canton, the subdistrict (arrondissement), the department, and the nation—again with the bulk of participation to be provided by pre-existing organizations of cooperatives and *Samarya* at each level. At the subdistrict, departmental, and national levels, government agencies also participate in the development councils. In addition, a number of socio-professional organizations are, in principle, also represented on the development councils. Such organizations include the Women's Association of Niger (*Association Féminine Nigérienne*, AFN), the Islamic Association, the Association of Traditional Chiefs, the Veterans Association, the Parents Association, the Students Association, the Merchants and Truckers Association and the Niger Workers Trade Unions. In sum, the Development Society is an organization of organizations and, in the words of the regional representative of the Institute for Research into Human Sciences (*Institut de Recherche en Sciences Humaines*, IRSH) resident in Maradi, "the Development Society forgets nobody." At least on paper, this is quite literally true.

4.3.2 SAMARYA

Samarya, along with cooperatives, is one of the pre-existing base institutions of the Development Society. The *Samarya* network is the expression of a national policy to promote collective work at the village level. The name signifies traditional youth organizations active in political struggles against the French colonizing state in the late 1940s and 1950s and banned as a result of such activities. It was rehabilitated in 1975 by the military regime in power in Niger since the coup d'etat of April 1974. In its reincarnation as a national movement sponsored by the government of Niger, *Samarya* has little other than its name to tie it to its origins in traditional society.

Both the goals and the organization of the *Samarya* are specified in government documents. Identical to the hierarchical organization of the development councils outlined above, *Samarya* councils are to be maintained at the village, canton, subdistrict, departmental, and national levels. Declared goals of the *Samarya* movement include: (1) to promote development through communal actions; (2) to create and maintain among youth a patriotic and civic spirit and respect for social values; and (3) to inform, sensitize, and mobilize the mass of the population, and youths in particular, concerning problems of national development (Niger 1988, p. 13). The governmental institution responsible for the *Samarya* is the Ministry of Youth and Sports. At the local level, five or more delegates are named to a *Samarya* council in each village, at least two of whom must be women.

In the rural setting, the most noticeable of the activities of the *Samarya* is the production of a crop or crops on communal fields. At many locations participation in this communal enterprise is quite low. Where low participation is observed, the identity of local delegates to the *Samarya* council is usually not obvious—even to fellow villagers—beyond one or two prominent individuals. Visits to the village *Samarya* council by officials from the canton or subdistrict level councils are often irregular and may display little continuity in terms of the agendas from visit to visit. In the not-too-distant past, agents of the national gendarmerie (*les bérêts rouges*) would occasionally visit a village to organize a labor unit in the name of the local *Samarya* council to accomplish a task such as the construction of a schoolyard wall.⁸⁴

4.3.3 COOPERATIVES

In contrast to the rather nonspecific mission of the *Samarya* as information diffusers, consciousness raisers, and labor mobilizers, the national network of cooperatives is specifically intended to organize production in Niger. The Nigerien Union of Credit and Cooperation (*Union Nigérienne de Crédit et de Coopération*, UNCC) was created in 1962, reorganized to include village-level structures and representation in 1967, and again reorganized in 1984, at which time its name was changed to National Union of Cooperatives

84. This somewhat bleak assessment of local *Samarya* councils is biased toward the experience of the Baban Rafi forest and may not be representative of the ensemble of rural Niger (though some anecdotal evidence from other regions supports the portrait drawn here). In urban areas, *Samarya* appears to be more organized and often takes the form of a social club for youth. *Samarya* in Baban Rafi is further discussed in ch. 5.

(*Union Nationale de Coopératives*, UNC). The Uric is under the authority of the Ministry of Rural Development. Its administrative structure almost exactly parallels those of the Development Society and the *Samarya*, with associated councils existing at the village, subdistrict, departmental, and national levels. The difference between the administrative structure of the UNC and the two other national organizations is that the unit constituting a cooperative—composed of a number of villages—does not necessarily correspond to the region defined by a canton. It was noted above that the village-level cooperative council is known as the Village Mutual Group (VMG).

The core legislation regulating cooperative structures in Niger is contained in *Ordonnance* 78-19 of 12 October 1978 and its implementation regulations, Decree 79-05 of 18 January 1979. These documents define a VMG as the ensemble of producers (farmers, herders, fishermen, and rural artisans) inhabiting the same village or quarter of a village, who unite in the goal of developing their economic activities. The decision to form a VMG must be voluntary and representatives must be democratically chosen.

Notable restrictions concerning territorial boundaries include:

- ▶ no more than one VMG may exist within a village or herding settlement of less than 100 heads-of-household;
- ▶ a VMG may not include more than 100 heads-of-household;
- ▶ a cooperative may not include VMGS from more than one canton;
- ▶ there may exist no more than a single Local Union of Cooperatives in a given subdistrict (arrondissement);
- ▶ there may exist no more than a single departmental Union of Cooperatives in a given department; and
- ▶ there may exist no more than a single National Union of Cooperatives on the territory of Niger.

The following brief list summarizes additional highlights of cooperative legislation in Niger:

- ▶ Detailed guidelines are provided concerning the administrative composition of the component parts of each VMG and cooperative, providing for an executive body, a general assembly—to meet at least twice a year and elect a president and secretary for each meeting—and a supervisory body.
- ▶ Special management committees are to be created to supervise particular activities.
- ▶ Required qualifications and functions of individual cooperative officers (e.g., president, secretary) are spelled out in detail.
- ▶ Safeguards are provided against conflicts of interest.
- ▶ Each cooperative body must send the same number of representatives as peer bodies (from 3 to 10) to the next higher cooperative body.

The government-sponsored cooperative movement in Niger historically has existed primarily as a network structured to collect the cash crops—particularly groundnuts—produced by Nigerien farmers. The UNCC was severely criticized in a study carried out by the Cooperative League of the USA (CLUSA) accusing it of functioning primarily as a provider of services to semiautonomous government agencies formed to market groundnuts, rice and cotton (Sène and Phillips n.d.). The report adds that the UNCC was made to act as a debt collector for a state rural credit institution created in 1967 as a complement to the cooperative network and was thus further diverted from what should have been its true mission of organizing farmers toward profitable enterprises. The credit institution proved not to be financially feasible and was discontinued in 1984.

An assessment of the impact of cooperatives on agricultural producers in Niger must include the observation that certain regions in Niger, and particular farmers somewhat better-off than the average subsistence producer, have benefited disproportionately from the cooperative network and credit availability. At some sites, such as the Baban Rafi forest, the national cooperative movement has had little impact on local populations."

4.4 CURRENT POLICY TRENDS IN FOREST MANAGEMENT IN NIGER

It is possible that the pronounced enforcement orientation of the current Forest Code, enacted in 1974, was a reaction by the state to the environmental destruction observed throughout Niger as a result of several years of drought and abusive exploitation of resources. If this suggestion is valid, one could explain the reinforcement of state claims over natural resources and efforts to increase the policing of resources as a reflex reaction to confronting a problem by sharpening tools already in existence. However, by the early-1980s, traditional state policies in forest resource management were being challenged and modified in Niger. The challenge has been formulated in international as well as domestic forums.

4.4.1 INTERNATIONAL CALL FOR REFORM

The messengers. During and following the severe drought years of 1968-1973, the threat of desertification in the Sahel became an international issue. On 12 September 1973, seven Sahelian countries created an organization with the goal of constructing a regional strategy to achieve long-term food security and development. The new organization was named CILSS, a French acronym roughly translated as Permanent Inter-State Committee to Fight against Drought in the Sahel. In March 1976, the international community created the *Club du Sahel* (Club of the Sahel) to provide support for the objectives and programs of Cuss. The *Club du Sahel* is an organ of the Organization of Economic Cooperation and Development (OECD) and serves as a major informational and policy-coordinating link between donors and the countries of the Sahel.

85. The specific historical role of the national cooperative movement in the context of the **Baban Rafi** forest is discussed in ch. 5.

The *Club du Sahel* takes dialogue promotion and information circulation to be among its primary functions. By virtue of its role as coordinator of the international effort to arrive at a solution to the problem of desertification in the Sahel, the Club helps to inform policy-making among donor agencies active in the Sahel. As a result, the published statements and studies of the Club are probably the closest thing that exists to an international policy statement pertaining to the threat of desertification in the region. The *Club du Sahel* describes itself as follows: "The Club should be a meeting point where the synthesis of what is known merges with that of what should be done. The Club should also be a forum within which new ideas emerge, where initiatives originate, which would elsewhere hardly be able to emerge" (CILSS and Club du Sahel 1988a, p. 3).

The message. That Sahelian states have not been successful in efforts to police the use of natural resources became increasingly obvious during the droughts of the early 1970s and again in the early 1980s. A growing consensus appeared among Sahelians and international observers that the time had come for radical change in natural resource policies. This consensus was nurtured in forums organized by the *Club du Sahel* and CILSS. Among the elements of the consensus was that some formula must be found in which local resource users take on more responsibility for maintaining the natural resource base. State and local populations, it was reasoned, must work together to create the institutions for increased popular participation in resource management. By the time of the "Regional Seminar on Desertification Control," organized by CILSS and the *Club du Sahel* in Nouakchott, Mauritania, in 1984, the "total, voluntary commitment from the populations concerned" was listed as one of the two necessary conditions in the struggle against desertification.⁸⁶

The *Club du Sahel* and CILSS have helped in introducing to international forums on development and natural resource management in the Sahel calls for radical change as opposed to reinforcements of traditional policing methods. Often repeated themes and strategies articulated for the benefit of international and Sahelian audiences include: forging a new equilibrium between the state and civil society; increasing popular participation; reinforcing local initiatives and institutions; and increasing the role of nongovernmental organizations (Ncos).⁸⁷ The general approach to natural resource management suggested by these strategies has come to be widely adopted as a part of the rhetoric, and increasingly the implementation efforts, of international aid organizations and NGOs active in the Sahel. Moreover, the new approach is increasingly voiced in domestic policies of natural resource management within the individual Sahelian states, notably Niger.

4.4.2 TREND IN DOMESTIC POLICY

The evolution of a new policy stance in natural resource management within Niger began in the early 1980s. Since 1982, Niger has held three national seminars organized around

86. The remaining "necessary condition" to engage in a successful struggle against desertification in the Sahel is "[the] integration of agricultural, livestock and forestry activities" (Criss and Club du Sahel 1988b, p. 5).

87. See, for example, CILSS and Club du Sahel (1988c).

themes that included increasing popular participation in rural development and natural resource management. The seminars, held in 1982, 1984, and 1990, display a progression in state willingness to allow local populations to assume responsibility and a share of the benefits of forest use and management.

The 1982 seminar in Zinder was entitled "Strategies of Intervention in the Rural Milieu." The document resulting from seminar proceedings—the resolutions of which were adopted by the Nigerien ministerial council about four months after the close of the seminar—affirmed the Nigerien government's commitment to reinforce and support "village structures."

The statement of the Zinder seminar reads, however, as an effort to better organize rural populations strictly according to the state's vision of development and development administration, rather than as an invitation to rural populations to articulate any alternative vision. Village structures identified by seminar participants included *Samarya* (a "traditional" youth organization), AFN (the national women's group), and cooperatives, that is, those structures sponsored by the state and under the tutelage of ministries of the state. The Development Society was generally held to be the framework within which village structures were to take their place at the bottom of a hierarchy with the state at the top.

Nonstate-sponsored institutions such as traditional chiefs and councils were invited to participate in the new order, but some reservation was expressed at the seminar concerning their status and rights. Traditional structures at the village level were accused of being antidemocratic by upholding their own minority rights. A state representative cited in his address to the seminar a case in which traditional authorities at the village level were discovered co-opting efforts of cooperatives to market grains by claiming the proceeds for their own gain. The state has recently adjusted its policy, he continued, to protect populations from such abuse by limiting grain market authorizations to [authorized] cooperatives alone (Niger 1982, p. 41). It was concluded at the seminar that traditional chiefs and youth groups are to limit their participation to increasing information flows in the course of market operations.

In 1984, a national seminar was held in Maradi to initiate the debate toward a national strategy to fight desertification. It was resolved, among other things: (1) to reformulate forest policy to give more responsibility to rural populations; (2) to undertake a project to rewrite the ensemble of legislation dealing with natural resource management, and particularly to explain within the legislation the relative roles of the state, exploiters, and communities; (3) to create a national plan to fight against desertification; and (4) to dissociate forest service police functions from extension functions. Emphasis was placed on the Development Society to mobilize and coordinate rural populations in the common fight against desertification. It is interesting to note, however, that the appeal for participation was broadened to include all socio-professional organizations in Niger such as business associations and workers' unions.

The Nigerien government's ministerial council issued a response to the seminar three days after its close. In spite of the progressive tone of much of the text of the document produced in the course of the seminar, the government's official response conforms completely to the

traditional regulate-by-fiat approach characteristic of forest management in the Sahel since 1935. The government statement is in the form of a list of directives, mostly to initiate tree planting by rural populations and to establish village wood plots. The sole statement concerning the management of existing natural forest resources was a prohibition against the cutting of any tree for purposes of crop field expansion or preparation. In contrast to the Forest Code, the government statement makes no mention of the possibility of obtaining a permit to remove trees or of any distinction between tree species. The statement adds that violation of this directive is grounds for severe sanctions but does not specify the nature of the sanctions. Finally, the government specifies that the directives are to be executed by the organs of the Development Society and makes no mention of the forest service or any other government agency.

The 1984 *Engagement de Maradi* served mainly as a broad-ranging call-to-arms in the fight against desertification. It is viewed today in Niger as a major milestone toward current forest management practices and priorities of the forest service. Seminar participants called for the mobilization of all available resources at all levels—international as well as domestic—in the interest of waging a common struggle. As articulated in 1991 by Maradi's departmental Director of the Environment: "Before 1984 the forest service was simply a forest police force; since 1984 we have entered the era of the project." The era of the project is characterized by a high level of financial, material, and technical participation in forest resource management in Niger on the part of international donors and NGOs.

The Maradi seminar invited further experimentation in rural organizing to manage forest resources within the context of development projects. Prior to 1984 there had been a single example of a project in natural forestry management operating according to a strategy of eliciting popular participation through cooperative formation: the Forest and Land Use Planning Project at the site of Guesselbodi, 25 kilometers southeast of Niamey. By the end of the decade the model of Guesselbodi guided five additional projects in Niger attempting to implement participatory management of natural forest resources. Most of these projects—notably the Gorou-Bassounga forest along the Nigerien border with Benin and the Baban Rafi forest of south-central Niger—are attempting to install management systems at sites of a vastly larger scale than that of Guesselbodi.

The common experience of the new generation of forest management projects led in February 1990 to a national seminar at Torodi, Niger, entitled "The Nigerien Experience in Management of Village Forests for the Production of Fuelwood." This seminar was much more focused than those at Zinder and Maradi in that it specifically addressed itself to issues of natural forestry management and openly sought original formulas for popular participation without referral to the centralized and state-sponsored Development Society. The national director of the Service of the Environment, for example, promoted the creation of controlled production perimeters to be jointly managed by foresters and local populations through a partnership, the terms of which are yet to be defined (Niger 1990a, p. 9). Local populations are referred to throughout the document as "participants" in forest management systems. It is recommended, among other things, that local populations managing sections of "protected forests" be granted title to forests in which they have installed a rational management system,

and that management organizations be the direct recipients of some of the tax revenues from forest exploitation (currently all tax revenues enter directly into the national treasury).

Seminar participants in Torodi further recommended that current forest legislation be supplemented by laws to be enacted in the interest of implementing the strategies articulated in the course of the seminar. Such laws would serve to fill the gap between the current legislative regime and the future rural code now being formulated. The first of such laws appeared in May 1990, about three months following the Torodi seminar, in the form of a ministerial decree issued by the Ministry of Agriculture and Livestock. This decree is described in detail in chapter one (see "research agenda"). The decree gives village communities use and management rights to natural forests in the vicinities of their villages. It further states that benefits from forest exploitation are reserved in priority for communities of the forest.

4.5 CONCLUSION

The policy profile presented above documents a growing consensus among Nigerien policymakers toward increasing popular participation in forest resource management by devolving a degree of authority over resources from the state to local populations. The significance of the policy trend is undeniable, yet must be considered in conjunction with the recognition that historically state policies have regularly been distorted in the course of their implementation in rural settings. Such distortions have been the result of institutional shortcomings that have yet to be resolved. There is no guarantee that the new policies of the rural code will be delivered to rural villages and settlements in unadulterated form anymore than has been the case with the traditional Forest Code.

Furthermore, the weight of traditional state/civil society relations having evolved according to the tone of the current Forest Code probably works against effective implementation of new policies otherwise encouraging of popular participation. Current cooperative legislation and existing state-sponsored institutional arrangements may also stifle local initiative with excessive regulation and strong prescriptions for rigid hierarchies. However, an event as important as the recent national conference on democracy,⁸⁸ one would hope, provides plenty of scope for dramatic possibilities.

⁸⁸. The **national** conference on democracy took place in September and October 1991. It was the initial step of an envisioned transition in Niger from military to **popularly elected government**.

Chapter 5

INSTITUTIONAL ISSUES IN FOREST RESOURCE MANAGEMENT AT THE SITE OF BABAN RAH

5.1 INTRODUCTION

This chapter serves to illustrate site-specific social, political, and economic dynamics at a site at which forest management reforms are just beginning to play themselves out. The policy context of the management reforms contemplated for Baban Rafi is one rooted in the emerging consensus at the national level for the increase in local control over natural resources described in the previous chapter. One must bear in mind that data for this case study were collected during the early stages of a development/environmental project, the Natural Forestry Management (NFM) project, whose intention is to help local populations create organizations to assume greater responsibilities in local forest management and to increase local benefits from forest exploitation. The NFM project has stimulated a high degree of interest among the concerned populations and has introduced to the Baban Rafi forest a widespread feeling of impending reform in forest management. The current atmosphere at Baban Rafi presents a particular research opportunity since local institutions, attitudes, and practices define and clarify themselves to some degree through their reactions to change. The opportunity is exploited here to illuminate locally based issues relevant to a devolution of forest management authority.⁸⁹

The broad categories of issues identified in the case of Baban Rafi in increasing local control over natural resources are very often the same categories of issues that must be addressed at sites throughout Niger and the Sahel. Details—and therefore, appropriate reform strategies—vary, of course, from site to site. However, the purpose of this case study is not only to identify the issues, but especially to provide a glimpse of their site-specific complexity and interplay with attempts at institutional reform. A central lesson from Baban Rafi is that innovation, flexibility, and attention to local institutions are much more valuable than blueprints, formulas, and theories in effecting forest management reforms. This lesson is deduced from both observations of a high degree of local complexity and the sometimes unanticipated nature of the interactions between local institutions and introduced reforms.

89. It should be noted at this point that no part of this study is intended as an evaluation of current attempts to reform forest resource management at the site of Baban Rafi, since such an evaluation would be decidedly premature. This discussion draws on data collected during a period that roughly corresponds to the second year of existence of the Baban Rafi Forestry Cooperative, a period best described as one of consensus building, training, and consciousness raising. The Natural Forestry Management Project is a central feature of this study since it is now part of the local landscape and, as noted above, the presence of the project and its activities help to illuminate some of the pre-existing social and economic conditions affecting local populations.

The chapter begins with a brief introduction to the NFM project and the Baban Rafi Cooperative—these efforts being the central elements of the effort currently in progress to reform local forest management. Next, issues relevant to the current institutional landscape are organized and discussed according to three categories: (1) consensus building among heterogeneous populations; (2) state/local relations; and (3) obstacles to securing financial incentives for local participation.

5.2 NFM PROJECT AND THE COOPERATIVE

The physical and social setting of the case study site of Baban Rafi are described in detail in chapters 2 and 3. It is sufficient at this point to recall that increasing rates of environmental degradation at the site in recent years have prompted many area residents to predict the disappearance of the forest by the end of the century. Although my twelve-month sojourn as a researcher in the Baban Rafi forest was too short to observe and record firsthand any changing physical bench marks of the forest degradation widely believed to be in progress, some signs of the change pointed out to me were impressive. For example, in 1987, the Forest and Land Use Planning Project (FLUP) then active in the region of Niamey visited the Baban Rafi forest to explore its potential as a site for a project in natural forest management. The FLUP team visiting Baban Rafi marked the then-existing eastern border of the forest with a concrete limit marker. By the time I began my research program in October 1990, the forest limit marker was located in the middle of a vast expanse of agricultural fields, the forest having receded at least 2-3 kilometers to the west as a result of the expansion of the farms of the villages bordering the forest to the east.

The FLUP team's visit to Baban Rafi contributed to planning of the effort now under way at the site. The NFM project, jointly administered by CARE International and the Nigerien government's Service of the Environment, established its office in the departmental capital of Maradi in March 1989. The project's zone of intervention includes over 40,000 hectares of natural forest at Baban Rafi as well as an extensive "buffer zone" of village and farmland along the forest's periphery.

The NFM project is best described as an international effort to slow environmental degradation in the Baban Rafi forest by (1) diffusing and supporting appropriate technologies such as soil management and agroforestry techniques and (2) aiding in the installation of a management system to control exploitation of the resources of the natural forest. The former is intended to address environmental pressures caused by farming by reducing demand from farmers to clear new fields in the forest as productivity and sustainability of existing fields improves. Project activities directed to this end are mostly of a technological nature. A

number of project assistants⁹⁰ live in several of the villages of the forest and work directly with farmers attempting to employ the new techniques.

The latter category—the installation of a forest management system—is aimed primarily at reducing environmental pressures caused by commercial exploitation of the forest for fuelwood. Project activities undertaken to achieve a management system are both technical (e.g., studies to determine tree growth rates, standing stocks, yields, and harvesting techniques) and broadly social in orientation and objective. Part of the strategy for achieving a management system is expressed as follows in the project document, "[the project will] . . . create a village cooperative system to exploit and commercialize forest products" (Project SALAMA 1988, p. 23).⁹¹

Of the project's targeted zones and development activities, the focus of the present study is on the domain of the natural forest and the effort to train and organize local populations to manage the natural forest as a cooperative and according to principles of sustainability. In addition to the technical, logistical, and, exceptionally, financial aid extended to the Baban Rafi Cooperative by the NFM project, an agent of the Cooperative League of the USA (CLUSA) has worked full-time with the cooperative as a technical advisor and trainer for most of its first two years of existence.

It is not entirely clear why the concept of a **cooperative** was chosen by the NFM project as the unit of organization for the future management system, beyond the expectation that it is to include the entire population of **local** users of forest resources. It is clear that the cooperative is intended to function as the vehicle whereby local populations will assume management and property rights to forest resources as incentives to invest in the resources in accordance with ecological objectives. Such a strategy, of course, conforms to the basic precepts of devolution and the supporting concepts of popular participation and common property, as these concepts are outlined in the first chapter of this paper. The linkage between local rights and ecological goals is made explicit in the preliminary management plan for the Baban Rafi forest produced by the NFM project in July 1991:

The reliability of such a system (the cooperative system) of organization would respond to institutional and ecological objectives:

90. In April 1991, the total number of village-based cooperative assistants was increased from 6 to 10. Shortly following the increase, 4 assistants were reassigned to villages in the northern portion of the forest where a second cooperative is planned. At the end of 1991, the number of project assistants living in the villages of the **original Baban Rafi Cooperative** was reduced since some were **reassigned** to the villages of the south of the forest where **additional** cooperatives are eventually to be formed. As noted below, project assistants provide support for the cooperative in addition to working directly with farmers.

91. SALAMA is an acronym signifying Semi-Arid Lands Management. It is a multiple-site project, one site of which is the Natural Forestry Management project at the site of **Baban Rafi**. The project document and agreement was signed by the Government of Niger, the United Nations Development Programme (UNDO, and the United Nations **Sudano-Sahelian** Office (UNSO) in October 1988. The major financial contributor is DANIDA, with **CARE International and the Government of Niger named as co-executors.**

- ▶ To improve relations between the Service de l'Environnement [including the forest service] and participating [local] populations so that they [relations] contribute to comprehensive and long-lasting resource management.
- ▶ To assure [local] populations the control and management of the resources of their lands according to a legal and functional framework.
- ▶ To benefit from the productive activities of the forest.
- ▶ To maintain biological diversity and the reproductive activities of the forest by encouraging natural regeneration.

The institutionalization of these ecological objectives will not be truly effective until [local] populations achieve a level of forest management at which they have a clear perception of property and management [authority] recognized by official institutions. What encourages regular investment on the part of [local] populations in forest conservation is therefore [that local populations] supplant current exploiters [the reference here is to the wood merchants residing in Maradi].

The objective to create [locally controlled] property should be rigorously pursued if one wants local participating populations to consider themselves and to behave as true and responsible beneficiaries rather than simply as [resource] users (Projet SALAMA 1991, p. 26; author's translation).

The pilot (and, at least through 1991, only) cooperative of the Baban Rafi forest held its first election of officers on 14 June 1989. The cooperative, whose membership is exclusively local (i.e., residents of the Baban Rafi forest), is envisioned to develop into a self-reliant organization operating independently of the NFM project as well as of the Government of Niger. During the life of the NFM Project, the first line of support for the cooperative consists of the village-based project assistants as well as the specially trained cooperative extension agent referred to above. The original Baban Rafi Cooperative is composed of the inhabitants of the seven villages and several herding/farming settlements (often referred to as "hamlets" to distinguish them from the more permanent villages) of the western-most portion of the forest—an area thoroughly described in chapters 2 and 3. One will recall that a census of the villages and hamlets of the cooperative area carried out by the project in 1989 counted 466 heads-of-household and a total population of 2,114, about one-third of whom inhabit the herding/farming hamlets either on a year-round or seasonal basis. My own research carried out in the summer of 1991 suggests that herding/farming populations in the forest are growing faster than village populations as increasing numbers of former transhumant herders have taken to clearing land and settling in the forest to farm.

92. The agent who has worked full-time to establish, train, and advise the Baban Rafi Cooperative since November 1988—over six months before the cooperative's first election of officers—is an employee of CLUSA.

5.3 CONSENSUS BUILDING AMONG HETEROGENEOUS POPULATIONS

5.3.1 CASE FOR CUSTOM-DESIGNED INCENTIVES

The assumption implicit in the desire to increase popular participation in natural resource management is that in the process incentives will be unleashed among local populations (1) to exploit resources responsibly (i.e., sustainably) and (2) to secure the conformity of external exploiting populations to local rules. The present analysis of consensus building among heterogeneous populations is concerned with the former: the formulation of positive incentives for local populations to follow the rules of a locally based management system.⁹³ The experiment in progress at Baban Rafi illustrates that the creation of broadly based incentives toward sustainable management is likely to be a more complicated task than a simple transfer of management authority from the state to local populations.

The focus on positive incentives inherent in a participative approach to achieving a sustainable natural resource management system is easily justified through an examination of the history of negative incentives such as taxes, fines, and jail terms characteristic of failed state management systems. Accelerating rates of environmental destruction are the driving force behind current policy reforms to increase local control over natural resources at the expense of the state and to ensure the integrity of local management through the provision of adequate incentives. However, given the situation in the Baban Rafi forest, in which diverse populations speak with many voices, one might well wonder what form incentives are likely to take in order to satisfy the widely varying needs and wants.

Incentives will consist, of course, of prospects for economic gain. At issue is the fact that prospects of economic gain may be perceived differently by individuals and households according to traditional user-group affiliation and habitual exploitation practices. For some, economic gain might be defined in terms of increased agricultural yields; for others, revenues from the sale of fuelwood; and still others, the conservation of the forest for pasture. The significance of the problem is that a sustainable management system will not be attained if large numbers of users see no benefit to participating according to the rules.

The NFM project is firmly committed to achieving a sustainable management system based on the multiple use of forest resources.⁹⁴ The obstacle is in achieving an organization across groups that (though the groups have long and successfully interacted at the margins of their particular resource management and exploitation systems) lack any kind of historical precedent or model for a comprehensive, jointly managed system over a large, defined territory. For purposes of illustration, project and cooperative activities conducted prior to and during the research period are considered here as a type of incubation chamber for an

93. The complexities of dealing with external populations are treated in the section below entitled, "Securing financial incentives for local populations: fuelwood market."

94. Such a commitment is clearly expressed in the provisional management plan proposed for the forest by the NFM Project in July 1991 (Projet SALAMA 1991).

increase in popular participation in the management of forest resources and, therefore as a, albeit imperfect, gauge of the attractiveness of current incentives to participate across user groups in an intergroup forest resource management system."

So far, participation in project and cooperative activities has been uneven across the diverse ethnicities, occupational groups and village factions co-existing in the vicinity of the Baban Rafi forest (not to mention the contrast in participation by gender—further addressed below). Of course, it is not uniquely the substance or nature of particular incentives to which user groups respond with varying participation rates. Various occupational, cultural, and economic factors tend to complicate the process of securing (i.e., realizing) available incentives to participate across groups." This theme is taken up in the conclusion to this section on consensus building among heterogeneous populations.

5.3.2 USER GROUPS

Low-profile user groups. It was noted at the outset of this study that the leading activities responsible for the environmental threat facing the forest are farming, herding, and commercial exploitation of fuelwood. However, user groups are not always neatly categorized within one or another of these three leading categories.

Women, for example, are often farmers, but in the Baban Rafi forest they are rarely field managers. Most women also own livestock, but usually in small quantities, and very often placed under the care of paid herders. On the other hand, women's exploitation of the forest to secure fuelwood for home use is significant and will eventually have to be accounted for in any management system that is to prove sustainable in the long term. Yet, in this predominantly Islamic region, women are not encouraged to assume any type of an active role outside of the household—least of all in activities involving the opposite sex. Therefore, at least for the moment, the particular interests of women concerning the management of forest resources are not being articulated as new forest management structures come into being. There is not a single woman included among the cooperative officers, nor have I ever seen

95. The NFM project represents the sole attempt to implement a single **and** comprehensive resource **management** system in the **natural** forest of Baban Rafi **and**, therefore, provides the **only** indications of the varied levels of interest in **such** a system expressed **by** different **groups**. **Indigenous** tenure **and management** systems **characteristic** of the **various** user **groups** of the Baban Rafi forest **have** yet to show signs of evolving into a comprehensive system **capable** of **both regulating** resource conflicts between **groups and operating** according to principles of **sustainable** exploitation. Increased **demographic** pressures, the **degradation** of the resource base as a result of recurring drought, a history of state competition to local initiatives **in natural resource management**, **and** the **increasing** commercial importance of fuelwood harvested from the forest have helped to complicate the evolution of diverse systems into a single system committed to achieving sustainable exploitation on a multiple-use basis.

96. **Again**, attention is **drawn** to the **unique** status of the **development** project, in this case, the NFM project. As one would expect, different social **and** cultural groups respond differently to such externally driven initiatives. The different responses are presented here to suggest they may pose a long-term threat to the viability of cooperative **management** in the Baban Rafi forest.

a woman in attendance at a cooperative meeting. It is true that there exists an official organization in Niger intended to provide structure and support to women's activities—the AFN. In most of the villages of the cooperative, however, the AFN is not very active, and at any rate, is not generally regarded by men as a vehicle that might support the participation of women in such activities as forest management.

In addition to women, forest resource user groups tending to assume a low or nonexistent profile in project or cooperative forums include traditional healers, sculptors, and hunters. These occupational groups continue to be active in the Baban Rafi forest, though the individual members of these groups also engage in crop production and usually some livestock raising or other economic activities. To a significant degree, several of the major resource exploiting practices of these groups classified here as "low profile resource exploiters" have been driven underground and their practitioners are not likely to pursue their interests openly in cooperative or project forums. Hunting has been banned in Niger since 1972, and the use of wood for commercially important forms of sculpture such as mortar making has long been aggressively and repressively controlled by the forest service (see state/local relations discussed below). Some activities of traditional healers, such as the stripping of bark or the collection of tree roots, have also been viewed by foresters as violations of forest legislation and prosecuted as such. On the other hand, blacksmiths as a group are exceptional in that a project activity has been designed to provide special training in blacksmithing. Following such training, one envisions the possibility of blacksmiths acting as a bloc to articulate their interests as a group within the cooperative.

It is probably true that blacksmiths were in somewhat of a unique position relative to user groups composed of hunters, sculptors, and women even before arrival of the NFM project. This is because of the groups named, only blacksmiths appear to have retained a significant degree of the unique social status enjoyed in precolonial society. The decline of hunters and sculptors results in part from their treatment at the hands of colonial and postcolonial foresters enforcing the rules of the state and, perhaps, from the greater availability in today's market of commodities they had earlier provided in the face of little competition. While the services of traditional healers continue to be sought after, the installation of a small state-supported health facility in Gabi on the eastern edge of the Baban Rafi forest, as well as a hospital and a number of pharmacies in Maradi, probably has cut into their trade and reduced their visibility in the eyes of fellow villagers as well as outsiders like the staff of the NFM project. Regarding women as a forest resource user group, it is possible that the potential for women's participation in management activities has declined with the spread of Islam to the region.

High-profile user groups. High-profile user groups are those whose activities are recognized and addressed by the NFM project document and generally by external observers as having major environmental impact on the resources of the forest. We return here to the triumvirate of activities making up the bulk of the threat: farming, herding, and commercial exploitation of fuelwood. If farmers, herders, woodcutters, and wood merchants become convinced that adequate rewards will be forthcoming from changes in exploitation practices, great potential exists for a substantial reduction in the existing threat to the environment.

Relative appeal of commercial exploitation of fuelwood between farmers and herders.

The Baban Rafi Cooperative was conceived by the project as a locally based mechanism for the rational exploitation and marketing of commercial forest resources. The single commercialized and commercializable resource currently feasible on any significant scale is fuelwood. During the first two years of its existence, the Baban Rafi Cooperative engaged in one major activity of natural forest resource exploitation and management: the harvest and marketing of deadwood from a 300-hectare parcel delimited by the project. Local woodcutters were invited to harvest the deadwood (mostly *Prosopis africana*, a species suffering a high mortality rate in the region over the past decade) on the defined parcel and sell it to the cooperative. A loan was obtained from the project to pay the woodcutters for wood delivered and stocked. Woodcutters were required to hold cooperative membership cards which, according to cooperative policy, should be in the possession of each household head residing in the cooperative area regardless of participation in the wood harvest. The cards were obtained at a fee of CFA 50 (about \$.20).

For a variety of logistical and administrative reasons, the timing of the harvest was not conducive to maximum participation of local woodcutters. The period for the cut corresponded to the Muslim month of Ramadan, during which adherents of the Islamic faith (the majority of local populations) are not allowed to consume food or water from daybreak to sunset. It was also during the hot season. In all, 44 local residents cut and collected 1,399 steres of wood and received CFA 844,350 (an average of about CFA 19,000, or \$77, per woodcutter).

Woodcutting has long been important among many forest residents as a source of steady or intermittent income. However, it is well-known that it is more common for Hausa farmers to work as woodcutters than it is for Fulani herders. Nevertheless, slightly over one-third (10/28) of the herders included in the random sample state they have at one time or another earned income from woodcutting. The equivalent for farmers included in the random sample is 83 percent (33/40). No record was kept of the ethnic composition of the 44 forest residents who participated as cooperative woodcutters. However, 15 of 68 randomly selected heads-of-household stated they participated in the woodcut, 14 of whom are Hausa farmers, leaving a single participant from among the Fulani herders.

In terms of intended future participation, while 35 of 40 farmers say they plan to participate as woodcutters in the next cooperative wood harvest, only 3 of 28 herders have the same intention, though 7 more say they may participate depending on time availability. Clearly, this particular choice of activity—woodcutting for market—holds greater appeal at this time for Hausa farmers than for Fulani herders. Perhaps most revealing, however, is that the proportion of randomly interviewed Fulani herders who participated in the Baban Rafi wood harvest, as well as the proportion of those who express a willingness to participate in future cooperative-sponsored wood harvests, is significantly lower than the proportion of the

97. The cooperative, after several months of **frustrating negotiation** with the wood merchants of **Maradi**, **turned a** profit of CFA 258,359 (about \$1,000), which is **currently** kept in **a bank account opened in the name** of the cooperative.

same Fulani who say they have at some time in the past engaged in wood harvest for profit. One might reasonably suspect, therefore, that it is not simply the choice of activity that is relatively unattractive to the Fulani, but that the framework of the activity (i.e., that it is sponsored by the Baban Rafi Cooperative and the NFM project) might also play a role in eliciting a particular response.

Nevertheless, there remains at least one additional alternative explanation for the low level of participation of Fulani in the single Baban Rafi wood harvest undertaken to date, that being the seasonal timing of the wood harvest. A large number of young Fulani men are absent from Baban Rafi during part of the dry season, when the wood harvest chronicled above took place. The lack of interest expressed by many of the Fulani concerning future cooperative-sponsored harvests might likewise be in part a result of the expectation that these, too, would take place during an absence from the forest. It is unlikely, however, that seasonal timing provides a complete explanation. While (as was presented in ch. 2) 45 percent of adult males living in households of randomly sampled Fulani men have at some time traveled with the family herd during its seasonal migrations, the percentage of Fulani men absent from the forest during any given season is likely to be much smaller. Moreover, in addition to the lack of Fulani participation in woodcutting activities, the data from Baban Rafi further suggest a general lack of Fulani participation in all cooperative activities.

The NFM project and, in particular, the cooperative extension agent, who has worked full time with the Baban Rafi Cooperative for most of its first two years, have worked hard to achieve the participation of Fulani herders in cooperative activities. Notably, the post of treasurer for the cooperative and for each of the village mutual groups (the village-level cell of the cooperative) from villages with herding settlements in its vicinity is reserved for a Fulani herder. A number of Fulani have also been elected among the representatives of the village mutual groups in cooperative assemblies. However, attendance of Fulani representatives at cooperative assemblies has been irregular compared to average overall attendance.⁹⁸

One notes also that resident Fulani herders appear to have been slower in expressing support for the cooperative through the purchase of a membership card at a nominal fee. While 34 of 40 random sample farmers state they have purchased a cooperative membership card, only 12 of 28 herders say they have obtained the card. When asked if they are members

98. No systematic records exist that allow an exact comparison of farmer and herder patterns of attendance at cooperative meetings. All sources questioned on the matter (farmers, herders, and project representatives) agree, however, that farmers attend meetings at a significantly higher rate than do herders. The 5-member delegation from Mamouri provides a capsule illustration of the contrast between farmer and herder patterns of attendance. The Mamouri delegation is composed of 2 villagers and 1 representative from each of 3 herding settlements. The near-perfect attendance of the 2 village-based representatives at cooperative meetings during the period monitored, coupled with an overall attendance average of 2.5 representatives per meeting for the team from Mamouri, represents a general pattern.

of the cooperative, only 2 of the 68 heads-of-household included in the random sample answered negatively. However, both negative answers come from Fulani herders."

Although the evidence is not complete, there is no category of data collected in Baban Rafi concerning the topic of Fulani participation in cooperative activities that suggests that the Fulani are not reluctant to identify with the cooperative. This should not come as a surprise, given the distinct culture, history and traditions of the Fulani discussed in chapter 2. For the same reasons, neither should the contents of the following section (in which it will be seen that Hausa behavior is far from standardized in terms of participation across subgroups in activities thus far sponsored by the cooperative and supported by the NFM project) come as a surprise to the reader familiar with chapter 2.

Consensus building among Hausa farmers. Beyond attendance sheets of official cooperative meetings, there are no systematic records indicating rates of participation in cooperative and project activities that allow for distinctions between villages and factions within villages. The following discussion focuses on attendance records and some anecdotal information to formulate hypotheses concerning differential participation in project and cooperative activities among Hausa farmers. The purpose of the discussion is not to quantify or define current rates of participation. It is, rather, to illustrate that the existing social landscape is fertile ground for the differential participation of factions of Hausa farmers in externally introduced or centralized (even at the local level) development initiatives. Yet, differential participation (at least if it persists into the long term) will surely work against project goals toward sustainable, local management of forest resources.

Attendance was monitored in the course of eight cooperative meetings during the period December 1990 to August 1991. The meetings were open to all interested residents of the forest, but they were officially called as meetings of the cooperative general assembly. The general assembly consists of the five elected representatives of each of the eight village mutual groups (VMGS) that make up the cooperative. The VMGS include villagers as well as herding populations established in village vicinities. Three of the eight VMGS had no herding groups in their vicinities at the time of the election of officers in June 1989 (one of these three—Garin Ali—has been the site of significant herder settlement since the first election of officers) and include no herder representatives among those elected to represent the organization. Two of the eight VMGS are based in the village of Baban Rafi, whose population of 137 heads-of-household (including 69 Hausa farmers and 68 Fulani herders) required the village to form 2 VMGS in order to conform to national legislation which sets the maximum VMG size at 100 households.

Meetings were held in several but not all of the home sites of the VMGS. To remove the bias favoring higher average attendance figures for villages that hosted more meetings than

99. Among women, 1 of 37 farmers' wives said she is not a member of the Baban Rafi Cooperative, while 3 of 26 herders' wives answered in the negative. In both cases, women often hesitated to answer the question until their **husbands** prompted them, usually providing an answer of "yes."

others, average attendance was calculated without consideration of host village attendance figures. Average attendance per meeting of each VMG delegation is displayed in table 5.1. "Percentage villager" indicates the percentage of each representative delegation that was chosen from among the population of the village proper as contrasted to representatives from surrounding herder hamlets.

TABLE 5.1 Average attendance of cooperative meetings

VILLAGE	AVERAGE ATTENDANCE (out of 5)	PERCENTAGE VILLAGER ATTENDANCE
Garin Ali	3.6	100
Yen Gobirawa	3.1	100
Garin Maigiya	3.0	
Baban Rafi I	2.8	60
Mamouri	2.5	40 ^d
Goulgoussao	2.4	60
Garin Labou	1.3	100
Baban Rafi II	1.2	60

- The scale for attendance is 0 to 5, since each Village Mutual Group names 5 representatives who would normally be expected to attend each cooperative meeting.
- The composition of the group of 5 village representatives plays a role in attendance at cooperative meetings since "villagers" or "farmers" tend to attend meetings more regularly than do "herders" who reside in hamlets outside of villages.
- In the case of Garin Maigiya, a "herder" was replaced by a "villager" midway through the monitored period. The reason for the replacement was given as the poor attendance record of the herder.
- Mamouri is unique among the villages of the cooperative in having 3 distinct herding settlements dependent on its water resources: 2 Fulani settlements and 1 Buzu settlement. Herding settlements are generally considered to be dependent on or attached to villages at which water needs are satisfied.

Average attendance of the 5 representatives of each of the 8 VMGS ranged from a high of 3.6 representatives per meeting to a low of 1.2. Not surprisingly, 2 of the 3 VMGS whose representatives consist exclusively of Hausa farmers occupy the top 2 slots in terms of average attendance. As noted above, Hausa farmers tend to participate at a higher rate than do Fulani or Buzu herders. More surprising is the second-to-last place finish of the third exclusively Hausa contingent, that of Garin Labou. Average attendance for the five representatives of the VMG of Garin Labou at the 7 meetings it did not host is only 1.3. Part of the explanation may be found in the fact that Garin Labou retains allegiance to a traditional structure of authority at odds with the traditional hierarchy dominant throughout most of the geographical region defined by the cooperative. While 6 of the 7 villages consider themselves to be under the authority of the canton chief of Safo, whose administrative seat is located about 15 kilometers south of Maradi, the village of Garin Labou is under the authority of the canton chief of Tibiri, who administers the canton from about 7 kilometers north of Maradi.

Garin Labou has been described as a village of Tibiri located on the soil of Safo. Unique history and traditions have probably contributed to the relative social isolation of the VMG of Garin Labou from the rest of the cooperative, though geographical logic clearly argues for its inclusion as a member of the cooperative.¹⁰⁰ The reputation of Garin Labou among NFM project staff as a "village with problems" has probably been a factor in maintaining or even increasing the village's relative isolation. It is the sole village of those included in the Baban Rafi Forestry Cooperative that has never been home to an NFM project

The VMG of Garin Ali receives highest marks—an average of 3.6—for participation at cooperative meetings. In addition to the fact that its representative council includes no herders, Garin Ali is perhaps the most homogeneous of the cooperative villages in terms of the ethnic and family composition of its residents. It also has a reputation for being the most devout in terms of the Muslim religion. In contrast, the villages of Baban Rafi (whose 2 VMGs compiled attendance averages of 2.8 and 1.2) and Goulgoussao (2.4) exhibit much more ethnic heterogeneity (i.e., the co-existence of a variety of Hausa subgroups and lineages) among their village populations.

Admittedly, attendance lists of cooperative meetings are rather a tenuous and somewhat arbitrary indicator of Hausa farmer participation in project and cooperative activities. However, there is substantial anecdotal evidence to indicate that village factions among Hausa farmers are often well-defined and hard-line and that participation rates tend to vary by village faction. For example, Baban Rafi Village is well-known to consist of two quarters, characterized, respectively, as animist and Muslim. The Muslim quarter is found on the side of the village facing Garin Ali, about 3 kilometers to the north. It is inhabited mostly by former residents of Garin Ali, including the current village chief of Baban Rafi, who settled at the site of Baban Rafi when a modern well was installed there about 1960. The animist, or southern, quarter is inhabited by former residents of Tielawa, the site of a former village about 5 kilometers south of Baban Rafi abandoned following a series of attacks on millet fields by birds, as well as by former residents of more distant sites, mostly in Nigeria. Stories abound, particularly among residents of the animist quarter, of sore points in a history of unequal relations between the two quarters. Not surprisingly, project personnel note that residents of the northern quarter have been much quicker to take part in project sponsored agroforestry activities than have been residents of the southern quarter.

100. It is interesting to note that a strict reading of Nigerien legislation setting cooperative guidelines—which prohibit cooperatives from straddling administrative boundaries—would forbid the Baban Rafi Cooperative to exist in its present form. In this case the boundary straddled is that between the districts of Madarounfa and Guidan Roudji, since the canton of Safo is under the jurisdiction of the former and the canton of Tibiri is a part of the latter.

101. Project assistants assigned to nearby Mamouri were given the responsibility (during the research period of 1991-1992) of working with the villagers of Garin Labou. Based on nonsystematized observations, I would further guess that of all the villages which the mobile project assistants visit as teams (much of their work is done as teams moving from village to village), Garin Labou is among the least visited—if not the least visited—of the villages of the original Baban Rafi Cooperative.

5.3.3 CONCLUSION

The danger is the following: in the absence of an effective forum for the articulation of diverse interests, or in the event of a failure to represent these interests in processes of policy formulation, adequate incentives may not be created and sustained to induce the participation of diverse groups in a new management system. In fact, changes introduced to such settings as the villages and hamlets of the Baban Rafi Cooperative by agencies such as the NFm project run the risk of unintentionally exacerbating pre-existing social cleavages (by favoring Hausa over Fulani or by ignoring a "problem village" such as Garin Labou or a "problem *quartier*" such as the southern section of Baban Rafi village). Nevertheless, the widespread appeal to local populations of an introduced forest management system is of crucial importance since the presence in the forest of large numbers of resource users with little or no motivation to follow rules will undermine the sustainability of the system. The above account suggests that the institutionalization of effective mechanisms to represent the varied interests and rights currently operating in the Baban Rafi forest is a very complex matter.

For example, as measured in terms of cooperative-sponsored commercial wood harvesting, attendance at cooperative meetings, and purchase of cooperative membership cards, one observes at Baban Rafi a differential rate of participation between herders and farmers in cooperative activities during its first two years of existence. I would suggest that the different participation levels may be profitably discussed in terms of **incentives** to participate. There are two obvious hypotheses: (1) the **substance** of the incentive is more appealing to Hausa farmers than to Fulani herders; and (2) the prospects for **realization** of the incentive are perceived differently by the two groups.

One may make an optimistic assessment of the concern raised by the first hypothesis. Incentive structures sometimes, with little prodding, evolve to broaden the appeal for participation across groups. For example, the forestry cooperative of Guesselbodi, near Niamey, developed an enterprise over a period of years for the commercial harvest and marketing of forage resources (straw) as an activity rivaling that of the commercial exploitation of fuelwood. Such a development at Baban Rafi would, perhaps, increase the appeal to herders to participate in cooperative activities, since the management of forage resources on a commercial basis should help to ensure supplies and provide for their distribution. Alternatively, the existing incentive of financial reward from the harvest and marketing of fuelwood may broaden its appeal across groups as increasing numbers of herders expand their activities in the monetized economy and find it acceptable to sell their labor.

The concern raised by the second hypothesis is, perhaps, more problematic. One should note that the harvest and marketing of any of the forest's products as a community enterprise (so far the central focus of the cooperative) is likely to be perceived differently by groups as different as Fulani herders and Hausa farmers. While the financial incentives of commercialization may be as attractive to herders as to farmers, perceptions of the attainability of the incentive may, sometimes for perfectly practical reasons, differ from group to group. Several household heads among herders state flatly that they do not have time to engage in wood harvesting activities sponsored by the cooperative. Such activities are often timed to take

place during the dry season, a time of reduced activity for the farmer but a demanding time for herders attempting to secure the forage and water needed by their livestock. Problems of communication between the village-centered VMGs and the scattered herder settlements are another complication in the way of herder realization of the financial incentives (resulting from cooperative-sponsored commercial enterprises) on an equal footing with villagers.

More disturbing, one observes that the second hypothesis is not limited to practical realities but extends to individual and group perceptions that arise from a variety of factors. Barriers to organizing and coordinating among groups may be rooted in a diversity of world views and group histories that tend to encourage suspicions and isolationist sentiments among some groups more than others. Not only is this a common occurrence between such groups as herders and farmers, it may also play a role in participation rates between factions within the same forest resource user group, as was shown to be the case above for farmers. One suspects that differential patterns of participation between villages or between factions within villages are likely to resurface in the course of current and future activities of the cooperative unless the special needs of nonparticipating groups are recognized and addressed.

One returns momentarily to the questions surrounding the activity of the wood harvest sponsored by the NFM project and organized (under the tutelage of the project and the CLUSA agent) by the cooperative to observe that, to present, participation has been self-selective, that is, no significant bars to participation had been imposed either by the cooperative or the NFM project. Leaving aside for the moment the lack of participation on the part of the Fulani herders, one finds no apparent correlation between the Hausa participants and any particular social or geographical category (though a few Hausa farmers residing in the villages the most distant from the wood harvest offered their location as the reason for nonparticipation). For example, a number of young men with no obvious standing either within their villages or in the cooperative participated in the harvest and reaped the financial reward, while many men of medium or high stature (many of whom one might think the lure of quick financial gain would prove difficult to resist) assumed a wait-and-see stance regarding the harvest (many of these same men later stated they intend to participate in the next harvest). According to intentions expressed following the initial harvest, however, the demand to participate in future harvests may be substantially higher and will perhaps necessitate the imposition of selection criteria or individual wood harvest quotas.

This raises a further concern (as it also serves to illustrate an earlier point). Success in attracting future participants to activities such as wood harvests might bring its own set of problems. The imposition of selection criteria carries the risk of further differentiating an already diverse population according to existing divisions. There is a ready example of just such a risk that arises from a policy modification that went into effect soon before my sojourn as a researcher at Baban Rafi came to an end.

On the advice of the NFM project, the cooperative raised the cooperative's membership fee from CFA 50 to CFA 500 in anticipation of a second wood harvest. The rationale behind the fee rise was to limit the number of wood cutters participating in the harvest, since a large number of wood cutters with a license to harvest was feared to be unmanageable. I suggest

that the change holds two primary implications. First, participants in the cooperative-sponsored harvest might tend to be those who can most easily afford to pay the fee, that is, the revenue-earning opportunity represented by the wood harvest is most available to those who already have greater-than-average means.

Second, and perhaps more disturbing, the membership fee originally intended as a nominal gesture on the part of every male head-of-household of support for the cooperative will more likely serve in the future as a divisive device between those willing to pay the fee (and benefit from the wood harvest) and those who (regardless of intention to participate in the wood harvest) would have paid a nominal membership fee to the cooperative but balk at paying a more significant sum (unless, of course, they expect significant returns from the wood harvest). Therefore, those already experienced as wood cutters, or those most open to the idea of engaging in such labor for pecuniary remuneration, will tend to constitute the bulk of cooperative participants. The multiple-use-of-forest-resources principle originally included as the base of the NFM project platform might eventually fade in the face of an organization that operates on a single-use principle, and that represents something of an elite of local populations. Such is the ever-present danger of any development project attempting to increase benefit flows to target populations. The potential ecological consequences are also unfavorable. The fewer the individuals who see a direct benefit from cooperative activities and rules, the lower the general willingness among local populations to respect the rules of the new management system.

Such unfavorable eventualities could be headed off, of course, by imposing a management regime based on ecological limitations and enforcing the new regime by means of a police force. The reader will recognize, however, that such an enforcement-oriented regime is exactly the type of nonparticipatory system that has failed in the past and in response to which such projects as the NFM project were born as part of a negative reaction.

Therefore, the NFM project should be applauded for its general approach, but cautioned to stand guard against a deterioration of its platform to a single use (as contrasted to a multiple use) emphasis within the natural forest for reasons of expediency. Such vigilance will require almost endless patience as well as re-evaluation of constantly modifying social conditions.

It might be useful, for example, to frame the basic approach to resource management in terms of the individual gain achieved by participants, since promises of an overall ecological gain appear as overly vague to members of the different user groups. Individual benefits sometimes take the form of enhanced revenues (e.g., woodcutting jobs), but they also come in the form of distributions of pasture and farmland. The material presented in chapter 2 illustrated the willingness of Hausa men to engage in wage labor relative to Fulani men. However, while the effective incentive to participation from the perspective of Hausa men may be employment, the effective incentive from the vantage point of Fulani men will probably be related to the activity most central to their currently less-diversified lifestyles, that is, herding. The incentive capable of securing the participation of Fulani men in a new management regime designed to achieve ecological objectives might be the preservation of

adequate and—perhaps most importantly, precisely defined—parcels of the forest to be set aside, perhaps on a rotational basis, for use as pasture and browse. This is, of course, included in the proposed management plan of the NFM project, but it had yet to be demonstrated to the region's herders by the time I left Niger in October 1991.

But even if perfectly executed, no approach to or strategy for modifying resource exploitation patterns according to environmental goals comes without risk. The risk in institutionalizing a strategy that distinguishes between use patterns current between different groups is the threat that groups such as Hausa and Fulani could come to be inevitably identified with their respective niches and, therefore, denied any future evolution of lifestyles and occupations. This risk confirms the need to incorporate flexibility into whatever management system arises in the future (i.e., demand for jobs versus demand for pasture must constantly be reassessed), a requirement much easier to recognize than to satisfy.

The predominance of heterogeneity as a characteristic of forest populations, then, requires that special attention be given to both incentive formulation and incentive realization. Incentives must be designed that appeal to a broad range of interests across groups, and, at the same time, barriers to the realization of incentives (particularly in terms of constraints to intergroup and intragroup organizing) must be recognized and addressed. An additional consideration in attempts to coordinate and organize across diverse populations is the varying histories of interaction of different groups with agents of the Nigerien state and the legacy left over from each separate history of interaction.

5.4 STATE/LOCAL RELATIONS

The Nigerien state is not only, along with CARE International, a co-executor of the NFM project, it is the *de jure* past, present, and future authority over the region of the Baban Rafi forest and over all its inhabitants. As for the present, precedents set according to traditional patterns of state/local interaction continue to loom large in the minds of natural resource users. As for the future, it is inconceivable that the state would not assume a major role in any future natural-resource property and management regime in Niger, just as is the case in all advanced capitalist countries. Between the present and the future of state/local relations is a lot of undefined territory that needs to be attended to if local organization is to proceed.

The traditional role of the Nigerien state in natural resource management is discussed below, with a particular focus on application of forest legislation by state foresters in the Baban Rafi forest.¹⁰² Following the discussion of traditional state/civil society relations is a presentation of the evidence that these relations at the site of Baban Rafi have been undergoing a change since the installation of the NFM project in 1989. However, a troubling aspect remains: although evidence for change is convincing, the change has yet to be harnessed into a clear direction, definition and purpose.

102. The contents of the Nigerien Forest Code are discussed in ch. 4 of this study.

5.4.1 TRADITIONAL STATE/LOCAL RELATIONS

Shortage of human and material resources. Niger is a very poor country with a very large territory. Niger's forest service—the governmental agency responsible for the enforcement of the forest code—is understaffed and underfunded. According to the annual reports of the Environmental Service of the Department of Maradi, total personnel available to implement and administer state programs in fisheries, wildlife, and forestry in this department covering 38,500 square kilometers numbered fifty-one in 1985—a typical year from the pre-NFM project era. Included in this total, along with high-level administrators and forest agents, are secretaries, chauffeurs, laborers, and an American Peace Corps volunteer. The vehicle fleet of the departmental service consisted of seven Land Rovers (three of which are listed in the report as in poor condition), four Toyotas, one Peugeot, one Renault, and one tractor. The fleet was divided among the six districts and their subposts, with the choice vehicles based in the departmental capital.

Because of shortages in human and material resources, it has been common in Niger to entrust management of forested areas with several tens of thousands of hectares in surface area to a single forest agent without regular means of transportation. The Baban Rafi forest is such an example. Prior to the installation of the NFM project in 1989, residents of Baban Rafi received infrequent visits from the forest agent residing about 25 kilometers to the east in Gabi Mayaki. Forest inhabitants were even less frequently visited by the state forest agents who ran the service's office in the administrative seat of the district of Madarounfa.

Forest Code enforcement patterns in the Baban Rafi forest. In spite of the infrequency of visits to the villages of Baban Rafi by state agents, the state role in forest management looms large in the minds of local populations. There is always the prospect of being visited, and, periodically, the reality. About one-third of the heads-of-household randomly selected for interviews in the villages and herding camps of the Baban Rafi Cooperative have been charged by forest agents with violations of the forest code. We consider briefly the cases of those charged with infractions since these are the instances that demonstrate enforcement of the forest code in Niger and illustrate traditional state/local relations in the domain of forest management.

Of the 68 heads-of-household selected randomly for interview in the region of the Baban Rafi Cooperative, 40 are residents of the predominantly Hausa villages, and 28 live in herding/farming settlements outside the villages (25 are Fulani; 3 are Buzu). The sample represents slightly over 20 percent of household heads recorded during a population census conducted by the NFM project of the cooperative region in 1989. Interviews were conducted from May to August 1991. We treat, first, the farmers of the villages.

Farmer fine patterns. Eleven out of forty (28%) village farmers have been charged with violations of forest law. Four of the eleven have been charged with forest violations on two or more separate occasions; one was charged on three occasions; another says simply, "several times." All but one of the incidents took place prior to the installation of the NFM project in 1989.

About one-half of the violations involved the commercial exploitation of wood. Some (5/11) were pressed on farmers discovered cutting and collecting fuelwood to be sold to wood merchants who would transport it to the Maradi market. An additional commercially minded farmer was apprehended "on several occasions" while cutting wood with which to sculpt mortars to sell at local markets. The sculptor reports the only case of a violation that has been prosecuted among random-sample farmers since 1986. In a somewhat atypical incident that took place in 1990, the sculptor was discovered at a local market with mortars believed to have been carved from illegally exploited wood. His mortars were confiscated.

These six commercially minded farmers—five woodcutters and a sculptor—were all experienced in the procedures sanctioned by the forest code concerning commercial exploitation of wood. They had all obtained exploitation permits on numerous occasions prior to their arrests. However, they were all willing to gamble, at least occasionally, that they could exploit wood commercially without obtaining a permit and without being caught. The permit represents for these farmers a considerable expense in terms of time and money. None of the farmers expressed any notion that there was any forest management objective attached to the permit system other than to collect revenues for the state.

The punishment imposed on all six of the commercial exploiters was the confiscation of fuelwood or, in the case of the sculptor, the confiscation of mortars. Estimates of the value of confiscated fuelwood in each case are CFA 40,000 or more (\$160—this would be the amount received by the farmers from transporters who would then take it to market—the market value in Maradi would be at least five times greater than the price paid to woodcutters in the forest). In addition to the confiscation, two of the commercial exploiters were made to pay fines of CFA 40,000. One of the two received a receipt acknowledging fine payment.

In addition to the commercial exploiters, five farmers were charged with the misuse of forest resources for domestic purposes. These five represent a variety of resource uses. One cut wood to construct a small shelter; one thinned to clear a field; one removed a tree from his fields to use the wood for fuel and tools; one cut a tree to harvest the sap; and one was hunting. The hunter was discovered setting traps for field rats he said were destroying his groundnut crops. His punishment was the confiscation of his traps. Of the remaining four, three were fined. Fines were CFA 1,000, CFA 5,000, and CFA 6,000. None of these payments was acknowledged by receipt. The intervention of the village chief saved the remaining farmer from being fined.

Herder fine patterns. Twelve of the twenty-eight herding heads-of-family (43%) interviewed have been charged by forest agents with violations of the forest code. Five of the twelve have been charged on two or more occasions, and one herder received "warnings" for misuse of forest resources on four separate occasions. Nine of the twelve herders report incidents that took place prior to 1987. Four herders report incidents since 1989 (one herder is found in both groups since he reports incidents before 1987 as well as since 1989). As is the case with the farmers, one notes an almost total absence of incidents during the 1987-89

period, the reasons for which are unclear.¹⁰³ The reappearance of incidents since 1989 is more pronounced among the herders than among the farmers.

The vast majority of violations committed by herders involved the cutting of branches from trees to be used as feed for livestock. Four of the herders, however, report nonlive-stock-related incidents. Two of the four were discovered cutting down trees to clear agricultural fields. One of these incidents took place in 1984. The herder was not fined but was given a verbal warning. The other field-clearing incident took place in 1990, and the herder was—at least, initially—fined CFA 10,000.¹⁰⁴ Another two herders report they were discovered cutting trees for wood to be used in the construction of habitations. One of these incidents took place about 1981 and involved a tree in the herder's millet field. The fine was demanded and collected in Nigerian currency—the dominant currency in many of the villages of the Baban Rafi forest closest to the border with Nigeria. The fine was set at 70 naira (equivalent to about CFA 28,000 in 1981). The other incident involving a tree exploited for construction wood took place about 1990. The tree was cut in the forest, and the fine collected was CFA 5,000. Neither of these fine payments was acknowledged by written receipt from the forest service.

Nine of the herders reporting encounters with forest agents were charged with lopping branches for animal feed. Six of the violations occurred on off-farm bush or forested lands, two in farm fields not owned by the herder, and one in the herder's own field. One of the nine, though he was surprised by forest agents on four separate occasions, was never made to pay a fine. Another among the nine herders reports that he did not pay a fine himself, but that his relative who was charged in the same incident paid the fine. An additional herder among the nine also has never paid a fine, but he was made to spend 1½ days in jail for his offense. Of the remaining six herders, fines ranged from CFA 2,500 to CFA 30,000, with an average fine of CFA 13,250 imposed for the offense of lopping branches for forage. In two of the six cases, receipts were issued upon receipt of payment.

103. There is little else to indicate any general lapse in enforcement of the Forest Code during the 1987-89 period. It is true that state tax revenues from the fuelwood trade have been falling steadily (see discussion below of the fuelwood market), **suggesting that enforcement, at least of forest legislation dealing with harvest and trade of fuelwood, has been less aggressively pursued in recent years—but this would not explain the partial resurgence of fines** since 1989. There are two possible **explanations**: (1) farmers and herders were imprecise in recalling the period in which they were fined (they were asked to give the number of years since the fine), and **in reality** some of **them** were **fined during the 1987-89 period**; or (2) the random sample of herders is simply not representative of total herders, who more than likely continued to receive fines **throughout** the period. The latter **explanation** fits in with the general argument (presented below) that **fines applied to herders have been maintained** since the **installation** of the NFm project while those to farmers have been **reduced** to near zero.

Yet the **departmental** reports of the Maradi Service of the **Environment** **suggest** the possibility of a **marked** increase in fines applied to herders in 1990 as compared to 1989 (see **below**) **and**, therefore, **support the original interpretation of the evidence from Baban Rafi that there has been an increase in fines to herders since 1989**. The mystery of near-zero fine activity for the 1987-89 period remains unsolved.

104. It is not clear that this fine was paid, since there are reports that the project intervened on behalf of the herder.

In summary, twenty-three of the sixty-eight (34%) total heads-of-household (farmers and herders) interviewed have been charged by forest agents with violations of the forest code. Thirteen heads-of-household have been made to pay fines averaging CFA 15,731 (\$63). One was made to spend 1¹ days in jail. Receipts were issued in three of the thirteen (23%) cases of fine payment. It is likely that the cases in which receipts are provided are included among the violations listed in reports of the forest service, and that incidents in which no receipt is issued are not reported by the agent to the forest service. Nine of ten farmers and eight of twelve herders reporting violations of the forest code state that all incidents took place before 1987.

Legacy of traditional state/local relations in the Baban Rafi forest. Historically speaking, villagers and herders see little logic in the actions of forest agents beyond their obvious function as collectors of revenue. Forest residents are conditioned to avoid contact with state foresters whenever possible. The relationship between forester and villager is still often described in the villages as that between a cat and mouse. Rural inhabitants know that if they are surprised by a visitor they risk being punished for things they are used to doing every day—lopping branches for livestock, cutting trees to clear farmland or to sell as fuelwood or to build a hangar—and they tend to flee at the first sound of a vehicle's motor.

While the distinction between commercial and domestic use of forest resources is generally understood, other subtleties of the forest code—for example, distinctions between tree species or the difference between "classified" and "protected" forests—are often lost on rural inhabitants. The second most common answer by villagers to the question of what is written in the forest code (the first answer is "no forest fires") is "don't touch any trees." This is considered by villagers to be unrealistic. And for commercial exploiters of fuelwood, no connection is made between the forest code and preservation of the forest. It appears that any quantity of fuelwood may be harvested from the forest as long as the required tax is paid—or as long as it is successfully evaded.

Cooperatives, *Samarya*, and the Development Society in the western Baban Rafi forest. Prior to the NFM project, each village of the current Baban Rafi Cooperative had at least some association with a state-sponsored cooperative. With the exception of Garin Labou, the villages officially held membership in a cooperative seated in the village of Garin Jido, 35 kilometers from Baban Rafi Village. Village Mutual Groups (VMGS—see ch. 5 of this study) were formed in 1981 in Baban Rafi¹⁰⁵ and Mamouri to participate in the Garin Jido Cooperative. However, the CLUSA agent assisting the current cooperative of Baban Rafi found on his arrival in late-1988 that participation of the villages of Baban Rafi and Mamouri in the cooperative of Garin Jido was minimal. Although representatives of the VMGS of Baban Rafi and Mamouri occasionally attended cooperative meetings in Garin Jido (villagers in Mamouri estimate that such meetings took place on average 7 times in a year), it was generally felt that

105. The VMG of Baban Rafi actually represented the villages of Garin Ali, Goulgoussao, Garin Maigiya, and Yen Gobirawa as well, since these 4 villages are considered by the state as *quartiers* of Baban Rafi village and therefore under the jurisdiction of a single village chief.

Garin Jido was too far away for cooperative activities or assistance to play a role in local village life.

The remaining village of the current Baban Rafi Cooperative, Garin Labou, formed a VMG in 1987 to participate in a cooperative whose administrative seat was the village of Dan Kano, 10 kilometers to the north. Four representatives were elected from Garin Labou to attend cooperative meetings (9 meetings were held in 1988). One of the representatives of Garin Labou was named treasurer of the cooperative of Dan Kano. The cooperative was understood by the villagers as an organization to secure credit and seeds for rural farmers, but villagers added that no benefits had reached Garin Labou. Villagers said of the cooperative treasurer from Garin Labou that "no [cooperative] task had yet come his way." Other villagers informed the CLUSA agent that Garin Labou has not participated in any cooperative activities and that villagers got nothing out of the cooperative.

The traditional state cooperatives of Niger have generally engaged in little interaction with herding populations. The herding populations holding membership in the Baban Rafi Forestry Cooperative are experiencing their first association with cooperatives.

Samarya associations (described in ch. 4) had a much higher profile among villagers than had cooperatives or VMGS in the pre-NFM project era. State representatives from the departmental or district office of the Ministry of Youth and Sports (in recent years often accompanied by district-level representatives of government services participating in the Local Development Council seated at Madarounfa) have periodically visited the villages of the Baban Rafi forest to advise *Samarya* units and hear reports on their activities. Such advisory teams have helped the villages to form representative committees and elect officers of local *Samarya* councils.

However, the purpose, structures, and activities of *Samarya* as understood and articulated by villagers remain vague. Most villagers questioned on the matter refer to the village or *Samarya* agricultural field. However, it is commonly acknowledged that in most villages, participation in *Samarya* fieldwork is low and production is insignificant. Furthermore, villager responses to questions on the subject of local *Samarya* reveal no particular agenda or regular schedule of meetings or activities. Teachers at the elementary school in Baban Rafi Village, originally from other Hausaphone regions of Niger, suggest that the primary testament to the existence of *Samarya* consists of the now crumbling schoolyard walls marking the location of countless village schools around the country. The walls were built with village labor mobilized in the name of *Samarya* and under the direction of state officials. Villagers also recall that in the early 1980s, they were mobilized in the name of *Samarya* to work in some private fields newly established in the area by the district administrator (*sous préfet*) at Madarounfa.

The national network of *Samarya* has been largely unsuccessful in extending to the herders of the Baban Rafi forest. Herders say that a number of years ago a meeting was arranged between representatives of some of the herding groups to establish a *Samarya* council. The meeting was attended by the nonresident traditional leaders of the two major

groups of Fulani herders in the Baban Rafi forest. Failure at the meeting to establish a *Samarya* council among forest-residing Fulani herders was explained by the herders as the result of a general incomprehension of the point of *Samarya* and an inability to organize elections to choose representatives.

Nowhere among the villages of the Baban Rafi Cooperative does one find a functioning village development council (VDC), the base unit of the Development Society. However, state representatives of the local development council of Madarounfa have visited the villages of Baban Rafi in recent years to lay the foundation for the VDCS. A villager of Baban Rafi Village was named as a local representative of the Development Society, and has since been somewhat facetiously referred to by fellow villagers as MNSD (the French acronym for the National Movement of the Development Society, which also serves as a kind of state political party of the military government). In the context of the newly open political atmosphere of Niger leading up to the national conference in October 1991, the villager known as MNSD stated he regretted his nomination as representative of the state-sponsored Development Society.¹⁰⁶ The villager's attitude may be indicative of the future of the Development Society in the Baban Rafi forest and even throughout Niger.

5.4.2 EVIDENCE OF CHANGES IN STATE/LOCAL RELATIONS SINCE THE DEBUT OF THE NFM PROJECT

The NFNI project had, by the end of its second year, greatly influenced the nature of relations between state forest agents and many of the rural inhabitants in the region of the seven villages of the Baban Rafi Cooperative. Foresters now often visit the forest as representatives of the project rather than enforcers of national laws. In addition, sponsorship by the project of the Baban Rafi Cooperative has been accompanied by a level of technical and material support far exceeding previous efforts to organize local populations into cooperatives in the Baban Rafi forest. The motor behind the changes has been the project, which has been warmly welcomed by most villagers who recognize it as a means to enhance material and technical resources available to forest populations.

Nevertheless, problems remain. Especially disturbing are indications that traditional neglect of Fulani populations by the state hierarchy might in some circumstances evolve into outright discrimination given the vulnerability of more marginal populations to the demands of any unscrupulous foresters who might seek out settings beyond the watchful eye of projects (such as the NFM project) to practice "traditional" policing (and fining) activities. Equally at question is the genuine long-term commitment of the state and its agencies such as the forest department to uphold the new practices and attitudes.

Local attitudes toward state foresters. Thirty-eight of forty farmers say there has been a positive change in villagers relations with foresters since the arrival of the NFM project in

106. **MNSD** said he wished he could change his allegiance to another political party (opposition parties had only recently been legalized), but was unsure of whether this was possible since state party officials had already written down his name.

1989. A single farmer states there has been no change, and an additional farmer has no opinion on the issue. Of the twenty-three farmers who provide descriptions of the improved relations with foresters, twelve state simply that now they are friends with state foresters (most of them citing as evidence that now they greet each other), and eleven cite relief felt as a result of a decreased risk of being charged and fined by foresters for violations of the forest code.

Twenty-four of twenty-eight herders believe relations with foresters have improved, while four herders reply that there has been no change. One of those expressing the opinion of no change gave as his reason that there continue to be fines imposed. Another expressed the opinion that there may appear to have been changes, but they are merely cosmetic. Thirteen of the twenty-four herders who answered that there have indeed been positive changes provided accounts of the changes: nine expressed relief that foresters are less aggressive about prosecuting violations of the forest code; two said simply that now they greet each other; and two broke ranks by expressing the hope that the new regime will result in an **increase** in forest surveillance by forest agents.

Modified exploitation practices in reaction to the NFM project. Respondents were next asked if they had modified personal practices or patterns of forest resource use or management since the arrival of the project. These answers are discussed below. It should first be noted that these responses are not presented here as a veritable measure of the influence of the project on actions and attitudes of rural inhabitants. Answers to a question of this type are often formulated in a manner to please the questioner, especially since connections between the questioner and the project are generally assumed by the respondents. However, a comparison between farmers' and herders' answers may provide some insights into the different attitudes each group tends to assume toward externally initiated development efforts in general and toward the NFM project in particular.

Not surprisingly (the lack of surprise is explained above), all but two of the forty farmers replied that they **have** modified their actions in forest resource use and/or management since the arrival of the project. The most commonly cited change of behavior, attested to by nineteen farmers, was the incorporation of one or more of the technological practices promoted by the project. These practices include: leaving trees in fields that traditionally had been removed; planting seedlings provided by the project or produced with its help; and pruning field and house trees according to techniques taught by the project.

Twelve farmers specified that the management system represented by the cooperative was already influencing their behavior. Some stated that now they would ask the cooperative before clearing new fields, or that they would no longer sell wood they had cut directly to wood merchants from the city. (One farmer in an unsolicited comment admitted he continues to cut wood and sell it directly to the merchants.) A few farmers expressed their approval that now there existed regulations to guide forest use and organize exploitation, and that the forest was losing some of the anarchy that has long characterized its exploitation.

Seven farmers indicated they have adopted some type of conservation practice since the arrival of the NFM project. Such practices include: refraining from the cutting of live trees; using manufactured string instead of bark for certain applications; and maintaining smaller stocks of fuelwood stored in smaller piles since that way, they explain, they tend to use it less wastefully.

A few answers did not fit into any of the above categories. For example, one farmer said he has changed his actions because now he has no fear of foresters and so he exploits more resources than before. Another farmer provides a similar response, "Now I get more profit from the forest."

In sum, one notes that farmers tend to answer in the affirmative the question of whether they have modified exploitation or use patterns in the forest since the arrival of the NFM project. Descriptions of modifications fall into three main categories: the adoption of certain agroforestry or soil management techniques (19 responses, 48%); respect for the rules of the management system represented by the cooperative (12 responses, 30%); and increased efforts toward conservation of resources (7 responses, 18%).

Of the twenty-eight herders to whom the question was posed, twenty-six said they have modified their actions in the forest since the arrival of the project. Of the two who answered "no," one stated simply, "I still make hay, just like before." Of the twenty-six who answered "yes," all provided explanations of their answer. Most of the explanations fall into one of the three categories established above by farmers' answers: the adoption of agroforestry techniques (8 responses, 29%); respect for the rules of the management system represented by the cooperative (10 responses, 36%); and increased efforts toward conservation of resources (7 responses, 25%).

The leading explanation of modified behavior, cited by ten herders, is that now there is a system in place to control the forest. Most of the herders (7 of 10) who referred to the new management system explained modifications in exploitation patterns as a reduction of an activity, usually the lopping of branches for forage. In contrast to the farmers, the majority of herders (7 of 10) who fit into this category explicitly and without solicitation mention the word, "fear"—usually specifically naming foresters as the object of fear. It will be recalled that several farmers cited the new management system with approval, and never was fear explicitly acknowledged as the motivation for modifying exploitation practices. While farmers tend to acknowledge the new regulatory regime in the forest through phrases such as "now I would ask permission before clearing a field" or "now I would sell wood to the cooperative instead of to outside wood merchants," herders tend to say, "now I cut fewer branches for my cattle because I'm afraid of forest agents" or "I avoid allowing my herd to graze the postharvest stubble of village fields because a forester might catch me." One herder added, "now fields are property [not ours] and they are no longer available for use by outsiders."

Five herders state simply that they cut fewer branches since the arrival of the project. They were not included in the category above since they do not mention whether they cut fewer branches because of new regulations (or fear) or because of increased awareness of the

need to practice conservation. Two additional herders state explicitly that they now practice conservation (i.e., cut fewer branches), and attribute that fact to the project: "our consciousness has been raised by the [NFM] Project."

Eight herders explain changes of behavior in terms of adoption of new technologies, usually natural regeneration of field trees. A few have also planted seedlings provided by the project.

Finally, the answers of two herders do not fit into any of the categories above. These herders answer, as did two farmers, that now they do whatever they want in the forest since foresters no longer come around.

The differing perceptions of the inhabitants of the Baban Rafi forest regarding the questions cited above are striking, not only between groups but also within groups. At one extreme, 28 percent of farmers and 32 percent of herders identify the reason for improved relations with forest agents to be the reduced risk of being fined for illegal acts of forest resource exploitation. A minority both of farmers and of herders openly state that they now exploit resources at higher rates than before the risk was reduced. At the other extreme, a few farmers and herders suggest there is a need for increased surveillance of the forest by state agents, and some speak with unsolicited approval of the prospect of installing an effective management system in the form of the cooperative to regulate resource exploitation in the forest. In the middle are the 30 percent of farmers and 36 percent of herders who claim to have already modified their resource exploitation behavior in the forest as a result of the cooperative either out of respect or out of fear.

5.4.3 MORE SIGNS OF CHANGE: STATE/LOCAL RELATIONS AT THE DEPARTMENT AND SUBDISTRICT LEVELS

Changes in the manner in which the forest code is enforced in the department of Maradi are suggested through an examination of recent forest service reports including records of prosecuted violations of forest legislation. At first glance the changes are not obvious. Forest service reports for the years 1985-1986, 1989, and 1990 (the only years for which reports were made available to me) show little significant change at the departmental level in terms of the number of reported fines and total revenues collected from fines. The department reports 122 fines totaling CFA 4,043,000 collected in 1985-1986; 120 fines totaling CFA 4,744,325, in 1989; and 124 fines totaling CFA 3,881,500, in 1990. One notes, however, significant variations in fine patterns between 1989 and 1990 in some of the districts of Maradi Department. Madarounfa (the administrative district that includes the Baban Rafi forest), for example, collected 32 fines in 1989—only 2 more than in 1985-1986—but 54 fines in 1990. Furthermore, 53 of the 54 fines in 1990 were imposed for the single offense of mutilating protected species of trees. Categories of forest code violations such as fraudulent collection of wood (harvest of fuelwood without a permit) and bush fires, which had been important in 1986 and 1989, had practically disappeared from the list of prosecuted violations in Madarounfa in 1990.

The 1990 fine profile for Madarounfa suggests a shift of code enforcement emphasis away from commercial wood exploiters and farmers extending or clearing fields through tree removal to increase crop production and toward herders exploiting trees for forage by lopping branches. This interpretation is based on the distinction between tree removal and tree mutilation, the latter being the offense for which almost all fines were imposed in Madarounfa in 1990. The interpretation is supported by evidence (see above) from the Baban Rafi forest, where four of twenty-eight herders have been fined for illegal use of forest resources since 1989 compared with one of forty farmers. A 44 percent reduction in forest service revenues from commercial fuelwood exploitation between 1989 and 1990 also indicates a de-emphasis on control of wood—as opposed to forage—exploitation.

Evidence to support the interpretation of the shift of forest code enforcement emphasis discussed above (an interpretation which draws a clear distinction between use of trees by farmers or wood merchants on the one hand, and by herders on the other) is substantial but, perhaps, not conclusive. However, it is clear from anecdotal accounts that the recent arrival of internationally supported forestry projects and activities (such as the NFM project) is influencing patterns of code enforcement. In general, the influence of the new project's emphasis on popular participation has reduced the level of policing (i.e., fining) by forest agents in favor of an increase in extension. It is possible that changes set in motion through project activities have already reached the more (culturally as well as geographically) accessible Hausa populations living in villages, but will require more time to reach relatively isolated herding populations scattered among semipermanent hamlets. It is equally possible that the isolated Fulani populations represent for foresters working in areas such as Baban Rafi (that are dominated by a development project) the only remaining niche available for a particular brand of exploitation.

5.4.4 YET-TO-BE-DEFINED ROLE OF THE NEW COOPERATIVE IN STATE/LOCAL RELATIONS

It is probably not surprising that by the end of its second year the Baban Rafi Forestry Cooperative had yet to assume a clear identity. Farmers and herders tend not to distinguish between the NFM project and the Baban Rafi Cooperative. In fact, the NFM project is an internationally sponsored effort to slow or reverse resource degradation whose administrative structures are based in Maradi, Madarounfa, and Niamey, while the cooperative—intended to function as a self-reliant organization independent of the project as well as of the Nigerien government—is composed exclusively of forest residents and is based at Baban Rafi. The common assumption of local inhabitants is that the VMGS of the cooperative and the cooperative general assembly are at the base of a hierarchy whose next level up includes state foresters who also participate in the NFM project. In this view, VMGS are a modern form of the traditional state cooperatives and *Samarya* councils discussed in chapter 4, and in this sense they reflect historical continuity.

Nevertheless, since the arrival of the project, village mutual groups have established themselves as a part of the village-level institutional landscape. Virtually all respondents, whether farmers or herders, are aware of the VMGS and know that they are intended to

represent **all** villagers as well as **all** herders residing in this western region of the forest. The vaguely revolutionary potential of the VMGS, as nongovernmental bodies sanctioned by the state yet semi-independent of it, is hinted at by some of the VMG leaders who speak of eventual local ownership of the forest. What does not yet appear to be clear among forest residents is where the VMGS intersect with overall state administration.

Villagers have been conditioned to regard state-sponsored organizations such as cooperatives and *Samarya* councils as bodies serving mainly to transmit state directives to local populations. Participation of the Nigerien state in the NFM project, therefore, signals to many local residents that VMGS are to take their marching orders from the state, or at best, from the project. This attitude is changing slowly but noticeably among those most involved in the cooperative. One currently observes, for example, demands from cooperative leaders that the western portion of the Baban Rafi forest be legally declared the property of the cooperative. However, there has as yet been little discussion as to the configuration of a property enforcement system in terms of state and local participation. A declaration of property in the current context would be meaningless until nonresident exploiters of forest resources are made to respect the property rights—an enforcement task well beyond the means of the cooperative.

For its part, the state does not speak with a single voice concerning its role in a new forest resource management system featuring a village cooperative. Different foresters display different degrees of enlightenment in terms of favoring new or traditional policies of forest resource management and rule enforcement. Moreover, individual foresters may act one way as representatives of the NFM project and quite another as upholders of traditional forest legislation. The danger is that the NFM project could be viewed as an aberration in the middle of a longer-term history of state authority and control.

Neither has a consistently local-initiative-supporting consensus emerged among higher level state administrators. Well into its second year the legal status of the Baban Rafi Cooperative was—at least indirectly—questioned by a state official no less important than the departmental Director of the Environment (DDE). The specific complaint voiced by the DDE was that the CLUSA agent working with the cooperative was not under the jurisdiction of a state agency. The DDE's objection led to a brief suspension of the CLUSA agent's activities in the Baban Rafi forest. From the vantage point of local populations, the event re-introduced the issue of whether state-recognized legitimacy may be forthcoming in the case of nongovernmental organizations operating in the Baban Rafi forest. Furthermore, the incident probably diluted the notion in the minds of villagers—if such a notion had in fact taken root—that the cooperative is intended as a mechanism for local participation in decision-making, anymore than are traditional state-sponsored cooperatives and *Samarya* councils.

5.4.5 CONCLUSION

The Nigerien state has accepted in principle the need to modify its role in natural resource management so that it becomes compatible with an increase in local control over resource use. Two matters that show themselves to be in need of attention in the modification process

as it is unfolding at Baban Rafi are: (1) new attitudes and practices on the part of forest agents may not be expressed uniformly among the various resource user groups, particularly between farmers and herders; and (2) the long-term role to be assumed by the state in the new management system remains an open question. The significance of the former concern is that any additional (e.g., state) encouragement for local populations to stratify—particularly insofar as the stratification is accompanied by a widening gulf between the different groups' perceptions of interests—endangers the capacity of local populations to coalesce into an effective natural resource management system.

The significance of the latter concern—that state/local relations have been little addressed and less clarified within a state/local forum—is that the uncertainty surrounding questions of long-term institutional support to be provided by the state for local organizations creates an opening for short-sighted exploitation practices. In other words, the old resource management system could be dismantled before a new system is in place.

Both state agents and forest residents appear to be reserving judgment regarding their long-term future relationship in the domain of forest management. There are a number of possibilities, of which the following are only a few examples: (1) both state representatives and local populations might be biding their time (yet benefiting from the presence of the NFM project where possible in the meantime) until the end of a project that like others they have known in the past will one day end, perhaps leaving no lasting effects in terms of stated goals; (2) the same players might be biding their time until the enormous political changes currently under way in Niger play themselves out; (3) new alliances may be forming (e.g., between state foresters and settled Hausa populations) to the exclusion of certain groups (e.g., Fulani) in spite of NFM project efforts to include all user groups in the new management system; and, finally, (4) the cooperative will eventually be recognized by the state as a legitimate body that represents the interests of local populations and has the authority to negotiate according to its interests with the state and others (e.g., the wood merchants of Maradi). The latter is, of course, the preferred outcome, and the one envisioned by the NFM project. This outcome is not dismissed by this study as out-of-hand, but rather, as one that faces many obstacles.

While almost all respondents agree that relations with forest agents have improved as old enforcement strategies have been relaxed, few expect the sudden appearance of a new management system capable of preserving the forest. As this study noted at its outset, 76 percent of those questioned believe the forest will eventually disappear, most of them indicating a time frame of less than ten years. Some respondents expressed surprise at the suggestion that the new cooperative might halt—or even that it was intended to halt—the process of forest extinction. The cooperative, after all, is made up only of villagers and herders—while the demands placed on the resources of the forest greatly exceed forest boundaries.

Furthermore, most villagers and herders within the project zone are aware that foresters have been known to act one way within the project zone (within which their rewards do not depend on the unofficial collection of revenues gained by surprising individuals in the act of

forbidden resource exploitation activities) and another outside of the zone (a context in which old habits are relatively unchallenged). This observation shows that change is possible while at the same time suggesting that the special conditions of a given change are specific to a particular time and place. The relevant factor surrounding change is whether or not it is institutionalized, and the relevant factors determining the degree of institutionalization are the voluntary participation and faith in the system on the part of all the players. Among the most important of the ingredients required for eventual success will surely be: time, perseverance, patience, commitment, and probably more time.

5.5 OBSTACLES TO SECURING FINANCIAL INCENTIVES FOR LOCAL POPULATIONS: FUELWOOD MARKET

5.5.1 UNIQUE CHARACTER OF THE FUELWOOD MARKET AMONG FOREST RESOURCE EXPLOITATION ACTIVITIES

Pressure exerted on natural forests in Niger as a result of external demand for forest products adds a layer of complexity to management approaches emphasizing local control. Whereas the market activities of farmers and herders are not necessarily trivial (and are becoming ever less so), the commercialization of grains or livestock remains primarily an extension of a way of life characteristic of the inhabitants of the forest and vicinity rather than a business. It is true that ten or twenty years ago large fields were cleared in the region of Baban Rafi for the production of groundnuts for the export market, and that in more recent years there has been a degree of large scale grain production for market. These exploitations have been, generally, localized and scattered in their impacts on local populations and on the ecology of the zone today known as the Baban Rafi forest. The majority of farming and herding activities in the region are small scale and are motivated more by subsistence needs than by commercial aspirations—and they are managed by people who live either year-round or seasonally in the forest or along its periphery. Fuelwood exploitation is unique among current uses of forest resources at Baban Rafi in its scale, organization and in its characteristic of being externally driven.

Fuelwood is big business in Niger, and its importance is growing. In a 1990 address to a national conference on village forest management of fuelwood resources, the Minister of Waterworks and Environment estimated annual consumption of fuelwood in the country at about 1.8 million tons. This figure represents over 86 percent of energy consumed in Niger and translates into a per-capita annual fuelwood consumption of about .25 ton. The majority of fuelwood consumed, adds the minister, is harvested in natural forests. The current forest code of Niger grants state ownership over natural forests and places the forest service in charge of administering forests (the Nigerien forest code is described in ch. 5).

The percentage of total fuelwood consumption that is commercialized in urban markets grows with the size of urban populations. The urban population was estimated at 1.1 million in 1988, or 15.3 percent of the total population of the country (7.25 million). Estimates of the current urban growth rate in Niger are around 7 percent.

The harvest of wood to be sold in markets as fuel provides the government with a potentially significant source of revenues. State regulation of the commercial fuel-wood sector consists of collecting a fixed tax applied to units of volume (steres) of wood harvested. Wood merchants are expected to obtain a permit prior to exploitation. The price of the permit is fixed by law according to estimates of the normal volume capacity of the particular animal, cart or motorized vehicle to be used in transporting the wood to market.¹⁰⁷

In 1987, the tax per stère of wood harvested was raised tenfold from CFA 35 to CFA 350. This measure could be interpreted either as a conservation effort or a means to increase state revenues. If the objective were to reduce wood consumption, the rise in exploitation taxes should have been matched by a rise in prices to consumers. However, the selling price to customers in Maradi—subject to the regulatory authority of local officials—remained unchanged. According to a number of Maradi's wood merchants, repeated requests to the mayor's office for permission to raise the retail price of fuelwood in Maradi were denied. It is important to add, however, that neither were there any shortages of market supply noted in reaction to the tax hike. Evidently, wood merchants have continued to engage profitably in their trade in spite of the freeze on price hikes at the retail level.

One of the ways in which the fuelwood trade has remained profitable is the ability of fuelwood traders to dodge the tax. In spite of the apparent maintenance of fuelwood supply at pretax-hike levels, government revenues from the fuelwood tax did not increase in proportion to the tax. Although revenues in 1988 (CFA 61,353,157) were more than double those of 1986 (CFA 27,208,265) and continued to increase to a peak of CFA 75,364,310 in 1989, they came nowhere near increasing by a factor of ten. And in 1990 state revenues from the fuelwood tax were off 8 percent from the 1989 figure. The figures indicate that the rise in the fuelwood tax has been serving as an incentive to reduce compliance with state regulations on the part of wood merchants rather than to reduce fuelwood consumption and has fallen well short of expectations in increasing government revenues. One study relying on estimates of total urban consumption of market-supplied fuelwood calculates the compliance rate (percentage of marketed wood permitted by state collection of taxes) fell from 23 percent in 1986 to 5 percent in 1988 (Ichaou 1991). After rising slightly to 6 percent in 1989, the compliance rate fell back to 5 percent in 1990. The same study believes even these estimated rates may be higher than actual compliance rates since some studies based on estimates of wood transported into urban areas (rather than on calculating estimated per-capita consumption multiplied by total urban population, the latter figure which tends to be underrepresented in census figures) indicate higher total fuelwood consumption.

5.5.2 DIMENSIONS OF THE MARADI FUELWOOD MARKET

In late 1989, the NFM project undertook an ambitious exercise to collect data concerning the fuelwood market in Maradi, a market estimated to receive at least 75 percent of its fuelwood supplies from the Baban Rafi forest. An attempt was made to monitor all wood

107. Relevant legislation includes: *Décret* 87-037 of 12 March 1987; *Arrêté* 05 (Ministry of Water and the Environment) of 16 July 1987; and *Arrêté* 03 (Ministry of Waterworks and the Environment) of 2 May 1990.

coming into the city during about a two-week period. Teams of data collectors were placed at all major entries into the city. Vehicles, ox carts, and animals (mostly camels and donkeys) were classified according to estimated volume capacities for fuelwood. Information requested of drivers included location where wood was collected, quantity of wood loaded, and price paid for the wood and other expenses. The reluctance of some drivers to answer questions, the suspicion that others were providing misleading information, and the discovery of miscalculations of wood volumes prompted a decision by the project coordinator to leave the data collected from this exercise unanalyzed.

However, a component of the data collected treated consumption of fuelwood by households and businesses. In Maradi, 296 households (about 2% of households) along with all fuelwood-consuming public enterprises and private businesses identified by the project (totaling 181) were visited twice a day for a week for weighing of stocked wood to calculate consumption per meal and per day. A list of households to be surveyed was provided by the mayor's office and said to be randomly chosen from tax lists. In addition to the weighing, households and businesses were requested to provide information concerning fuelwood expenditures and volume consumption. The NFM project coordinator agrees that the collection of consumption-side data is free of the flaws he noted in the collection of production-side data. Much of the following information is based on the fuelwood consumption data collected by the NFM project in November and December 1989.

Project data yield an average fuelwood consumption figure of 49.13 kilograms per household per week for households containing on average 8.8 persons.¹⁰⁸ Based on these figures, individual daily consumption is about 0.8 kilograms, and annual individual consumption, about 0.29 tons—a bit more than the 0.25 tons cited by the Minister of Waterworks and Environment in an address to the national seminar at Torodi (cited above). Fuelwood expenditures per household per week are about CFA 824, amounting to annual expenditures per household of CFA 43,000 (\$171)/household.

108. The average of 8.8 persons/household in the survey sample is significantly higher than the figure of 6 persons/household often assumed in calculations of fuelwood consumption in Niger. The most recent full-scale census conducted in Niger in 1977 indicates an average household size in the town of Maradi of 6.38 persons. A national census conducted in 1988 based on a 10% population sample indicates an average household size throughout the department of Maradi of 6.9 persons (6.56 persons in urban areas and 6.97 persons in rural areas—Maradi town contains 64% of total urban population in Maradi Department). Obviously, the figure of 8.8 obtained from a sample of 2% may not be representative of the general population of Maradi town. However, it should be noted that there exists a motive for underreporting household members to census takers, since an annual tax is imposed per household member 14 *years* of age or older. This motive may have been less of a factor in the course of multiple visits by project data collectors who appeared to have other interests than the collection of information for tax purposes. It is also possible that city households tend to increase in size during the nonagricultural season (the season would have recently ended during the period of data collection in late-November-early-December). At any rate, there are those who believe that estimated figures of households multiplied by 6 tend to greatly underestimate urban populations and therefore market fuelwood consumption. In particular, a study of state permitting of commercial fuelwood carried out by a student working under the direction of the *\$nergie II* project cites evidence to illustrate that the assumption that the average household contains 6 members leads to consistent underestimations of total fuelwood consumption in urban areas (Ichaou 1991).

The size of the population of Maradi town remains as a wild-card figure which reduces all estimates of fuelwood market size to guesswork.¹⁰⁹ A conservative estimate results from the extrapolation of a recent figure—say, 1990—from the 1977 estimate of 44,458 reported in the national census. Based on an urban growth rate of 6.8 percent reported in census data, one arrives at a population in 1990 of about 104,500. Alternatively, one might take 64 percent (the stated proportion of the department's urban population that resides in Maradi town) of the total urban population reported in census figures for Maradi Department in 1988, which yields a figure of 114,000 as the population of Maradi town. In the latter case, the number of households in Maradi town—17,378—is obtained by dividing total population by the figure of 6.56, which the census reports as the average urban household size in the department. It is likely that problems of underreporting leave each of the above estimates as somewhat lower than the actual population of Maradi town.

The NFM project data provide for calculations of the size of the Maradi fuelwood market in terms of annual total retail sales based on either individual consumption figures or household consumption figures, the variation between the two being the result of the large number of persons per household found in the NFM data (8.8 as opposed to 6.56 based on official census data). Total annual fuelwood consumption, for example, ranges from 33,000 tons of total annual consumption calculated on the basis of the NFM figure for average individual consumption to 44,400 tons of total annual consumption based on the NFM figure of average household consumption. Annual retail value of wood may be calculated as quantity in kilograms times CFA 16.8 (a figure calculated from NFM data), which puts it in the range of CFA 554 million (\$2.2 million) to CFA 746 million (\$3 million), or according to average household expenditures from NFM data multiplied by total households, CFA 745 million (\$3 million). Whichever of these methods of calculation one chooses to gauge the size of the Maradi fuelwood market, one must then add to the total the annual retail value of fuelwood purchased by public enterprises and businesses, about CFA 21.5 million (\$86,000). The bottom line is that there are few commercial categories in Maradi Department of greater importance than the urban fuelwood market concentrated in Maradi town.

5.5.3 CURRENT INSTITUTIONS FOR MARKET SUPPLY: MARADI WOOD MERCHANTS

Considering the volume of wood sold in Maradi, the smoothness with which the market operates is striking. Although occasionally wood stocks may be depleted at some of the smaller locations where it is sold—at private homes, for example—there is no evidence that anything approaching a citywide shortage has ever been experienced. The absence of supply shortages is in spite of the complaint voiced by the leading wood merchants that while operating costs rise steadily, local government officials have repeatedly denied requests that the retail price of wood be increased. Other common complaints suggesting threats to the

109. The Maradi mayor's office declined access to me for research purposes to **urban population** records **maintained** for tax purposes, preferring instead to refer me to the Maradi office of the National Ministry of **Planning**, where records are kept of the **national** censuses of 1977 and 1988. At **any** rate, it is not at all clear that access to records **kept** by the mayor's office would **significantly** increase confidence in **population** estimates **based** on **available** information. See also Staatz and Eicher (1986).

regularity of supply are the regular breakdown of vehicles used by the merchants to transport wood from the forest and the impassibility of some of the forest roads during the rainy season. Yet, there is always wood in the market. Sometimes the slack might be taken up by fuelwood arriving on camelback or in ox carts, both modes of transportation being among established means of supplying the Maradi market. However, by most accounts wood merchants equipped with trucks and Land Rovers supply the bulk of the wood on the Maradi market.

Success in the wood trade requires a significant investment in terms of both institution building and capital. Most of the leading wood merchants typically maintain a personal network of regular supply points, each point being managed by the associate of a particular supplier and dependent on him. The associates are often family members. Suppliers often express a high degree of obligation to maintain the supply of associated wholesalers and expect a high degree of loyalty in return. Yet, supplying Maradi's markets with fuelwood is rarely the sole occupation of a wood merchant and often not even the primary occupation. Secondary activities include trucking, grain milling, and commercial farming. There is a moderate degree of movement in and out of the leading positions in wood supply over periods of several years.

The primary capital investment of the wood merchants is purchase of trucks. However, the wood merchant must also be prepared to face substantial recurrent costs for truck maintenance and repair as well as for wood purchase in the forest, labor, and payments of taxes and bribes. Table 5.2 displays some calculations provided by a successful wood merchant regarding his **nontransportation-related** costs per vehicle-load of fuelwood.

TABLE 5.2 Typical expenses of a wood merchant

EXPENSES	CFA
Labor, taxes, and bribes	
Wood tax	3,500
Vehicle driver	1,500
Two helpers	2,000
Labor (to load)	1,500
Police (at road checkpoint)	1,500
Gendarmes (at road checkpoint)	2,000
Exit tax (collected by mayor's office)	2,000
Subtotal	14,000
Wood purchase price	12,500-16,000
Total^a	26,500-30,000

- a. It is important to note that this total does not include transportation-related costs such as fuel and vehicle maintenance.

In addition to the costs noted in table 5.2, one must consider that regular fuel sells for CFA 255 per liter (about \$1), and diesel fuel, for CFA 190 per liter. A typical truck might require as much as 30 liters of diesel to make the minimum round trip (about 100 kilometers) between Maradi and the northern border of the forest, or about CFA 5,700. Travel within the forest, repairs, tires, insurance, and so forth add to transportation expenses rather dramatically.

The figures provided above by a wood merchant are not repeated here as an absolute statement of expenses incurred for each truckload of fuelwood delivered to the Maradi market. Like many businessmen everywhere, the wood merchant has a motivation to exaggerate his expenses as a justification to increasing retail prices (and the businessman providing the expense list above argues forcefully for an increase in retail prices of fuelwood). For example, one of the quoted expenses that is very likely an exaggeration is the wood tax. It was noted above that a study shows the national rate of compliance to the tax (estimated from revenues collected versus urban fuelwood consumption) was no better than 5 percent in 1990. The same study estimates the compliance rate for Maradi in 1990 at 3 percent. However, in defense of the wood merchant, it is likely that reduced tax collection translates into increased collection of bribes.

The revenue situation is, perhaps, even more obscure to the outsider than are the expenses. The main problem is that actual volume of a truckload is difficult to determine (though undoubtedly the wood merchants have a good idea of how much their trucks can hold). The tax is set at CFA 350/stere, so the purchase of a permit for CFA 3,500—the standard permit required for typical truck sizes—should normally set a load at 10 steres. The wood merchant quoted above states that a typical load is 700-800 bundles. Market data collected by the NFM project indicate that the average bundle weighs 5.3 kilograms, which means that 800 bundles would equal 17 steres at 250 kilograms per stere.¹¹⁰ This would already exceed the load size permitted by the tax payment. But many observers believe an average load size for the type of truck under discussion is well over 1,000 bundles, or at least 21 steres. The wood merchant quoted above says he sells the bundles to his wholesalers in Maradi for CFA 50, a price that is eventually doubled before the final retail sale to the consumer. If this is the case, the wood merchant collects CFA 35,000 to 40,000 (by his own calculation of size of load) for a load of wood, the costs of which he calculates at up to CFA 30,000 before accounting for vehicle-related expenses.

5.5.4 CONCLUSION

The point of the above illustration is not to expose the wood merchants as untruthful (i.e., given to overstating expenses and understating revenues) but to gain a glimpse into current practices and institutions built into the fuelwood trade as it operates in Maradi. It has been

110. Research studies and reports commonly use 250 kg as the weight of a stere when converting between volume and weight. However, there is no standardized conversion weight one can apply to a stere since different woods, of course, have different weights. Some researchers work from an average stere weight of 300 or even 350 kg.

felt by leading officers of the Baban Rafi Cooperative and the NFM project that the wood merchants of Maradi have been uncooperative and unreasonable in their resistance to entering into a new partnership with the villagers of the forest. Certainly they have been uncooperative. However, they apparently feel they have been quite reasonable in protecting their own interests given current institutional structures and practices. The higher prices the wood merchants would have to pay for wood collected by the cooperative is regarded simply as another expense to avoid if at all possible. So far it has been very possible, with one brief exception," to avoid the higher costs of the cooperative. This is, of course, a worrisome signal in terms of the cooperative's aspirations to gain entry into the fuelwood market. The cooperative is 100 percent dependent on the wood merchants or some other outsiders with the means to transport wood from the forest to the market in Maradi. It will be a long time before the cooperative could hope to have the means to do so on its own.

It appears that the NFM project did not at its outset sufficiently appreciate existing complications in the way of devolving forest management rights and authority from the state to local populations in view of the significant rights and authority claimed and exercised by nonlocal and nonstate agents. This is not necessarily the fault of the NFM project. The pre-existence of institutionalized fuelwood marketing structures and interests presents a situation for which theories of popular participation and common property probably do not provide adequate preparation. It is easy to underestimate the degree to which in the African context *de facto* property rights often differ from *de jure* property rights and management systems. The central observation is that existing power configurations (in this case, the economic power of the wood merchants of Maradi) and associated interests simply cannot be ignored, but must somehow be integrated into the development project's design.

In considering the current institutional landscape in its entirety, one suspects there are a variety of modifications that might provide the incentive necessary for wood merchants to cooperate with the forest cooperative, including modifications in tax policies, reduced or eliminated bribe payments, increases in retail prices, increased patrolling of fuelwood transportation and trade, and the like. Many of these changes will necessarily involve collaboration within and across the groups broadly defined as local populations, wood merchants, and the state. Perhaps the first step is to convince the wood merchants through words or deeds that changes of the suggested nature are both possible and forthcoming. Their reaction to suggestions of coming institutional changes remains, for the moment, one of skepticism.

111. The exception occurred in Jan. 1991 when, following 8 months of stalled negotiations between the wood merchants and the cooperative/project, political pressure finally built up to the point where the wood merchants were forced by Maradi's **departmental** Direction of the Environment to buy the cooperative's wood, stocked at a site in the forest since it was harvested in March/April 1990. During the short period required to deplete the cooperative's wood stock, fuelwood loaded on trucks was not allowed to enter the city of Maradi until it was verified that the wood came from the Baban Rafi Cooperative. The wood merchants, interviewed a number of months after the incident, maintain they were doing the Direction of the Environment a favor, that they **had** lost money in the process, **and** that they are not in a hurry to purchase wood from the cooperative in the future. The incident clearly has reinforced the negative views held by Maradi's wood merchants **regarding** the cooperative and the project.

5.6 GENERAL CHAPTER CONCLUSION

The desire to increase local control over forest resources carries with it the assumption that such a development will lead to more sustainable resource exploitation practices. This case study of Baban Rafi suggests three categories of site-specific issues that deserve special attention in light of the twin goals of local and sustainable management: (1) issues embedded in heterogeneous societies; (2) issues arising in the course of a confusing evolution of relations between local populations and the state; and (3) issues revolving around the commercial exploitation of the forest to **supply** external markets, and reliant on nonlocal economic resources.

The experience of the Baban Rafi Cooperative to present illustrates that organizations, management systems and sets of rules do not operate in a vacuum. Local communities are not simply black holes to which rights may be devolved or in which organizations may be implanted to accomplish predetermined goals. Policy changes effected at a national level often encounter unexpected obstacles in the course of their implementation and sometimes yield unforeseen consequences in the course of interactions with local institutions, practices, and profiles. The better informed implementation efforts are in terms of the local institutional landscape, the better the chance that policies will achieve desired results.

However, the primary lesson from Baban Rafi is not uniquely concerned with policy implementation strategies. The pre-existing institutional environment characteristic of the Baban Rafi forest, and beyond to the urban center of Maradi, suggest the following: that policies based on a devolution of forest management authority to local populations are not assured of being any more effective in preserving forest resources than have been policies based on state control—unless institutional issues spilling beyond the normal boundaries of policy implementation come to be adequately addressed. A secure institutional environment is one in which incentives to participate are attractive and realistic across groups, structures of authority are understood, and responses to events are predictable. Policy statements may start the process to increased local control over forest resources, but essential elements along the way will be both recognition of existing institutions and construction of new ones—the latter endeavor most likely to succeed when built on old foundations and with their consent and collaboration. But let there be no mistake concerning the complexity of the task.

Chapter 6

EMPIRICAL FINDINGS: SUMMARY AND CONCLUSIONS

It would be difficult to imagine a society undergoing a more rapid social and economic transition than that currently in effect at Baban Rafi. In the space of a generation many of today's residents of Baban Rafi have undergone a startling transformation of earlier belief systems regarding such institutions as religion, household, and community. At the same time, local populations are steadily increasing their participation in and dependence on market activities as a complement to (or substitute for) domestic production destined to offset subsistence needs. In a setting of social and economic dynamism, one might do well to frame an analysis in terms of trends rather than in terms of current or past structures or characteristics.

One trend that holds implications for resource management is that which applies to the resource tenure system. The general observation on this topic is that in the absence of external intervention, the area currently defined as the Baban Rafi forest is more likely to be divided among individuals and families than it is to be redefined as community property. Many residents of Baban Rafi prepare for the future by attempting to expand the base of resources now under their private control. Such expansion takes place according to informal (i.e., nonstate) tenure rules currently in effect. The first of these rules is that which upholds land as the "property" of the clearer. Much of the forest judged to be suitable for farming has already fallen to this rule. It is unclear how much of the remaining forest will be deemed worth the effort to clear and claim as property (though in countless sites throughout the Sahel and beyond extremely marginal lands have been cleared by land-hungry farmers, perhaps to be abandoned once the soils prove unproductive).

The overall effect of land clearing as it takes place according to indigenous rules is the "privatization" (along with the physical transformation) of the forest. The trend toward increased individual and permanent proprietary claims of farmers for the land they cultivate becomes more pronounced over time in conjunction with a parallel evolution of indigenous tenure rules. The rules increasingly encourage individual private holdings as they subject holders to ever fewer claims on the part of the larger

112. For example, a number of the landholders of **Baban Rafi** lend out parcels because they currently do not control the necessary labor (i.e., their **households** do not **contain enough** members) to keep all their **holdings** in **production**. In some cases, the tenant holder of these parcels is replaced from **year-to-year** in order to **avoid** a **build-up** of rights that might **challenge** those of the "**permanent**" holder, whose claims are based on first clearing (whether by himself or a progenitor). This is in contrast to a "communal" system in which the village chief or elders would exert some influence in the distribution of unused parcels of individual villagers—a situation in which, **presumably**, the original holder would be less well placed to exert rights to reclaim the parcel at a given date in the future.

One observes as well at Baban Rafi the evolution of individual private rights to trees. As a number of useful tree species become scarce, and as techniques to privately cultivate particular prized species come to be increasingly accessible (one of the valuable contributions of such interventions as the NFM project), trees are coming to be valued by farmers for two significant reasons. First, trees are increasingly viewed as improvements to (i.e., investments in) landholdings and, therefore, provide a reinforcement to individual rights to the parcel on which they have been planted or nurtured. Second, trees are increasingly gaining an economic importance of their own in terms of the marketable products they produce (e.g., fuelwood or construction wood, leaves, fruits). Given the current stage of evolution,¹¹³ the outright commercialization of tree products is lagging behind the value added to land on which trees have been planted as a factor in the privatization of trees. At Baban Rafi it is quite clear that the presence or absence of planted trees on a particular parcel, and the identity of the tree planter, play a role in determining claims to the parcel. Therefore, trees are enveloped into the overall local tenure system regarding agricultural lands as the system evolves toward privatization.

The still sizable regions of the forest not converted to agricultural use are subject to a steady onslaught of herders and wood merchants, the latter seeking profits through the supply of fuelwood to the Maradi market. The tenure system in the forest, therefore, contrasts sharply with the "privatizing" system of farm tenure. On the basis of historical use patterns, both herders and wood merchants rival the majority of the farmers of Baban Rafi in terms of established rights to exploit forest resources.¹¹⁴ Clearly, from a tenure point of view, there are significant advantages to exerting property rights on the basis of clearing (i.e., transforming the forest to farmland) as opposed to attempting to exert long-term rights to wood, pasture, or uncleared farmland in the natural forest—a context in which rights are much less well defined according to existing customary standards. The task of the cooperative

113. I refer here not only to the evolution of the tenure system but also to the evolution of **environmental** factors **such** as the **balance** between degradation **and** restoration, which **can play a** role in **determining** the **configuration** of a **particular** tenure system. A given profile of resource **availability** influences the tenure system **by determining** the relative scarcity of resources. For example, if **baobab** trees are **abundant throughout** the natural forest, there exists little incentive to plant or claim private rights to **individual** trees. As the tree becomes rare, however, a market may eventually develop for its leaves (which are highly prized as an **ingredient** in soups), thus creating an incentive to assert private rights to individual trees. Alternatively, claims of private rights might precede the emergence of the market for **a particular** product. The few **remaining baobabs** in the vicinity of the villages of the Baban Rafi Cooperative are concentrated in private fields **and** are, in fact, the objects of claims of private access. A **significant** market for **baobab** leaves has not yet developed, **however—perhaps because the quantity of leaves produced is fairly insignificant and generally consumed by the household claiming the tree.**

114. **This semantic division of the primary forest resource user groups into three distinct categories is somewhat artificial.** In fact, the **nonexclusive nature** of the **groups (i.e., the same individual may farm, raise livestock, and harvest fuelwood for market)** further muddies attempts to sort out prevailing tenure systems operating in the context of the trees and the lands of the forest. Nevertheless, the core membership of each group **probably** is distinct (e.g., the wood merchants from Maradi direct the harvest of fuelwood and its transport to market; Fulani herders retain a primary interest in the pasture resources of the forest), **and** the groups as they are labeled above do represent competing interests in terms of the use of forest resources.

is to define and secure long-term rights in the name of the entire forest community: a task at odds with the ongoing trend toward privatization of rights.

A second trend takes the form of increasing rivalries between groups over access to resources. Such rivalries are evident both among the populations of the forest (e.g., between the Fulani and the Hausa of Garin Maigiya or between the Buzu and the Hausa of Mamouri) and between local and nonlocal populations (e.g., between the cooperative and the wood merchants of Maradi). Such rivalries present an obvious obstacle to the establishment of a common property system.

A third trend, related to the second but less apparent, also stems from the heterogeneous nature of local populations. In this case, the trend is not yet confirmed, though there are warning signs. The danger results from the susceptibility of existing social cleavages (e.g., of a political or an economic nature) to further erosion in the face of change, such as the change represented by the introduction of a new forest management regime. The risk of such erosion might result either from unbalanced representation of the various user groups within the framework of the cooperative or from the unique set of relations between each user group and an external authority such as the Nigerien state. While the former potential cause of erosion is self-evident, the latter bears a word of explanation.

The Nigerien state has historically attempted to protect the forest through enforcement of rules intended to curb exploitation of resources on the part of each of the user groups, whether farmer, herder, or wood merchant. However, each group exhibits a unique set of relations vis-à-vis the state, and, therefore, the groups are probably not treated equally.¹¹⁵ Unequal treatment appears to have played a role in the ineffectiveness of rules. There is some evidence to suggest that in the past the imbalance has discouraged conformity to rules on the part of marginalized groups who feel victimized (e.g., transhumant herders) and has likewise promoted disrespect for rules among favored groups who have learned to manipulate the system (e.g., wood merchants). The cumulative outcome is probably the increased socioeconomic differentiation of groups that may already, and with increasing justification as the resource base becomes more contested, be termed "rival" groups.

At the heart of the matter is the proved inability of the Nigerien state to enforce the rules it has enacted regarding forest resource exploitation, and there is little reason to believe it will be any more effective in enforcing rules adopted by the cooperative. The resultant arbitrary and often ambiguous enforcement of the forest code has little helped (and possibly hurt) efforts to preserve forest resources in general and increases the risk of further exaggerating politico-economic differentiation between groups through the systematic favoring of one group over another simply on the basis of relative accessibility vis-à-vis the state.

The inability of the Nigerien state to enforce rules is, of course, a compelling reason for the formation of a local forestry cooperative intended to assume at least some of the

115. This **unequal** treatment is not necessarily the result of systematic **discrimination**, but is the **inevitable** result of **unequal** access across groups to information, political influence, or material or economic resources.

responsibility for rule enforcement. However, each of the trends referred to above presents an obstacle to the smooth running of a forestry cooperative in the setting of the Baban Rafi forest. The strategy proposed for the cooperative in its attempt to counteract the trends is as follows. As an incentive to respect rules, the cooperative is to participate in the formulation of guidelines to regulate resource tenure and exploitation. The basic principle and ideal would be that the cooperative serve as a mechanism to ensure that exploitation rights in the context of the natural forest become secure enough and long-term (permanent) enough to compete with the long-established and widely recognized rights that result from conversion of the forest to farmland. The further requirement would be that expected economic benefits from forest resource exploitation be competitive (in the estimation of local participants) with those of increased farm production (to result from the supplementing of current farmland with newly cleared parcels). Both of these requirements suppose not only that stable arrangements will be arrived at whereby nonlocal exploiters of forest resources respect local claims, but also that local exploiters respect the claims of each other. The process of arriving at such arrangements (beyond the creation of a cooperative) has thus far been little specified.

Unanswered questions remain. Residents of Baban Rafi are faced with a variety of options of which pledging allegiance to the Baban Rafi Cooperative is but one. Individuals or households might choose, for example, to: (1) participate communally in cooperative activities and pledge to respect rules; (2) participate individually to transform the forest into farmland; or (3) participate individually to mine the forest for fuelwood to sell for individual gain (an option that will exist as long as the cooperative has not gained control over the fuelwood trade). To the extent that any option but the first is chosen by either residents or nonresidents, the cooperative will be faced with the problem of enforcement. To the extent that entire user groups (e.g., herders or wood merchants) decide against cooperation, the task of enforcement threatens to become insurmountable. The same is probably true if a single user group decides the cooperative is unlikely to gain the allegiance of another user group, in which case no user group would be serving its best interests by conforming to rules.

Short of the unanswered question of whether or not local populations would judge it in their best interests to participate in and respect the rules of a forest cooperative,¹¹⁶ the transfer of responsibilities to the populations of Baban Rafi is proving to be a very difficult matter in organizational and logistical terms. Following is a summary list of the most important of the research findings at Baban Rafi attesting to the difficulties of establishing a common property or locally self-reliant regime through a primary emphasis on a policy of devolution:

- A high rate of population growth promises a steadily increasing demand on the part of individuals and individual households for local forest resources to be exploited both

116. Although this retains the classification of an **unanswered** question, the record of **participation** in cooperative activities and respect for cooperative goals described in ch. 5 allows for, at best, a **guarded** optimism when one considers the long-term prospects for cooperative support **and** law abidance on the part of local **populations**.

commercially and to provide for subsistence, which intensifies the pressures faced by the resource management system.

- ▶ Whatever the situation in the past (forest management systems of the past in this region are little understood), current populations are faced with a general absence of local customs or traditions that might provide a base of support for centralized regulation of forest resources at the local level.
- ▶ A steady increase in the participation of local populations in market relations provides a variety of options available to individuals and households beyond participation in a cooperative and submission to cooperative rules.
- ▶ The heterogeneity of ethnicities, lifestyles, and work patterns, and therefore of the interests that guide use patterns of forest resources, present obstacles to consensus formation.
- ▶ The now deep-seated tradition of the state as the recognized authority in all civic and economic matters, including the use and regulation of natural resources, hinders the ability of local populations to place a great deal of faith in an institution both lacking of state representation and organized along the lines of an alien model."
- ▶ The nonlocal concentration of the economic and material means to exploit marketable forest resources (e.g., wood merchants from the city have trucks at their disposal while the residents of the forest do not) limits the management options available to local populations, increases dependence, and threatens the ideal of self-reliance.

The Natural Forestry Management Project at Baban Rafi is actively addressing the problems outlined above that stand in the way of organizational effectiveness. Such an effort requires a serious and long-term commitment in view of the complications. It is unclear at the time of this writing what degree of success may be expected in the long-term. Nevertheless, even if these problems are overcome, there remain important considerations of an institutional nature.

I would suggest that issues of *de jure* ownership within the natural forest are largely beside the point, at least, for the time being. In fact, the emphasis on designating the natural forest as the "property" of local populations may serve as a catalyst for conflict, as appears to be the case between the wood merchants of Maradi who regard with suspicion the ownership claims by the inhabitants of Baban Rafi that are supported (though not unambiguously) by the state and evolving national policies.

117. As Young et al. (1981, p. 11) remind us: the cooperative model as it was introduced to Africa is, after all, "alien."

Finally, and also in the context of institutional considerations, one might reformulate the concerns touched on above in terms of the twin problems of incentive and authority. Regarding the "problem of incentive," the primary interests of local inhabitants regarding the Baban Rafi forest may be loosely categorized as follows: (1) the forest as a source of revenues; (2) the forest as a reserve of farmland; and (3) the forest as a source of fodder. Regarding the "problem of authority," one notes that although popular participation in natural resource management is the goal both of Nigerien policy and the NFM project, each of the "interests" noted above must ultimately be subjected to the ecological limitations to be determined by (presumably) dispassionate scientific research organizations. In other words, unless projects and policies (e.g., the NFM project; the Nigerien Decree of 16 May 1990) that otherwise support devolution are willing to allow local populations to set the environmental criteria applied to resource exploitation (which they are currently clearly unwilling to do), popular participation in resource management will be limited to: (1) possible input into decisions concerning the overall production goals in terms of its division between the products of fuelwood, farmland and fodder; and (2) the distribution among populations of the benefits that result from forest production and exploitation. The consequent risk is that an uneven rate of participation in designated structures of resource management (e.g., the cooperative) would likely lead to nonrepresentative production goals and an uneven distribution of benefits, resulting in an accentuation both of "problems of incentive" and "problems of authority."

The first "interest" noted above (i.e., interest in the forest as a source of revenues) is the one currently in ascendance and is the motivation behind the formation of the cooperative. In part, the centrality accorded this interest results from the existence of authority structures beyond the borders of the Baban Rafi forest. The authority structures represented by the Nigerien government, the international community of donors and the NFM project are reacting to the following (probably correct) assumption: in the long run, the search for revenues from forest products poses perhaps the greatest threat to the environmental health of the forest. Demand for fuelwood from Baban Rafi is sensitive not only to urban population growth (which is increasing at rates in excess of 7% annually), but also to the reduction of stocks of fuelwood harvested from outside of the Baban Rafi forest. Moreover, the fuelwood market attracts entrepreneurs from well outside of the forest boundaries (and the attraction is likely to increase further as stocks go down and per-volume profits increase). In spite of the pressure on forest resources resulting from exploitation for fuelwood, however, it is not clear that local populations would have established the same priorities as those upheld by the NFM project. According to information gathered in the course of this study's random sample survey, increased agricultural production was considered by the majority of respondents as of higher priority than either preserving the forest or earning revenues directly from it.

In addition to the question of whether the apparent primary purpose of the cooperative conforms to local priorities, one must consider that the promise of the forest as a source of revenues most directly appeals to the individual, or perhaps to the family, as contrasted to the community. This is not an immutable rule, but, rather, stems from the difficulty inherent in establishing a resource such as a forest as true common property in a setting that

118. These twin problems are identified and discussed in Lawry (1989).

apparently lacks a tradition of commonly managed forests.¹¹⁹ As was illustrated in chapter 2, the settlements of Baban Rafi retain many of the characteristics of pioneer settlements, including perhaps a greater degree of individualism than might be true in more established settings. The attempt to establish a commonly managed system in order to obtain what in the end are individual benefits adds a layer of complexity that may or may not be subverted by individually minded settlers. One is forewarned of the complications of common property creation by observers such as Ostrom (1987, p. 263), who refers to common property regimes in Switzerland and Japan in noting:

These [common property] systems were not created by a single sweeping administrative reform that set up local councils in all communities. The power of local villages to regulate their own common properties was wrested from feudal lords during an epoch of struggle. Trial-and-error methods could be used as villagers became aware of the consequences of the current rules.

One might well ask whether common property regimes established in the context of commonly used resources are best described as the exception or the rule. And even if one has confidence that such regimes will eventually evolve, can the fragile natural resource base of the Sahel survive the necessary period of trial-and-error?

Such questions are not posed here as an argument against establishing a resource management system at Baban Rafi based on cooperation. They are intended, however, to underscore the inherent difficulties in doing so and the long-term commitment that will be necessary on the part of international donors and the Nigerien state if success is one day to be achieved. Project planners and implementers might do well to remain flexible regarding the particular model of social organization best suited to assume responsibilities for forest management. Although the democratic and egalitarian ideals of a cooperative are appealing, these ideals do not necessarily correspond to the pre-existing social structures and heterogenous societies of sites such as Baban Rafi. Nor are these ideals furthered by the needlessly detailed, formalistic, and hierarchically inclined legislative texts regulating cooperatives in Niger.

An extremely delicate balance is called for between participation (or, at least, representation) and voluntariness. As a matter of policy, the entire adult population of western Baban Rafi holds membership in the cooperative. Yet, if one considers membership to be voluntary, and if membership bears any relation either to participation or to representation, reality does not in this case conform to the policy. Perhaps populations should be invited to define themselves in different ways (i.e., other than as a wood marketing cooperative) and

119. It was noted in ch. 1 that some writers on common property even include the inherent difficulties in **establishing a** common property regime as a part of the definition of the term (see Bruce and Fortmann 1988, p. 2; and Berkes and Farvar 1989, p. 7).

to form any number of interest groups.¹²⁰ Participation, in other words, may be viewed by potential participants as an investment, and needs to allow for a reasonable expectation of some return. Special attention will need to be given to marginal groups (i.e., both the "low profile" user groups described in ch. 5 along with the "high profile" groups that risk undergoing a process of marginalization) that may be predisposed to low expectations from participation in an organization dominated by more advantaged groups. The NFM project is aware of this need and is taking steps to address it, but it remains a persistent problem.

The primary empirical conclusion of this study was stated at the conclusion of ch. 5: policies based on a devolution of forest management authority to local populations are not assured of being any more effective in preserving forest resources than have been policies based on state control—unless institutional issues spilling beyond the normal boundaries of policy implementation come to be adequately addressed. Whereas among the lessons imparted by this study is one that states there are no formulas or blueprints available for addressing such institutional issues as those outlined above, some suggestions of experimental approaches that might be tried (some of which have been) within the context of the NFM or similar projects are offered in the concluding section to this chapter.

Among the original intentions in conducting the present study was that its findings constitute lessons of practical interest to planners and implementors of similar efforts of natural forest management, especially efforts planned or under way in the Sahel. While blueprints should be neither compiled nor sought, the preceding discussion helps to illuminate certain snags encountered in a variety of settings involving natural forest management based on popular participation. Yet in the condensation of specific principles below, the more specific the suggestions enumerated, the more they should be understood to be offered in the spirit of experimentation.

The central operating principle proposed here stems from the observation that policy changes affected at a national level often encounter unexpected obstacles in the course of their implementation, and sometimes yield unforeseen consequences in the course of interactions with local, regional, and national institutions, practices, and profiles. Therefore, the better informed and more flexible implementation efforts are in terms of the local, regional, and national institutional landscapes, the better the chance that policies will achieve desired results. This line of reasoning follows from Montgomery (1981, p. 1), who goes so far as to call decentralization "more an art than a science."

In spite of the desired emphasis on research and flexibility advocated here, the broad categories of issues identified in the case of Baban Rafi in increasing local control over natural resources are very often the same categories of issues that must be addressed at sites throughout Niger and the Sahel. Details (and, therefore, appropriate reform strategies) vary,

120. This suggestion assumes that some flexibility would be extended by the Nigerien government in terms of current legal requirements regarding voluntary organizations. As Thomson (1985, p. 244) reminds us: "All Niger groups (public **and** private) must conform with relatively onerous administrative registration requirements to achieve the status of legal organizations."

of course, from site to site. Perhaps ironically, even the notion of variability might hold a useful general application. The purpose of this case study is not only to identify the issues, but especially to provide a glimpse of their site-specific complexity and interplay with attempts at institutional reform. A central lesson from Baban Rafi is that innovation, flexibility and attention to local institutions are much more valuable than blueprints, formulas, and theories in effecting forest management reforms. This lesson is deduced both from observations of a high degree of local complexity and the sometimes unanticipated nature of the interactions between local institutions and introduced reforms.

Devolution is found to be an overly specified rather than a misguided policy. Currently, Nigerien forests are widely (probably even generally) exploited as open access (i.e., nonproperty) resources. Consequently, the long-standing claim by the Nigerien state of ownership of most forests is, to a large degree, a fiction. In considering devolution to be the "granting" by the state of rights to local populations, the Nigerien state and the international community assume a position that suggests the solution to resource degradation is to be found in an adjustment of a pre-existing *de jure* system of property rights, thus ignoring prevailing *de facto* practices rooted in part in the weaknesses or absence of appropriate extralegal as well as legal institutions.

A more appropriate focus than devolution would be a focus on the establishment of appropriate institutions at all levels: local, regional, national, and even international. Such a framework will include a defined and regulated relationship between local populations, commercial interests, the state, and the international community. This focus is in contrast to the emphasis placed by devolution on a decrease in the authority and rights of the latter two in favor of an increase in the authority and rights of the former.

It is evident that a decision to implement a policy of devolution at a site such as Baban Rafi leaves many questions unanswered. The initial task of implementation is to identify "local" populations, and the more daunting follow-up is to aid them in organizing. One quickly finds that the lines between those possessing established interests and authority regarding forest resources are not easily drawn on the basis of geography. Further, in the current context of a long-established state and an increasingly monetized economy, one finds that the parallels between the portraits of customary land tenure discussed in chapter 1 and the societies of today's Baban Rafi forest are becoming increasingly tenuous.

Nevertheless, it is also important to recognize that local tenure rules *are* in force, and indications (concerning residential land, farms, and the trees thereon) are that they are evolving toward something resembling private property of their own accord. For example, one notes that land transfers involving the exchange of cash, though still numerically small in volume, are probably increasing. More to the point, indigenous tenure institutions such as the land clearing rule (discussed in ch. 3) provide a locally based mechanism that may increasingly be used to claim (for the good or the bad) portions of the natural forest as the private property of individuals. Similarly, rights to trees appear to be moving along the same road toward privatization.

The ongoing process of privatization regarding land and trees probably should not be interfered with. However, the unfolding of the process in the context of the natural forest will require special attention if ecological goals are to be met. If indigenous rules (e.g., the land clearing rule) are allowed to continue unchecked in the forest, it is almost certain the forest will not exist much longer. Moreover, indigenous rules will lead increasingly to conflict and chaos as resources become scarce. Clearly, devolution is not a complete solution to the environmental problems of Baban Rafi, just as it is unlikely to present a complete solution to environmental problems elsewhere.

There is no argument advanced here that should be taken as an attack on the advantages to be gained from organizing at the local level. The cooperative presents an opportunity to arrive at novel, democratic, and site-specific formulas of desired resource use by balancing customary interests against growing commercial aspirations. Considering the diversity characteristic of forest populations, this is already a tall and delicate order. But just as important, the cooperative is a forum for interaction between local populations and external participants in resource management. The cooperative, therefore, should not be considered (and should not consider itself to be) in isolation of or opposition to external interests. If the goal is to conserve the forest as a healthy natural system in the face of growing population pressure and increasing market demand for forest products, the concept of popular participation in the management of forest resources does not stop at the boundaries of the forest, but extends as well to the state and to externally based commercial actors, that is, to all who have established an interest in the forest. One notes optimistically that a promising initiative sponsored by the World Bank and conceived along the lines urged by this study was launched in Niger in 1990 under the name of *nergie* II.

Following is a list of specific steps that are supported by the conclusions of this study and that might be implemented (as some already have been) on an experimental basis. Some of these steps presuppose the high level of commitment and support on the part of the international community noted above. The levels of support called for in order to implement the following recommendations may be viewed by many as unrealistic, but in my view they simply reflect the magnitude and complexities of the problem of resource management in the fragile environment of the Sahel and the lack of simple solutions. On the other hand, it should be noted that many of these steps are included in the project designs either of the Natural Forest Management project operating at Baban Rafi or of *nergie* II operating at the national level, and some of these steps are increasingly found in the platforms of many other organizations operating at a growing number of sites.

1. Local organizing, whether according to the cooperative model or otherwise, is extremely valuable in providing a voice to local populations where such a voice has been long neglected. Local organizations, however, need to reflect a high level of representativeness in terms of local populations if they are to be viewed as legitimate and achieve high rates of participation (i.e., an emphasis on representation of the majority of local populations should act as a partial safeguard against elite domination). Therefore, consideration should be given to encouraging the separate development of local organizations in regions in which multiple lifestyles and occupations prevail (e.g., between farmers and herders, between men and women) in

recognition of the fact that local populations do not necessarily speak with one voice (see also suggestion below that local woodcutters could consider forming a trade union). Of course, such organizations would need to be independently supported and nurtured if they are not simply to provide an alternative configuration of elite domination. In other words, some form of advocacy and special support of otherwise neglected groups will be necessary. Special research into local sociopolitical configurations will be a prerequisite to defining agendas of this type.

2. The current forest code in Niger is needlessly complicated and largely unenforceable and should be abrogated in favor of the mobilization of decentralized and flexible units of the forest service, each supported by international aid agencies or nongovernmental organizations capable of implementing research programs and establishing regional technical guidelines to forest exploitation (management plans) in collaboration with local populations.

3. Cooperative legislation is needlessly detailed and restrictive and should be abrogated in favor of the encouragement and support of organizing according to locally-generated needs and desires. The corporatist structures of the Development Society and state-directed (as opposed to state-sponsored) associations should be dismantled. The principle that cooperatives are to include the entire adult population of particular geographical areas, though laudable for its democratic leanings, perhaps violates the general cooperative principle of voluntary membership, and introduces problems of an organizational nature leading to elite domination.

4. No restrictions to tree use that might interfere with the evolving system of private rights to trees and farmland should be applied to holders of currently occupied residential and farmland regarding the trees either naturally propagated or planted on these lands.

5. Pressures to expand the geographical limits of agriculture into territories currently occupied by natural forests *might* be alleviated to a degree through the provision of extensive technical aid and extension aimed at supporting appropriate soil management and agroforestry techniques. If there is "popular" (in the broadest sense) support for it, consideration might be given to the establishment of rigid limits beyond which agriculture would not be allowed to expand. However, local populations should not be expected to assume full enforcement responsibilities concerning such limits, at least not in the early stages of organizational reform.

6. Adequate parcels should be made available to satisfy the needs of herders regarding grazing and browse for livestock, perhaps on a rotating basis. A system should be put into place to diffuse information concerning the location and boundaries of such parcels. It should be recognized that this is among the most difficult—yet most necessary—of the steps to be taken, and will require extraordinary efforts in order to secure the participation of herders in the goal of clearly understanding and taking account of their particular needs and concerns.

7. Exploitation and trade of commercial fuelwood could be regulated as follows:

a. The state would retain management rights in the domain of natural forests as the agent responsible for establishing and enforcing the technical parameters of fuelwood harvesting patterns (e.g., offtake rates and rotations). This is by no means an easy solution since the state currently does not possess the resources either to determine or to enforce ecologically sound harvesting patterns, and would require long-term assistance from international sources. Nevertheless, it is important that the state assume this responsibility since it is unlikely that any substate entity such as a local cooperative could achieve both the consensus and the discipline to enforce rules made necessary by environmental limitations.

b. Local transporters of commercial fuelwood (most of whom are urban dwellers) should be organized into a cohesive and identifiable group that could be easily monitored by the government. Checkpoints along the routes used by transporters should be reinforced and steps should be taken to eliminate bribes and other irregularities.

c. Local woodcutters (to be recruited from the local rural population) could be organized into an organization resembling a trades union that might exist either as a component of or separately from the cooperative. Fuelwood transporters would be required to recruit woodcutters exclusively through the local organization of woodcutters. Bargaining would take place directly between the woodcutters and the transporters but would be monitored and perhaps mediated by the forest service (as above, supported in its early stages of development by an international agency).

d. Fuelwood prices would gradually cease to be regulated (i.e., maintained at artificially low levels) at the retail market and would reflect any taxes imposed on fuelwood exploitation.

e. Fuelwood taxes would be linked to management costs incurred by the state.

Two earlier-stated points bear repetition. First, the rather specifically worded suggestions noted above are intended for consideration in light of specific conditions at individual sites more than they are recommended for outright adoption,¹²¹ and, if adopted, a spirit of experimentation should be retained by the implementors. Second, many of the changes listed above are already in various stages of implementation at sites such as Baban Rafi or are represented in policy exercises and initiatives sponsored by such organizations as the World Bank (e.g., *Projet nergie II* in Niger) and the Government of Niger. The continued monitoring of the changes-in-progress promises eventually to advance understanding of popular participation in natural forest management well beyond that embodied in this paper.

The policy initiatives cited in this study, the supporting literature, and activities surrounding the implementation of the policies (represented in this study by the NFM project at Baban Rafi) are genuinely admirable efforts to advance in the global fight against natural resource degradation. It is far from my intention to criticize or detract from such efforts. The

121. This does not apply to suggestions 2 and 3, which would need to be addressed at the **national** level and are **beyond** the scope of specific sites. Nevertheless, **even national** policy **changes** might do well to retain a classification of "experimental."

intention is, rather, to contribute toward the illumination of some of the conditions that are relevant to the effort of natural forest management with popular participation as it unfolds at the single site of Baban Rafi and, further, to speculate on the findings in terms of the concepts on which the effort is based and in terms of the potential applicability at alternative sites of the lessons drawn from Baban Rafi.

Annex 1

GLOSSARY

Following is a list of terms that commonly appear in discussions related to the topic of this paper. Such discussions may be conducted within or across diverse bodies of literature whose contributors may be trained in one or more of a variety of disciplines. Some of these terms have yet to acquire standardized meanings (e.g., "social forestry" and "community forestry"), others have acquired a specific meaning within a discipline that may not be evident to readers from other disciplines (e.g., "community development," "community participation," "natural resource management"), while still others are occasionally misunderstood and misused (e.g., "common property"—especially where the term appears in literature dated before 1975).

The terms are briefly presented here as a guide to their use in this work. Where a definition has been borrowed from a published source, the source is noted. I have exercised some discretion in choosing particular definitions over others. I do not claim that the terms discussed below do or should carry identical meanings in other contexts.

Agroforestry

Agroforestry is a collective name for land use systems and technologies in which woody perennials (trees, shrubs, palms, bamboos, etc.) are deliberately combined on the same management unit with herbaceous crops and/or animals in some form either of spatial arrangement or of temporal sequence. In agroforestry systems, explains Raintree (1987, p. 50), there are both ecological and economic interactions among the different components.

Best interests

(See *rational/rationality*, below.)

*Common property*¹²²

One briefly notes here that there are some divergent—and some complementary—thoughts on this topic. Bromley and Cernea (1989, p. 15) stress the exclusive nature of common property in referring to it as "private property for the group" or "private property with consensus."¹²² Bruce and Fortmann (1988, p. 2), while not disagreeing with Bromley and Cernea, nevertheless insist that a basic characteristic of common property regimes is the difficulty and/or cost of excluding others from common-pool resources. Each of the aforementioned writers accepts the notion of common property as exclusive, which is a notion that explains why common property has become the ideal of many project planners and legislators.

One should not neglect to add, however, that some publications (mistakenly, in my view) continue to use the term "common property" to signify a nonproperty regime that in this paper is referred to as "open access." An economics text published in 1992, for example, states the following: "**Common property resources** are those that are not exclusively controlled by a single agent or source. If access

122. See also the extended discussion in ch. 1.

123. See also National Research Council (1986, p. 598).

to these resources in not restricted, the resources can be exploited on a first-come, first-served basis" (Tietenberg 1992, p. 45).

Community development

The original model of community development assumed that villagers, meeting with community development specialists, would express their needs and unite to design and implement self-help programs aimed at promoting rural development; and further assumed that rural development could be achieved through the direct transfer of Western agricultural technologies and social institutions, such as local democracy, to the rural areas of the Third World.¹²⁴ Such a definition of community development anticipates the "basic needs approach" in that it begins to consider development in terms other than growth of per-capita GNP. The term is conceptually compatible with cooperative formation and popular participation. Some recent writers refer to community development as a more locally self-reliant concept (similar to *community participation*, described below) than is generally understood to be a part of the original model. In a text published in 1992, Rubin and Rubin (1991, p. 3) observed that: "**Community development** occurs when people form their own organizations to provide a long-term capacity for problem solving."

Community forestry

Community forestry consists of community-based management systems that occur in or around forests (*Grassroots Development* 1991, p. 4). Community forestry is distinct from "social forestry," which is the planting of trees outside of forest areas, such as on farms or village plots (see *social forestry*, below, for reference).

Community participation

"Unlike community development, community participation involves an aggressive critique of existing power structures and social conditions and requires a far more direct role for ordinary people in deciding matters affecting their welfare" (Midgley 1986, p. 145).

Cooperative

In its broadest sense, a cooperative is a group of people working together to achieve a common goal. The goal is understood to be one that is definable in economic (especially commercial or financial) terms. One notes the following entry for the adjective "cooperative" contained in *Webster's New Universal Unabridged Dictionary*: "designating or of an organization, as for the production or marketing of goods, owned collectively by members who share in its benefits"; and for the noun "cooperative": "a co-operative society or enterprise; also, a member of such a society or enterprise."

In the rural setting, the term has been defined as follows: "A 'cooperative' is a formal organization embracing more than one agricultural production unit (household), membership in which requires that individual production units limit their operational independence, either by making use of the organization's services in certain aspects of their operation, or by accepting the organization's intervention in managerial decisions concerning the conduct of their agricultural activities" (Young et al. 1981, p. 13).

Cooperatives in developing countries are often subject to extensive regulation by governments. Such regulation is often spelled out in elaborate legislation that defines the dimensions, scope, and operations of all cooperatives operating within the national territory.¹²⁵

124. See Staatz and Eicher (1986, p. 48).

125. For a **presentation** of the Nigerien example, see ch. 4.

Decentralization

(See *devolution*, below.)

Degradation

Blaikie and Brookfield (1987, pp. 1, 4) point out that degradation signifies a reduction to a lower rank. The term is conventionally used to indicate a loss in productivity of a resource, most often considered in terms of agricultural or livestock production.

Desertification

Grainger (1990, p. 7) defines desertification as the degradation of lands in dry areas. The United Nations Conference on Desertification adopted a definition of desertification as the diminution or destruction of the biological potential of the land, and added that this can lead ultimately to desert-like conditions (Grainger 1990, p. 8). The term is generally understood to include the notion that human societies play a role in desertification (Nicholson 1986, p. 107).

Development

Development has long been understood to be epitomized by industrialization and growing economies. By the late 1960s, however, such a view was no longer universally acceptable. Dudley Seers, for example, begins a 1969 essay on the meaning of development with the question: "Why do we confuse development with economic growth?" Many definitions of development have, therefore, expanded the concept to include economic growth as only one of a number of specific and nonspecific indicators of human welfare: "development is economic growth along with a more egalitarian access to income-generating opportunities; it is bound up in and necessitates the general improvement of human capacity and a general reduction of mass poverty and unemployment, together with enhanced security" (Thiesenhusen 1976, p. 7).

Some recent thoughts on the nature of development have dropped the concept of economic growth altogether: "[Development is] an expansion of peoples' choices in terms of how resources (in the broadest sense) are expended; a [growing] capacity defined by what people can do with whatever they have to improve their quality of life and that of others" (Ackoff 1984, p. 195); or more simply: "Development is a word that implies movement from a worse to a better situation: 'developed' is to be preferred to 'underdeveloped'" (Van Arkadie 1987, p. 109).

Development Society

On 29 October 1979, the military government of Niger issued Decree 79-165 to establish a commission, to be known as the Development Society, to implement a national network of organizational structures. This action (and its accompanying publicity) to install a democratic and peaceful—though claiming to be revolutionary—organizational framework to support and coordinate development and create the institutions needed for progress captured the imagination of domestic and international developmentalists alike. Government statements depict the new order as one that (1) is tailored to the mentality of Nigeriens, (2) will provide security against famine, (3) will safeguard authentic values and civilization, (4) will promote harmonious and dignified development, and (5) accepts socioeconomic realities and rejects all development models based on universal ideologies (Niger 1988, p. 13).

126. See Seers (1979, pp. 9-30). As one might expect, Seers rejects the equation of development to economic growth and instead insists on a normative definition: "Development' is inevitably a normative concept, almost a synonym for improvement. To pretend otherwise is just to hide one's value judgments" (p. 10).

Devolution

Devolution is classically explained in terms of its relationship to decentralization and deconcentration: "There are actually two forms of decentralization—administrative and political. Administrative decentralization is commonly called **deconcentration and** means the delegation of some implementing powers to local levels.... Political decentralization, or **devolution**, means that some decision-making authority and control over resources is assigned to regional and local officials" (Bryant and White 1982, pp. 160-61). Thus while decentralization in its guise as deconcentration is generally understood to indicate a geographical configuration of administrative functions, devolution takes the notion a step further by including power (autonomous **decision-making**) as an element to be decentralized.

The association of devolution with the decentralization of power or authority is commonly acknowledged in the literature. As noted in the report of a conference convened by USAID in 1968 on the topic of the implementation of Title IX of the Foreign Assistance Act: "There is a distinction of course between devolution of authority ... and decentralization of function from the center" (Hapgood 1969, p. 113). The simple use of the term "decentralization" is noncommittal regarding the prevailing power configuration.

In addition to an increase in real authority at the local level, it has been suggested that devolution inevitably implies autonomy and independence (Sherwood 1967). Maddick places devolution and deconcentration at opposite ends of a continuum measured in terms of tendencies toward hierarchy:

Decentralization—embracing both processes of deconcentration and devolution.

Deconcentration—the delegation of authority adequate for the discharge of specified functions to staff of a central department who are situated outside the headquarters (hierarchical).

Devolution—the legal conferring of powers to discharge specified or residual functions upon formally constituted local authorities (non-hierarchical)."

The clear implications are that while devolution confers power on local authorities, at the same time it reduces the power of the central authority, which no longer may claim a superior position within a hierarchy. Therefore, devolution constitutes a true transfer of power.

In spite of the efforts found in the literature to standardize the definitions of such terms as devolution and decentralization, one is cautioned against locking into one or another of the definitions. As John Montgomery (1981, p. 1) remarks: "Decentralization is more an art than a science.... The reality of decentralization changes almost as readily as its rhetoric."

In the context of the present study, devolution takes on a slightly more specialized meaning than indicated in the discussion above. Whereas a classical understanding of devolution tends to consider the term within the framework of governmental institutions, devolution is used in the present paper as a handy label for the process of increasing the rights and responsibilities of local **nonstate** officials and leaders and, most especially and generally, of local populations. In summary, in this paper the term most often refers to the decentralization of decision-making (management) authority or property rights regarding natural resources and, further, to the transfer of authority and rights from the state to civil populations.

Economic development

The traditional understanding of economic development has been expressed as follows: "Economic development entails the diversion of a nation's scarce resources and productive powers to the augmentation of its stock of productive wealth and to the progressive enlargement of its gross and net national product of goods and services" (Spengler 1961, p. 9).

127. Henry Maddick, *Democracy, Decentralization and Development* (London: Asia Publishing House, 1963), p. 23, as cited in Sherwood (1967, p. 7)7.

It is a recent phenomenon that statements defining economic development often reflect environmental concerns in addition to the traditional emphasis on growing economies. For example, the *World Development Report, 1991* defines the term as follows: "a **sustainable** increase in living standards that encompass material consumption, education, health, and environmental protection" (World Bank 1991, p. 31; emphasis added).

Farm forestry

The establishment of **plantations on individual farms** (Grainger 1990, p. 245).

Institutions

Institutions are rules and conventions of society that facilitate coordination among people regarding their behavior (Bromley 1989, p. 22). Institutions determine the nature and scope of individual choice sets from within which maximizing decisions will be selected (ibid., p. 5).

Natural resources

Resources are a property of things found in the material and nonmaterial human environment—a property that is a result of human capability (De Gregori 1987, p. 1243). In other words, resources do not exist independent of human society, the latter which applies technologies to things and in the process creates resources. One retains especially the notion that one **makes use of resources—natural** resources signifying usable materials found in nature.

Natural resources management

"If one term can characterize [economic-environmental] thinking during the 1980s it probably is 'resources management.' This term implies beneficial use of natural resources, but use that is tempered with concern for future generations" (Dixon 1990, p. 6).

Open access

Open access signifies resources existing in a nonproperty regime, that is, the condition of resources to which access is denied to no one (Bromley 1989, p. 205).

Popular participation

In the context of this study, popular participation signifies especially the involvement of local peoples in tree-growing, forest-management, or forest-conservation activities and the channeling of some of the benefits resulting from these activities directly to the participants; this notion provides the common thread running through the "participative" types of forestry: farm forestry, agroforestry, social forestry, and community forestry (*Grassroots Development* 1991, p. 4). One notes that the concept of popular participation does not necessarily address the question of possible organizational forms for local participation, an element that is central to the present study based on a project to create a forestry cooperative.

Property

Property is a social institution that implies a system of relations between individuals: "A property relationship is at the minimum triadic: the person or other social unit, the object or locus of scarce values, and the potential challenger to 'rights.' Property relationships may also be very complex, with various social units holding common or diversified rights in the same locus of value, varying rights of disposal, transfer, use, and appropriation of increase" (Moore 1961, p. 64).

Property has also been described as a socially recognized claim on something of value, allowing for a secure set of expectations related to a particular benefit flow. It is the expectation that

matters—an expectation sanctioned by the collectivity and enforced by the collectivity (Bromley 1989, p. 203). It is important to recognize that "property" designates a set of social relations in which the key element is the right to **exclude** resource access to others. This function is accomplished in industrialized countries primarily through a legal system designed to support and protect private property holdings.

Rational/rationality

Use of this term within the present study is not rigorously based on a strict reading of neoclassical economics, but rather is based on the spirit articulated by Adam Smith in the phrase: "private vices yield public benefits" (Friedmann 1987, p. 19). Such a spirit permeates neoclassical economic literature as well as much of the recent natural resource management literature.

In neoclassical economics the term most often is used as a label applied to the basic assumption of economists regarding consumer behavior. A representative definition of the term is as follows: "Given the consumer's tastes, we assume that he or she is rational, in the sense that he or she tries to maximize **utility**" (Mansfield 1985, p. 53; emphasis in original). A second foundational assumption of neoclassical economists—that producers generally act to maximize profits—is also included in the notion of rationality as it is used in this study. The maximizing tendencies and strategies of consumers and producers in terms of utility and profits are here lumped together under the phrase "best interests" or "self-interests." The general principle is simply that resources at hand are expended according to the judgments of consumers and producers seeking to obtain the highest level of benefits possible on the basis of available information. Best interests are revealed through the behavior of individuals (or groups) acting rationally.

Friedmann terms the unrestrained pursuit of self-interest by individuals and corporations as **market rationality** (according to which doctrine "the individual is assumed to be logically prior to society, and the satisfaction of material needs is said to be the principal reason people live in social groups") and contrasts it to social rationality (which assumes that social formations are logically prior to the individual) (Friedmann 1987, p. 20). Clearly, the doctrine of market rationality is that which guides much of neoclassical economic and conventional development thought and thus constitutes the brand of rationality referred to throughout this paper.

Sahel

The word "Sahel" is derived from the Arabic term for margin or shore (Delehanty 1988, p. 45).¹²⁸ It has become a place-name commonly used to indicate a zone, approximately 200 to 400 kilometers wide, extending along the southern border of the Sahara desert from the Atlantic seaboard to the Indian Ocean and described by some as: "an eco-climatically autonomous region, largely defined by its highly variable precipitation and its characteristic therophyte ('summer prairie') vegetative communities, and roughly bracketed by the 100 and 500 millimeter isohyets" (Gritzner 1988, pp. 3-4).

As a political designation, the term is used to indicate the portion of the zone described above that is in West Africa. The countries containing significant portions of territory considered to be within the West African Sahel are known as the Sahelian, or CILSS countries—the latter by virtue of their formation into an organization called the *Comité Permanent Inter-États de Lutte contre la Sécheresse dans le Sahel* (Permanent Committee to Fight against Drought in the Sahel, CILSS), which includes the following countries: Burkina Faso, Cape Verde, Chad, Gambia, Guinea Bissau, Mali, Mauritania, Niger, and Senegal.

128. For a good summary of climatic and biotic features, topography, and soils of the Sahel, see Delehanty (1988, pp. 45-58).

Samarya

In the modern context, Samarya—along with cooperatives—is one of the pre-existing base institutions of the Development Society. The *Samarya* network is the expression of a national policy to promote collective work at the village level. The name signifies traditional youth organizations active in political struggles against the French colonizing state in the late 1940s and 1950s and banned as a result of such activities. It was rehabilitated in 1975 by the military regime in power in Niger since the coup d'état of April 1974. In its reincarnation as a national movement sponsored by the government of Niger, *Samarya* has little other than its name to tie it to its origins in traditional society.

Social forestry

Social forestry is the **planting** of trees by local communities outside regular forest areas (Grainger 1990, p. 217).

Sustainability

Sustainability is used here to signify a condition in which exploitation of a resource, of a group of resources, or of an ecological zone does not exceed regeneration of the resources nor does it prevent maintenance of the ecological zone in a nondegraded state.

Sustainable development

Sustainable development is defined by the World Commission on Environment and Development (1987, p. 43) as development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

Tenure

Tenure is the set of rights which a person or some private or public entity holds in land or trees (Bruce 1990, p. 1). One commonly refers to these rights as a bundle that can be broken up, redivided, passed on to others, and the like (Riddell 1987, p. 2).

Annex 2

LEGISLATIVE TEXTS

The following legislative texts were consulted in the course of this study. Brief descriptions of the laws that appear as part of the headings of the official documents are included below, following the law identification code and date. Abbreviations are explained in the list of abbreviations (see p. x).

Arretd 05/MHE/DFE, 16juillet 1987

Portant application de l'Ordonnance 87-011 du 12 mars 1987 relative a la délivrance du permis de coupe de bois et du Décret 87-037/PcMs/MHE du 12 mars 1987 portant tarification des redevances perçues a l'occasion de la délivrance du permis de coupe de bois.

Arrêté 03/MHE/DE, 5 février 19%

Modifiant l'Arrêté 05/MHE/DFE du 16/07/87 portant application de l'Ordonnance 87-011 du 12 mars 1987 relative a la délivrance du permis de coupe de bois et du Décret 87-037/PcMs/MHE du 12 mars 1987 portant tarification des redevances perçues a l'occasion de la délivrance du permis de coupe de bois.

Arrêté 048/MAG/EL/CNcR, 16 mai 1990

Détaillant les droits d'usufruit accordés aux communautés villageoises qui participent a la gestion des ressources naturelles de leurs terroirs (see annex 3).

Décret, 20juillet 1900

Rélatif au régime forestier du Sénégal et dépendances.

Décret, 23 octobre 1904

Portant organisation du domaine en Afrique Occidentale Française.

Décret, 4 juillet 1935

Sur le régime forestier de l'Afrique occidentale française.

Décret 72-88 MER/MI, 20juillet 1972

Portant interdiction de la chasse au Niger.

Décret 74-226 PCMS/MER/CAP, 12 aotlt 1974

Fixant les conditions d'application de la Loi 74-7 du 4 mars 1974 fixant le régime forestier.

Décret 79-05 PCMS/MDR, 18janvier 1979

Portant application de l'Ordonnance 78-19 du 12 octobre 1978 portant statut des organismes ruraux a caractère coopératif et mutueliste.

Décret 87-037 PCMS/MtHE, 12 mars 1987

Portant tarification des redevances perçues a l'occasion de la délivrance du permis de coupe de bois.

Loi 74-7, 4 mars 1974

Fixant le régime forestier

Ordonnance 74-16, 23 août 1974

Modifiant et complétant la *Loi 74-7* du 4 mars 1974 fixant le régime forestier.

Ordonnance 78-19, 12 octobre 1978

Portant statut des organismes ruraux a caractère coopératif et mutueliste.

Ordonnance 87-011, 12 mars 1987

Relative A la délivrance du permis de coupe de bois.

Annex 3**COMPLETE TEXT OF DECREE OF 16 MAY 1990
(recent legislation favoring devolution)****ARRÊTÉ NO. 048/MAG/EL/CNCR DU 16 MAI 1990**

**détaillant les droits d'usufruit accordés aux communautés villageoises
qui participent à la gestion des ressources naturelles de leurs terroirs**

ARTICLE premier

Afin d'encourager la gestion participative des ressources naturelles, et dans le souci d'une exploitation rationnelle, faite dans le respect des normes techniques établies ou à établir, les droits d'usufruit ci-après sont accordés aux communautés villageoises participantes à la gestion des ressources forestières de leurs terroirs: prélèvements de tous les assortiments de bois (bois d'œuvre, bois de service, bois-énergie) ainsi que prélèvements des écorces, des feuilles, des fruits, des produits d'exsudation, des plantes médicinales, des plantes alimentaires, et de tout autre sous produit forestier.

ARTICLE 2

L'établissement des normes techniques d'exploitation des ressources forestières (plan de gestion) de chaque site géré dans le cadre d'une activité de développement, incombe, en collaboration avec les communautés villageoises intéressées, à la structure chargée, au niveau dudit site, de l'encadrement et du suivi des populations bénéficiaires.

ARTICLE 3

Le bénéfice de l'exploitation des ressources forestières visées à l'ARTICLE 1 est réservé en priorité aux communautés villageoises des sites concernés. Cependant, s'il est déterminé que la participation desdites communautés n'est pas suffisante pour permettre d'atteindre les objectifs sylvicoles pouvant être attendus (cas de sous exploitation liée à une importance des ressources), le prélèvement sera permis, selon des modalités à convenir, à des personnes autres que celles des sites.

ARTICLE 4

11 peut être provisoirement mis fin à l'exploitation: s'il est déterminé que les objectifs sylvicoles sont satisfaits pour l'année, c'est à dire que toutes les ressources exploitables pour l'année (possibilité de la forêt) ont été prélevées; si la manière d'exploiter n'est pas conforme aux normes sylvicoles prescrites dans le plan de gestion. Dans ce cas, la structure d'encadrement et de suivi tiendra des réunions avec les communautés villageoises pour résoudre les non conformités.

ARTICLE 5

Au niveau de chaque site géré, le Conseil sous Régional de Développement concerné sera arbitre dans le cas de désaccords non résolus ou des interprétations différentes de documents entre les communautés villageoises et la structure d'encadrement et de suivi.

ARTICLE 6

Les droits d'usufruit fixés par le présent arrêté seront pris en considération par le Code Rural.

ARTICLE 7

Les préfets, les sous-préfets, et le Directeur de l'Environnement sont chargés de faire appliquer le présent arrêté qui prend effet pour compter de sa date de signature et qui sera publié au *Journal Officiel* de la République du Niger.

English translation'
of

DECREE NO. 048/MAG/EL/CNCR OF 16 MAY 1990

ARTICLE 1

In order to encourage participatory management of natural resources, together with a concern for their rational exploitation following established (or to be established) technical norms, the following usufruct rights are granted to village communities that participate in forest resource management on their traditional lands: harvesting of all types of wood (timber, building poles, firewood) as well as bark, leaves, fruits, gums, medicinal plants, food plants, and all other secondary products.

ARTICLE 2

The establishment of technical norms for the exploitation of forest resources (e.g., a management plan) for each site managed as part of a development program is the responsibility of the charged with the training and follow-up of the participating communities.

ARTICLE 3

The benefits incurred from the exploitation of forest resources mentioned in ARTICLE 1 are reserved in priority for the involved village communities. However, if it is determined that the community is incapable of attaining the harvest objectives set out in the management plan (i.e., in case of underexploitation of significant available resources), harvests will be permitted, according to suitable procedures to be established, by persons outside of the village communities.

ARTICLE 4

Harvesting operations can be temporarily suspended:

▶ If it is determined that silvicultural objectives have been met for the year (i.e., all of the exploitable resources for the year have been removed).

▶ If harvest methods do not conform to silvicultural norms prescribed in the management plan. In this case, the institution responsible for training and follow-up will hold meetings with the village communities to resolve this problem.

ARTICLE 5

At each management site the Sub-regional Development Council will arbitrate all unresolved conflicts or differences of interpretation of the management plan between the village communities and the institution responsible for training and follow-up.

129. Following is the **unofficial** translation included in Rands (1990).

130. Institution in this context could be a government service, **a nongovernmental organization**, or any combination of **public and private development organizations**.

ARTICLE 6

Usufruct rights established by this decree will be recognized by the Rural Code.

ARTICLE 7

Préfets, sous Préfets, and the Director of the Environment are instructed to implement the present decree, which takes effect on the date of signature and which will be published in the *Official Journal* of the Republic of Niger.

REFERENCES

- Abass, Tidjani. 1990. *Contribution d l'Évaluation des Terres de la Forêt de Baba N'Rafi*. Niamey, Niger: Université de Niamey, Faculté d'Agronomie.
- Ackoff, Russell L. 1984. "On the Nature of **Development** and Planning." In *People Centered Development: Contributions toward Theory and Planning Frameworks*, edited by David C. Korten and Rudi Klauss, pp. 195-197. West **Hartford**, Conn.: Kumarian Press.
- Angoh, Abdou. 1989. *Etude de l 'Utilisation des Terres autour de la Forêt Naturelle de Baban-Rafi (Madarounfa)*. Kolo, Niger: Institut Pratique de Développement Rural.
- Berkes, Fikret, and M. Taghi Farvar. 1989. "Introduction and Overview." In *Common Property Resources: Ecology and Community-Based Sustainable Development*, edited by F. Berkes, pp. 1-17. London: Belhaven Press.
- Blaikie, Piers, and Harold Brookfield. 1987. *Land Degradation and Society*. London: Methuen.**
- Bromley, Daniel W. 1989. *Economic Interests and Institutions: The Conceptual Foundations of Public Policy*. Oxford: Basil Blackwell.**
- Bromley, Daniel W., and Michael M. Cernea. 1989. *The Management of Common Property Natural Resources: Some Conceptual and Operational Fallacies*. Washington, D.C.: World Bank.
- Bruce, John W. 1988. "A Perspective on Indigenous Land Tenure Systems and Land Concentration." In *Land and Society in Contemporary Africa*, edited by R.E. Downs and S.P. Reyna, pp. 23-52. Hanover, N.H.: University Press of New England.
- . 1990. "Community Forestry: Rapid Appraisal of Tree and Land Tenure." *Community Forestry Note*, no. 5. Rome: United Nations, Food and Agriculture Organization.
- Bruce, John W., and Louise Fortmann. 1988. "Why Land Tenure and Tree Tenure Matter: Some Fuel for **Thought**." In *Whose Trees? Proprietary Dimensions of Forestry*, pp. 1-33. Boulder, Colo.: Westview Press.
- Bryant, Coralie, and Louise G. White. 1982. *Managing Development in the Third World*. Boulder, Colo.: Westview Press.
- CILSS (Comité Permanent Inter-États de Lutte contre la Scheresse dans le Sahel / Permanent Committee to Fight Desertification in the Sahel). 1988. *Analyse des Textes Législatifs et Réglementaires des Pays Membres du Cass en Matière re de Gestion des Ressources Naturelles*. Ouagadougou, Burkina Faso: CILSS, Secrétariat Exécutif.
- CILss, and Club du Sahel. 1981. *Analyse du Secteur Forestier et Propositions: Le Niger*. 3 vols. Paris: CILSS and Club du Sahel.**
- . **1988a. *Joint Work Program of the Cass and Club du Sahel Secretariats for 1989-19910***. Paris: Organisation de Cooperation et de Développement Économiques/Club du Sahel/CILss, November.
- . **1988b. "Regional Encounter for a Better Socio-Ecological Balance in the Rural Sahel" / Background and preparation of meeting to be held March 1989**. Paris: CILss and Club du Sahel.

- . 1988c. *Le Sahel Face aux Futurs: Dépendance Crois.yante ou Transformation Structurale*. Paris: Organisation de Cooperation et de Développement Economiques/Club du Sahel/CiLss.
- David, Philippe. 1964. "Maradi: l'ancien état et l'ancienne ville des origines aux inondations de 1945-site, population, histoire." *Documents des Etudes Nigériennes*, no. 18.
- De Gregori, Thomas R. 1987. "Resources Are Not; They Become: An Institutional Theory." *Journal of Economic Issues* 21(3): 1241-1263.
- Delehanty, James Matthew. 1988. "The Northward Expansion of the Farming Frontier in Twentieth Century Central Niger." 2 vols. PhD thesis, University of Minnesota.
- Delehanty, James et al. 1985. "Étude d'évaluation de la vallée de la Majjia au Niger: rapport sociologique." Niamey, Niger: CARE International.
- Dennison, Steve. 1990. A *Technical Assessment of Natural Forest Management Activities in Niger*. Niamey, Niger: USAID.
- Dixon, John A. 1990. "Natural Resources and the Concept of Sustainability." Paper prepared for lecture series, "Agriculture, Natural Resources and the Environment," sponsored by College of Agricultural and Life Sciences, University of Wisconsin-Madison, 11 October.
- Djibo, Hadiza, and Thomas Price. 1990. *Etude Socio-Économique de Huit Villages Riwrains de la Forêt de Baban Rafi*. Maradi, Niger: CARE International, Projet Aménagement des Forts Naturelles (NFM Project).
- Dumont, René. 1986. *Pour l'Afrique j'Accuse*. Paris: Librairie Plon.
- Ega, Lawrence Alegwu. 1980. "Status, Problems, and Prospects of Rural Land Tenure in Kaduna State and Some Reflections on Land Tenure Policies in Nigeria." PhD thesis, Cornell University, Ithaca, N.Y.
- Fortmann, Louise. 1988. "The Tree Tenure Factor in Agroforestry with Particular Reference to Africa." In *Whose Trees? Proprietary Dimensions of Forestry*, edited by Louise Fortmann and John Bruce, pp. 16-33. Boulder, Colo.: Westview Press.
- Franke, Richard W., and Barbara H. Chasin. 1981. *Seeds of Famine: Ecological Destruction and the Development Dilemma in the West African Sahel*. Montclair, N.J.: Allanheld, Osmun and Co.
- Friedmann, John. 1987. *Planning in the Public Domain: From Knowledge to Action*. Princeton, N.J.: Princeton University Press.
- Fugelstad, Finn. 1978. "A Reconsideration of Hausa History before the Jihad." *Journal of African History* 19(3): 319-339.
- Grainger, Alan. 1990. *The Threatening Desert: Controlling Desertification*. London: Earthscan Publications.
- Grassroots Development*. 1991. "Focus: Community Forestry and the Environment." Vol. 15, no. 3, special issue.
- Greenberg, Joseph H. 1946. *The Influence of Islam on a Sudanese Religion*. New York: J.J. Augustin.
- . 1947. "Islam and Clan Organization among the Hausa." *Southwestern Journal of Anthropology* 3(3).

- Grégoire, Emmanuel. 1986. *Les Alhazai de Maradi (Niger): Histoire d'un Groupe de Riches Marchands Sahéliens*. Paris: ORSTOM.
- Gritzner, Jeffrey A. 1988. "The West African Sahel: Human Agency and Environmental Change." Geography Research Paper, no. 226. Chicago: University of Chicago, Committee on Geographical Studies.
- Hallam, W.K.R. 1966. "The Bayajida Legend in Hausa Folklore." *Journal of African History* 7(1).
- Hapgood, David, ed. 1969. *Role of Popular Participation in Development: Report of a Conference on the Implementation of Title IX of the Foreign Assistance Act, June 24 to August 2, 1968*. Max F. Milliken, chairman; Lucian W. Pye, co-chairman. Cambridge, Mass.: MIT Press.
- Harriss, Barbara. 1982. *The Marketing of Foodgrains in the West African Sudano-Sahelian States*. Andhra Pradesh, India: ICRISAT.
- Hill, Polly. 1970. *Studies in Rural Capitalism in West Africa*. Cambridge, Eng.: Cambridge University Press.
- . 1977. *Population, Prosperity, and Poverty: Rural Kano 1900 to 1970*. Bristol, Eng.: Cambridge University Press.
- Hiskett, Mervyn. 1976. "The Nineteenth-Century Jihads in West Africa." In *The Cambridge History of Africa*, edited by John E. Flint. Cambridge, Eng.: Cambridge University Press.
- Hopkins, Christopher et al. 1991? "Re-Inventory of Parcelle I of Guesselbodi Forest, Republic of Niger." Niamey, Niger: United States Peace Corps, n.d.
- Ichaou, Aboubacar. 1991. "Rapport de stage: contribution A la mise en place d'un système de et de suivi statistique du trafic de bois-énergie aux entrées des villes de Niamey, Maradi, Zinder et Tahoua." Niamey, Niger: **Projet nergie II—Volet Offre**.
- de Guide Pratique d'Implantation des Coopératives Forestières dans le Cadre de l'Aménagement de la Forêt Naturelle de Baban Raft*. PN 18. Maradi, Niger: Direction de l'Environnement/CAR: International, October.
- Lawry, Steven W. 1989. "Tenure Policy toward Common Property Natural Resources." LTC Paper, no. 134. Madison: Land Tenure Center, University of Wisconsin. Published in *Natural Resources Journal* 30 (1990).
- Levtzion, Nehemia. 1985. "Slavery and Islamization in Africa." In *Slaves and Slavery in Muslim Africa*, vol. 1, edited by J.R. Willis. Totowa, N.J.: Frank Cass.
- . 1987. "Merchants vs. Scholars and Clerics in West Africa: Differential and Complementary Roles." In *Rural and Urban Islam in West Africa*, edited by Nehemia Levtzion and H.J. Fisher, pp. 21-37. Boulder, Colo.: Lynne Rienner Publishers.
- Lovejoy, Paul E. 1978. "The Role of the Wangara in the Economic Transformation of the Central Sudan in the Fifteenth and Sixteenth Centuries." *Journal of African History* 19(2): 173-193.
- Mansfield, Edwin. 1985. *Microeconomics: Theory and Applications*. 5th ed. New York: W.W. Norton and Company.
- McLain, Rebecca. 1992. "Recommendations for a New Malian Forest Code: Observations from the Land Tenure Center's Study of Land and Tree Tenure in Mali's Fifth Region." LTC Research Paper, no. 108. Madison: Land Tenure Center, University of Wisconsin, June.

Midgely, James. 1986. "Community Participation, the State and Social Policy." In *Community Participation, Social Development and the State*, edited by James Midgely, pp. 45-160. New York: Methuen.

Montgomery, John D. 1981. "On the Decentralization of Integrated Rural Development Activities." Development Discussion Paper, no. 123. Cambridge, Mass.: Harvard Institute for International Development.

Moore, Wilbert E. 1961. "The Social Framework of Economic Development." In *Tradition, Values and Socio-Economic Development*, edited by Ralph Braibanti and Joseph J. Spengler, pp. 57-82. Durham, N.C.: Duke University Press.

National Research Council. 1986. *Proceedings of the Conference on Common Property Resource Management*. Washington, D.C.: National Academy Press.

Nicholson, Sharon. 1986. "Climate, Drought and Famine in Africa." In *Food in sub-Saharan Africa*, edited by Art Hansen and Della E. McMillan. Boulder, Colo.: Lynne Rienner Publishers.

Niger. 1982. *Séminaire National sur les Stratégies d'Intervention en Milieu Rural* (workshop held in Zinder, 15-22 November 1982). Niamey: Conseil Militaire Suprême, Ministère du Développement Rural.

———. 1986a. "Contribution du Département de Maradi aux travaux préparatoires du plan quinquennal 1986-90." Maradi: Département de Maradi, April.

———. 1986b. *Monographie de l'Arrondissement*, 1986. Maradi: Département de Maradi, Arrondissement de Madarounfa.

———. 1988. *Annuaire Statistique: Edition 1986-87*. Niamey: Ministère du Plan, Direction de la Statistique et de l'Information.

———. 1989. "Deuxième recensement général de la population, 1988." Résultats provisoires. Niamey: Ministère du Plan et de la Planification Régional, Bureau Central du Recensement, January.

———. 1990a. *Compte Rendu du Séminaire-Atelier sur l'Expérience Nigérienne en Matière d'Aménagement Forestiers Villageois pour la Production de Bois-Energie* (workshop held in Torodi, 12-19 February 1990). Niamey: Ministère de l'Hydraulique et de l'Environnement, Direction de l'Environnement/Projet nergie II—Volet Offre.

———. 1990b. *Note Relative au Dépouillement de l'Inventaire Forestier de la Fort de Baban Rafi (Département de Maradi)*. Niamey: Ministère de l'Hydraulique et de l'Environnement/Projet nergie II—Volet Offre.

Noronha, Raymond, and John S. Spears. 1985. "Sociological Variables in Forestry Project Design." In *Putting People First: Sociological Variables in Rural Development*, edited by Michael M. Cernea, pp. 227-265. Oxford: Published for World Bank by Oxford University Press.

Oluwasanmi, H.A. 1966. *Agriculture and Nigerian Economic Development*. Oxford: Oxford University Press.

Ostrom, Elinor. 1987. "Institutional Arrangements for Resolving the Commons Dilemma: Some Contending Approaches." In *The Question of the Commons*, edited by B.J. McCay and J.M. Acheson, pp. 250-265. Tucson: University of Arizona Press.

Poulsen, Gunnar. "The Non-Woody Products of African Forests." *Unasylva*, no. 137, pp. 15-21.

- Projet SALAMA. 1987. "Early Draft Proposal for the SALAMA Project." Niamey, Niger: CARE International, September.
- . 1988. *Document du Projet*. Niamey, Niger: PNuD/UNso/République du Niger/CARE International.
- . 1991. "Plan provisoire d'aménagement de la fort de Baban Rafi, Département de Maradi." Niamey, Niger: Direction de l'Environnement/CARE International.
- Puccioni, Vanni. 1991. "Étude des éléphants de Baba N'Rafi: rapport final" / by ARCA Consulting, Rome. Niamey, Niger: République du Niger, Ministère de l'Hydraulique et de l'Environnement/CARE International au Niger.
- Raintree, John B. 1987. "Agroforestry: Tropical Land Use and Tenure." In *Land, Trees and Tenure: Proceedings of an International Workshop on Tenure Issues in Agroforestry*, edited by John B. Raintree, pp. 35-78. Madison: Land Tenure Center, University of Wisconsin, and International Council for Research in Agroforestry.
- Rands, Barry. 1990. "Memorandum to NEws ITEM: Niger Issues Ministerial Decree Permitting Local Populations to Manage Forest Resources." Niamey, Niger: ADO/UsAID/Niger, 3 July.
- Raynaut, Claude et al. 1988. *Le Développement Rural de la Région au Village: Analyser et Comprendre la Diversité*. Bordeaux: GRID/Projet de Développement Rural de Maradi.
- Riddell, James C. 1987. "Land Tenure and Agroforestry: A Regional Overview." In *Land, Trees and Tenure: Proceedings of an International Workshop on Tenure Issues in Agroforestry*, edited by John B. Raintree, pp. 1-16. Madison: Land Tenure Center, University of Wisconsin, International Council for Research in Agroforestry.
- Rubin, Herbert J., and Irene S. Rubin. 1992. *Community Organizing and Development*. 2d ed. New York: Macmillan Publishing Co.
- Seers, Dudley. 1979. "The Meaning of Development." In *Development Theory: Four Critical Studies*, edited by David Lehmann, pp. 9-30. Totowa, N.J.: Frank Cass and Company.
- Sène, El Hadji. 1985. "Trees, Food Production and the Struggle against Desertification." *Unasylva*, no. 150, pp. 19-26.
- Sène, Papa, and Ronald Phillips. N.d. "Redesign of the Cooperative Training System of the Agricultural Production Supply Project." Niamey, Niger: CLUSA for UsAID/Niger, Cereals Project.
- Shenton, Robert W. 1986. *The Development of Capitalism in Northern Nigeria*. London: James Curry.
- Shepherd, Gill. 1988? "Communal Management of Forests in the Semi-Arid and Sub-Humid Regions of Africa: Report Prepared for FAO Forestry Department." London: Social Forestry Network, Overseas Development Institute, n.d.
- Sherwood, Frank P. 1967. "Devolution as a Problem of Organization Strategy." Paper prepared for Seminar on Comparative Urban Administration and Politics, University of North Carolina, July-August.
- Smith, Mary F. 1954. *Baba of Karo: A Woman of the Muslim Hausa*. London: Faber and Faber.

- Spengler, Joseph J. 1961. "Theory, Ideology, Non-Economic Values, and Politico-Economic Development." In *Tradition, Values and Socio-Economic Development*, edited by Ralph Braibanti and Joseph J. Spengler, pp. 3-56. **Durham, N.C.:** Duke University Press.
- Staatz, John M., and Carl K. Eicher. 1986. "Agriculture Development Ideas in Historical Perspective." In *Food in sub-Saharan Africa*, edited by Art Hansen and Della E. McMillan, pp. 43-63. Boulder, Colo.: Lynne Rienner Publishers.
- Sutter, John Williams. 1982. "Peasants, Merchant Capital, and Rural Differentiation: A Nigerian Hausa Case Study." PhD thesis, Cornell University, Ithaca, N.Y.
- Thiesenhusen**, William C. 1976. "Development and Equality: Partners or Rivals." LTC Reprint, no. 128. Madison: Land Tenure Center, University of Wisconsin.
- Thomson, James T. 1985. "The Politics of Desertification in Marginal Environments: The Sahelian Case." In *Divesting Nature's Capital: The Political Economy of Environmental Abuse in the Third World*, edited by H. Jeffrey Leonard, pp. 227-262. New York: Holme and Meier Publishers.
- Tietenberg, Tom. 1992. *Environment and Natural Resource Economics*. 3rd ed. New York: Harper Collins Publishers.
- Van Arkadie, B. 1987. "The Economic Dimension: The Part That Will Stand for the Whole?" In *The Many Faces of Development: A Debate in Seven Lectures*, edited by C.A.O. Nieuwenhuijze, pp. 109-212. Leiden, Netherlands: E.J. Brill.
- Von Maydell, Hans-Jurgen. 1990. *Arbres et Arbustes du Sahel: Leurs Caractéristiques et leurs Utilisations*. **Weikersheim, Germany: Verlag Josef Margraf.**
- World **Bank**. 1991. *World Development Report, 1991: The Challenge of Development*. New York: Published for World Bank by Oxford University Press.
- World Commission on Environment and Development. 1987. *Our Common Future*. New York: Oxford University Press.
- Young, Crawford, Neal P. Sherman, **and Tim H. Rose. 1981. Cooperatives and Development: Agricultural Politics in Ghana and Uganda.** **Madison: University of Wisconsin Press.**