EDITED BY *Katherine Homewood*

Rural Resources & Local Livelihoods in Africa

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Contents

List of Maps, Figures & Tables

Maps

Figures

Tables

Notes on Contributors

Jo Abbot completed her PhD at University College London in Biological Anthropology in 1996, combining natural and human science research approaches to examine local use and management of miombo woodlands in a protected area, Lake Malawi National Park. She subsequently joined the International Institute for Environment and Development where she worked as a Research Associate, focusing on policy and practice issues around participation, biodiversity and rural livelihoods in sub-Saharan Africa. For the last four years, she has worked for CARE International, first in Uganda and currently in South Africa and Lesotho, where she coordinates CARE's programming on rural livelihoods, HIV/AIDS and good governance.

Dan Brockington worked at UCL in the Anthropology department between 1993 and 1998, carrying out field research in Tanzania on the social consequences of conservation policy. His book based on that research, *Fortress Conservation*, was published by James Currey in 2002. He has returned to Tanzania to study natural resource management and village government, focusing on local environmentalism, environmental change and inequality as part of post-doctoral research sponsored by the British Academy and based in Cambridge University. He now teaches in the School of Geography and the Environment in Oxford University. His research interests are the social impacts of conservation and resistance to, and perpetration of, inequality.

Solveig Buhl did her PhD in Anthropology (University College London) on gender and production among pastoral and agropastoral Fulani in the north of Burkina Faso. Since then she has been working for bilateral and multilateral development organisations on Rural Poverty Alleviation in Africa and China. Currently she is advising Chinese government departments on poverty monitoring and impact evaluation systems.

Philip Burnham is Professor of Social Anthropology at University College London. He has undertaken field research in Cameroon on numerous anthropological themes since 1968. He has also served as a consultant on the social dimensions of community forestry in Cameroon for the Department for International Development.

Emmanuel de Merode has worked as a technical advisor to various central African government wildlife agencies since 1993. During this time he completed his doctoral dissertation examining the outcomes of community and state wildlife management systems. He is currently working in the Democratic Republic of Congo as coordinator of the European Union's development programmes for the eastern provinces.

Monica Graziani is a doctoral candidate in social anthropology at University College London. She carried out two years of field research funded by the Economic and Social Research Council and the Department for International Development on the interrelations between various social groups and their environments in the forest zone of southeastern Cameroon.

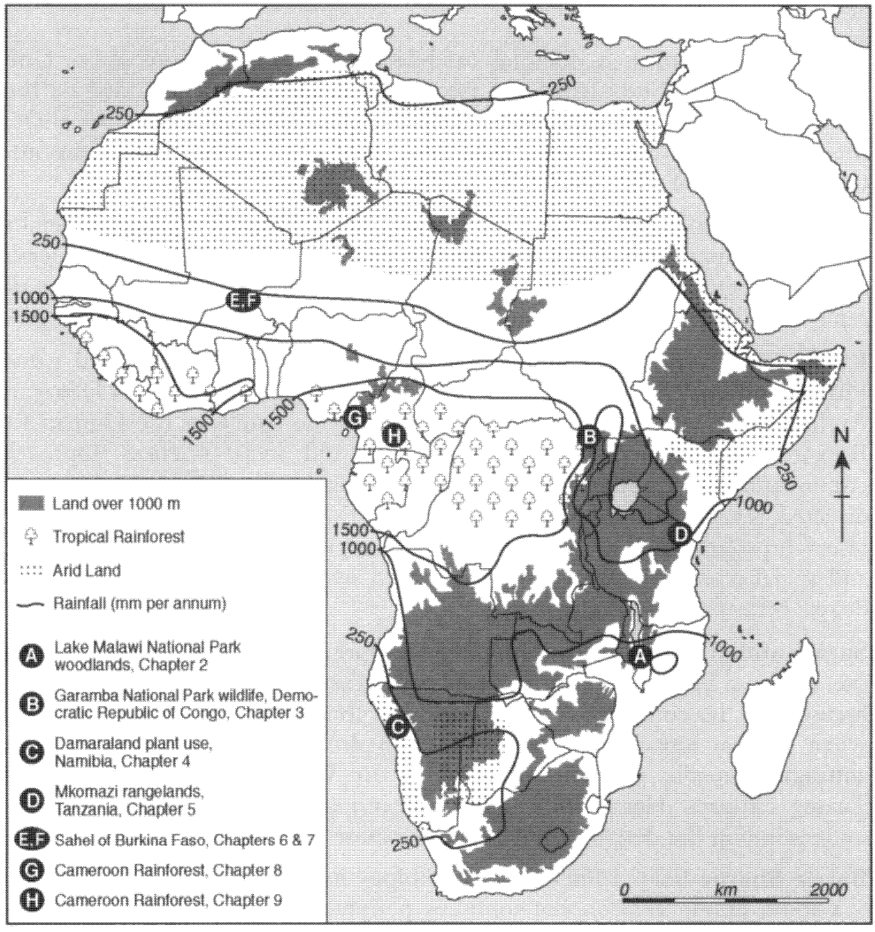
Kate Hampshire studied Human Sciences at Oxford and completed her PhD on the demography of Fulani pastoralists at UCL in 1998. She is now a lecturer in Anthropology at Durham University, with research interests: in health and demography of mobile populations, and European social and demographic change.

Katherine Homewood studied Zoology at Oxford University and gained her PhD in Anthropology at London. She is now Professor and Head of Department in Anthropology at University College, London. She convenes the Human Ecology Research Group, which integrates natural and social sciences approaches to conservation/development interactions, particularly in sub-Saharan Africa. She has directed several European Union- and DFID-funded international collaborative research programmes in East and West Africa, publishing the results in both natural and social sciences journals, and supervised over 20 PhD students working in a dozen African countries.

Sara Randall trained in Anthropology at Durham University and Demography at the London School of Hygiene and Tropical Medicine. Her doctoral research focused on the comparative demography of three rural populations in Mali, since when she has researched a range of topics dealing with demography and health amongst nomadic pastoralist populations in West Africa, including repatriated Tuareg refugees. Her work combines quantitative and qualitative approaches to understanding the determinants of demographic behaviour and outcomes.

Barrie Sharpe holds a PhD in Anthropology based on research in the Kauru Hills – a multi-ethnic area on the southern periphery of the Sokoto Caliphate. That research focused on the construction of ethnic identities and linguistic groups in relation to state and non-state political systems. This interest continues, most recently in work on multiple citizenships and environmental resources in contemporary West African states and transnational communities (ESRC, GEC Fellowship, 1998–9). He has conducted ethnographic fieldwork in Cameroon, Ghana, Nigeria, Zambia as well as commissioned research on natural resource management, community forestry, primary health care, food systems and rural development for DfID, (formerly ODA), NRI, various NGOs and NORAD.

Sian Sullivan is an anthropologist and geographer by training and is currently research fellow in the Centre for the Study of Globalisation and Regionalisation at Warwick University. Her doctoral and postdoctoral work has explored disjunctions between discourses regarding 'the environment' held at local, national and transnational levels, focusing on wildlife conervation and desertification, with fieldwork conducted over an eight-year period in Namibia. A number of publications have arisen from this work including her co-edited volume *Political ecology: Science, myth and power* (Edward Arnold 2000). Her current research focuses on the phenomenology of protest politics in what has become known as the anti-capitalist and pro-justice movement.



Map showing research sites

1

Introduction
Rural Resource Use & Local Livelihoods in Sub-Saharan Africa

KATHERINE HOMEWOOD

Sub-Saharan African populations seem especially vulnerable to drought, famine and disease. Many parts of Africa have high mortality rates, high fertility, widespread poverty and precarious food security (Downing, 1996; Rosenzweig and Parry, 1994). To many outside observers, African environments seem a central factor in people's vulnerability, a major stumbling block to development. At the same time, African rangelands and forests are a magnet for biologists and ecologists. Some of these ecosystems are spectacular for their biodiversity; others are commonly seen as overexploited and as spiralling into terminal collapse. Sub-Saharan African rangelands and forests have been a playground for western interventions, and something of a bottomless pit for donor funding on both environment and development. Many if not most of those initiatives have had poor outcomes. That suggests there is something seriously wrong with western understanding of African environments, of the part they play in people's vulnerability, of the ways that people deal with them and of the impacts those strategies entail. This book seeks to analyse and clarify interactions of environment, land use, livelihoods, and natural resource management in African forests and savannas. It aims to develop a better understanding, an approach and a methodology, which in turn will give insights into people's natural resource use strategies, will inform policy and management, and ultimately contribute to more secure livelihoods and welfare for local rural African populations. Too many interventions have subsequently been found to have brought about more harm than good, through lack of awareness of dimensions beyond the experience of those involved. The central aim of this book is to bring home to researchers, policymakers and practitioners the breadth and complexity of issues in rural resources and livelihoods. It sets out to use in-depth case studies, detailed examples linked by analytical overviews, to trigger awareness of the potential of cross-disciplinary approaches to real life environment and development issues in rural sub-Saharan Africa.

At the time of writing, international agencies such as the World Bank and the European Commission, as well as individual western governments, are reorienting

their development policies towards reducing the numbers of people living in poverty. Many if not most of those people belong to the rural populations of sub-Saharan African countries. The studies in this book add depth and perspective to current thinking on the meaning of poverty and the means for its alleviation and reduction in sub-Saharan Africa.

For practical purposes, agencies such as the UK's Department for International Development (DFID) define the poverty threshold as people depending on less than one US dollar per day. The studies in this book raise some questions over the implications of such operational criteria for defining poverty among rural people in sub-Saharan Africa. Understanding who the target poor are is necessary for understanding which interventions might best minimise the risk of a downward spiral into poverty, and facilitate pathways out of it. Many interventions in the past have aimed to foster enterprises by the better off in order to directly support livelihoods for poorer people. In all these cases it is crucial to understand and evaluate livelihood strategies, livelihood shifts and in particular the way inputs affect livelihoods for poorer people, as distinct from their impacts on the livelihoods of the already well-off.

This means a differentiated approach which is poorly served by blanket criteria. The one dollar per day poverty threshold cannot easily take account of the special factors constraining individual groups of poor people. To take just one example relevant to several chapters of this book: poverty takes on special dimensions in the case of livestock keepers, in contrast to people not primarily dependent on livestock (e.g. Chapters 5, 6 and 7). 'Traditional' systems build on the family as the herd management unit. Much non-monetary income is consumed for subsistence. Groups are capital-rich but cash income-poor, and very large capital stock is needed to produce subsistence needs. Capital stock, though large in monetary equivalents, does not constitute a reliable safety net. Other systems use livestock as one component of a diverse portfolio of 'modern' income generating activities. For these livestock keepers, linkages between livestock-rearing and other livelihood strategies (agricultural wage-labour; labour migration; petty trade) make up an important additional dimension of livelihood security or conversely of poverty. Over and above ownership or access to livestock *per se*, operational criteria need to deal with the considerable uncertainties of land tenure and access characteristic in many pastoral systems. This includes access possibilities contingent on livestock ownership – for example, access to common property resources for livestock owners who may be poor and landless within established sedentary systems. Such entitlements do not easily translate into a single common currency.

Classic approaches to analysing the dimensions of poverty use categories of land (tenure/access), labour (household demography) and capital/assets. More recently, the concept of entitlements emphasises the ways individuals may command rights of access to resources in each of those categories, through their position within social networks. Current DFID analyses use a 'sustainable livelihoods' (SL) pentagon of assets, including human (labour, household demography), social (power, prestige, lineage/ kin group; political representation), physical (shelter, water, transport), natural (land, plant and animal resources) and financial assets. Vulnerability on any of these dimensions is made worse by external hazards, (such as drought, epidemic, soil erosion) and by internal hazards (such as a lack or disintegration of social

infrastructure; conditions of political instability, or systems with marginalised people holding few or no entitlements). Each of the chapters in this book illustrates in its own way not only the scope of these individual facets but also the complexity of their interplay.

Structure and Content of the Book

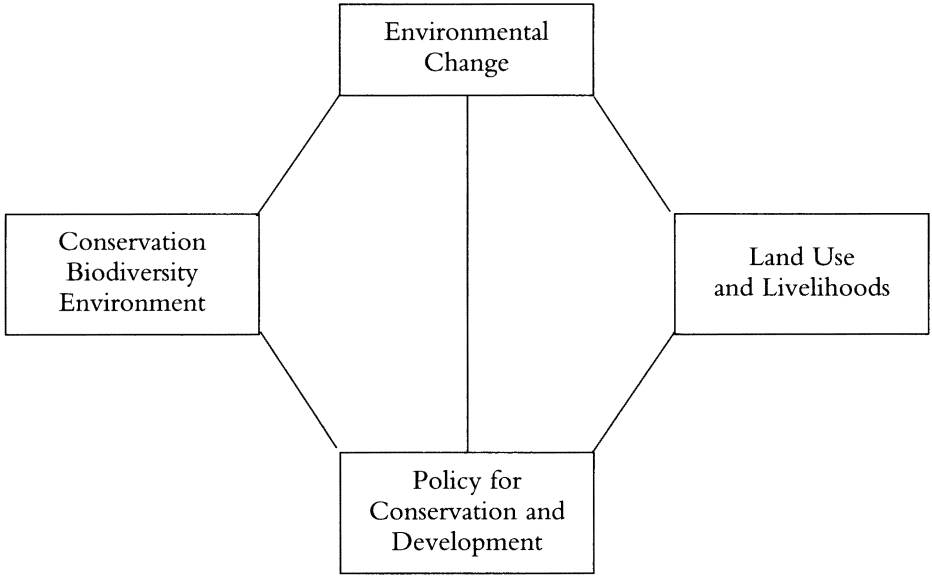


Figure 1.1 Cross-cutting dimensions of rural resources and local livelihoods

Following this introductory chapter, the book goes on to look at four main areas crosscutting differential impacts of environmental policies on livelihoods, and of livelihood shifts on environmental resources. Beginning with debates over the interplay of resource use with environmental degradation and change, the main sections examine livelihoods shifts with changing conservation and development policies (including community conservation), livelihood strategies in changing environments, and the dynamics of social institutions of resource management. These four issues are linked by short summaries of the main points emerging from preceding papers and setting the scene for those to come. The final chapter summarises and reviews the lessons that emerge for approaches to research in rural resources and local livelihoods.

These issues are developed and illustrated with reference to intensive research carried out in the context of the Human Ecology Research Group of the Anthropology Department, University College London. Taking in-depth cases from across the spectrum of sub-Saharan regions and eco-climatic zones, these studies deal with the perceptions, scale and importance of:

1. Environmental degradation in drylands and forests;
2. Local land use impacts of farmers and herders on vegetation, wildlife and biodiversity;
3. The role of protected areas for local livelihoods;
4. High fertility and population pressure on local natural resources;
5. Gender impacts of development;
6. Customary and emerging local institutions for resource management.

The studies brought together in this book form a natural set illustrating for a range of African environments and resources the interplay of rural resource use, local livelihoods, environmental trends and perceptions of each by different groups of local people and outsiders.

Table 1.1 The issues covered by the contributors

<table>
<tr><th></th><th>Plants/trees</th><th>Wildlife</th><th>Livestock</th><th>People</th></tr>
<tr><td>Forest/ Woodland</td><td>MALAWI:
Chapter 2:
Jo Abbot
Fuel wood extraction and canopy loss</td><td>D.R. CONGO:
Chapter 3:
Emmanuel de Merode
Local vs. state institutions regulating the harvest of wild meat</td><td rowspan="2">TANZANIA:
Chapter 5:
Dan Brockington
Protected areas and local livelihoods</td><td>CAMEROON:
Chapter 8:
Barrie Sharpe
1. Political, social and historical context of forest use
Chapter 9:
Monica Graziani
Philip Burnham
2. Evolving social institutions for forest resource revenues</td></tr>
<tr><td>Arid and semi-arid rangelands</td><td colspan="2">NAMIBIA:
Chapter 4:
Sian Sullivan
Gathered plants and dryland community based natural resource management</td><td>BURKINA FASO
Chapter 6:
Kate Hampshire
Sara Randall
1. Population, fertility and livelihoods
Chapter 7:
Solveig Buhl
2. Gender equality issues among the Fulbe</td></tr>
</table>

Change or decay?

First, what do we know of environmental continuities and environmental change in forests and savannas? To what extent are these environments undergoing degradation? Are they just subject to extreme fluctuations with no long term downward trend, or are they genuinely in decline? Degradation narratives are widely

established. More recently counter-narratives have emerged (Behnke *et al.*,1993; Stott, 1998; Leach and Mearns, 1996). Each situation has its own particular mix of causal factors and its own brand of environmental outcomes. How can we distinguish between change and degradation in individual cases? Can perceived environmental trends be measured in any objective way? How and why do local people and outsiders register and interpret the same environmental signs in different ways?

Following this introductory chapter, the book develops two in-depth studies of situations where simple degradation narratives have dominated. In Chapter 2, Jo Abbot looks at the link between woodland decline and local livelihoods in and around Lake Malawi National Park. She challenges the widespread perception of deforestation in tropical dry woodlands as being simply a case of, 'More people, fewer trees'. What drives canopy loss in *miombo* woodlands? Though the assumption is commonly held that local population-increase drives on-site deforestation, there is no single answer. We need differentiated analyses that explain the exploitation of woody resources in terms of urban versus rural demand, men or women as collectors, commercial as opposed to domestic use; immigrant against resident resource extraction. Where wood fuel supplies a stage in the processing of commercial fish products for export to urban markets, urban demands for preserved fish can drive local rural decline of woodlands.

In Chapter 3, Emmanuel de Merode looks at established perceptions of wildlife decline in and around Garamba National Park in the Democratic Republic of Congo. Contrary to widespread assumption informing management policy, detailed qualitative and quantitative analyses show wildlife decline is not primarily linked with local people's land use and local systems of resource management, nor conversely is sustainable wildlife use linked with State control. At the same time, it is not self-regulation by hunters which leads to sustainable off-take. It is, rather, the operation of local level authorities, and the control which they retain in the face of civil disruption that is associated with effectively sustainable wildlife use. Asking the right questions, and identifying the right methodologies to disentangle a complex and counterintuitive story, means innovative use of cross disciplinary approaches.

Shifting livelihoods: conservation and development

The second section of the book examines the way interactions of conservation and development shape shifting rural livelihoods in Africa. Conservation of the environment and of biodiversity are major issues for many sub-Saharan nations. How do the environmental aims of governments and international agencies mesh with their development aims? Given the sharp differences of opinion on these issues, and the enormous implications for people and for the environment, how can we set about investigating and testing different theories linking environmental processes and development outcomes? Decisions taken far from the site of local rural resources may have major impacts on associated rural livelihoods. How do outcomes marry with or differ from what was planned, and why?

In Chapter 4, Sian Sullivan analyses the way that conservation policies in Namibia are based on perceptions of desertification tightly interwoven with entrenched and misleading perceptions of ethnicity and local resource management.

Two centuries of ethnographic myth have assumed absence of a property concept among the Dama. Two centuries of documented observations refute the assumption, but the assumption has had enormous policy implications for tenure systems governing access to, and management of wild resources. Wild foods, widely seen by outsiders as a hungry season fallback, emerge as valued expressions of cultural identity rather than food for the poor. Wild plant foods are of widespread and daily importance in people's diets and livelihoods. Current conservation policy in Namibia focuses on wild animals and on the income-generating possibilities from tourism and hunting. This is likely to benefit relatively few people, and undermines access to and management of the plant resources important to many. Are there rigorous ways of evaluating the real impacts of current policy priorities?

In Chapter 5, Dan Brockington looks at the problem of investigating livelihood changes in response to conservation policy and management through recent historical time, when there is little in the way of baseline data. What are the common assumptions and the challenges to those assumptions? How is it possible to frame the appropriate research questions? What data sources are relevant? How can one make rigorous analyses where the nature of the data changes through time? Dan Brockington provides a differentiated and precise analysis of conservation impacts on local economy and livelihoods. He shows how conservation myths and vested interests can combine to drive policies and interventions which may devastate rural economies.

Livelihood strategies: household demography, production and consumption

The great variability of the environment, whether biophysical, social, economic or political, complicates any analysis of rural resources and local livelihoods in Africa. Where patterns are dominated by such complex and multi-factorial changes, it is difficult to unpick the driving forces from the factors that are merely coincidental. Variability in itself becomes the important dimension to be considered in any analysis, and strategies for coping with variability override strategies to maximise profit or otherwise optimise living standards (Guyer, 1997). The section that follows looks at rural people's response in terms of shifting livelihoods where biophysical and socio-economic environments undergo rapid and often unpredictable change. How can we tell the difference between long-term strategies which carry people through, and behaviour forced on people by changes beyond their ability to cope? High fertility, and marginalisation of women with respect to income-earning activities, are widely seen as marks of vulnerability as well as danger signs with respect to the interplay of population and resources. Sahelian women's high fertility and low involvement in independent economic activity are seen as exacerbating vulnerability already made dangerous by the Sahelian environment and its resources. Interventions tackling those symptoms have had little success. Why might people with the most precarious of livelihoods pursue strategies that maximise fertility? In Chapter 6, Kate Hampshire and Sara Randall look at the common assumption that population growth exacerbates poverty and resource management problems. Among Fulani agro-pastoralists of the Sahel, high fertility allows diversification and flexibility. Where migration of individuals represents a strategy for long-term survival of the household social network, poor households are commonly demo-

graphically incompetent households. High fertility and population growth do not necessarily lead to intensification of the agricultural system, but rather to extensification of networks of people and resources, where larger households and larger sibships cope better. In Chapter 7, Solveig Buhl looks in more detail at gender and production in the same Fulani population. What priorities govern women's decisions to engage for example in cultivation or in market activities? Though development programmes promote this sort of income diversification, they have met with some resistance in a number of Sahelian Fulani groups. Economic autonomy does not necessarily mean greater economic security. By distancing themselves from certain types of economic opportunity, women who are by global standards far from well-off may ensure social support. This is a more reliable guarantee of security in the long term and in a very variable environment, than would be any immediate financial return.

Social institutions

Sustainable management of natural resources, and particularly conservation interventions, have tended to focus on technical issues of matching off-take to production. Commonly the role of social institutions in the management of rural resources has been seen as a secondary issue and 'institutional capacity building' has become the new technical fix. All too often the real hierarchies and balances of power which govern access to and control of resources are overlooked. This book explores the way social and historical structures have dictated the very formulation of environmental issues, and hence the whole framework of research and policy. In Chapter 8, Barrie Sharpe looks at the need to understand institutions in a historical and organisational context in order to frame appropriate research questions. He documents the way conservation institutions and timber extraction organisations articulate with the culture of forested West Africa, both in terms of the State and in terms of rural village societies. He looks at the way this has resulted in a focus on a deforestation/degradation narrative, and on a counterpart narrative of non-timber forest product use, at the expense of more productive areas of enquiry, such as gap ecology and forest farming systems.

In Chapter 9, Monica Graziani and Phil Burnham pursue a similar theme with respect to the understanding, portrayal and operation of tenure systems in West African forests. These are complex, multi-layered, and continuously evolving. Development interventions based on sociologically naïve assumptions about 'community' and 'tradition' as well as the applicability of concepts derived from Western property law, commonly lead to development disasters. Current research fashions emphasising rapid appraisal at the expense of more in-depth work tend to make such misunderstandings more likely.

The final chapter draws together insights from the different contributions. Given the highly political nature of resource control, the strongly held views and the powerful vested interests, what conceptual frameworks, what types of data, what comparisons will allow us to gain deeper insights? Given the current emphasis on tackling poverty, what approaches will build a knowledge base that, if not always leading to positive interventions, would at least forestall the most negative ones? This book aims to bring together and integrate natural and social science perspectives,

with complementary methods drawn from different disciplines, to develop an approach and a methodology that will give a more robust basis for understanding environmental changes, people's strategies, and the implications of intervention.

While this is in no sense a recipe book for methods, an important part of the book's purpose is to demonstrate the potential of interlinked, cross-disciplinary approaches. Table 1.2 sets out the types of methods drawn on to inform the various studies set out in this book. The interest of the table lies not in identifying individual methods for individual data collection purposes; it is rather in the opportunity to chart the way in which different contributors have interlinked different dimensions of investigation to achieve a broader based view, where the whole is greater than the sum of the parts. For example, several of these studies have used rapid appraisal methods at least as part of pilot work to scope study situation and possible study sites, and to keep relevant issues and approaches to the fore. However, while rapid methods of appraisal offer potentially good ways of piloting intensive research, and if grounded on in-depth understanding may add a valuable dimension, they are no substitute for long term, in-depth work. Pilot studies using rapid appraisal methods have, in each case, been followed up with qualitative work to establish perspective, identify driving factors, and cross check understanding of processes, linkages and perceptions. Some of the papers (Sullivan, Sharpe, Burnham) take the focus still deeper into intricacies of qualitative process. Others (Abbot, de Merode, Hampshire and Randall) move on to quantitative analysis as a means to establish scale and importance, threshold effects, and rigorous testing of conceptual models whether derived from theory (de Merode: optimal foraging/ prudent predator analyses) or by empirical observation (Abbot). In each case the approach is built on iterative methods, with progressive cross-checking and refinement.

In the course of the studies set out in this book the authors have found themselves in political and ethical complexities. It is not really possible for research into resource use and livelihoods to be detached: inevitably, at some level, it becomes action research. Not surprisingly, getting research into practice can generate uncomfortable confrontations with vested interests. Time and again researchers engaged in this work have found themselves and their findings at best resisted, and at worst the target of character assassination and threats. Sullivan's findings on the flexible and mobile use of plant resources across the Namibian landscape run counter to the current trend towards conservancies and 'community-based natural resource management' centred on large mammal wildlife within fixed-boundary units. Dan Brockington's quantification of the scale of loss to pastoralists evicted from Mkomazi threatens the superficially development-friendly image of environmental conservation. In both cases the authors have been subject to legal threats and intimidation from established interests. Many other cases could be cited. They are mentioned here to make the point that where research on resource use and livelihoods is highly political, and puts western researchers in difficult situations, it places African researchers potentially interested in these issues in far worse straits. For African colleagues involved in research on these programmes, the conflicting loyalties to the research team, to the constituency their rural study population represents, to their extended families and to their government, are often if not almost always too disparate to reconcile. The lack of African colleagues' papers in this book is in large part the product of those difficulties.

Table 1.2 The complementarity of approaches and methods utilised in the cross-disciplinary case-studies

	Rapid	**Qualitative**					**Quantitative**		
	PRA/RRA/ REA	Participant observation	Genealogical & network analysis	Commodity chain & access mapping	Key informants/ semi-structured interview	Archives media	Resource frequency abundance productivity	Activity follows: time spent on use	House or market level survey
Vegetation Species distribution and abundance	Abbot			Abbot			Abbot Sullivan		
Plant use Resource-based measures		Sullivan					Abbot Sullivan		
Plant use User/household/ market-based measures	Abbot	Sullivan	Sullivan		Sullivan			Abbot	Abbot Sullivan Buhl
Wildlife population Counts/distribution							De Merode		
Wildlife harvested Household/market measures				De Merode	De Merode			De Merode	De Merode
Livestock Counts/distribution		Buhl			Buhl	Brockington			Brockington Buhl
Human population Counts/composition	De Merode				Hampshire	Brockington Abbot			Hampshire Brockington
Historical		Buhl	Buhl	Buhl	Brockingon Sharpe	Brockington Sharpe			
Social Institutions		Buhl Graziani Sharpe	Graziani Sharpe Sullivan		Brockington Graziani Sharpe	Brockington			
Policy		Graziani Sharpe			Brockington Graziani Sharpe	Graziani Sharpe			

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PART ONE

Degradation or Change?

For decades, local land use in African savannas has been seen as leading to overstocking, overgrazing, erosion and ultimately irreversible loss of productivity. This perception still drives major international programmes aiming to fight desertification. Similarly, local land use is widely seen as driving forest clearance and wildlife decline. On the other hand, there is now a whole body of work suggesting a very different understanding of ecosystem dynamics, and demonstrating the biological, physical, social or political factors other than local land use that drive those dynamics. For example, savannas are enormously variable environments. They go through chaotic changes driven by rainfall, by fire, by successional changes, by grazers and browsers. Where things change so fast, short term studies tell us little about long term trends, or about the relative importance of different driving forces. Even apparently objective methods, such as analysis of remotely sensed images over decades, are made difficult by extreme intra- and inter-annual variability and by the absence of sharp boundaries between savanna vegetation types (Serneels, Said and Lambin, 2001; Homewood and Brockington, 1999; see also Brockington and Homewood, 2001). Degradation assumed to be the result of local land use practices may be brought about by quite unrelated factors (Homewood and Brockington, 1999). The changes which have been identified as degradation may be no more than a short-term blip with no long-term implications, or may be an inherent part of long-term dynamics. Degradation debates have emphasised savanna environments, and such arid and semi arid land (ASAL) cases are considered in other sections of the book. However, equally contentious degradation narratives and counter-narratives have grown up around African forests (Leach and Mearns, 1996; Stott, 1998; Fairhead and Leach, 1998).

It seems clear that we need to distinguish between change and decay in African environments. We also need to be able to tell the difference between changes brought about by people's resource use, and those driven by quite independent factors. Management differs radically according to the manager's understanding of

process as well as the management goal, and it seems important to identify models that best describe any particular situation. There are increasing examples where strong assumptions about ecosystem degradation and local land use have proved to be ill-founded, and long established management policies are being called into question (Ellis and Swift, 1988; Homewood, 1994; Sullivan, 1999; Homewood and Brockington, 1999).

The present section focuses on woodland and forest environments. A recent review and meta-analysis of 140 cases of tropical deforestation (Geist and Lambin, 2002) suggests that population pressure is the weakest of all the ultimate factors driving deforestation. At local and regional scales, institutions, policies, trade, beliefs and attitudes are major driving forces in environmental change. Rather than conforming to one or other pole in a simple opposition of degradation and counter-narrative, individual situations reveal more complex, multi-layered change and causation. As Barrie Sharpe puts it later in the book, we need to re-read the environmental narratives to see why particular questions have been asked, and to consider whether they are the right ones. Jo Abbot's work in Malawian protected area woodlands, and Emmanuel De Merode's on wildlife extraction in the Democratic Republic of Congo, both invite reconsideration of the degradation thesis, but also of its antithesis. Other studies in later sections, such as Sian Sullivan's, reinforce this point while developing other issues.

Jo Abbot's study of fuelwood production, extraction and use in and around Lake Malawi National Park addresses a classic degradation problem: the observed (and measurable) decline of closed canopy woodland in a protected area. She traces the history of concern over deforestation through the evolution of conservation policy in the area. That policy is currently manifested in the assumption that women collectors of fuelwood for domestic purposes are driving canopy loss. The associated management practice requires them to purchase fuelwood collection licenses, with patrols imposing confiscation and other penalties for infringement. Abbot's quantitative study of dead wood production, and of fuelwood collection and use shows, however, that fuelwood collection for domestic purposes is sustainable. It focuses on relatively small diameter branches, and on dead wood, and consumption is of the same order as production. Similarly, collection of poles for house construction is well within sustainable limits. By contrast, there is a separate wood harvesting activity which emerges as causing the observed decline in closed canopy woodland. There has been a rapid increase in export of fish caught from Lake Malawi and preserved on site for transport to relatively distant urban markets. Fish are preserved by smoking over a fire using large diameter logs. Men using axes and machetes fell canopy trees and transport the logs by canoe or by bicycle to the fish smoking stations. Abbot's study queries the management emphasis on regulating women's hand-gathered and head-loaded collection of small diameter dead wood for domestic use, while men use tools and transport to extract canopy trees for commercial fish smoking. In this study, a commodity chain that links rural (fish) resources to growing urban markets is driving environmental (woodland canopy) degradation. Misguided (or possibly disingenuous) conservation management focuses instead on regulating what is already sustainable, low level, subsistence fuelwood use by poorer, less well equipped, weaker users.

Emmanuel de Merode analyses the trends in wildlife extraction in Kiliwa,

Democratic Republic of Congo. He looks at the implications of conservation management by the State versus regulation by local and 'traditional' authorities, or by hunters themselves. He asks to what extent eviction and exclusion have led to the conservation outcomes purportedly desired by the State. He then analyses hunting behaviour for evidence of self-regulation by hunters (along the lines of 'prudent predator' versus 'optimal foraging' analyses) and investigates whether there is evidence for effective regulation by local authorities. Finally, he looks at what the outcomes have been in the course of civil disruption and the outbreak of war. Although superficially there appears to be a correlation between fortress conservation by the State, and increased populations of large wild mammals, this association does not stand up to more careful investigation. Long term, large scale datasets based on aerial and ground census show that declines in wildlife have been associated with exclusion of the local population and with a related influx of armed Sudanese into the north of the area. Periods of effective conservation, as measured by wildlife population trends, are associated with periods of high levels of enforcement by the State – a condition that is not sustainable in the long term given political and economic trends. At the other end of the scale, local hunter behaviour is consistent with optimal foraging theory, which predicts hunters will maximise returns, rather than exercising conservation-oriented restraint. However, local authorities exert significant regulation on local markets (though not necessarily on extraction of local wildlife for distant urban markets). Their influence persists through periods of civil disruption, unlike that of the State. Local authorities are somewhat more accountable to local populations, and can bring much needed stability. Regulation of wildlife extraction is part of their economic base, and for DRC at least, the best tradeoffs between conservation and development outcomes seem to be achieved at this level.

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2

Out of the Woodland, into the Fire Fuelwood & Livelihoods Within & Beyond Lake Malawi National Park

JO ABBOT

This chapter explores a well-known environment–development debate, fuelwood and deforestation, examining how it is enacted in policy and practice in a protected area in Malawi. It shows how the integration of social and natural science methods at the local level helps to uncover the impact of fuelwood policies and the different roles and impacts of fuelwood harvesting. It also shows how a broader historical, national and international analysis underpins an understanding of how and why environment-development issues develop at a particular site. Concerns for deforestation precipitated by domestic fuelwood collection are evident in the earliest documents planning Lake Malawi National Park in the 1970s. More than two decades after its creation, this chapter presents a range of data to explore the extent to which these concerns were at the time valid and remain so.

Introduction

Fuelwood and deforestation

The notion that fuelwood harvesting contributes substantially to deforestation was widespread during the 1970s (see Eckholm *et al.*, 1984). However, the 'fuelwood crisis' was one of the first received wisdoms on human-environment interactions to be challenged by a more multi-disciplinary approach to field research that combines historical, ecological and social-anthropological analysis (Leach and Mearns, 1996). From the late 1980s, a number of authors began to question the poor data and poorly informed analyses that misrepresented and over-generalised the nature of the 'energy crisis' and the 'fuelwood gap' analyses for the developing world (e.g. Leach and Mearns, 1988; Grundy *et al.*, 1993; Mearns, 1995). Other research challenged population-driven models of deforestation by documenting the ways in which local populations enrich and manage their environment (Fairhead and Leach, 1995; Dewees, 1995).

These analyses suggest that in place of demography, a range of spatial, institutional, social, and ecological influences affect the impact of fuelwood harvesting on the resource base. These include: species preferences, patterns of harvesting and end-use – whether by local or more remote urban populations and, whether for subsistence or commercial purposes (Ribot, 1995; Ravindranath *et al.*, 1991; Whitney, 1987; Hall and Rodgers, 1986). *De jure* and *de facto* interventions in access to forests, fuelwood markets, enforcement, and transport shape the allocation and use of resources (Ribot, 1998). Finally, it is increasingly recognised that the collection of dead wood and the ability of many tree species to regenerate through coppicing, mitigate the degrading effects of local harvesting practices (Nyerges, 1989; Nyerges, 1996; Medley, 1993).

Despite a body of evidence suggesting that the felling of trees for fuelwood and charcoal is not a major cause of deforestation, this received wisdom lives on in both policy and practice. For example, Lake Malawi National Park was established at the height of the 'fuelwood crisis'. Rapid and extensive woodland loss was a central concern during its establishment in 1980 on the site of an existing forest reserve on the southern shores of Lake Malawi: 'It must ... be emphasised that within 30 years, a fuel wood crisis will occur in the area' (Bell, 1978).

A decade later, researchers and practitioners at Lake Malawi National Park continued to link growing village populations and increased demand for fuelwood with woodland deforestation. For example, based on an ecological study, Bootsma (1987) states that, 'The negative correlation between tree density and extent of cutting supports the premise that in most areas of the Cape Maclear peninsula, cutting of trees is being done at a rate which is leading to the destruction of the park's woodland'. The Lake Malawi National Park Management and Development Plan states: 'One of the greatest threats to the park is the effect of deforestation on the steep slopes of Nankumba Peninsula. This deforestation is resultant of increasing enclave populations that depend on forest products for cooking and building' (Grenfell, 1993).

What are the linkages between people, fuelwood and the woodlands of Lake Malawi National Park? Given the importance of this issue both to the Park and to the local communities, a study was designed to assess the policy, ecological and socio-economic dimensions of fuelwood harvesting in Lake Malawi National Park asking:

- What are the end-uses and impacts of harvesting fuelwood?
- What are the incentives and disincentives for fuelwood harvesting?

Methods

Field research over an 18 month period during 1993-1994 combined ecological, anthropological, participatory, historical and policy analysis. Several factors have driven the increasing use of such complementary methods (Abbot and Guijt, 1997). First, awareness of the complexity of human-environment interactions and the integrated nature of rural livelihoods has encouraged greater use of multidisciplinary methods. Second, historical analysis, using archive material and oral testimony, helps

to overcome some of the problems associated with interpreting the 'snapshot' nature of research studies. Third, participatory and action-research approaches enable research to be more people-centred, explicitly seeking the diversity of local perspective and, where possible, addressing local priorities.

The study was undertaken in Chembe and Msaka, the two largest villages within Lake Malawi National Park. The initial phase of fieldwork used participatory methods, including maps and matrices, with different groups of local people (e.g. women, men, tour guides etc.) to understand the linkages between their livelihoods and the Park's natural resources. Participatory methods were also used to describe population and environmental change. This was followed by an archival search in the government departments relating to natural resource use to obtain copies of project and policy documents and aerial photographs.

Aerial photographic analysis was used to detect and monitor changes in the Park woodlands over an eight year period, from 1982 (two years after the establishment of the National Park) until 1990 (the most recent photographs available). Land cover was classified into sparse woodland (< 50% canopy cover), closed canopy woodland (≥ 50% canopy cover), village settlements and cultivated land.

In Chembe, the largest village, 30 households[1] were selected randomly and asked to participate in the study. A formalised questionnaire was used to establish household size by identifying and ageing all household members. A survey monitored the flow of fuelwood through each of the target households over the same period of seven consecutive days each month over a period of eleven months (see Box 2.1).

Box 2.1 Monitoring fuelwood production and use

Household fuelwood
On the morning of the first day of the weekly monitoring period, the fuelwood stockpile in each of the thirty households was weighed. On a daily basis, the fuelwood bundles collected or bought by each household were weighed. In addition, an estimate of the weight of any wood that had been sold or donated to other households (e.g. during funerals) was taken. The fuelwood stockpile was re-weighed on the seventh and final day of the monitoring period. This schedule ensured a comprehensive examination of household fuelwood use while making only limited demands on women's time.

Commercial fuelwood
The same sampling schedule was used for monitoring the fuelwood used in each of four fish smoking stations.

Fuelwood production
Trees marking the boundaries to each of three quadrats were clearly paint marked and the village chief requested people not to collect deadwood from with the plots. Dead wood was removed from the quadrats one month before the survey began to provide a baseline. On the first day of each month, the wood on the ground of a size above the utilisation limit (pre-determined at a mid point diameter of ≥ 2 centimetres) was collected and weighed. The survey was undertaken each month for a period of nine months.

[1] Households consist of an extended family residing within one compound and eating together as a single unit (*cf.* Bender 1967).

Species and size preferences for fuelwood were investigated by dissecting thirty randomly selected fuelwood bundles in Chembe. A list of local tree names and their Latin equivalents was compiled during the study based on Binns (1972) but species nomenclature follows Coates Palgrave (1983).

Fish smoking takes place in all the villages, and the stations are often located along the beach. A one-off count of all fish-smoking stations in all five villages was undertaken. The ethnic group of the owner of the station was noted. The wood used by four of the fish-smoking stations in Msaka village was monitored for the same seven consecutive days each month, over a period of eleven months (see Box 2.1). The species and mid-point diameter of each log were recorded.

Focal group sampling (Altmann, 1974) was employed to examine the tools and methods of transport used by fuelwood harvesters. On each trip, the tool each person used to collect fuelwood was recorded: panga knife (a wide bladed knife), saw, axe, stick (sticks were used to knock dead branches out of trees), or by hand alone (where the individuals collected without tools). Fuelwood transport methods included: head-loading, bicycles, dug-out canoes and boats.

An estimate of the production of dead fallen wood was made using three permanent quadrats (Kent and Coker, 1992), each of size 900 m^2 (see Box 2.1). The quadrats were situated subjectively (*cf.* Shackleton, 1993) to reduce the possibility of harvesting by villagers. The quadrats were located under closed canopy woodland in relatively inaccessible areas of the Park.

Results and Analysis

Policy analysis: local livelihoods and the national park

Lake Malawi National Park was proposed in 1973 and established in 1980 as the first freshwater, underwater national park in the world (Grenfell, 1993). The Lake Malawi National Park Master Plan (DNPW, 1981) states that: 'An important feature of the park is its association with a number of densely populated fishing villages. The presence of these villages, and the way in which the inhabitants have adapted their lives to the environment is of great interest, and has considerable significance for the future planning of the area'. Bell (1978) reports that the Life President Dr. Ngwazi H. Kamuzu Banda, '... approved the principle of creating a Lake Malawi National Park in the area proposed, on the condition that its creation did not materially interfere with the way of life the inhabitants of the area'. The more recent Management and Development Plan (1993) phrases this differently: 'His Excellency the Life President approved in principle the establishment of the Park...', on the condition that, '... five villages existing within the park boundary would be allowed to remain'.

A background paper used in planning the national park appears as an annex to the Master Plan. It is described as, '... a statement of the impact of man on his land scape [sic] and should be taken as an integral part of the plan for the National Park' (Bell, 1978). The paper explores the Lake Malawi biome, the National Park proposal and land and water interests. With regard to local use of the terrestrial area, the paper submits three main theses, which are somewhat contradictory in nature.

The first was that creation of the national park did not pose a significant conflict with existing land-uses: 'Because of its rocky nature, much of the peninsula and islands are unsuitable for cultivation, and are unsettled; the northern half of the peninsula and all the islands ... have been covered by Forest Reserve since 1948. The conflict of a National Park with other land-use interests is therefore less intense in this part of the lakeshore than in most others' (Bell, 1978). The second thesis was that although the village populations are relatively large (at around 5000 people) and growing, the rate of population growth had declined. This was attributed to resource shortages and economic limitations within the villages.

The third thesis was resource over-exploitation, which was, '... studied in some detail since the aesthetic character of the woodland is being considerable [sic] reduced by cutting of firewood and building poles' (Bell, 1978). Using data on population trends, aerial photographs, fuelwood use and woodland regeneration, Bell (1978) found that, '... the woodland structure is changing from mature woodland to shrubby regrowth'. Aerial photographic analysis (1972–1976) suggested an increase in Class 1 sparse woodland of 185 ha/yr implying '... it would take 30 years for the whole of the two Forest Reserves [equivalent to the National Park] to be converted to Class 1 woodland' (Bell, 1978).[2] The background paper also noted that these changes would occur independently of the creation of a national park. These findings were picked up in the Master Plan which stated: 'In recent years the cutting of the forests for cultivation, and more importantly for firewood, has become marked' (DNPW 1981).

Proposed solutions

Given the permanence of the five fishing villages within the National Park, the conflicts between the national park and local demand for fuelwood were recognised: 'If firewood consumption ... is curtailed by the National Park, an alternative must be provided' (Bell, 1978). Proposed solutions included:

- trucking in wood from elsewhere – it was estimated that sustainable exploitation would require about 15,000 acres of indigenous woodland;
- ... establishing an exotic fuel wood plantation to the south' of the National Park – it was estimated that a eucalyptus plantation of about 3,000 acres would be required;
- reducing demand through using *Hyphaene* palm nuts for smoking fish, employing solar heaters etc. This recommendation is somewhat surprising given that the report had found that, '... it emerges very clearly that very little firewood is used for drying fish ... [as] these villages primarily catch utaka and usipa, which are sun-dried'.
- effective fire protection to increase the growth rate of timber at Cape Maclear (Bell, 1978).

[2] Bell (1978) makes the point that firewood volume is, '... extremely difficult to measure ... ' and that, '... the figures given here can only be regarded as a preliminary indication ...'. During this study, Bell (pers. comm.) indicated that the figures were somewhat 'political' in the need to establish the national park.

None of these recommendations was implemented in any co-ordinated way and, in the absence of alternative energy supplies, the five villages continued to exploit the surrounding woodland. However, restrictions were placed on their use of fuelwood; cutting of live wood was made illegal and permits had to be purchased prior to collecting each head-load of dead fuelwood from the Park. Park scouts patrol the woodland to detect illegal fuelwood collectors who are harvesting without a permit and they administer various fines and confiscate fuelwood or tools (Abbot and Mace, 1999).

The 1993 Management and Development Plan maintained the restriction on cutting live wood and the permit system for collecting firewood, although it recommended that the money raised, '... should go directly back to the enclave villages to establish [tree] nurseries' (Grenfell, 1993). The earlier idea of a large woodlot was rejected in favour of reforesting the base of the slopes around the Park with indigenous species, and encouraging fast growing tree species for agroforestry, building materials and cooking within the villages. Despite the positive overtones of the Management and Development Plan, few of the 'cooperative efforts' (Grenfell, 1993) with enclave village communities were established.

Outcomes

The outcomes of the national park policies on local people and natural resource use can be reviewed in the context of the three theses proposed in the original Master Plan (Bell, 1978). First, the National Park has conflicted with local land-uses, as demonstrated by the attitude survey commissioned for the Management and Development Plan (Grenfell, 1993). Fuelwood and fishing restrictions are key local concerns, exacerbated because local people believe that the Park has failed to communicate and explain the rationale for its regulations.

The second thesis suggested that the population growth rate would stabilise. A census conducted for the 1993 Management and Development Plan found that not only had the village populations increased but so had the rate of population growth. A further census commissioned as part of this study showed that populations are still increasing (see Figure 2.1).

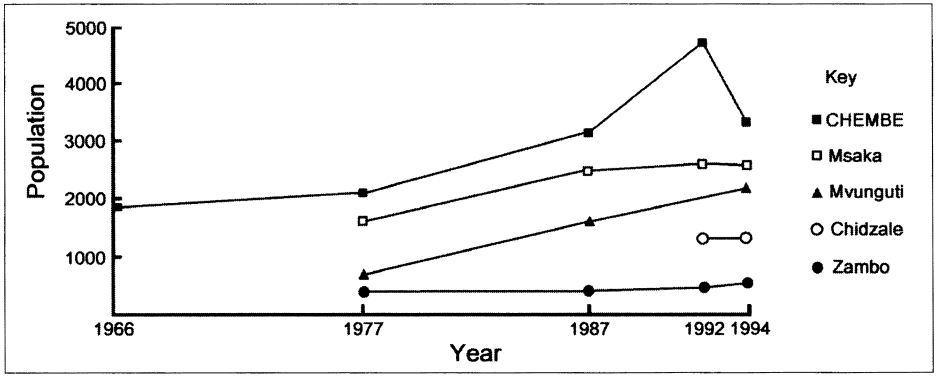

Figure 2.1 Population change within the enclave villages of Lake Malawi National Park: collated census data from 1966–1994

The third thesis was that the woodlands are over-exploited. The rest of this chapter analyses the findings of field research undertaken to understand the links between the policy environment, local populations and fuelwood.

Documented woodland decline

Aerial photographs from 1982 indicate low levels of sparse woodland within the Park. Figure 2 shows the striking and rapid loss of closed canopy and expansion in sparse woodland between 1982 and 1990. While recognising the problems of interpreting aerial photographs (e.g. Wolf, 1983), photographic analysis suggests that sparse woodland has increased by 299 per cent in eight years (Abbot and Homewood, 1999). The population more than doubled during the period 1977–1992 (Figure 2.1) and thus the conventional wisdom of population-led woodland decline, in response to increased fuelwood harvesting in the Park, appears to be supported by the analysis of aerial photographs.

Disaggregating fuelwood users and uses

But what are the end-uses of fuelwood collected from Lake Malawi National Park? Commodity chains are a useful tool to address this question as they explore the 'interlinked exchanges through which a commodity and its constituents pass from extraction or harvesting through production to end use' (Ribot, 1998). Based on participatory methods and direct observation, a fuelwood commodity chain was constructed to explore fuelwood harvesting from Lake Malawi National Park at Chembe village (Figure 2.3).

The commodity chain reveals a multiplicity of local uses of fuelwood within Chembe, which had not previously been described from Lake Malawi National Park. It shows specific collection patterns, with regard to both gender and age, which are associated with fuelwood according to its end-use in household subsistence, trade, and commercial enterprises. These tend to reflect the traditional division of labour. For example, fishing is a predominantly male activity, hence the wood required for fish processing is collected by adult males. Women undertake domestic activities and thus they collect domestic fuelwood, assisted by elder daughters (Biran, Abbot and Mace, 2004).

Gender, poverty and rural-urban linkages in fuelwood use and trade

Figure 2.3 suggests that fuelwood is not traded outside the village. However, there is a range of internal markets for fuelwood, including richer households, tearooms and rest-houses. These marketing opportunities provide a source of revenue for village women. Selling firewood is the most popular income-generating activity undertaken in the thirty focal households in Chembe; seventeen households listed selling fuelwood as one of their occupations. Fishing and tourism are the most important commercial activities in the villages, providing income-generation opportunities for men and acting as a buffer against serious hardship during droughts or seasonal hunger (Abbot, 1996). Women named selling firewood as a means of obtaining an independent source of income and as a coping strategy during periods of food scarcity.

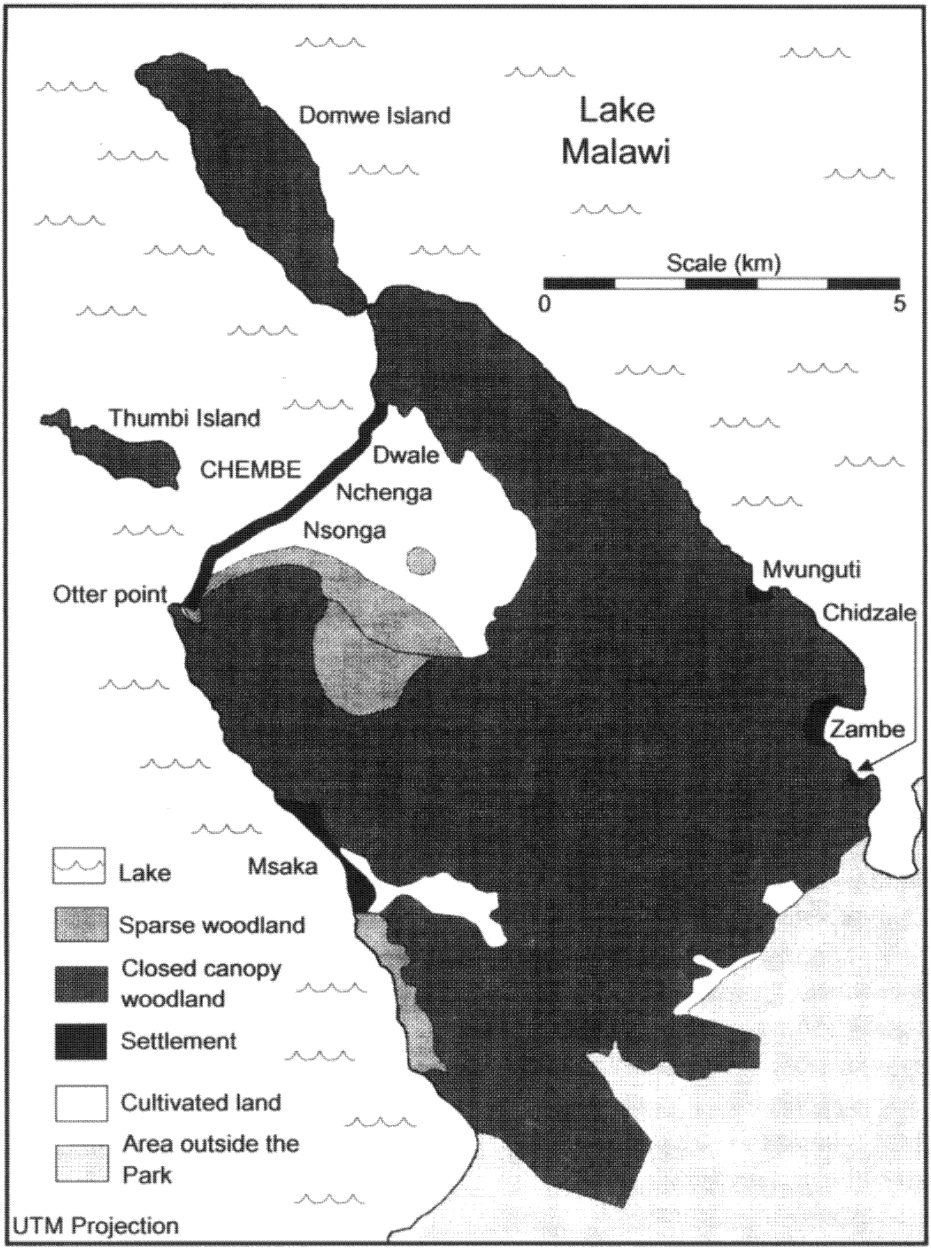

Figure 2.2a Aerial photographic analysis of land use change within Lake Malawi National Park, 1982

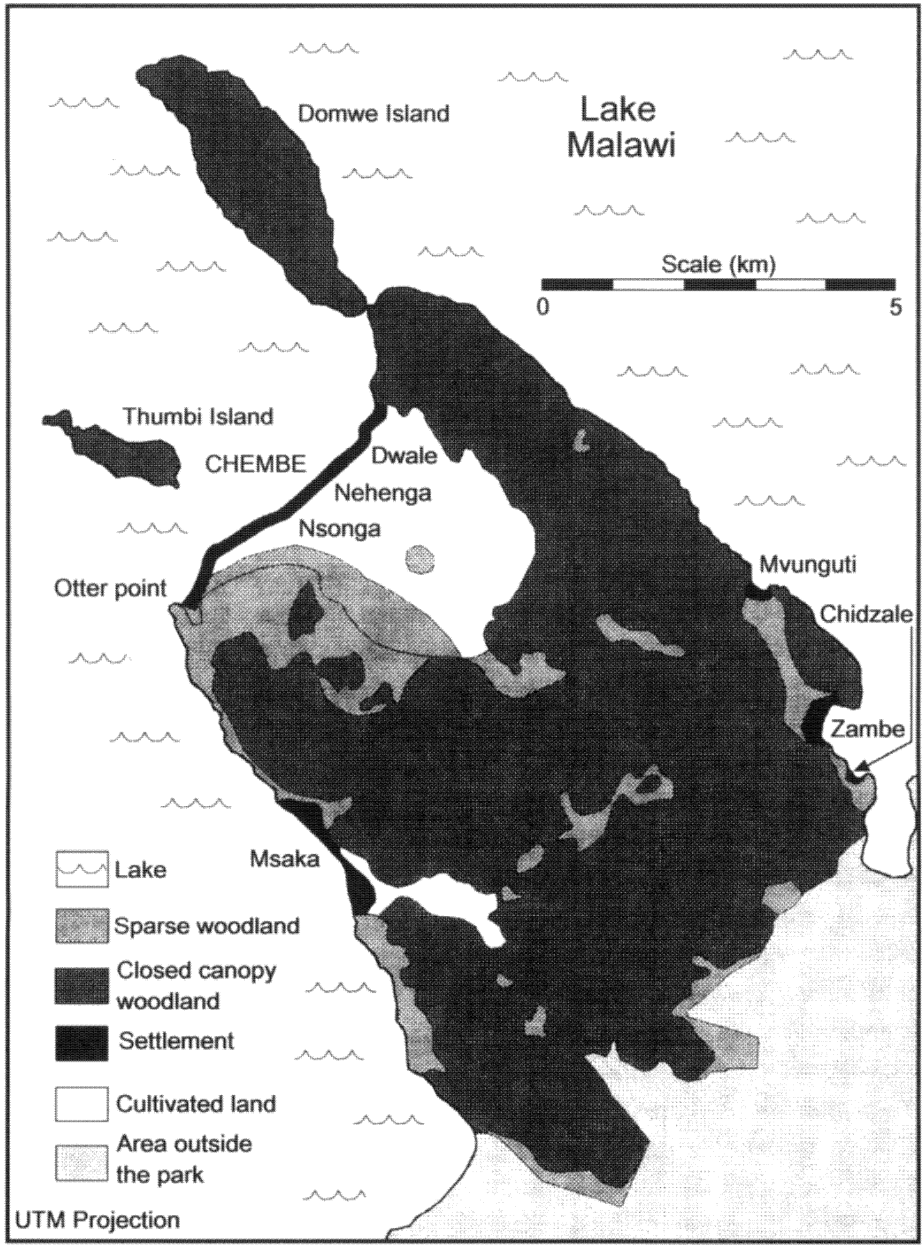

Figure 2.2b Aerial photographic analysis of land use change within Lake Malawi National Park, 1990

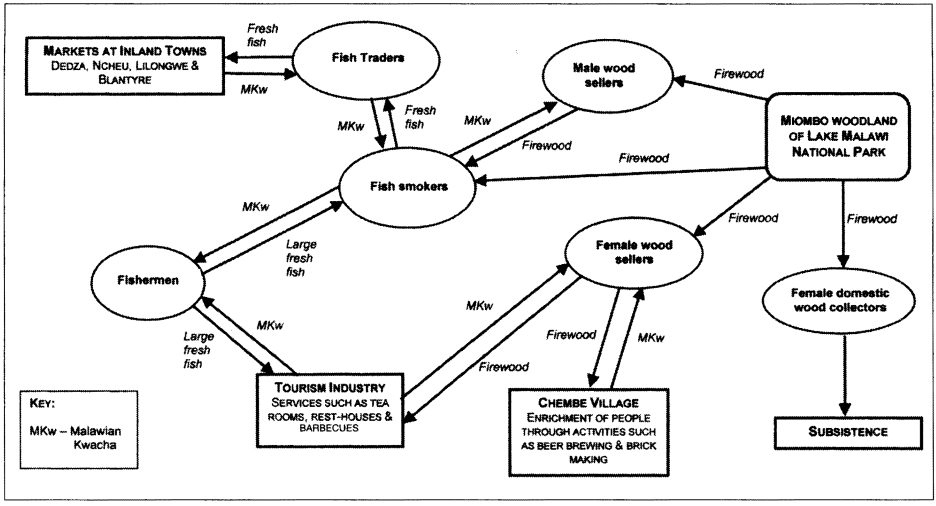

Figure 2.3 Fuelwood commodity chain: Gender, age and rural–urban linkages as determinants of fuelwood users and uses

Wealth ranking (Grandin, 1988) of the 30 focal households in Chembe suggests that the collection and sale of fuelwood is undertaken by the poorest sectors of the community. Indeed, informants used the selling of fuelwood and thatching grass as a criterion to define the poorest households in Chembe (Box 2.2).

Men, either as fish smokers themselves or as male wood sellers, collect fuelwood for use in fish smoking (Figure 2.3). While the fuelwood does not leave the village, the product, smoked fish, is taken for sale to inland towns such as Dedza and Ntcheu, the commercial centre of Blantyre and the state capital, Lilongwe.

Political economy of regulation

Fuelwood is an important resource, featuring in a range of local livelihoods. But there appears to be only one system of regulating off-take: scout patrols, targeting fuelwood harvesting by female fuelwood collectors (Figure 2.3). No customary forms of regulation, in terms of prohibited areas of the woodland or species, were identified.

Over an eight-month period, over 90% of scout encounters with wood collectors were with women (Abbot, 1996). At first glance, these data imply that women are the primary users of the woodland. An alternative explanation, however, is that patrolling effort is deliberately targeted towards women because domestic fuelwood is believed to be causing woodland decline and women are primarily responsible for its collection. This explanation seems to be confirmed by the 1993 Management and Development Plan: 'many of the violations in the park relate to illegal woodcutting, which is largely done by enclave women' (Grenfell, 1993).

Female and male scouts in Malawi receive the same training and are supposed to do the same work (Grenfell, 1993), but at Lake Malawi National Park, male scouts are responsible for law enforcement activities. Female scouts at LMNP sell tickets at

Box 2.2 Indicators of wealth: the living standards experienced within different wealth groups in Chembe village.

Group 1 (Richest)
House: large, often made of fired bricks, painted, may have iron sheets or a non-leaking thatched roof. Cement floors, rim locks on plank wood doors. Glass louvre windows. Good complete fence.
Furniture: sofa, padded chairs, tables and metal beds.
Vehicles: may have a pickup truck or bicycle. Many have plank boats and dugout canoes.
Occupation: rest-house owners, fishermen entrepreneurs (owner of fishing gear and/or craft but may not actually be involved in fishing operation)
Clothes: several sets of good clothes with no holes or patches. Leather shoes.
Food: varied diet, eat chicken, rice and eggs regularly. Employ domestic help.
Schooling: all children go to school and many reach secondary education.
Other: own radio cassette players and fishing nets.

Group 2
House: good but small. may have fired bricks. Good thatched roof with no leaks. Rim locks on plank doors. Glass-paned windows and cement floor.
Furniture: basic wooden chairs, a table and beds
Vehicles: may own dugout canoes or bicycles.
Occupation: either paid employment (in rest-houses or for National Parks) or have own small enterprises such as beer brewing, fish trading, selling cakes or flour.
Clothes: a couple of sets of good clothes. Plastic or leather shoes.
Food: eat rice or chicken occasionally. Can afford cooking oil.
Schooling: children attend primary school and some attend secondary schools.
Other: own radios and use a good brand of soap.

Group 3
House: small and made of sun dried bricks, thatched roof with some leaks. Bamboo doors and dirt floors. No glass windows.
Furniture: none, except may have small stools and mats.
Vehicles: none.
Occupation: men as net crew, women may sell fuelwood or grass for income, small businesses buying small amounts of tomatoes, peanuts or fish.
Clothes: 'chitenjes' (cloth) and one set of western clothes, some patches and holes.
Food: singular diet of maize staple and vegetable/fish relish. Limited amounts of cooking oil. Food available every day but some meals may be missed.
Schooling: children tend to have only primary education.
Other: use cheap brand of soap and have 'torn' blankets. Use clay cooking pots.

Group 4 (Poorest)
House: small, sun dried bricks, leaking thatched roof, dirt floor, fence poor or absent. No sleeping quarters hence sleep within the fence or kitchen
Furniture: mats only.
Vehicles: none.
Occupation: dependant on families and neighbours. Sale of fuelwood and grass (seasonal) is important for income generation.
Clothes: old 'chitenjes' (cloth) and patched clothes.
Food: maize staple and poor relishes only. Normally eat once a day, but experience hunger, some days there is no food.
Schooling: children tend not to go to school because of the lack of money for uniforms and books.
Other: often widows or unmarried/ divorced women. Cannot afford to buy soap regularly, no blankets.

the Park entrance and give out information despite recommendations in the Management and Development Plan that they could be better utilised in patrolling: 'the female scouts would be more effective in communicating with the offenders [of illegal wood collection]' (Grenfell, 1993). Thus, male scouts patrol the woodland in search of female wood collectors while men's use of fuelwood is effectively unregulated.

Impacts of fuelwood use

Domestic fuelwood. To understand the impact of fuelwood harvesting on the miombo woodlands, the fuelwood used for domestic purposes and commercially in fish smoking was examined (Table 2.1).[3] There was no significant seasonal pattern in household use of fuelwood (Abbot and Homewood, 1999) and thus these analyses used the mean fuelwood consumed per capita per week, averaged across the months for which the surveys were undertaken. Similarly, the quantity of wood used for fish smoking was averaged across the eleven months of the survey.

Each villager consumed substantial quantities of fuelwood, and the estimated annual consumption of fuelwood in the enclave villages was similarly large (Table 2.1). However, dead wood production was also substantial. The mean annual

Table 2.1 Comparing the production of fallen deadwood with domestic and commercial fuelwood consumption in the five enclave villages

Fuelwood production and use	**Mean**	**n**	**sd**
Domestic fuelwood	10.1 kg capita^{-1} week^{-1}	30	3.37
Commercial fuelwood: fish processing	86.79 kg station^{-1} week^{-1}	4	22.34
Mean deadwood produced per 30m^2 quadrat per month	10.35 kg quadrat^{-1} month^{-1}	3	6.68
Annual fuelwood production and use	**Mean**	**95% Confidence Intervals**	
Estimated deadwood produced on Nankumba peninsula yr^{-1} [a]	9,481 t	3,646 – 15,325 t	
Estimated domestic fuelwood consumed by the five villages yr^{-1} [b]	4,433 t	4,033 – 4,872 t	
Estimated fuelwood consumed by fish processors in all five villages yr^{-1}	1,376	t 813 – 1,935 t	

[a] Area of Nankumba Peninsula covered by woodland (both sparse and closed canopy) is 68.7 km^2, excluding the islands.

[b] Assumes a total population of 8440 people consuming 10.1 kg person yr^{-1} week^{-1}.

[3] The use of fuelwood in servicing the tourist industry was not measured because the larger rest-houses in the village and the National Park accommodation source most of their fuelwood from outside the park, with top-up supplies coming from village wood sellers. Because the local and non-local sources of fuelwood could not be separated, fuelwood used in tourism was not included in this study.

Table 2.2 Size class and species preferences of fuelwood selected for domestic and fish smoking purposes

Parameter	Domestic fuelwood	Fish smoking
Size class[a]		
1	73.3%	8.0%
2	26.6%	43.3%
3	0.1%	41.4%
4		12.1%
5		1.9%
6		0.5%
Mean mid point diameter	3.6 cm	11.2 cm
sd	1.5 cm	3.8 cm
No. species encountered	28	14
Species most frequently used	*Brachystegia microphylla*	*Brachystegia microphylla*
% wood comprised of most frequently used species	40.9 %	56.9 %
N	1081	372

[a] Size class were determined in 5cm increments, thus Size Class 1: < 5cm, 2: ≥ 5cm – < 10 cm, etc.

production of fallen dead wood in the Park was over twice the mean annual domestic fuelwood consumption (Table 2.1). The extreme maximum estimate of consumption (the upper confidence interval) exceeds the most conservative estimate of fallen dead wood (the lower confidence interval), but they are of the same order.[4]

These results suggest that the *miombo* woodlands are likely to provide a sufficient *quantity* of dead wood for the enclave villages if women select dead wood to make their bundles. However, this analysis does not incorporate the *quality* of the dead wood produced. Table 2.2 indicates the size and species preferences for domestic and commercial fuelwood. The mean mid-point diameter of the domestic fuelwood selected is small, less than 4 centimetres. Women also select a wide range of species, using nearly one third of the 95 different species recorded in the vegetation survey (Abbot 1996). However, one hardwood species, the canopy dominant, *Brachystegia microphylla* is preferred and used most frequently.

While the quality of collected firewood was documented, dead wood produced was not recorded in terms of size or species. The experimental plots measured only the quantity of fuelwood above the utilisation limit. It was observed, however, that the dead wood consisted primarily of branches of small mid-point diameter, rather than large logs or trunks of fallen trees (*cf.* Shackleton, 1993).

[4] Although it is probable that villagers harvested some fuelwood from within the permanent quadrats, dead wood production may have been overestimated as the data represent fallen dead wood rather than wood mortality (dead wood in *miombo* remains aerial and attached to the tree for long periods before falling to the ground). Furthermore, in the absence of appropriate facilities for drying and storing the wood, the study did not correct for moisture content and thus wet season records may inflate the biomass data.

By tracking wood collectors, it was possible to detail the tools used and determine how women collect firewood. Women wood collectors have only limited tools for obtaining fuelwood: of 78 women, 39% collected by hand, 36% with a panga knife and 12% used sticks to dislodge dead branches still attached to the tree. Only 13% made use of axes suitable for felling trees. No trees were felled during the wood collection trips when women were tracked, although this may be an artefact of being observed. Much of the gathered wood was dead, although live wood was collected using panga knives or by breaking small branches.

Fish smoking. Data from four fish smoking stations monitored at Msaka demonstrate a preference for wood of a large size class. On average, the logs have a midpoint diameter three times larger than the average piece of fuelwood selected for domestic purposes (Table 2.2). Species selection is narrow: fifteen different species were recorded at four fish smoking stations. More than half of the logs monitored consisted of one species, the dominant, hardwood canopy tree, *Brachystegia microphylla* (Table 2.2). There are over three hundred fish smoking stations in the five villages, two-thirds of which are owned by people of a Northern ethnic group, while the remainder are owned by people of Southern ethnic groups (Table 2.3).

Table 2.3 The number of fish smoking stations owned in each village and by each cultural group, together with the estimated population size of each village

Village	**Northern Cultural Group** (Tonga or Tumbuka)	**Southern Cultural Group** (Chewa, Yao or Lomwe)	**Population** (1994 census)
Chembe: Nsonga and Nchenga	0	6	3083
Chembe: Dwale	35	37	169
Msaka	31	16	2495
Mvunguti	86	30	2106
Zambo	42	3	464
Chidzale	19	0	123
Total	**213**	**92**	**8440**

Wood of the preferred, large size class is obtained from trunks, requiring the felling of the tree, or from very large branches. By contrast to women, the men that collect fuelwood for fish smoking have the tools that are required to fell trees: of 27 men, 46% used panga knives, 42% had axes and 7% had saws. Whereas most women collect by hand, just 5% of men collected in this fashion. In addition, men had several options for transporting their fuelwood loads: Of 27 men, 45% used a bicycle, 22% a dugout canoe and 11% a boat. Only 22% of men collected wood on foot, but this was the sole method of transporting fuelwood observed amongst domestic fuelwood collectors.

Discussion

Policy analysis suggests that fuelwood exploitation by the enclave villages was a central concern when Lake Malawi National Park was established in 1980. That sparse woodland is increasing rapidly at the expense of closed canopy woodland is confirmed in an early study (Bell, 1978) and the aerial photographic analysis undertaken for this study. This section discusses fuelwood harvesting in terms of the two questions set out at the beginning of the paper: End-uses and impacts, and the incentives and disincentives for harvesting fuelwood.

End-uses and impacts of fuelwood harvesting

The fuelwood commodity chain at Lake Malawi National Park presents a diversity in fuelwood end -uses and -users that is not apparent in previous studies at Lake Malawi National Park and that may be responsible for over-exploitation of the Park woodlands. It shows how fuelwood is harvested for both commercial and subsistence purposes and that these patterns of harvesting are linked to gender, age and wealth status.

Domestic fuelwood

A moderately large quantity of domestic fuelwood is used per capita at Lake Malawi National Park of 10.1 kg capita^{-1} wk^{-1} (*cf.* 6.8 kg capita^{-1} wk^{-1} for Maasai in Amboseli Kenya – Barnes, Ensminger & O'Keefe 1984; 687 ± 48.8 kg person^{-1} yr^{-1} or ca. 13 kg capita $^{-1}$ wk $^{-1}$ – Shackleton, 1993: review figures). However, total domestic fuelwood use appears to be less than the estimated total production of fallen dead wood. Group discussions emphasised that women prefer dead wood as an energy source, because of its ease of collection – most women collect by hand and have few tools to aid their harvesting – and superior burning properties when compared with live wood (Abbot, 1996, *cf.* Shackleton, 1993). Thus, if villagers act on their expressed preference for dead wood, their fuelwood requirements appear to be sustainably met by the fallen deadwood produced in just 69 hectares of woodland. As women's wood collection activities are concentrated in woodland areas proximal to the village, highly frequented woodland areas are likely to be depleted of dead wood, with more dead wood available in less accessible areas. This was observed in the Park and has been demonstrated in a study of woodland use in Zimbabwe (Grundy *et al.*, 1993).

Women use a range of species and size classes because different woods and diameters have different purposes. For example, small, fast-burning species are used to start fires while larger, slow-burning species maintain fires for cooking purposes. Furthermore, because women head-load their bundles, they select a variety of fuelwood species, a trade-off between preferred hardwoods which are heavy to carry and lighter species which are less efficient fuelwoods. The dominant species used for domestic fuelwood, *Brachystegia microphylla*, accounted for over 40% of all pieces enumerated (as in the Amboseli Maasai, the dominant firewood species *Acacia nubica* accounted for 37% of the total – Barnes, Ensminger and O'Keefe, 1984). It is unlikely that preferences for specific fuelwood species and size classes can be met from dead wood alone, and this is consistent with observations that bundles comprised both dead and live wood.

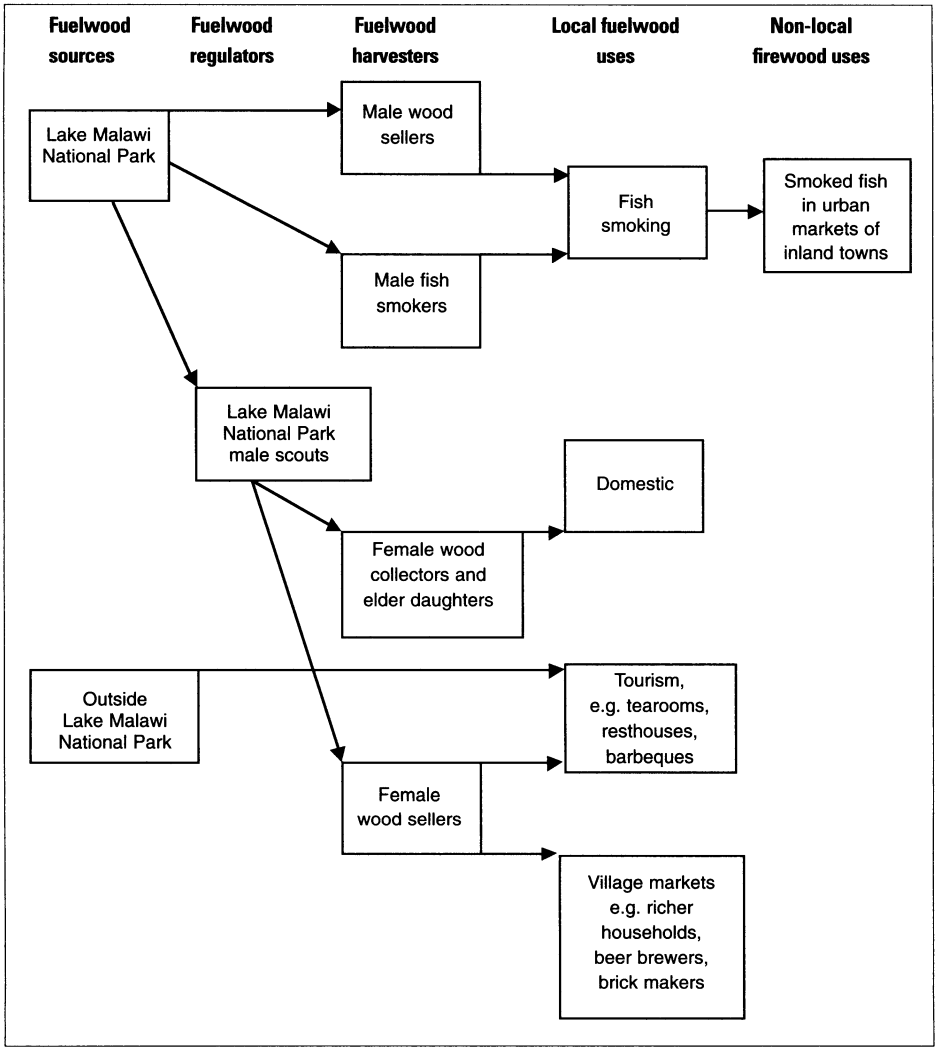

Figure 2.4 Fuelwood and livelihoods in and beyond Lake Malawi National Park: The harvesting, regulation and uses of fuelwood in Chembe village

Fuelwood used in fish smoking

The large quantities of wood required to smoke fish support the hypothesis that this commercial enterprise would have a major effect on the Park woodlands. Open wire fish smoking places have a high fuelwood consumption: trials around Lakes Chilwa and Chiuta, Malawi, suggest approximately 1 kg of wood is required to smoke 1 kg of fish (Walter, 1988). The large number of fish smoking stations illustrates the pressure that fish processing puts on the Park woodlands. While large quantities of dead wood are produced in the woodlands, the narrow species diversity

and large size of fuelwood required by fish smokers limits their use of this resource. Moreover, the large size of the wood selected suggests that harvesting would have a direct effect on the woodland canopy. The removal of large trees leaves a gap in, and opens up, the forest canopy (Medley, 1993). This is consistent with the pattern of change observed in the aerial photographs suggesting the removal of mature, canopy trees.

Large fish are conventionally smoked at open wire smoking places. This preserves the fish, increasing domestic shelf life and allowing transportation to inland markets. Fish processors require fuelwood that burns for a long time without producing much smoke that would taint the fish. Hardwood species are preferred because they produce '*makala*' or coals that retain heat. Large logs of wood are selected which burn for prolonged periods, without the fire going out. Men have access to the necessary equipment to fell and transport the large hardwood logs.

Incentives and disincentives for fuelwood harvesting

Enforcement. The conflicts between conservation and consumption of natural resources were recognised when Lake Malawi National Park was established in 1980 (Bell, 1978). While none of the recommendations for providing alternative sources of fuelwood were developed, law enforcement activities relating to fuelwood were implemented. Because fuelwood collection was associated with domestic use, scout patrols focus on women wood collectors. Ribot (1995) notes that enforcement and non-enforcement of natural resources is, 'by no means random', and that enforcement is often selective, along social or political-economic lines. From the earliest documents planning Lake Malawi National Park, fuelwood is synonymous with women, which has resulted in male scouts enforcing wood collection by village women. Female scouts do not undertake law enforcement patrols, even though they may be better suited to this task (Grenfell, 1993) and may help reduce some of the village women's complaints of harassment by male scouts.

Commercial/rural-urban. Fish is an important protein source in Malawi, comprising around half of total animal protein consumption (Le Sann, 1998). Most of the fish landed in the enclave villages is sold in urban centres, either by fisherfolk directly or by fish traders. Only a small proportion of the fish landed is consumed in the village.

The commodity chain for fuelwood shows that through demand for fish protein, the 'ecological footprints' of urban centres in Malawi impact upon both the aquatic and terrestrial resources in remote villages (cf. Tacoli, 1998). The commodity chain highlights the role played by rural villagers and resources in servicing urban needs, but it also suggests that it is primarily men who are involved in rural-urban trade in smoked fish, a value-added and profitable venture. By contrast, women's trading activities are localised and centre on village trade in fuelwood as a raw material, an activity undertaken by the poorest women. The relationship between wealth and natural resource use is complex (Godoy *et al.*, 1995), but this study supports the findings of Godoy and Bawa (1993) that, 'wild plants account for a larger share of household income among poor than among rich households'.

Abbot and Homewood (1999), describe how the scale of fish smoking has increased recently as a result of population migration; changes in fishing gear (and

hence the type and size of fish caught); and urban demand for preserved fish. Furthermore, resource limitations in many of the enclave villages, particularly with regard to cultivable land, have increased the role of the cash economy generated by fishing, as predicted by Bell (1978). Recent, but extensive fish smoking and thus demand for large logs is consistent with aerial photographic evidence demonstrating significant woodland decline in the late 1980s.

The rural–urban trade in smoked fish is made profitable by the free extraction of substantial quantities of fuelwood from Lake Malawi National Park. The benefits of fuelwood extraction accrue to richer men who own the fishing gear or craft (Box 2.2), many of whom are immigrants from the northern parts of Malawi (Table 2.3). Village women bear the costs of fuelwood harvesting through the payment of fines and their long fuelwood collection trips. Interviews with women reveal that they find it increasingly difficult to gather fuelwood bundles. Tracked fuelwood collection trips averaged four hours in duration and are undertaken on average every four days (Abbot, 1996).

This skewed distribution of benefits is maintained by the Park's policies on law enforcement which are biased towards penalising female rather than male wood collectors. This situation is by no means unique in Africa. Ribot (1995) describes how forestry policies regarding fuelwood and charcoal in Senegal benefit, 'powerful merchants and their foreign migrant woodcutters, rather than forest villagers.'

Conclusions

The present study has used complementary methods to investigate the status of the Lake Malawi National Park woodlands and the use of fuelwood in the enclave villages. While woodland decline at the Park has frequently been attributed to the collection of domestic fuelwood, commodity chain analysis revealed the diversity of end-users and end-uses of fuelwood. Fuelwood contributes to local livelihoods at Lake Malawi National Park in a number of ways: it is used both commercially and domestically and different patterns of collection and use are strongly linked to gender and wealth status. Men are involved in harvesting fuelwood for the commercial venture of fish smoking, trading the preserved fish in the urban centres in Malawi. Women collect domestic fuelwood and poorer women sell fuelwood within the villages, for example to tearooms and to richer households.

Because of the large and growing village populations, fuelwood harvesting appears to be detrimental to the woodland, reducing mature, closed canopy woodland to sparse woodland. However, this study suggests that fuelwood use takes different forms, each having different impacts on the Park woodlands. In spite of their conspicuous collection patterns, and the relatively large woody biomass consumed overall, domestic wood collectors appear to have limited impact on the woodland, although they are the main target of the Park's law enforcement activities. However, wood used in the commercial activity of fish processing is taken from a narrow species base and is biased towards large size classes, which require felling of the tree. Wood selected for fish smoking is thought to be the major factor contributing to the shift to sparse woodland in the Park although it is unregulated by the Park scouts.

The fuelwood used in fish smoking can be described as a hidden resource. First,

it is 'hidden' as it is transported relatively quickly, often by boats, canoes and bicycles, and is not seen along the routes and roads where the women head-load their bundles and which are patrolled by the scouts. Second, it is hidden from law enforcement patrols as it has not been identified as a cause of woodland degradation and thus scout patrols rarely detect it. The net result is that fuelwood bundles collected by women are burnt or confiscated or the women themselves fined while the removal of large logs from the woodland for fish smoking is almost completely unregulated. Consequently, the regulation of fuelwood use has neither limited nor reduced impacts on the woodland (Abbot and Mace, 1999; cf. Ribot, 1995).

It is the recent increase in this commercial activity, with an urban demand for the fish product, which has driven the recent decline in closed canopy woodland within the Park. This finding concurs with previous studies demonstrating that the end-use of, and demand for, the product are key determinants of off-take. Specifically, several studies have made a distinction between the impact of urban and rural demands on woodland communities (Whitney, 1987: fuelwood in the Sudan; Chidumayo, 1987a, 1987b and 1993: charcoal production for the urban market in Zambia; Ribot, 1995 and 1998: charcoal in Senegal; Ravindranath *et al.,* 1991: impact on tree biomass of urban fuel demand in India; Hall and Rodgers, 1986: pit-sawing timber for commercial, rather than local, use).

At Lake Malawi National Park, a complex mixture of technological and livelihood change, population migration, and changing regional and national markets for the Park's resources appear to underpin woodland decline. At the micro-level, gender differences in law enforcement, access to tools for resource harvesting and modes of transportation influence wood selection and cutting practices and thus the impact that different harvesting activities have upon the resource base.

By disaggregating the various wood cutting policies and practices that impact upon the woodlands of the Park, this study provides a basis for informed management policies by the Malawi Department of National Parks and Wildlife. These should focus on methods of reducing demand for, and providing alternative sources of, woody biomass within the enclave villages. In addition, law enforcement and forestry extension efforts should be shifted in emphasis to address what appears to be the most damaging form of wood use, the selection of fuelwood for fish processing. Law enforcement, including the patrol routes, modes of transport and penalties, needs to be reviewed and reformed if it is to detect and deter the commercial harvesting of fuelwood for fish smoking.

Leach and Mearns (1996) note that, 'The driving force behind much environmental policy in Africa is a set of powerful, widely perceived images of environmental change'. The conventional analysis that deforestation is caused by the domestic use of fuelwood is a prime example. This study shows how this received wisdom has been perpetuated in both policy and practice at Lake Malawi National Park. The woodlands *are* being degraded at Lake Malawi National Park, but the fallacy of routinely applying a conventional assessment of the impact of fuelwood harvesting on woodland resources is clear. The current solutions to woodland degradation are unlikely to be successful as they fail to address the real cause of woodland decline. The multidisciplinary nature of this research has enabled the incentives for and impacts of fuelwood use to be explored by taking a detailed historical, local level and disaggregated approach to studying patterns of woodland use.

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3

Protected Areas & Decentralisation in the Democratic Republic of Congo A Case for Devolving Responsibility to Local Institutions

EMMANUEL DE MERODE

This chapter explores options for conservation policy and practice around Garamba National Park in the north east of the Democratic Republic of Congo. Historically, protectionist policies, based on eviction and anti-poaching activities, have been adopted at Garamba. These policies are known to impose high economic and social costs, especially to protected area adjacent communities. Furthermore, recent intense political conflict in the region has imposed constraints on centralised wildlife management. Alternative community based conservation models, aimed at increasing local autonomy are envisaged by the Congolese wildlife authorities. The rationale for devolved management is founded on the objectives of increasing efficiency and local accountability, but the extent to which they can meet conservation objectives has yet to be established. This chapter presents a framework of analysis for testing the assumptions of current and alternative conservation models. Four questions are asked:

1. Do the ecological data show that a policy of evicting local residents from protected areas contributes to conservation success?
2. If not, is there evidence that hunters can self-regulate their wildlife harvests as an alternative to eviction?
3. If not, can local community institutions regulate wildlife off-takes?
4. Can wildlife regulations be maintained in wartime?

Ecological data indicate that, while state-managed protectionist policies can be shown to have contributed to stable or increasing large mammal populations, this success is not explained by the eviction of resident populations from the park. Instead, it is the implementation of effective hunting regulations that has contributed to the success of the conservation programme. However, current regulations are expensive to implement and are financially unsustainable, because they rely on external donor support. Indeed, the lack of contractual accountability on the part of international conservation NGOs towards the DRC Government should

be considered a threat to the sustainability of Garamba's wildlife resources. Thus, it becomes important to assess the capacity of local residents and their institutions to regulate wildlife off-takes and the sustainability of the financial structures that support them. Extensive hunter survey data suggest that hunters themselves are unlikely to 'self-regulate' their harvests. However, local institutions, such as the traditional Zande administrations, have a significant influence on the bushmeat trade and on the volumes of meat reaching the urban market. This can provide a basis for local management of wildlife resources. A final section discusses the resilience of local systems of wildlife management under conflict situations.

Introduction: Protected Area Policies and Local Realities Governing Wildlife Management

The last two decades have seen significant changes in the policy objectives of protected area systems. The World Conservation Strategy (WWF, IUCN & UNEP, 1980) was one of the first of many documents to link conservation with development agendas. However, a policy of integrated conservation and development has also raised a substantial number of conceptual problems on the compatibility of conservation and development agendas. The capacity of two systems of management in meeting both objectives in the Garamba ecosystem is explored: centralised management by the state and local systems of management by local institutions and individuals.

Conventional protected area planning and implementation in Africa has tended to be centralised, driven by agencies, such as government departments or international conservation organisations (Blaikie and Jeanrenaud, 1997; Bell, 1987). Local institutions and individuals have a stake in the natural resources within the protected area, but centralised bodies usually have the greater legislative and financial backing and therefore restrict local access. Centralised conservation policies limit the consumptive use of wildlife as a means of conserving resources that are considered important at a national and international level. At Garamba, these resources are the large mammal assemblage, focusing especially on the rhinoceros population. Centralised management practices are typically associated with two processes: the eviction of resident populations, and the restriction of access to wildlife through law enforcement.

Invariably, centralised wildlife management carries with it a number of social and economic implications: state-managed wildlife programmes have often resulted in the alienation of local people from the resource base, thereby increasing their vulnerability (Brockington and Homewood, 1996; Pimbert and Pretty, 1995). Also, non-local institutions, such as Government departments or international donor agencies, have the greatest influence on wildlife management policies, and are largely responsible for their implementation. Consequently, wildlife management structures tend to be capital intensive and financially unsustainable because they are dependant on national or international sources of funds (Inamdar, 1996; IIED, 1994; Leader-Williams and Albon, 1988). The constraints on centralised management are greatest within a geographical and political context such as Garamba, where isolation and war limits the functionality of state administrations.

A second approach to wildlife management has developed as a response to the limitations of centralised wildlife management and is broadly defined as the

Table 3.1 Civil and traditional administrative systems

Authority	Sector	Role in wildlife management
President	Executive, Legislative	Champions wildlife management for national prestige. Legislates wildlife laws
Minister of the Environment (and ICCN)	Executive	Overall responsibility
Gouverneur	Executive	Collaboration with wildlife managers
Commissaire de District	Executive	Collaboration with wildlife managers
Military commanders	Military	Collaboration with wildlife managers
Administrateur de Territoire	Executive, Judiciary	Collaboration with wildlife managers
Commandant de police	Executive, Judiciary	Regulate wildlife off-take: they can arrest and judge poachers, Collaboration with wildlife managers
Chef de Collectivité	Executive, Traditional, Judiciary	Collaboration with wildlife managers. Traditional authority widely recognised. Intimate contact with the population.
Chef de Groupement	Executive, Traditional, Judiciary	Collaboration with wildlife managers. Traditional authority widely recognised. Intimate contact with the population.
Chef de Localité	Executive, Traditional	Collaboration with wildlife managers, Traditional authority widely recognised. Intimate contact with the population.
Soldiers	Military	Collaboration with wildlife managers
Police	Executive Judiciary	Collaboration with wildlife managers

Source: Tshombe *et al.* (1999)

decentralisation or devolution of wildlife management authority to local individuals and institutions. Decentralisation of wildlife management can take multiple forms, which vary largely as a function of the local context. In some cases, local institutions are created by conservation agencies specifically to manage wildlife. An example of this are the village committees set up in the Ituri Forest as a tool for conservation (Tshombe *et al.*, 1999). Around Garamba, existing Zande administrations have been relied on to undertake some conservation activities (Sangbalenze, 1995).

Because decentralisation involves transferring responsibility for managing wildlife to lower levels, it is important to understand the structure and functionality of the civil administration and the changing relationships between actors at different levels within the hierarchy (Table 3.1). The Democratic Republic of Congo (DRC) is divided into 11 *provinces*. A *Province* is the largest subdivision of the country and falls under the responsibility of a *Gouverneur*. The *District* is a subdivision of a *Province* and is under the responsibility of a *Commissaire de District*. The *Territoire* is a subdivision of a District and is led by an *Administrateur de Territoire*. The Executive from Kinshasa generally appoints *Governeurs*, the *Commissaires de District* and the *Administrateurs de*

Territoire. Since October 1996 and in May 1997 at the end of the war, new authorities were appointed. In 1998 after the rebels captured several provinces in the Eastern DRC, the *Governeurs*, *Commissaires de Districts* and *Administrateurs de Territoire* were sacked and replaced by new leaders reflecting the political aspirations of the insurgents. Thus in recent years, higher level administrators have been at the mercy of the dramatic political changes taking place in the country.

However, traditional power has survived the political turmoil since the DRC became independent in 1960. In contrast to the higher-ranking civil administrations, the traditional authorities (*Chefs de Collectivité*, *Chefs de Groupement* and *Chefs de Localité*) have been maintained. The legitimacy of traditional leaders is challenged neither by political-administrative authorities nor by the military because their authority is tied to customs that are believed to enjoy widespread popular recognition. Over the years, the traditional authorities in the north-eastern DRC have established local institutions within their constituencies, such as traditional courts and local police, reflecting their increasing relative power and stability. This has not been overlooked by the current regime in DRC. In the process of rehabilitation, following the first liberation war of 1996/7, strong emphasis was placed on the involvement of local communities and traditional authorities. Their integration into the sustainable use and conservation of natural resources is therefore now a high priority for the Ministry of Environment and the *Institut Congolais pour la Conservation de la Nature* (ICCN), the national wildlife agency.

Decentralisation of the wildlife sector must also be placed in the wider context of the structural adjustment programmes which are increasingly influencing all aspects of civil administration in the DRC. The objectives of structural adjustment include achieving greater levels of subsidiarity and accountability in government departments. Within the wildlife sector, subsidiarity implies that the government department responsible for protected area management, the *Institut Congolais pour la Conservation de la Nature* (ICCN), only undertakes those functions that cannot be achieved at a lower level in the administrative hierarchy, in other words, by local administrations. Greater accountability is achieved when control of the benefits of wildlife management is transferred to institutions that represent the interests of local people.

The relationship between local institutions and the state also varies, depending on the extent to which the responsibility for wildlife management is truly transferred to the local institutions. These are summarised in Table 3.2.

In the DRC, the rationale for devolving state responsibilities to local institutions is compelling: At the best of times, areas such as Garamba are logistically difficult to manage by authorities based in the capital, some three thousand kilometres away. The war accentuates this constraint. Regional assessments, such as Hart *et al.* (1997), emphasise the consequences of conflict as the major challenges to wildlife conservation. They cite the lack of reliable financial support for protected area management as a consequence of conflict. Leader Williams and Albon (1989) have published data to show the levels of financial investment required to 'guarantee the integrity' of protected areas through centralised law enforcement activities. They propose a ball-park figure of US$ 200 per km^2, yet law enforcement budgets in most African protected areas are less than five percent of this estimate (Dublin *et al.*, 1995). At Garamba, investment in wildlife protection from donors has never exceeded $60 per km^2. Since the beginning of the regional conflict in 1996, funding

Table 3.2 A typology of decentralisation in the wildlife sector of the DRC

Decentralisation process	Definition	Example
Delegation	Transfer of functions to lower administrative levels. Authority and control of benefits remain with the state	*Primes* (payment) to traditional chiefs for anti-poaching activities
Devolution	Transfer authority, responsibility and financial control from central government to lower levels of social organisation	Transfer of fiscal control of natural resource use to traditional authorities
de facto decentralisation	Local management systems assume state responsibilities in the absence of functional government authorities	Informal regulations on the bushmeat trade

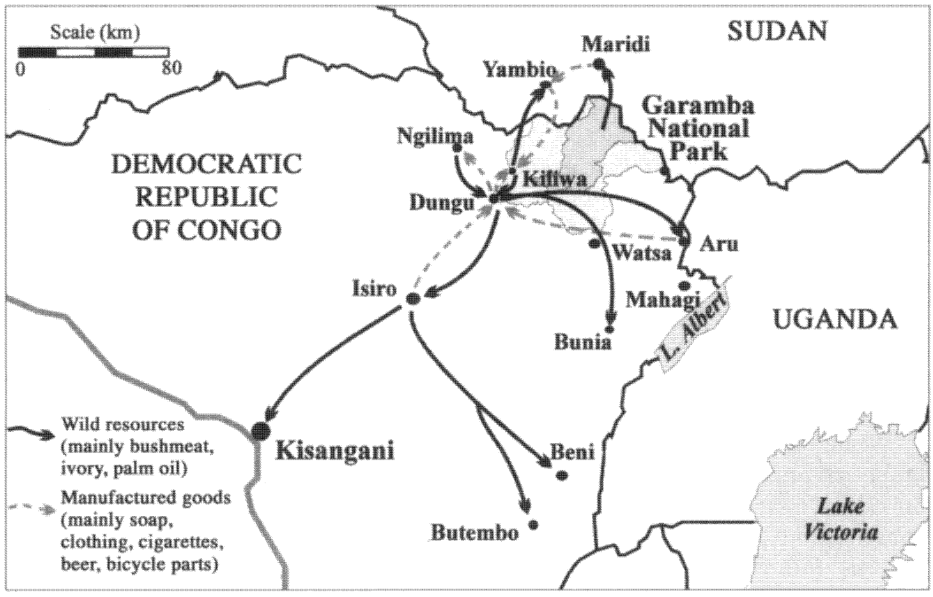
for field conservation has dropped substantially, with significant repercussions on the ability of the state to manage wildlife:

> There has been a civil war during this financial year of the project ... Over 90% of the vehicles and equipment needed for park operations and anti-poaching have gone and for a period the guards have been disarmed. This led to anti-poaching patrols from March to June being 14% of those during the same period in 1996. As a result poaching has increased enormously and moved further south into the northern edge of the rhino area.
> *(Extract from a management report to donors, Smith and Smith, July, 1997).*

Thus, centralised wildlife management is dependent on high investment, that is rarely available to central African government administrations. When low investment is coupled with political conflict, centralised wildlife management can no longer be considered viable.

Given the limitations of state administrations as well as the inadequacy of outside investment, existing local administrative structures and local sources of finance increasingly provide an alternative for promoting conservation and development in the region. Local sources of finance are largely linked to the informal economy. The growth of the informal sector is both a symptom of, and a response to, the collapse of centralised authority in Congo. MacGaffey's study of the informal economy in Congo (1991) estimates that unrecorded trade consists of as much as three times the official GDP. With rapidly increasing demand for food and other commodities from the growing urban centres, new opportunities have evolved to produce what Beckman (1987) refers to as the *'new food frontier'*. The revenues generated through the informal economy provide a more substantial and sustainable source of funds for local administrations than the revenues provided through the central government.

An important feature of the informal sector is that it is sufficiently fluid to escape the control of a ruling 'parasitic' political elite. 'Rural and urban marketplaces are inundated daily with persons of both sexes who buy and sell at prices arrived at by haggling and impossible to control' (Mukohya, 1991). Impressions can be gained of the informal economy by observing the armies of cyclists travelling between the



Map 3.1 Trade routes of the informal economy: principal wild resources exported, and manufactured commodities imported to the Garamba region
Source: fieldwork interviews with traders, 1996

main towns around Garamba with loads of palm oil and other products, weighing up to 150 kg. Map 3.1 shows the flows of wild foods, and counter-flows of manufactured commodities to and from the Garamba region.

Whilst the informal sector has been described as providing 'local solutions to local problems' (Mukohya, 1991), it also involves trade networks which cover extensive areas, with traders often covering distances of several hundred kilometres. Bushmeat, in particular, has become a central component of this new and rapidly growing economy. Bushmeat is especially valued in the urban centres, and its high profit margins and relatively low weight encourages traders to cover a large distance (Trefon, 1997). The financial potential of a vibrant informal economy offers possibilities for developing innovative approaches to conservation management based on existing local institutions.

Traditional authorities have adapted to the opportunities offered by the informal economy. For ambitious and enterprising traditional chiefs, the opportunities are only too obvious (chef Sangbalenze pers. comm.). With the dramatic growth of the informal economies came a demand for appropriate arbitrators. For the majority of the population, the government is 'capricious and oppressive' while the 'local administration is out of reach of central Government whose decrees it does not always implement' (MacGaffey, 1991). Traditional authorities hold one key advantage over higher ranking officials: state officials are regularly moved from post to post, preventing them from developing long term, stable trade relations. As a result, traditional chiefs are in a position to provide the one service that is perhaps in greatest demand in Congo, and which is conditional for economic growth: Stability.

In summary, devolved management increases administrative efficiency. Furthermore, if devolution of management authority is channelled through appropriate administrations, the accountability of wildlife management to local populations can be increased, and potentially, can secure tangible benefits from wildlife for the local community (Lutz and Caldecot, 1998). Whilst local management has not yet happened in the wildlife sector around Garamba, fishing has been organised through traditional administrations, and provides a model for effective resource management by local institutions. In the Azande Hunting Reserve, adjacent to Garamba National Park, an established guild of fishermen has existed for several years. The authority of the chief has been central to the continued existence of this group, who are able to gain exclusive fishing rights, in return for the revenues transferred to the traditional administrations through state sanctioned permits. Amongst these various groups there appears to be a widespread recognition of the central importance of the role of traditional authorities.

While the logic for decentralising government administrations is clear, the wildlife sector imposes the additional challenge of having to meet ecological objectives. So-called 'community conservation' approaches are drawn largely from neo-liberal consumption-based models of wildlife management. These imply that sustainable harvests promote sustainable revenues which, in turn, provide an economic incentive for local hunters to manage wildlife as conservationists (Swanson and Barbier, 1992; Lewis and Alpert, 1997). The use of economic models as a basis for wildlife management is increasingly being debated in the context of varying ecological and socio-economic conditions. It can be argued that the term 'wildlife management' is sufficiently broad to encompass a range of wildlife utilisation practices including the economically rational decision to deplete a resource in order to convert it to a more profitable commodity (money). Indeed, it has been postulated that this is the most appropriate form of wildlife management for certain large mammal populations if a criterion of economic efficiency alone is used (Caughley, 1993; Milner-Gulland and Mace, 1998). In contrast, conservation management involves the maintenance of wild populations to ensure that their numbers are not depleted in the long term. Therefore, conservation involves a short-term cost that may be difficult for protected area adjacent populations in developing countries to accept.

Can wildlife management practices of resident communities be linked to long term conservation objectives on the part of the individuals who exploit the wildlife populations? An immediate and necessary inference is that communities must exploit the resource sustainably. A number of authors have asserted that indigenous communities are dependent on natural resources for their subsistence and therefore have a vested interest in managing the resource sustainably, thus maintaining an equilibrium in the animal populations (Feit, 1973; Bunyard, 1989). Indeed, the popular belief that indigenous communities have established a 'balance with nature' is a strongly held view, supported more by a concern for the loss of traditional culture than by empirical evidence for sustainable resource use (Robinson and Redford, 1991). Certainly, hunting communities can be shown to have a non-significant impact on natural resources if they do not contribute to a systematic decline in the abundance of the resource. However, Alvard (1993, 1995) warns against the assertion that this can be used as evidence for 'community conservation'.

He maintains that an understanding of the decisions of individuals is more important to the definition of conservation management by hunters than is the sustainability of their hunting. Evidence for sustained yields from hunting does not necessarily support the hypothesis that hunters are managing the resource. It may simply be an artefact of density-dependent and other relationships between the hunter and the prey. Thus, Alvard describes sustainable hunting in the absence of any pro-active conservation as 'epiphenomenal'.

Alvard's definition of conservation involves an understanding of the hunter's motivations: 'Conservation can be thought of as enduring a cost in the present so that some benefits will be realised in the future' (Alvard, 1993). This is a useful definition of conservation for two reasons. First, conservation management can be operationally defined by assessing the evidence for restraint in people's hunting practices. Second, sustainable yields are an artefact of the current socio-economic and demographic context. In view of the rapid change affecting rural communities, future sustainability can only be predicted through an understanding of people's incentives and subsequent decisions on whether to conserve wildlife resources, or to secure maximum short-term benefits by depleting animal populations.

In practice, devolved and informal systems of wildlife management are more complex than the outcome of an individual's decision-making when based on economic criteria alone. They are tied into wider power networks that have arisen through the rapid development of the informal economy in Congo. Bushmeat is an important component of the informal economy, and different sectors of the community compete for the benefits of wildlife resources through hunting, trading and controlling access to bushmeat. The use of natural resources in rural Africa is highly organised and has been described as commodity chains along which different sectors of the community appropriate benefits (Ribot, 1998). This paper assesses the potential for drawing on these local and informal management systems as basis for ensuring the sustainable use, and a more equitable distribution of the benefits, of wildlife resources.

Background: the Garamba Ecosystem

Garamba National Park is a UNESCO World Heritage Site of 4,900 km^2 and is surrounded by three hunting reserves. This protected area complex is situated in the north east of the Democratic Republic of Congo, and borders Sudan on the Congo-Nile watershed. Its conservation importance is attributed largely to the last known wild population of the northern white rhinos (*Ceratotherium simum cottoni*). It also contains a unique assemblage of large mammals, including one of the highest densities of elephants (*Loxodonta africana*) in Congo and an endemic subspecies of giraffe (*Giraffa camelopardalis congoensis*). The protected area falls within the Sudano-Guinean savanna zone. The vegetation has been secondarily modified within the National Park by a combination of fires and high densities of large mammals, notably elephants, to create a long grass savanna. This contrasts with a mosaic of deciduously wooded and bushed savanna, grassland and forest in the surrounding reserves. The legal status of the National Park is one of integral protection, maintained by the national wildlife agency, the *Institut Congolais pour la Conservation de la Nature* (ICCN), supported by an international aid project since 1984.

Map 3.2 Central Africa and the Garamba ecosystem in the north east of the Democratic Republic of Congo

The hunting reserves were established in 1938, at the same time as the National Park, to promote the sustainable use of wildlife resources by resident communities. These communities are highly heterogeneous and include Azande, Logo and Mondo subsistence agriculturalists together with approximately 90,000 Sudanese refugees. Gold mining settlements have also been established in the area. Population densities in the region are low, and have been estimated at less than one per square kilometre (de Merode, 1998).

Box 3.1 Methodology

1.Ecological outcomes of wildlife management: a natural experiment approach

a. ***Spatial variations of animal abundance:*** Patterns of wildlife presence and abundance in the hunting reserves were examined by analysing large mammal faecal abundance on 42 randomly distributed five kilometre ground transects (de Merode *et al.*, 2000).

b. ***Temporal variations of animal abundance:*** Trends in animal population densities were estimated using systematically sampled aerial count techniques (Norton-Griffiths, 1978), using flight transects at five kilometre intervals. The flight transects were consistent throughout the survey period, and produced animal abundance estimates based on a nominal sampling intensity of 9.6%). Jolly's method II was used to calculate extrapolated animal densities.

c. ***Human presence***: Relative human population densities around the national park were required to assess the impact of human presence on large mammal abundance. In the absence of accurate and timely demographic data, Landsat TM satellite imagery was used to calculate percentage field cover estimates. Standard techniques were used to process the imagery, which was transformed using a normalised difference vegetation index to enhance the contrast between natural vegetation and exposed soil on fields after the harvest (de Merode *et al.*, 2000).

2. Social and economic dimensions of local wildlife management

a. ***Hunter surveys:*** 152 hunter surveys, lasting between one hour and three days, were undertaken in 1996 and 1997 to monitor the hunting behaviour and harvests of local Zande hunters. The technique was based on a combination of participant observation, rapid appraisal and focal subject sampling (de Merode, 1998).

b. ***Market surveys:*** Five urban and two rural markets were surveyed to monitor wildlife off-take during the period April 1996 to February 1997. Standard techniques were used to monitor the flow of all products through the market, with a more detailed survey for bushmeat products (Martin, 1995). At the same time, a systematic sample (12.5%) of traders were interviewed and their products weighed for one week per month along the main roads (de Merode, 1998).

c. ***National park patrol data:*** Data on the frequency and use of patrols and the distribution and intensity of illegal activities have been collected by the park authorities for several years. These were compiled from manpower utilisation records and from patrol reports.

d. ***Access mapping:*** Access to, and control of, the bushmeat trade was evaluated for the various social groups in the Zande communities using access mapping based on participant observation and informal interviews undertaken at village markets (Ribot, 1998).

Centralised protected area management best describes the management history of Garamba National Park. State management of wildlife began with the eviction of resident populations after the establishment of the National Park in 1938, followed by protectionist management regimes involving the use of armed patrols to enforce a ban on all settlement and use of wildlife within the national park. Management practices at Garamba are largely a legacy of the colonial administrations which established them. Recently, the government wildlife authorities have been exploring

means of linking effective conservation with a local development agenda at Garamba by devolving the responsibility and benefits of wildlife management to local authorities. This paper provides support to these decisions by testing the assumptions of established protectionist and innovative devolved approaches to wildlife management.

Results

1. Is eviction a requirement for the conservation of large mammals?

This section presents the analysis of data to understand the wildlife management strategies that have contributed to effective conservation. In particular, the ecological justification for eviction is tested. Does the absence of human residents explain conservation success, or do other factors, such as effective wildlife regulations? Eviction has a much higher cost to the livelihoods of local residents than hunting regulations. Thus, the distinction between eviction and regulation is an important one, and has implications for the viability of community-based wildlife management: If the eviction of local residents is pre-conditional for successful conservation, community-based wildlife management cannot be considered a viable option for large mammal conservation. On the other hand, if hunting regulations are the main factor in conservation success, who would be best placed to implement hunting regulations, community institutions or government agencies?

Conservation success is assessed by measuring change in the presence and abundance of large mammals. A 'natural experiment' framework is used, whereby natural variations in ecological and socio-economic parameters are used to test cause-effect hypotheses (Diamond and Case, 1986). Distinguishing causation from correlation presents a number of problems in this analysis. A solution to this problem

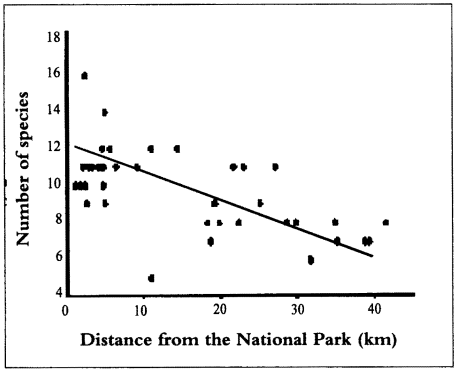


Figure 3.1 The relationship between increasing distance from effective wildlife protection and the number of large mammal species recorded on 42 five kilometre transects (n=42, r^2= 0.489 p<0.01)
Source: Wildlife survey line transect data

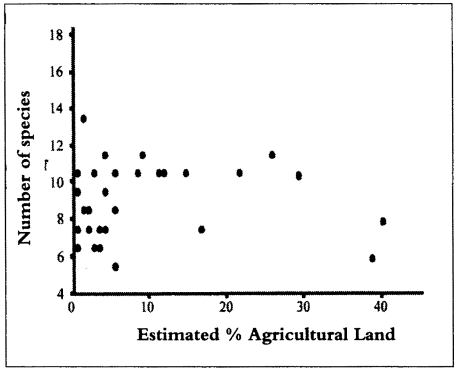


Figure 3.2 The relationship between estimated agricultural field cover (estimated from Landsat TM data) and the number of large mammal species recorded on 42 five kilometre transects (n=42, r^2=0.04 p=NS)
Source: Wildlife survey line transect data

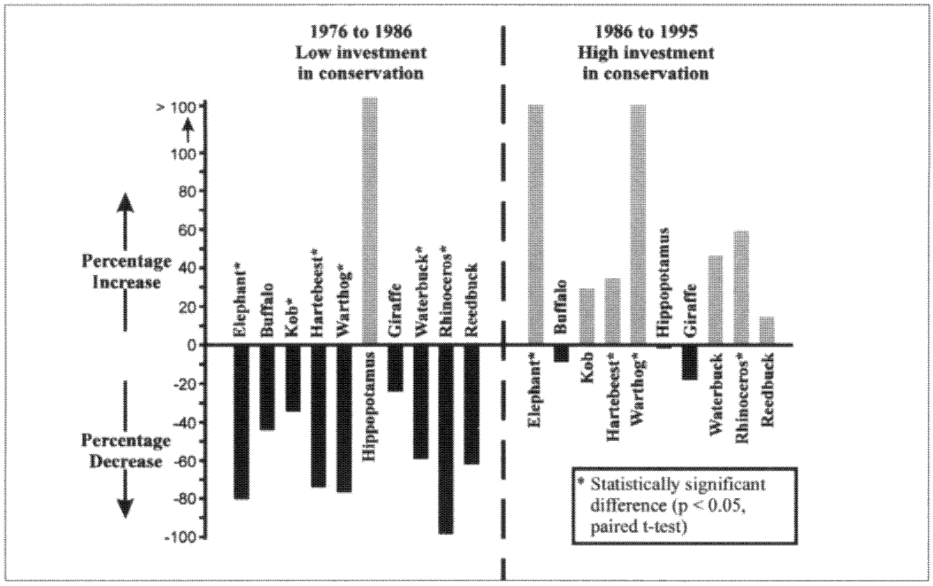


Figure 3.3 Temporal variations in large mammal abundance in Garamba National Park
Source: Aerial count data

is to analyse correlations across two axes of variation: space and time (Inamdar, 1996; see the methodology in Box 3.1). The strength of the results is a function of the extent to which the different analyses concur.

On initial consideration, the outcome of eviction from Garamba National Park appears to be the significant increase in large mammal populations. This notion is supported by the significantly higher animal abundance in the National Park, where human populations were evicted in 1938, compared to the hunting reserves where human populations are present. This is shown in Figure 3.1, which compares the species richness at 42 transect positions distributed around the Park with distance from the National Park, where human populations were evicted. The plot shows the significantly lower species richness at greater distances from the National Park.

However, the detail that emerged from the analysis of animal distribution and abundance over time and space suggests that eviction, in itself, does not provide a satisfactory explanation for higher animal abundance. For example, species richness in the hunting reserves is not significantly affected by human presence (Figure 3.2). Instead, the enforcement of wildlife regulations appears to provide the best explanation for high mammal abundance, and not the absence of local residents. The spatial and temporal dynamics of mammal populations in the park can only be explained by the intensity of law enforcement. Figure 3.3 presents wildlife species trends in the National Park between 1976 and 1995 based on aerial census monitoring data. Throughout the period, local populations were excluded from the Park, but effective wildlife regulations were implemented only during the second period (1986–1995). The populations of most mammals increased between 1986 and 1995, when wildlife protection was being funded by an external donor.

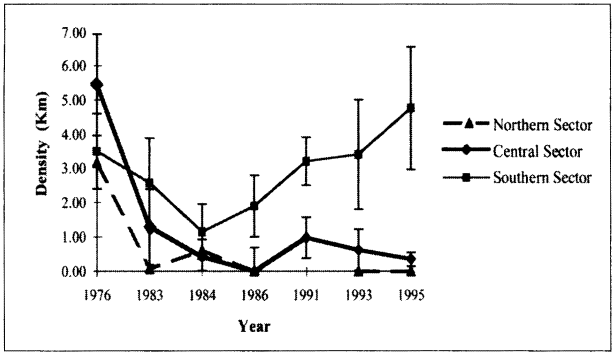


Figure 3.4 Elephant population trends between 1976 and 1995 in Northern (no wildlife protection), Central (moderate wildlife protection) and Southern (intensive wildlife protection) sectors of Garamba National Park
Source: Aerial count data

Furthermore, this increase in animal abundance is largely concentrated in the southern sector of the National Park, which is the focus of wildlife protection activities because of the presence of the rhino population. Figure 3.4 shows the changes in elephant population densities in each of the three sectors of the Park. The northern sector of the National Park, where populations *had* been evicted, shows evidence of a substantial *decrease* in animal abundance between 1976 and 1995. This northern sector of the Park experiences relatively little patrolling effort because it was effectively abandoned due to instability and conflict owing to its position on the border with Sudan. This indicates that effective regulations, and not eviction *per se*, are likely to be the primary determinant of conservation success.

2. Can hunters self-regulate their wildlife harvests as an alternative to eviction?

The difficulties in reconciling centralised conservation with local development agendas at Garamba justifies a closer examination of the potential for local, consumption-based, wildlife management. The justification for this change of emphasis is supported by the finding that effective wildlife regulation, and not eviction, provides the best explanation for successful conservation of large mammal species. It is therefore of interest to explore the possibilities for community-based regulation. This study examined the evidence for existing wildlife utilisation regulations among those who harvested the resources (hunters), and by the various local institutions around the National Park.

As a first step in analysing the potential for local conservation, hunting behaviour was examined. Hunters were accompanied on 152 hunts using nets, shotguns and automatic rifles. Data on their harvesting patterns were collected, with a focus on assessing the evidence that hunters limited their harvests rather than maximising their yields. During the hunts surveyed, there was no evidence to show that hunters displayed characteristics in their harvesting patterns that could be attributed to deliberate conservation of the resource base. While diverse forms of hunting practices were followed, including hunting with nets, snares, shotguns and automatic rifles, none of the hunters showed anything other than the rate-maximising objectives that Alvard (1995) attributes to optimal foraging strategies. Hunters made rate-maximising decisions that would be predicted by optimal foraging models. This is shown graphically in Figure 3.5. The X axis represents the duration of the hunt, on a proportional scale. Low values on this axis represent the beginning of the hunt,

Figure 3.5 Stage of the hunt at which a kill was made, relative to animal weight (error bars each show one standard deviation from the mean)

and high values represent the final stages. Thus, if the hunt lasted one hour, 0.5 on the scale represents 30 minutes after the beginning of the hunt, 0.1 represents 6 minutes, etc. The scale is useful because it reflects the hunter's decision on whether to continue hunting after making a kill, or whether to cease. Hunters usually continue to hunt after they have made a kill. Those who ceased usually did so because they had killed a large mammal (buffalo or hippopotamus) and were unable to carry more meat back to the village, not necessarily to avoid over-harvesting.

A number of factors would explain the absence of restraint on the part of most hunters. The first, and most likely, is that most hunters were using weapons that targeted small mammals. Small mammals were not depleted around villages (as indicated in Figure 3.2). Thus, there was no reason for most hunters to limit their harvests, because the species were not threatened. Nevertheless, the extensive hunter surveys indicate that there is no experience of conservation management amongst hunters and that, under the current circumstances, consumption-based conservation approaches are unlikely to work at Garamba without external regulations on hunters.

The absence of restraint in the harvesting patterns of local hunters might also be explained by the lack of local ownership of wildlife resources. The system of resource tenure around Garamba, which is a combination of *de jure* state ownership and *de facto* free access, is unlikely to provide the incentives for local users to exploit the resources sustainably. Changing the system of tenure, possibly through the establishment of exclusive rights to exploit wildlife, may provide an incentive encouraging local hunters to exploit wildlife sustainably. The revenues generated from license fees have the potential to broaden the benefits of wildlife harvesting to the community as a whole. A precedent to this approach exists with the fishing guilds around Garamba, which sometimes provide benefits to the community through taxation imposed by the traditional administrations – for example, fisherman purchased the beds for the village clinic in Kiliwa – and through the payment of license fees to civil and wildlife authorities. The extent to which this benefits the community has not been established although potential benefits certainly exist. Nevertheless, this approach is necessarily tied to the region's legislative and

administrative structures and their efficacy in regulating resource users. At a national scale, such a system is described by Lewis and Alpert (1997) in Zambia. They show how the ADMADE programme generated substantial revenues from hunting – mainly commercial sport hunting – as a basis for establishing the incentive for sustainable wildlife utilisation. Such an approach requires a high level of organisation on the part of local administrations.

3. Can local community institutions regulate wildlife off-takes?

The absence of meaningful sustainable off-take mechanisms from existing harvesting patterns by hunters implies that externally organised regulation of bushmeat off-takes is required to promote sustainable wildlife management. Currently this form of regulation is implemented through ICCN, the government conservation agency.

However, analysis of the *filières*, or trade networks showed that wildlife off-take from the park was also socially regulated. To trace the flow of bushmeat along the informal commodity chains, between its harvesting and subsequent sale at village and urban markets, the study used access mapping of bushmeat *filières*, or trade networks (Ribot, 1998) through participant observation and semi-structured and quantitative surveys. These revealed that wildlife utilisation around Garamba is highly structured, and is organised through the competing demands for access to a profitable trade. The relationship between the social groups using wildlife are presented in Figure 3.6. The study illustrates that, in addition to those who exploit and trade in wildlife, there are also local institutions that control and regulate wildlife utilisation. Regulators include the traditional, civil and military authorities that compete for fiscal and other revenues from the informal economy.

Traditional authorities differ substantially from other regulators in a number of important ways. First, they tend to influence village markets more than the urban trade. Second, traditional administrations generate fiscal revenues from stall taxes at the market and not directly from the sale of bushmeat itself. In contrast, military and civil authorities tend to generate revenues from bushmeat through the establishment of client-patron relationships: a group of about 12 women monopolised the urban bushmeat trade. These women were said to be affiliated to military officers or high ranking civil servants, who were provided with a proportion of the profits. Similarly, hunters were provided with automatic rifles in return for a proportion of the sale of the meat.

The military influence on the bushmeat trade has created some tension between village authorities, who try to promote a diverse trade in the villages, and the military, who have focussed largely on the bushmeat trade. The urban bushmeat trade has brought large numbers of automatic weapons into the area, which in turn, has brought instability and a reduction in the number of village markets. This has an impact on village trade, and on the revenues of the traditional administrations. Thus, some traditional chiefs have tended to discourage the sale of meat from large mammals requiring the use of automatic weapons. One chief in the Azande hunting reserve responded by recovering automatic weapons from his constituency. Between 1991 and 1996 he recovered 61 automatic rifles. During that same period, two new markets have been established in the village, and the village population is estimated to have increased by over a third. In 1994 the village school was rebuilt and in 1997 the dispensary was established using market stall taxes. While the motivation for

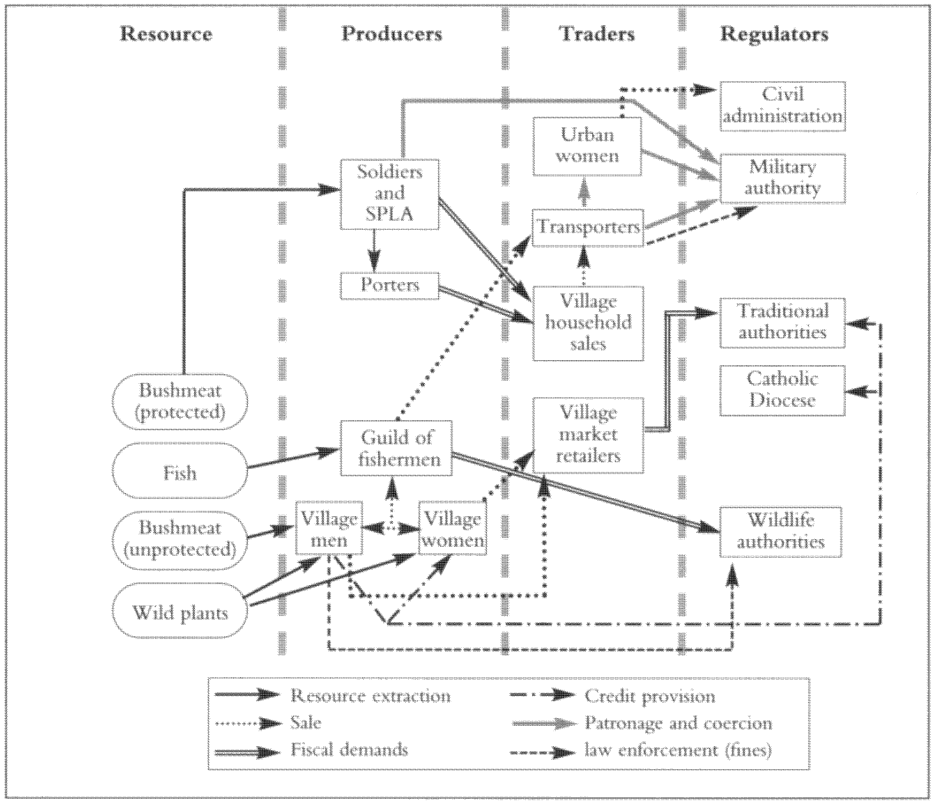


Figure 3.6 Conceptual framework showing the beneficiaries and the power relationships associated with wildlife resources amongst residents in the Garamba ecosystem

imposing regulations on the use of bushmeat is largely financial, the ability of certain traditional administrations to regulate village trade in bushmeat does provide evidence that local institutions have the capacity to manage wildlife sustainably in the absence of state intervention.

4. Can wildlife regulations be maintained during wartime?

Thus far it has been shown that effective wildlife regulations are required to maintain sustainable wildlife populations. Regulations on the use of wildlife take place at three discrete levels. Government wildlife authorities regulate hunting through law enforcement activities, mainly in the National Park. Urban trade in bushmeat is, in principle, regulated by higher level civil authorities based in the towns around Garamba. Finally, village bushmeat trade is regulated by the traditional authorities and their village administrations.

In recent years, political conflict has placed Congolese administrators under considerable pressure. Invariably, a low priority is placed on the implementation of conservation programmes when local administrators are under pressure to secure their own safety and that of their families, as well as having to meet additional

Table 3.3 GLIM analysis of covariance using Poisson errors to show the relationship of explanatory variables (patrol days and periods of conflict), and their interactions, with the number of rifles recovered from poachers (rifles seized per contact)

Link Function	Linear Predictor	% variation explained	*N*	*F*	Change in DF	*P*
Poisson	$\log_e y = 0.79$ $- \log_e 0.043x_i$ $+ \log_e 0.12x_{ii}$ $+ \log_e 0.0013x_{iii}$	17.32	49	10.42	3	< 0.01

x_i = Patrol days
x_{ii} = Difference in the constant between periods of stability and conflict
x_{iii} = Interaction term between x_i and x_{ii}

management challenges that are associated with war. Nevertheless, it should be noted that while formal conservation projects funded by external donors have tended to withdraw support during periods of conflict, local administrations have not had the option of leaving the area. Instead, some have adapted, and maintained effective administrations. At all levels, individuals have shown exceptional commitment to their work. For example, considerable numbers of ICCN staff remained at Garamba throughout the conflict period, maintaining the conservation programme. In the villages, many of the traditional administrations have remained functional. The traditional administrations in the Azande hunting reserve were reported to have played a significant role in negotiating the withdrawal of unsupervised and undisciplined troops from the area.

From an ecological perspective, it is important to examine the capacity of the various systems of authority in achieving conservation objectives. The centralised wildlife authorities at Garamba regulate off-take in wildlife by undertaking law enforcement patrols in the Park. The success of these patrols is measured by the number of automatic rifles seized from poachers in the Park. Table 3.3 shows the results of a generalised linear model that explains the variance in the monthly number of automatic weapons recovered between January 1992 and July 1997. The results show that a significant reduction in the number of weapons recovered from the Park may be explained by the effect of an interaction between conflict months and the monthly number of patrol days undertaken. The results reflect the difficulties in maintaining effective anti-poaching activities in the Park.

The volumes of bushmeat being traded in urban and rural markets provide an indication of ability of local administrations to regulate the trade. Market surveys show that the urban trade increased significantly during the conflict months in 1996 and 1997 (Figure 3.7). The rapid turnaround in military personnel in the towns resulted in a breakdown in the client-patron relationships between the officers and the hunters and traders. Thus, the urban trade was influenced by open access to wildlife resources, coupled with a widespread availability of automatic weapons and a reduction in law enforcement activities, resulting in the dramatic increase in bushmeat trading, reflected in Figure 3.7. In contrast, trade in bushmeat in village markets remained largely stable (Figure 3.8). This is partly explained by the limited military presence in the villages. Military personnel were actively discouraged from entering the villages because of the disruption they provoked.

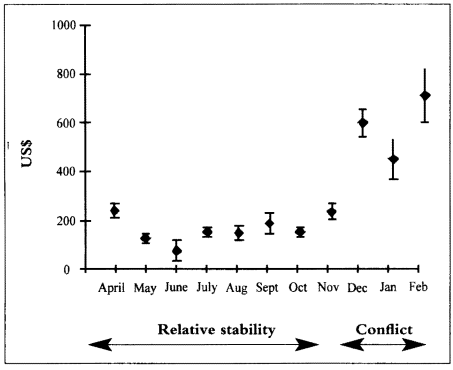


Figure 3.7 The estimated daily value of bushmeat from protected species being sold in urban markets around Garamba between April 1996 and February 1997

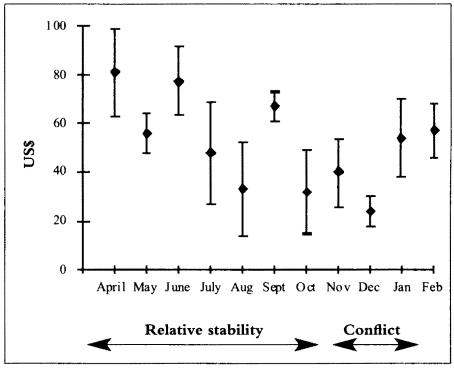


Figure 3.8 The estimated daily value of bushmeat passing through Kiliwa between April 1996 and February 1997

Concluding Discussion

This paper has explored two interrelated management issues. The first was ecological, and analysed the perceived and real threats to wildlife populations at Garamba. These data revealed that while effective hunting regulations had an overwhelming influence on the success of sustainable wildlife management, the eviction of resident populations could not be justified as a requirement for successful conservation. This brings into question the notion that protected area management can only take place in the absence of resident human populations. The received wisdom that rural communities threaten biodiversity underpins the establishment of many protected areas in Africa, many of which were created under highly centralised colonial administrations, where local interests were not always represented. Consequently, eviction has become an established policy in the creation of protected areas (Bell, 1987; Leach and Mearns, 1996; Pimbert and Pretty, 1995).

The second issue concerned the wildlife management capacity of centralised and local institutions. The pervasive view that the presence and growth of rural populations around protected areas constitute the main cause of wildlife depletion precludes the option of working with community institutions in order to establish successful ecosystem management. The data presented above suggest that some of the most viable options for protected area management in the DRC lie with village administrations because they are more adaptable to a rapidly changing political context. Certainly, this paper has shown that human-induced disturbance provokes ecological change. However, it is argued that events such as war have an impact on animal populations, and reinforce the need to consider the resilience of local institutions during periods of conflict as one of the few viable solutions for wildlife management. Centralised wildlife authorities have been effective during times of relative stability, but are largely dependent on external support which decreases during periods of conflict. Because informal administrations are locally financed, they are better able to adapt to rapidly changing contexts. Thus, their enhanced role in meeting conservation and development objectives should be considered a priority.

The experience in Garamba has highlighted that the ecological consequences of war are based on a multitude of factors occurring in succession: at one level, conflict is associated with immeasurable levels of human suffering when conservation concerns cannot be prioritised. Wildlife authorities are not immune to the predicament, which is compounded by the curtailment of existing structures of external support during the conflict. Although project field staff kept up regular supplies to ICCN staff throughout the war, this was of little help in maintaining activities, particularly when the National Park headquarters at Nagero became a focal point of the conflict between foreign mercenaries and the advancing troops of the AFDL (Smith, pers. comm.). The sharp decrease in patrol days during this period is self-evident.

Hart *et al.* (1997) analyse the effects of conflict on conservation initiatives in north-eastern Congo and emphasise the inadequacy of the existing financial support structures throughout the region. They explain how the financial basis to conservation management in Congo is dependent on international aid. International aid is primarily channelled through non-governmental organisations, which implement conservation interventions within Congo's protected areas. Thus, the DRC's protected areas are dependent on aid that is deeply influenced by the agendas of conservation NGOs as well as by the country's wider political context. Consequently, the financial input to protected area management is subject to conditionalities that do not always correspond to local needs. For example, aid is curtailed during periods of conflict when local needs are greatest. Thus, the financial dependence of the DRC's protected areas, and the ease with which NGOs are able to set their agendas, or withdraw funding, should be considered more of a threat to the sustainability of the ecosystem's large mammal populations than the perceived threat of local populations.

When the changes in mammal population abundance (Figure 3.3), are re-examined in relation to the analyses of anti-poaching performance indicators, a pattern emerges. The period 1976–1986 was associated with an overall decline in animal population abundance within the National Park. This was a period of relative political stability in the region. The period 1986–1995 was associated with an increase in mammal population abundance, yet this was a period of conflict – the Second Civil War of Southern Sudan began in 1983 and has been fought with varying degrees of intensity to the present day. The period 1996–1997 was a period of generalised conflict, both in Sudan and Congo. Whilst there is no comparative ecological data to show mammal population change during this period, the results shown in Table 3.3 show that the efficacy of wildlife protection declined significantly. Furthermore, a rapid aerial survey undertaken in June 1997 indicated that poaching in the Park had increased substantially, and spread to the southern sector of the National Park during the conflict months of 1996 and 1997 (Smith and Smith, 1997). These results suggest that conflict alone does not explain for the decline of large mammal abundance. Indeed the period of conflict in Southern Sudan spilled over to the Garamba region, yet was associated with relative increase in large mammal abundance. Thus, the immediate symptoms of war, such as the widespread availability of automatic weapons and the increased demand for bushmeat, do not explain fully the collapse of effective wildlife protection regimes. The reduction in international support received by the institutions responsible for maintaining effective wildlife protection (ICCN) seems to be of greater importance. Smith and Smith (1997) describe a decrease of over 90 per cent of anti-poaching

resources to the Garamba Project. This resulted largely from the confiscation and looting of equipment, but is also explained by the difficulties experienced by external donor agencies in maintaining support for anti-poaching as a result of the conflict.

The only administrations able to function adequately during the conflict months were the traditional administrations because they were not dependent on international aid. Instead, the revenues generated from the informal economy provided the financial backbone for these village-based administrations. This highlights the significance of informal power relations in the hunting reserve in lowering the off-take from the National Park.

A critical challenge in developing local approaches to wildlife management is to establish incentive and regulatory mechanisms that function appropriately within the existing power relations in the region. The hunting study showed that hunters receive few perceived benefits from regulating off-takes. Thus, they are unlikely to favour increased restrictions on their harvests, whether by the wildlife agencies or by village authorities. Devolving the responsibility of regulating off-takes to traditional administrations without ensuring that the policy has broader consent within the community is likely to undermine their authority. Past experience shows that using local administrations to promote the interests of non-local groups can have pitfalls: using traditional and local systems of authority to achieve non-local objectives is not new around Garamba, and historical processes highlight the potential dangers of this approach. Local systems of authority in the region were used in the first half of the twentieth century to promote cotton production. Coercive measures were adopted by colonial and commercial interests to ensure that traditional authorities enforced cotton production on subjugated local populations. Besides the hardships that were imposed on rural communities, these approaches proved to be neither profitable nor sustainable in the long term (Isaacman and Roberts, 1995). Field work observations indicated that traditional authorities, particularly at the *groupement* level, are dependent on local consent. This is exemplified by the suspension of two chiefs in the area through popular opposition to their authority. These incidents indicate that local consent is not only a desirable objective, in terms of a policy that seeks to meet local development needs, but is also a condition for sustainable conservation management in the hunting reserves.

The rationale for empowering local institutions appears to be accepted at a national level by the Congolese conservation agency. In 1997, the director of ICCN came to Garamba specifically to discuss the issue of joint management with traditional administrations (F. Smith, pers. comm.). Since the establishment of the project in 1984, the conservation NGOs providing funds for the protection of Garamba's wildlife have made no substantial attempt to facilitate the devolution of wildlife management to local institutions, in spite of repeated recommendations by project field staff and requests by village leaders. Indeed, in 1996, the decision to rename the Garamba project as the 'Support for the protection of the Northern White Rhino Project' suggests a retreat to singles species focus, to the exclusion of local community interests. This pattern is not exclusive to the DRC. For example, Sullivan (1998) describes the environmental and land policies in Namibia as being largely founded on 'crisis narratives'. These same narratives have served the international conservation NGO community well: this decision making process is not uncommon throughout

Africa (see Fairhead and Leach (1996), for an example in West Africa, as well as Homewood *et al.* (1997) and Brockington (2002) in East Africa). It is partly symptomatic of the distance that exists between policy makers and local realities, and partly due to the imbalance in power relations between different stakeholders.

Contradictory statements coming from within the same organisation reflect an inability to reconcile conservation agendas with local development needs. For example, the World Wide Fund for Nature's position paper, *Indigenous Peoples and Conservation* (WWF, 1996) states that, 'WWF recognises that indigenous peoples have the rights to the lands, territories, and resources that they have traditionally owned or otherwise occupied or used.' This does not sit comfortably with the statements published by some of the same organisation's employees, for example:

> These forests represent largely intact and complex ecosystems, lightly touched by the hand of man. It is our responsibility to protect them for their own intrinsic value. We cannot do this by handing over our responsibilities to uninformed local communities who lack the scientific knowledge to manage these large and complex ecosystems.
> (Gartlan, 1997, WWF representative for Cameroon).

The analysis presented in this paper reflects how established protectionist policies cannot easily be reconciled with the goal of promoting the interests of local residents when the policy is underpinned by a policy of eviction. By definition, this means restricting access in areas that are most valued for their wildlife resources, and focusing development interventions at a greater distance from the National Park. Even so-called 'integrated conservation and development' programmes have failed to devolve responsibility effectively to local institutions, thereby maintaining unsustainably high project costs without a viable exit strategy for the donor agencies. Moorehead and Hammond (1992, cited in IIED 1994) discuss a similar approach to community conservation at Korup National Park, Cameroon, whereby the focus of development aid by the conservation agency was directed away from those residing in close proximity to the national park. The inability of the programme to work effectively with local institutions is partly to blame for the failures that are attributed to this project.

The use of so-called development agendas to promote centralised conservation goals is not new. Nzabandora (1984) describes the eviction of the residents in North Kivu, Congo, earlier that century. Over 2,000 local fishing and agricultural households were moved from the Semliki Valley and Lake Edward region as part of a sleeping sickness eradication programme between 1928 and 1930. This programme was established under District Commissioner Hackers, who was also *Conservateur Principal* (senior wildlife officer) of Albert National Park (now Virunga National Park). In 1935, Bloc XIII was established, which extended the boundaries of Albert National Park to cover the evacuated areas. The fact that the sleeping sickness epidemic was used to justify eviction meant that the former residents of the area could not claim compensation. A report in 1959 by the District Commissioner of North Kivu (Caprasse, 1959 – cited in Nzabandora, 1984) makes a notable statement that there were in fact no cases of sleeping sickness in the area concerned between 1928 and 1930.

The reluctance to relinquish control by conservation NGOs appears to persist around Garamba. The issue of devolved or centralised management may ultimately be resolved by attrition more than deliberate decision making: as wildlife declines and the capacity of a centralised conservation authority is eroded by the isolation of

Garamba, and by the legacy of war in Congo, government and donor support is likely to diminish. In this context decentralised management may provide the only viable approach. Indeed, this paper has shown the potential complementarity of the two systems of wildlife management. Centralised regulation of wildlife off-take has increased the value of wildlife resources. This in turn has contributed to the financial basis of an informal administration which both regulates off-take and has the potential to make effective linkages between conservation and local development. The political will for centralised authorities to collaborate with local administrations could achieve this more integrated, and potentially more sustainable and resilient system of wildlife management.

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PART TWO

Shifting Livelihoods

Conservation & Development in Changing Environments

Tradeoffs between conservation and development are being played out throughout African rangelands. Western concerns for biodiversity may look different to other peoples in other places. Most 'pristine' environments rich in biodiversity occur in less developed countries, preoccupied with pressing issues of poverty and welfare. In sub-Saharan Africa, the standard model of conservation was imported from the western world. The resulting biodiversity conservation management is largely based on protected areas from which people are excluded, and can mean considerable social costs. Communities have found themselves barred from areas that have been central to their subsistence. Basic patterns of resource use were redefined at a stroke as criminal: Richard Bell (1987) pointed out that in much of Africa, normal existence is impossible without breaking the law. Gathering fuelwood, or taking a shortcut to see relatives, may suddenly become illegal. In Tanzania, for example, 31 per cent of the land surface area is some form of conservation estate. 27 per cent of Tanzania's land surface area does not allow human habitation. This is one of the poorest countries in the world, which cannot really afford either to deny its people access to basic resources, or indeed find the means to enforce exclusion and manage such an extensive conservation estate. At the same time, supposedly pristine environments often turn out to be cultural landscapes shaped by human agency. This casts ecological and ethical doubts on orthodox approaches to biodiversity conservation. When debates over human impacts on biodiversity confront concerns of poverty, hunger and disease, we should not expect a dispassionate debate. Concerns over environmental and human welfare both command powerful feelings and are correspondingly powerful potential political tools, open to be constructed, contested and manipulated by vested interests.

Three strands have come together in this field (Homewood, 2001). First, economic recession and structural adjustment have meant a declining State presence and weaker protected area enforcement in most sub-Saharan African nations over the last few years. As a result, conservationists increasingly realise the need to

enlist the support of local people for pragmatic reasons of long-term sustainability, as well as ethical need. Secondly, donors have begun to prioritise poverty alleviation and to consider the needs and rights of local people. The rights and welfare of marginalised people must be represented, and these groups should receive benefits at least commensurate with the costs they bear for biodiversity conservation. Finally, scientists have begun to consider that local forms of land use may contribute to the landscapes and ecosystems valued by conservation.

From a more general perspective, many in the west and in developing countries believe that local people are likely to have developed philosophies, environmental knowledge and systems of natural resource management which foster biodiversity (Posey, 1999). At its most cautious, this approach merely acknowledges that people are not stupid, and that generations of coping with environmental conditions are likely to have given scope for local innovation, adaptation and selection among relatively more or less successful biological and cultural options. At the other extreme, it can idealise the 'ecologically noble savage' living in Gaian harmony with nature, as a model for sustainable management. These three powerful themes: Conservation, development and indigenous or local environmental knowledge, have come together in the emerging ideology of community wildlife management (CWM) or community conservation (CC). The commonly stated aim is to put local communities in control of conserving their own natural resources, based on the idea that people must benefit from their own natural resources bringing them direct benefits and creating the incentive for sustainable use (IIED, 1994). The last decade has seen a rapid radiation of CWM initiatives throughout the developing world (Roe et al., 2000; Barrow et al., 2000; Hulme and Murphree, 2001). All purport to combine biodiversity conservation and community development in aiming for a win/win goal. Very large sums of money flow into such initiatives from conservation charities, international agencies and donor governments. A whole industry of local and international experts has developed in the resulting niches. It is time to look critically and analytically at the rhetoric and social reality of biodiversity issues.

There are some contradictions here. Conservation goals conceived and developed in the West are on the whole foreign to rural communities in sub Saharan Africa. Wildlife may harm people, crops, livestock and property. Forms of land use other than conservation may bring greater immediate benefits to local people, particularly where they have been – or stand to be – excluded from a protected area with no compensation. Even within the range of conservation-compatible land uses, local people may focus on resources other than those which to outsiders appear to be the most important (Guyer and Richards, 1996; Brockington, 2002).

In Chapter 4, Sian Sullivan looks at gathered plant resource use in Namibia. Outsiders, including central government, see such use as a defining characteristic of primitive and backward people, and view the practice as a rapidly vanishing hangover from a bygone age (and assumed by many to be already actually extinct). More generally, wild resource use throughout African rural environments is seen as a last resort – famine foods for the hungry, fallback for the poor. Sullivan's paper documents the enormous variety of wild resources that are currently used by the Damara agropastoralist people. She looks at the way environmental knowledge has been retained despite the massive disruptions and relocations that have affected the

Damara, and the way wild resource use differs with the different settlement histories North and South of the veterinary cordon. The patterns she documents run counter to orthodox predictions of the way wild resource use is expected to vary with wealth and with season, and have profound implications for current policy that centres 'community based natural resource management' on large mammal wildlife, rather than plant resources.

In East Africa, wildlife has long been the biggest earner of foreign exchange for governments. At the same time the main source of livelihoods for rural people – most of the population – is herding and farming. As populations grow, these two forms of land use come into conflict. Dan Brockington in his chapter addresses the problem of how to investigate changing livelihoods through recent historical time, when there is little in the way of baseline data. An increasing number of studies aim to evaluate the impacts of conservation management on local livelihoods (e.g. IIED, 1994; Patel, 1998; Gillingham and Lee, 1999; Murombedzi, 1999; Alexander and MacGregor, 2000; Roe et al., 2000; Homewood et al., 2001; Hulme and Murphree, 2001). However, few have tackled such evaluations in a way that makes clear the differential nature of impacts for different types of household and individual – according to ethnicity, occupation, socio-economic status and gender (though see Hodgson, 2000, 2001).

Brockington goes beyond reviews of aggregate revenue or inputs to look at market and household-level detail of income, expenditure, production and consumption to show the type and extent of livelihood change. This level of cost/benefit evaluation of interventions in environment and development is needed to understand the real impacts both on economy and livelihoods and also on intangibles. Brockington uses the quantitative detail of income, expenditure, production and consumption for individual women, as well as for households, to dissect the impact of eviction from Mkomazi on the livelihoods of reserve-adjacent agro-pastoralists. Though involvement in cultivation appears to be a new departure for the Parakuyo around Mkomazi, there are many different ways of engaging in cultivation alongside pastoralism. For the poorest households, with few resources or networks, livelihoods are pieced together by growing small (and unreliable) yields of grain in dryland, rain-fed plots. Women feed their dependants on a day by day, hand to mouth basis, selling what milk they get to buy other food (as calorific terms of trade generally favour pastoral over crop produce); gathering and selling fuelwood; and pursuing an itinerant trade in plant medicines. At the other end of the scale, wealthier pastoralist households control substantial numbers of livestock, acquire irrigated plots and hire labour to cultivate grain; consume their animals' milk and trade some of their livestock for grain. The most telling measure of household food security becomes its degree of reliance on day-by-day earnings from women's petty trade: the greater the access to animals, whether as a source of pastoral produce or as potentially tradable in themselves, the greater the food security, and the lower the involvement of women in daily trade.

This level of analysis and the differentiated understanding it conveys are necessary for any appreciation of the real trade-offs being made between conservation and development. Dan Brockington concludes by analysing the power of the myths which have driven conservation intervention in Mkomazi. Equally powerful

vested interests exploit the myths to ensure government support for these interventions, despite their impact on rural livelihoods. Community conservation in savanna areas may fail not only because underlying assumptions are flawed, but also because rural populations are so weak and savanna environments so resilient that conservation has no real need to enlist local support.

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4

Detail & Dogma, Data & Discourse Food Gathering by Damara Herders & Conservation in Arid North-West Namibia

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Accepted narratives of people–environment interactions at best are historically, politically and culturally contingent (not to mention gendered), and at worst are exclusionary and repressive. Nevertheless, it is argued here that detail and data might have critical roles to play in 'unpacking' dogma and discourse regarding people–environment relationships and trajectories. This chapter explores food-gathering practices among Damara herders in north-west Namibia. Patterns of resource-use are analysed against a number of rather negative assumptions regarding such resource-use including: 1. that Damara people no longer utilise such resources due to erosion of cultural knowledge and practices; and 2. that gathered foods are consumed primarily to offset poverty, particularly during drought. Multi-round household survey data in fact indicate the opposite, i.e. that gathered resources are consumed frequently, are highly regarded, and are sought after as and when they become available. In attempting to 'unpack' why misunderstandings exist and sometimes are affirmed in contemporary policy interventions, the following conceptual constraints are noted: 1. an emphasis on the 'ideal-type' productive dynamics of forest and temperate environments that hampers understandings of variable productivity and mobile resource-use practices in drylands; 2. an assumption of the 'patriarchal pastoralist', such that women's productive domains (including food-gathering) tend to be overlooked; and 3. a Namibian ethnographic bias that undermines Damara knowledge and expertise in general. Detail and data in this case might assist in raising the visibility of both women and plants in a context of policy and projects that tend to focus on men and animal wildlife.

Introduction

Primitive as the religious views of the Berg Damara may be, it cannot be denied that they provide him with a coherent idea of the world and solve the problem of existence in a manner

> intelligent to him. His cosmic views are more or less as follows: '... whatever exists in [the] celestial world ... is the higher cause of their existence on earth. The rainy season in particular is a gift from above. And what the rain causes to grow in the shape of edible fruits of the veld is a gift ...'
> (Vedder, 1928: 67).
>
> The Dama ... were racially negroes but culturally hunter-gatherers.
> (Schmidt, 1986: 329).
>
> These people don't gather resources anymore'.
> (comment by field official in southern Kunene, Ministry of Environment and Tourism, Namibia, 1994).

These statements represent changing views of the importance of gathered resources to the livelihoods of Damara-speaking people inhabiting north-west Namibia. Their apparently factual basis belies the contextual prejudices with which they are imbued. In the first, dependence on gathered foods by people classified as Damara becomes part of their characterisation as Namibia's most 'primitive' and 'backward' people, only able to rise to the status of herding and other occupations by 'copying' their more 'advanced' and 'noble' country folk (*cf.* Vedder, 1928; Kambatuku *et al.*, 1995: 2; discussion by Lau, 1995). The second embodies the reification of observations by colonial and missionary ethnographers into the classificatory schemata of Afrikaans *volkekunde* and German *völkerkunde* (Gordon 2000), in which the use of 'wild resources' is a defining 'trait' of the static cultural category of 'hunter-gatherer'. The third, iterated elsewhere (*cf.* Quan *et al.*, 1994: 5), implies the loss of such cultural attributes – a negation of the diverse knowledge and practices that might elevate the contribution of a wide range of local inhabitants to current 'community-based' approaches to resource management and conservation. In this chapter, ramifications of these perceptions are explored against both the context of wider constraints on understandings of resource-gathering among pastoralists in sub-Saharan Africa, and with reference to detailed case-information of contemporary patterns of resource-use by Damara herders. A further aim is to highlight some potential relevances for devolved resource management and conservation of these practices and the knowledge by which they are informed.

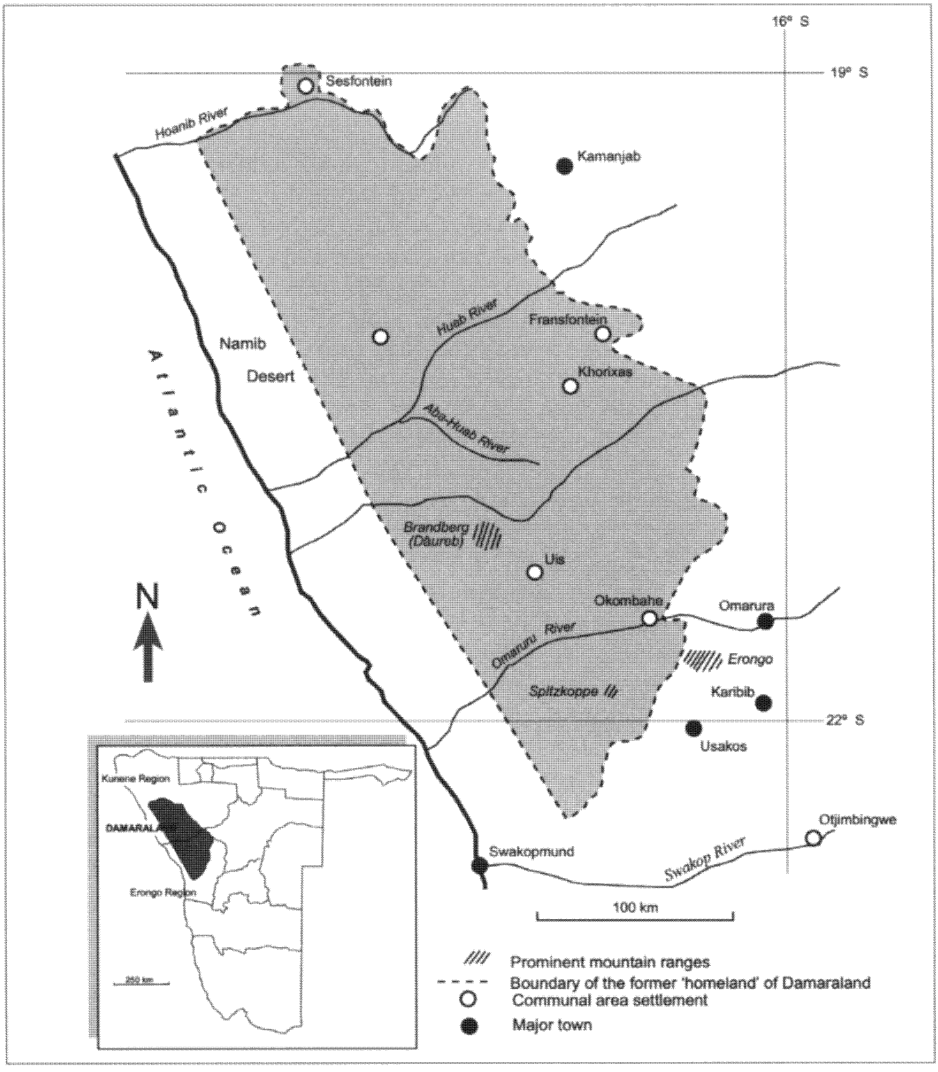
The complementary role of gathered resources to livelihoods otherwise based on cultivation and/or livestock herding has received increasing attention in recent years, by both academic researchers and professionals designing and implementing conservation and rural development schemes. 'Gathered resources' are defined here in a general sense as plant and invertebrate resources collected in the environment away from the home and either consumed *in situ* or brought back to the home for consumption. This makes no assumption of their 'wild' status: rather, such resources are considered to be components of cultural landscapes moulded and understood over millennia by their human inhabitants through processes of gathering, hunting, herding, burning and planting. Gathered resources now are recognised as conferring continuing and interrelated benefits on their users. Food security, for example, may be enhanced in several ways: Through direct consumption of accessible 'wild' foods which, even in small quantities, may provide essential nutrients and diversify otherwise monotonous diets (Benefice *et al.*, 1984: 241–2; Becker, 1986: 61); through the sale or exchange of gathered products which increase purchasing power and the

ability to obtain alternative foods; and, through holding trees as a form of 'savings bank', to be converted into income in response to unexpected contingencies (Chambers and Leach, 1989; Barrow, 1990: 168). Gendered dimensions of resource-use mean that resource gathering may provide a source of independence and extra income for women who often are the primary collectors and processors of specific products (Konstant *et al.*, 1995: 346). Infusing these utilitarian dimensions of resource-gathering are less tangible facets of cultural identity, meaning and symbolism bound-up with enacting resource-use practice (cf. Bourdieu, 1990), and through which culture, tradition and identity are renewed and revisited.

From the 1970s, the pragmatic empiricism of farmers' 'socio-technical knowledge' (Richards, 1985, 1995: 52), and the often close relationships between folk and formal knowledge of biodiversity and ecological processes (Baker and Mutitjulu Community, 1992; Sullivan, 1999), have been paraded as crucial building blocks for socially-equitable and ecologically appropriate conservation and development initiatives. In part, this has become bound with the observation that local knowledge may be extremely important to the common good (albeit often subverted to the corporate good), pointing the way to indigenous species and varieties with potential value for *ex situ* development of new crop breeds and medicines (Prance, 1991: 209; Bidinger, 1992: 78–80; Cunningham, 1992: 122–3; Richards, 1995: 53). Post-colonial emphases on 'local knowledge' also are inextricable from neo-liberal development and conservation ideologies which, from the 1980s, have emphasised 'participation', the devolution of rights over natural resources to local 'communities', and 'empowerment' at 'grass-roots level', as the paths to environmentally- and socially-friendly 'sustainable development' (e.g. IUCN/WWF/UNESCO, 1980).

This chapter focuses on contemporary patterns of food-gathering among Damara inhabitants of arid north-west Namibia (see Map 4.1). The Damara are a Khoe-speaking people[1] who currently derive livelihoods from varying combinations of pastoralism, foraging and horticulture, as well as income-generation within the formal and informal economies (Fuller, 1993; Næraa *et al.*, 1993; Rohde, 1993, 1997; Sullivan, 1998). Resource-gathering – comprising multifaceted relationships between people and environment – is problematic as a focus for research because it requires engagement with 'natural' and 'social' science domains normally rendered distinct by the conceptual purification which made 'The Enlightenment' possible (Latour, 1993), and which keeps apart the requisite disciplines and structures of academe. At the same time, growing concerns that accepted narratives of people–environment interactions are at best, historically, politically and culturally contingent, and at worst, exclusionary and repressive (Blaikie and Brookfield, 1987; Homewood and Rodgers, 1987; Fairhead and Leach, 1996; Leach and Mearns, 1996; Mortimore, 1998; Stott and Sullivan, 2000), have set the challenge for deeply cross-disciplinary or 'hybrid' approaches to research, and for humanistic exchange between an idealised academic 'ivory tower' and the 'real world' of policy-making (Burnham, 1998).

[1] The term 'Khoesān' refers to those southern African peoples who are part of a 'click' language-cluster comprised of Khoekhoegowab (spoken by Nama, Damara and Hai||om) and a variety of Sān (or 'Bushman') languages (Haacke *et al.* 1997).



Map 4.1 Map showing the location of the study area in central and southern Kunene Region, north-west Namibia, and its relationship to the boundaries of the former 'homeland' of Damaraland

In a post-modern, post-structural world, perhaps one of the most provocative tasks is to resist temptation to spiral into the 'ethical nihilism' (Bookchin, 1995: 217) of an increasingly murky and individualistic relativism (cf. critique by Lindholm, 1997). Instead, integration of a critical realism towards quantitative and qualitative data in people-environment researches, with a constructivist focus on, 'the implicit sociologies and politics of so-called scientific "facts"' (Forsyth, 1998: 2), might be a more emancipatory option. In other words, to accept that detail and data have a crucial role to play in 'unpacking' dogma and discourse and that the praxis or

method of science – the observational empiricism shared by both scientific and local knowledge (Murdoch and Clark, 1994) – is not necessarily the same as the reification of 'science' in rhetoric legitimising relative, but hegemonic, discourses of power in a Nietzschean/Foucauldian sense.

Within this context of contested approaches to knowledge-building in naturalistic and social fields of research, the aim here is two-fold: to establish questions of interest derived from accepted understandings of food resource-gathering in sub-Saharan drylands in general, and among Damara herders in particular, and then to set-up a potentially replicable, and as far as is reasonably possible, transparent procedure for exploring these questions. In interpreting findings from this endeavour, the implications for conservation policy and projects in north-west Namibia and similar dryland contexts are focussed upon, and in particular, mismatches are identified between detail and dogma that might indicate exclusion of particular groups and/or resources from such initiatives.

Resource-gathering in African drylands: 'Invisibility' and accepted patterns

One of the main hurdles to the incorporation of a wide range of 'natural resources' within both academic understandings of subsistence practice as well as development and conservation initiatives, is the 'invisible' nature of such resource-use. This quality is conferred by the methodological problems associated with integrating naturalist and social spheres of enquiry as outlined above, but often is exacerbated by the perceptions and interests of outsiders describing, analysing and assessing a 'community's' livelihood and lifestyle. For arid areas, this 'invisibility' is compounded by two factors. First, a powerful ideal of forests in international discourse regarding biodiversity conservation and other environmental issues (cf. Stott, 1998: 1), and second, a tendency in conventionally androcentric and Marxist analyses of pastoralist societies to essentialise herding, as a 'mode of production' considered the domain of men (cf. Hodgson, 2000). These factors are discussed separately below.

Forest versus drylands

Much of the recent literature concerning the contemporary role played by gathered products in livelihoods focuses on people living in forest and forest-edge environments. A major development in this regard is recognition that non-timber forest products (NTFPs), rather than the timber, pulp and fuel resources of forests, may constitute a major as opposed to a minor contribution to the livelihood of local inhabitants. In this respect, ethnobiological inventory (e.g. Prance *et al.*, 1987; Longhurst, 1991; Prance, 1991: 210; Falconer, 1990; Falconer and Arnold, 1989) and economic valuation (e.g. Pearce and Puroshothaman, 1992; Godoy and Bawa, 1993; Godoy *et al.*, 1993) of NTFPs have become essential in providing justification for conservation of these environments, as well as indicating possible avenues for the commercial development of individual species. Controversially, some economic analyses indicate that the harvesting of NTFPs may yield greater long-term monetary value than logging for timber (Peters *et al.*, 1989).

Much of the work on the importance of NTFPs has arisen in response to international (predominantly 'First World') interest in the conservation value of

tropical forests, particularly rain forest (Horta, 2000). This emphasises tropical forests variously as centres of biodiversity and endemism, as functionally significant in maintaining the balance of atmospheric carbon dioxide and oxygen, and as repositories of species that will provide the chemical blueprint for drugs to treat life-threatening disease. Concern regarding the fate of indigenous tropical forests throughout the world, together with a growing recognition that conservation aims will enjoy long-term success only if local people believe they will benefit from such projects, has stimulated efforts at community involvement in conservation of these environments. Hence the 'extractive reserves' of Amazonia, developed as a means of conserving the forest while enhancing the region's economy (Hecht and Cockburn, 1989; Mendes, 1989: 41; Eden, 1990: 211; May, 1991). For many forest reserves, however, access by local people for the purpose of resource-harvesting remains forbidden by repressive legislation rooted in colonial fantasies of the degrading effects of people on these environments (Fairhead and Leach, 1996: 3–4). At the same time, recognition that the vast majority of useful forest products come from secondary regrowth and fields rather than the core forest areas of high international conservation value (e.g. Davies and Richards, 1991; Hartley, 1992), might compromise conservation arguments for primary forests based on the importance of NTFPs for local 'communities'.

The global influence of a northern ecology built on 'forest' as something of a Platonic ideal form,[2] dominated by ideas of equilibrium system-dynamics and successional processes to a 'climax community' in a constant abiotic environment, creates problems for drylands (Stott, 1998, 1999). Here, ecological dynamics are arguably qualitatively different, at least within timescales of immediate importance to people's livelihoods (Wiens, 1984; Caughley *et al.*, 1987; Homewood and Rodgers, 1987; Ellis and Swift, 1988; Westoby *et al.*, 1989; Behnke *et al.*, 1993; Sullivan, 1996a; Mortimore, 1998). Nevertheless, the characteristically open and dispersed woody vegetation of arid and semi-arid environments remains uncritically classified as 'dry forests' (e.g. Shepherd, 1992) and a plethora of aid projects are considered to have failed in their objectives to improve livelihoods and reverse perceived degradation, at least partly because they were based on inappropriate ecological assumptions (Swift, 1977: 263; Raikes, 1981; Niamir, 1990: 1; Jowkar *et al*, 1991: vii; Homewood, 1992). With regard to analyses of resource-use, economic models of the type applied to NTFP use in forested environments from the late 1980s, which construct monetary values for natural resources based on average annual harvesting rates, are becoming increasingly common for dryland environ-

[2] Indicative of this point is a recent review (Walljasper, 1998: 71) of the 'environmentally sustainable Gaviotas community' of Columbia where, with Japanese funding from the Inter-American Development Bank, the llanos savannas are being planted with millions of individuals of a Honduran tropical pine in a bid to return 'the llanos to the diverse rainforest it once was'. As the project's founder states, 'There are 250 million hectares of savannas like these in South America alone ... If we show the world how to plant them in sustainable forests, we can give people productive lives and maybe absorb enough carbon dioxide to stabilize global warming in the process'. This is not only built on flawed assumptions (e.g. scepticism regarding the causes of global warming and the misconstrued belief that the llanos savannas are derived, i.e. a lower successional state, from rain forest) but also might be considered immoral in the way that it projects and enforces 'northern' ideals, apparently supported by a reified science, over 'southern' contexts.

ments (see, for example, Campbell *et al.*, 1995). They are certainly important in Namibia where the Governments of the USA, the United Kingdom and Sweden fund an environmental economics programme that 'aims to value natural resource use, to assess and recommend optimal use, to identify the economic causes of unsustainable use, and to create incentives for optimal use' (Ashley *et al.*, 1997: 1).

The seductiveness of resource economics models is that they convert complex problems into tractable analyses. Unfortunately, they become next to useless if the criteria on which they are built lie too far away from the ecological dynamics or socio-cultural contexts affecting the resources in question. Thus assumptions of 'either constant or improved stocks' (Barnes, 1995a: 1) become a nonsense for harvested resources in arid areas where primary productivity, and therefore resource availability, is driven by rainfall variability and is extremely unpredictable.[3] In other words, as advocated in what is becoming known as 'new thinking in range ecology' (cf. references above), there is a need for locally specific analyses of resource-use in drylands which resist conceptual models constructed in broadly different environmental contexts.

Patriarchal pastoralists, Women, Environment and Development (WED) discourse, and gendered resources

A gender dimension is implicit in the growing focus on the role of gathered natural resources in maintaining livelihoods because it entails a shift towards domains of productivity typically associated with women. Today, and as a result of the Women in Development (WID) and Women, Environment and Development (WED) discourses of the 1970s and 1980s, it is recognised that women often are the primary producers and distributors of food and should be involved as such by development initiatives (Dankelman and Davison, 1988; Talle, 1987: 51; Agarwal, 1989: 46). Eco-feminist thinking goes further than this, positing that women have some sort of 'special' affinity with 'nature' through their reproductive capabilities, and that manipulation of the 'natural environment' equates with patriarchal domination and control over women (Shiva, 1989; Mies and Shiva, 1993). Recent critiques, however, emphasise problems with the essentialising of 'women' as an undifferentiated category (Jackson, 1993a, 1993b, 1997; Leach *et al.*, 1995; Jewitt and Kumar, 2000). Aside from this range of views in gender analyses, by focusing on men as the main recipients, many development projects do seem to have reduced women's access to productive resources and by not utilising women's knowledge of the local environment, may have caused 'undesirable' ecological change (Waters-Bayer, 1985: 9, 22; Carney, 1988: 345–7, 345–6; Dankelman and Davidson, 1988; Lane and Swift, 1989: 4; Monimart, 1989: 12; Whitehead, 1990: 54, 62; Joekes and Pointing, 1991: 5–6).

For pastoralist societies inhabiting Africa's arid and semi-arid areas, this gender dimension is underscored in conventional, and frequently Marxist analyses which depict productivity and cultural life with reference primarily to herding, understood as a 'mode of production' controlled and enacted by men. In recent years a feminist reassessment of the underlying androcentric assumptions regarding sub-Saharan

[3] I am not commenting here on the use-values that may be assigned to non-consumptive uses of natural resources such as animal wildlife or scenic landscapes, and which may indeed constitute a sustained increase in potential local, regional and national earnings (Barnes, 1995a and b).

pastoralist production (see, for example, Hodgson, 2000) focuses on the ways in which these marginalise the role and status of women as producers and decision-makers in all areas of pastoral life. Particular emphasis has now been extended to the role of women as managers and decision-makers regarding the milking of animals and the distribution of this primary subsistence item; the means by which women have ownership over animals; and their authority, as 'heads of houses' over consumption, production and social and biological reproduction (some examples include Broch-Due *et al*, 1981: 252–3; Grandin, 1988: 1; Dahl, 1981: 207; Horowitz, 1981: 85; Talle, 1987: 64, 1990; Joekes and Pointing, 1991: 6, 11–12). Importantly, the assumption of a 'patriarchal organisation of pastoral life that secludes women and assigns them to economically marginal roles' has been identified as one of the fundamental reasons why many dryland development initiatives have failed in sub-Saharan Africa (Jowkar *et al.*, 1991: 7). Similarly, the specific role that women can play in understanding and preventing environmental degradation in drylands is receiving increasing attention (Monimart, 1989; Evers, 1994).

These issues bear on the contemporary sphere of biodiversity conservation in the spectacularly wildlife-rich savannas of sub-Saharan Africa. Here 'community-based conservation' has become the accepted mantra in 'selling' conservation to an African public steeped in the history of alienation that accompanied the past creation of National Parks, and the associated tendency of natural resources legislation to criminalise normal livelihood activities such as hunting and resource gathering (Sullivan and Homewood, 2004). Recent analyses, however, suggest that a cavalier and opaque use of the label 'community' to describe heterogeneous communal area inhabitants perhaps masks relations of disadvantage which sustain the exclusion of vulnerable groups (usually poorer households, women and/or particular ethnic 'groups') (e.g. Marindo-Ranganai and Zaba, 1994; Matenga, 1999; Taylor, 1999; 2000; Sullivan 2000, 2001, 2002, 2003; Twyman, 2000).

Despite the powerful and inclusive rhetoric of 'community-based natural resources management' (CBNRM) currently framing conservation and rural development initiatives, for Namibia and elsewhere in Africa, a primary focus on nationally and internationally-valued large mammals perhaps favours dialogue with men who are associated conceptually with animal wildlife through their conventional roles as hunters and herders (Sullivan, 2000). Apparently justifying this status quo in north-west Namibia, and echoing Gartlan (1997: 2), Jones (2000) maintains that natural resource management initiatives should 'look at ... who controls a resource, who benefits from it, and who uses it, and then ... work with whichever group is relevant.' Since men control animal wildlife, and animal wildlife is the focus for conservation concern, it stands to reason that under this framework men, and particularly male 'traditional' and 'community' leaders, will be the relevant group negotiated with.

In this context, women and gathered resources can be seen as both linked and marginalised by a focus on livestock in analyses of pastoralist subsistence, an emphasis on men as herders of these livestock, and a dominant conservation concern for 'macho' large mammals under threat from men as hunters (or poachers). This is not to say that men do not have a depth of knowledge of plant and other gathered resources; clearly, male herders are highly skilled in this area, particularly in relation to forage resources, treatments for livestock illnesses, and medicines procured by specialist male healers (see, for example, Malan and Owen-Smith, 1974; Fratkin,

1996). On the contrary, it is to suggest that the relevance of gathered, as opposed to hunted (or 'poached'), resources is obscured by the androcentrism infusing pastoralist-ethnography and conservation policy, which conceptualises them as constituents of a feminised, less transcendent, and thus relatively unimportant domain of the natural world. By this token, the rhetoric of 'community' and 'participation' in conservation and development becomes something of a marketing ploy which 'sells' projects and policy in an increasingly politically-correct world, but perhaps falls short of making a radical difference to their content and practice (Sullivan, 2002, 2003).

Some accepted patterns of resource-gathering in drylands

The above discussion suggests that contemporary roles of gathered natural resources in the subsistence repertoire of herders in drylands have been neglected, possibly to the detriment of initiatives promising 'community' empowerment in relation to bio-diversity conservation. Nevertheless, research among groups conventionally classified as 'hunter-gatherers' clearly demonstrates that drylands in Africa and elsewhere sustain a diversity of useful resources, edible and otherwise (e.g. Heinz and Maguire, 1974; Marshall, 1976; Tanaka, 1976; Lee, 1979; Crosswhite, 1981; O'Connell *et al.*, 1983; Veth and Walsh, 1988; Latz, 1995). Further, a number of ethnobotanical studies indicate that a wide range of indigenous plant species are known and used by pastoralist and agro-pastoralist groups in sub-Saharan Africa for a variety of subsistence purposes (e.g. Glover *et al.*, 1966; Getahun, 1974; Grivetti, 1979; Morgan, 1981; Tanaka, 1981; Becker, 1986; Kabuye, 1986; Campbell, 1986; Stiles and Kassam, 1991; Berge and Hveem, 1992; Fratkin, 1996). Like classical ethnobiological studies for peoples inhabiting environments other than drylands (cf. Williamson, 1956; Gilmore, 1977; Malaisse and Parent, 1985; Hines and Eckman, 1993), these provide a wealth of descriptive information regarding potential uses of large numbers of indigenous species. Their value for policy and planning is limited, however, by a lack of standardised information regarding patterns of resource-use, its extent, its day-to-day contemporary significance, and identification of who engages in resource-use practices and under what circumstances (see, for example, Croom, 1983; Prance *et al.*, 1987; Johns *et al.*, 1989: 370; Martin, 1995; and Cotton, 1996, for discussion of the importance of survey data to complement ethnobotanical information).

Despite the paucity of detailed resource-use information for contemporary herders, a number of general perceptions regarding patterns of food-gathering can be identified. First, and as is to be expected for drylands, the consumption of plant foods has a strongly seasonal dynamic, related to both the varying availability of resources (Peters *et al*, 1984: 397), and the changing needs of resource-users. Second, and related to this, it is generally considered that the majority of gathered foods are consumed during dry periods, either as dry season foods or as famine foods eaten only as a result of extended drought conditions; as such, the contemporary use of gathered food resources is perceived as a response to shortages of more desirable alternatives (e.g. Mackenzie,1887: 28–9 in Grivetti, 1979: 239; Getahun, 1974: 45; Grivetti, 1979: 248–51; Morgan, 1981: 105; Benefice *et al.*, 1984: 245; Becker, 1986: 61; Campbell, 1986: 81; de Waal, 1989: 19). Finally, the use of gathered foods is considered to have a strong socio-economic component, being consumed by the poor in lieu of access to preferred animal or other food items (e.g. McGregor, 1995:

163). The perception of gathered produce as a 'poor man's food' has strong historical roots (e.g. Lichtenstein, 1970 (after observations in early 1800s) in Grivetti, 1979: 237), and is related to a general view that gathered plant foods are utilised primarily out of necessity induced by seasonal and inter-annual variations in climate.

Food-gathering by 'the Damara': A History of References, a Monitoring Methodology and Observed Contemporary Patterns

I turn now to an analysis of contemporary patterns of food-gathering among Damara herders in north-west Namibia in relation to both wider understandings of resource-use among pastoralists as outlined above, and to a national context of perceptions informing conservation policy and planning.

'Ethnographic myths' and a history of references to Damara use of 'wild' resources

Abundant references to the use of gathered resources by the Damara can be found in the missionary and colonial ethnography of the late 19th and early 20th centuries. Alexander (1838: 133), on encountering so-called 'Hill Damara' near the Kuiseb River in the west of the Khomas Hochland mountains observed that their diet consisted of 'mice, lizards, roots and sometimes leaves'. Van Reenen (in Mossop, 1935: 315, quoted in Fuller, 1993: 87) similarly asserts that, 'The "Damrassen" for their sustenance enjoy nothing other than the roots and bulbs and gum from thorn trees'. Büttner (1879: 288–9) states that, 'their proper sustenance they get from the so-called "veldkost"' and that their 'principal nourishment is locusts and *uintjies* (i.e. corms and bulbs) as well as honey, seeds and caterpillars'. Hahn (1928: 223) also describes how, on arriving at Okombahe in 1871, 'Many ['Berg-Damaras'] were out in the field seeking "veldkost", namely wild roots, honey', and Vedder (1928: 42, 49, 60, 77) wrote copiously about Damara use of bulbs, fruits, seeds, honey, locusts, termites and game, primarily at the end of the rain season, asserting the nutritional value of such foods in preventing conditions such as scurvy. Von François (1896: 249–50 in Steyn and du Pisani, 1984/1985: 39) lists the Damara names of foods from roots, bulbs, berries, fruits, resins and what he describes as a Euphorbia species (probably *Hoodia* spp.).

While some of these observations are transcribed in considerable detail, their relevance for understanding contemporary patterns of food-gathering is compromised on two counts: first, because of their anecdotal nature; but second and more importantly, because such observations were made in support of a flawed and discriminatory ethnographic classification of the Damara as 'culturally hunter-gatherers' which enhanced colonial perceptions of their poverty of both subsistence and cultural life (as in Büttner, 1879: 288–9; Köhler, 1959: 33, 56; Odendaal Report, 1964: 31; Goldblatt, 1971: 11–12; Möller, 1974: 153; Knappert, 1981: 71; Steyn and du Pisani, 1984/1985: 37, 48; Schmidt, 1986: 329; and Shaw, 1993: 274). While emphasising that the Damara are hunter-gatherers who only recently gained meagre herds through contact with other Namibian groups, Vedder (1928: 46) further denigrates their medical knowledge of plants and animals by asserting that: '[t]he medical knowledge of the Berg Damara is extraordinarily small and there is

hardly even a moderate knowledge of medical field herbs, excepting in the case of some person, who has grown up amongst the Hottentots, Hereros or Bushmen and derived from them some knowledge of the application of herbs'.[4] Recently this statement has been uncritically iterated by the contemporary Namibian scholar Mbuende (1986: 35), emphasising that pre-colonial ethnography continues to inform perceptions of the knowledge and practices of particular ethnic groups.[5] Again, while Vedder (1928: 60, 71, 73) maintains that the Damara are 'lawless' in terms of their conceptions of land and environmental resources, he also describes, somewhat paradoxically, the culturally-implicit practices constraining resource-gathering and conferring 'ownership' or property rights over specific resources (cf. discussion in Sullivan 1999).

Through contextualising missionary ethnography and explorers' accounts, a revisionist historiography now has problematised the classification of Damara-speaking Namibians as 'culturally hunter-gatherers' who have only acquired livestock in very recent times through contact with groups categorised as 'culturally pastoralists'. Instead, attention is drawn to a range of conventionally disregarded historical observations that reveal considerable variation in subsistence practices, and particularly livestock ownership, by the Damara (Lau 1987, 1995; Fuller, 1993; Rohde, 1993, 1997; Sullivan, 2000, 2001). Many pre-colonial observations of the Damara by early ethnographers, particularly those of Vedder which were interpreted as gospel by the South African apartheid-administration (Lau, 1995), thus now are understood as based on unrepresentative dispersed groups in retreat from devastating historical experiences of the eighteenth and nineteenth centuries.[6]

Ethnobiological information currently is recognised in Namibia as an important element of a multidisciplinary approach to the conservation of biodiversity (e.g. Maggs *et al*, 1994: 101; Craven and Sullivan, 2002). A 'Traditional Knowledge Focal Group', for example, was established in 1998 as part of the country's National Biodiversity Programme to emphasise the role of such knowledge in biodiversity conservation and also to find ways of protecting the holders of such knowledge from exploitation. To date, however, research into local knowledge of identified species generally has consisted of a process of extraction and cataloguing of this knowledge before it is lost as elder members of the various indigenous Namibian groups pass away, with little information concerning current levels of utilisation of these resources or of numbers of informants providing this information (see critique in Craven and Sullivan, 2002). This reactive type of ethnobiology has the unfortunate, if unintentional, effect of continuing the tradition begun by the 'missionary ethnographers' of the past: i.e. of collecting what amounts to a memorabilia of interesting past traditions, without situating this information within a context of subsistence and culture which has meaning under current policy and ecological circumstances.

[4] Similarly, while asserting that the men were hunters, Vedder simultaneously emphasises that they, 'cannot compete ... with his teacher, the Nama and especially the Bushmen. The Bergdamara is not a skilled hunter' (Vedder, 1923: 65, quoted in Lau, 1995: 12).

[5] Note that this is not surprising given that Vedder's work was 'forced onto black and white Namibians' minds in the form of school books for decades' (Lau, 1995: 1).

[6] These included the intrusion of European mercantile capital and consequent distortion of regional voluntary exchange-based relationships, the raiding of livestock by well-armed Oorlam Afrikaner commandos from the Cape, and the rinderpest pandemic of 1897 (Lau, 1987).

While useful in providing a database of information regarding resources with potential contemporary value, this approach is limited in its ability to inform ongoing initiatives to both strengthen community-based management of natural resources and to emphasise the current and potential economic value of Namibia's biodiversity. Moreover, it may actually hamper such initiatives. As indicated at the beginning of this chapter, it is not unusual for officials implementing conservation programmes in north-west Namibia to more or less deny that people inhabiting the area might have ongoing utilitarian and other uses for gathered resources. To paraphrase Leach and Mearns (1996: 5), this suggests that a wealth of relevant knowledge from a diversity of potential contributors to so-called community conservation initiatives is being silenced before it is even investigated.

A monitoring methodology for contemporary food gathering by Damara herders

Research questions. From the above critique of information regarding gathered food-use by sub-Saharan pastoralists in general, and by the Damara in particular, the following research questions formed the basis for fieldwork regarding the uses of gathered food items by Damara people:

1. Do the Damara currently utilise gathered foods as part of household subsistence?
2. If they do, how are patterns of use related to seasonal and inter-annual variations in rainfall? More specifically, are gathered foods utilised predominantly as dry season, drought or famine foods consumed in the absence of alternatives? Or does their use correlate more intimately with periods of resource plenty occurring during and immediately following rain periods (as described for Damara along the Ugab River by Vedder (1928: 60) and more recently by du Pisani (1978: 15))?
3. Is the extent of food-gathering use related to some definition of household wealth? For example, is their use more frequent among poorer households thereby constituting a 'poor man's food', or conversely, among wealthier households who can command greater power over labour and other resources and more effectively organise a range of resource-use activities? Or do other, less tangible factors appear to play a more important role in guiding patterns of gathered resource-use?
4. Finally, should the gathering of food and other resources be viewed as an archaic practice in decline in today's modern Namibia? More specifically, is food-gathering by Damara people more important in areas where they have had a more continuous history associated with the land, compared to areas characterised more completely by extensive resettlement in the interests of the apartheid state? For the former 'homeland' of Damaraland, such conditions are represented by land to the north and south of the veterinary cordon fence (or 'Red Line') which divides the 'homeland' (see Table 4.1). Land to the north remained under communal management throughout this century while land to the south was surveyed, fenced and allocated as ranches to settler farmers in the 1950s and then redistributed to Damara 'communal farmers', often from locations hundreds of kilometres away, when the 'homeland' was created in the 1970s (Sullivan, 1996b).

Field methods. Initial familiarity with the area was attained through a short period of fieldwork in 1992 and a pilot study of 3 months in 1994. This allowed the selection

of focal 'households' considered representative of different areas of settlement and prepared to participate over a longer period of fieldwork in more detailed discussions regarding the use of gathered resources, and in the monitoring of specific resources utilised. The definition of a 'household' is notoriously problematic, especially for relatively mobile herding populations. The working definition used here is of all individuals consuming food prepared at the same cooking fire. This normally comprised people related as kin in some way, but could include unrelated individuals such as adopted children and casually employed herders. Focal households in many cases constituted part of larger family clusters or ǁ***gâudi***, described by Fuller (1993: 142) as, '... the unit which collectively controls ownership of productive resources'. 'Cooking units' and ǁ***gâudi*** are themselves not isolated entities, but are part of a wider sphere of kin called ǀ***nîkhoen*** (Fuller, 1993: 77). This encourages a continual movement of resources and people between households, usually but not exclusively along points of connection characterised by some form of kinship relatedness. As discussed below, the resulting fluidity of resource exchange has implications for household use of gathered foods.

A total of 45 households participated in a multi-round resource-use survey of which 21 lived in the settlement of Sesfontein to the north of the 'Red Line', and 24 lived south of the Red Line on former commercial farms and along the Ugab River. As with Fuller's work (1993), these sites represented different sides 'of the most significant social demarcation' in Namibia, i.e. between indirect and direct colonial rule respectively. Repeat visits was made to these households between February 1995 to July 1996 at which a range of resource-use activities were discussed and monitored. Discrepancies in the numbers of households included in each visit occurred due to a number of reasons including the high mobility and consequent unavailability of households during survey periods, and logistical problems associated with reaching geographically dispersed settlements. The frequency of use of gathered foods was monitored for a sample of 348 and 2017 household and individual diet-days respectively. At each household visit, dietary surveys were carried out in which all foods consumed on both the day of the visit and the previous day were recorded. This allowed analysis of both the contribution of gathered food products to the household diet in terms of the frequency of consumption of these foods, and the relationship between the extent of this use and access to alternative foods. To ensure that the full range of foods was represented by these surveys, additional information was collected regarding the storage of gathered food items within the household. Table 4.1 summarises the sample structure for households and individuals whose food consumption was monitored. As shown in Table 4.2, the visits to households corresponded with variations in climate and therefore in resource availability, allowing exploration of the relationship between climatic variability and the consumption of gathered foods for this time period.

Analysis. Where appropriate, field data were analysed with two-tailed non-parametric statistical tests using the statistical package SPSS 7.0 for Windows.

Ethno-taxonomy. Underpinning the food-use survey was the necessity of learning about the flora and fauna of the region from both folk and formal science perspectives so that gathered foods could be identified accurately (Prance, 1991: 210; Martin,

Table 4.1 Sample structure for households and individuals incorporated in a dietary survey conducted to monitor the use of gathered natural resources for food by Damara herders in north-west Namibia. (s = standard deviation)

	Feb 95	Apr/ May 95	Jun/ Jul 95	Oct 95	Jan 96	Mar/ Apr 96	Jul 96	Total	min	max	mean	s
North of 'Red Line' (Sesfontein and environs): 21 households												
Household survey days	21	70	39	26	32	28	24	240				
Individual survey days	167	448	221	150	188	162	132	1468	1	17	6.12	5.08
Adults	93	228	131	78	102	90	82	804	1	8	3.35	1.67
Children	74	220	90	72	86	72	50	664	0	10	2.76	1.93
South of 'Red Line' (former commercial farms in Aba-Huab catchment and settlements along the Ugab): 24 households												
Household survey days		22		12	36	38		108				
Individual survey day		102		44	143	260		549	1	31	5.08	4.82
Adults		62		26	101	134		323	1	14	2.99	2.09
Children		40		18	42	126		226	0	17	2.1	2.96
Total: 45 households												
Household survey days	21	92	39	38	68	66	24	348				
Individual survey days	167	550	221	194	331	422	132	2017	1	31	5.8	3.56
Adults	93	290	131	104	203	224	82	1127	1	14	3.24	1.82
Children	74	260	90	90	128	198	50	890	0	17	2.5	2.32

Table 4.2 Dates of household survey visits and seasonal conditions during the period February 1995 to July 1996

Date	Seasonal conditions
February 1995	end of early 1990s drought
April/May 1995	towards end of exceptional rain season; 200mm rain in Sesfontein, i.e. twice the annual average
June/July 1995	early dry season
October 1995	late dry season
January 1996	onset of drought due to poor 1996 rain season
February/March 1996	late rain season; drought, i.e. an average of 28.8mm recorded at 3 rain gauges established within 5kms of Sesfontein
July 1996	dry season

1995; Cotton, 1996). Some 468 plant specimens were collected during the course of fieldwork which were described botanically and prepared for addition as herbarium vouchers to the collection at the National Herbarium, National Botanical Research Institute (NBRI), Windhoek, where they were formally identified. Specimens that remain unidentified are referred to by their collection number, i.e. SS348. Many plant specimens were collected during field-trips with Damara people, when local

knowledge concerning a plant could be discussed and included with the botanical documentation accompanying the specimen.

Portions of most specimens formed the basis for preparation of field-cards, used to aid identification of species while in the field and to provide a basis for discussion about different species during the course of household surveys of resource-use. Every attempt was made to include all the relevant, time-varying above-ground portions of the plant on these field-cards (e.g. flowers and fruits) in order to generate information about these species which was as accurate as possible, despite being removed from the wider ecological setting. Given the impossibility of being in the field with local informants whenever a previously uncollected species was located, this approach facilitated wider discussion of ephemeral species or those with restricted spatial distributions. Samples of food products from a number of species were also used as the basis for species identification and discussion of the qualities and ecology of these resources. The families and author citations for plant species named in the text are listed in the Appendix on page 92. Specimens of insect species utilised as foods were collected and identified by the Entomologist at the National Museum of Namibia, Windhoek.

'These are our Damara foods': Contemporary patterns of food gathering by Damara herders in north-west Namibia

In this section, the findings of the household survey of food-use are discussed in relation to the research questions identified above. Of the 348 household diet days in which food consumption was monitored, 125 or 36 per cent included the use of gathered natural resources for nourishment. On these days, between 1 and 4 records of wild foods were recorded, usually of different items but occasionally of the same item contributing to two different meals in a day, leading to a total of 218 records of such resource-use by households. Figure 4.1 indicates the percentages of these records accounted for by different types of gathered foods. Table 4.3 shows species utilised and stored at each survey visit and Table 4.4 provides some indication of what can be considered a 'typical' range and quantity of resources collected by the woman head of a household following one rain season.

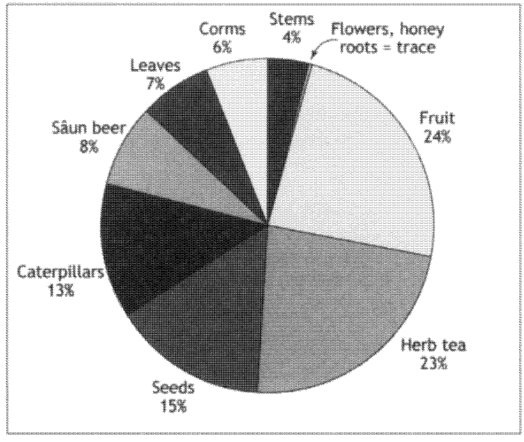


Figure 4.1 Proportions of the total number of records (N = 218) of the consumption of gathered foods by Damara households in north-west Namibia accounted for by particular types of food

Table 4.3 Gathered foods, or stored, between February 1995 and July 1996

Records represent the number of times a species was recorded as consumed (con.) or stored during the household dietary survey. Data are presented separately for households located in and around Sesfontein to the north of the 'Red Line', and at farm settlements to the south of the 'Red Line'. Naturalised species are marked with an asterisk.* (NB: Figures for seeds used for beer represent actual consumption of beer by the adult members of a household and do not reflect the extent of beer production for sale. Figures for the storage of seeds include both those intended for direct consumption and those used for the making of beer).

Plant parts	Species	Damara name	Diet-survey records					
			North of Red Line N=240		*South of Red Line* N=108		*Total* N=348	
			con.	stored	con.	stored	con.	stored
Tea: twigs,			**45**	**47**	**7**	**8**	**52**	**54**
leaves, flowers:	*Cullen obtusifolia*	***!honab***			2	2	2	2
	Helichrysum sp. (SS468)	***!uru***			1	1	1	1
	Monsonia umbellata	***bosu***	3	3			3	3
	Myrothamnus flabellifolius	***||khootorotorosen***	42	44	3	4	45	47
	Thamnosma africana	***≠khanab***			1	1	1	1
Fruit:			**29**	**37**	**23**	**10**	**52**	**38**
	Berchemia discolor	***≠hûis***	17	19			17	18
	Boscia albitrunca	***|hunis***			4		4	
	Boscia foetida	***xaubes***	1				1	
	Cordia cf. *gharaf*	***||khos***			6	1	6	1
	Cordia cf. *gharaf*	***|nais***	1				1	
	Euclea pseudebenus	***tsawib***			1		1	
	Ficus sycomorus	***|nomas***	2	3	1	1	3	3
	Grewia cf. *flava*	***||narabes***	2	4	1	1	3	3
	Grewia villosa	***sabibes***	1	3	1	1	2	2
	Grewia spp.	***||nais***		1	3	4	3	4
	Grewia spp.	***ani||nais***			1		1	
	*Prosopis glandulosa**	***≠khen |naras***			2	1	2	1
	Salvadora persica	***xoris, kaibes***	4	7	3	1	7	6
	Ziziphus mucronata	***≠aroi***	1				1	
Seeds			**21**	**61**	**14**	**39**	**35**	**88**
from harvester	*Kaokochloa nigrirostris*	***≠haa***		1				
ants' nests	*Monsonia umbellata*	***≠khari bosu***	4	15	9	15	13	26
	Monsonia senegalensis	***surube bosu***		2		2		3
	Stipagrostis spp.	***sâun***	12	21	5	16	17	36
	Stipagrostis cf. *hochstetterana*	***|hoe sâun from ≠habo |gâb***	3	4	3	6	6	10
	Stipagrostis spp.	***!garibe sâun***	2	7			2	4
	Stipagrostis spp.	***≠habo sâun***		2				1
Direct from plant	*Setaria verticillata*	***≠ares***	5	7			5	6
	Trianthema triquetra	***≠nurusoâ***		2				2
Seeds for beer:			**12**		**6**		**18**	
	Monsonia umbellata	***bosu***			1		1	
	Monsonia senegalensis	***surube bosu***	1				1	
	Stipagrostis spp.	***sâun***	11		5		16	
	Stipagrostis cf. *hochstetterana*	***|hoe sâun from ≠habo |gâb***	4		2		4	
Caterpillars:			**27**	**35**	**4**	**8**	**31**	**37**
	Imbrasia belina	***|hoobes; tsaurahais |girus***	2	3			2	3
	Heniocha marnois	***!gobobes; !goboxobe |giru***				1		1
	Usta wallengenii	***|girus; ≠nû or ≠nûbe |girus***	25	32	4	7	29	33

Table 4.3 cont.

Plant parts	Species	Damara name	Diet-survey records					
			North of Red Line N=240		*South of Red Line* N=108		*Total* N=348	
			con.	stored	con.	stored	con.	stored
Leaves:			**17**	**2**			**17**	**1**
	Amaranthus spp.	***||hâubes***	14	1			14	1
		|horos	3	1			3	
Corms:			**13**	**20**			**13**	**13**
		ûias	12	19			12	12
		≠gari	1	1			1	1
Stems:	*Hoodia* cf. *currori*	***!khobas***	9				9	
Flowers:	*Hoodia* cf. *currori*	***!khobas***	1				1	
Honey:		***danib***	1	2			1	2
Roots:	*Boscia albitrunca*	***|hunis***	1				1	

Table 4.4 Major foods collected by Cornelia ||Guruses from Gudipos on the Ugab River, during the rain season of 1996

Plant part used	Species name	Damara	Quantity
Seeds:	*Stipagrostis* spp.	***sâun***	2001 drum, 1 bucket and 2 ≠goub
	Monsonia umbellata	***bosu***	collected 3 times, approx 20kgs
Fruit:	*Grewia villosa*	***sabibes***	1 carry-bag full
	Grewia spp.	***||nais***	1 carry-bag full
	Cordia gharaf	***||khoos***	1 bucket full
Caterpillars:	*Usta wallengrenii*	***≠nû ≠giru***	1 bucket full

As recorded for pastoralist and hunting and gathering groups in drylands elsewhere (e.g. Glover *et al.*, 1966; Heinz and Maguire, 1974; Marshall, 1976; Grivetti, 1979; Lee, 1979; Morgan, 1981; Tanaka, 1976; O'Connell *et al.*, 1983; Veth and Walsh, 1988; Stiles and Kassam, 1991), the majority of plant foods come from a relatively small number of species, although local knowledge encompasses a much wider variety of edible and inedible species: only 41 plant species were recorded as actually consumed during the course of the household dietary survey among the Damara, while ethnobotanical fieldwork indicated that some 97 species are recognised as edible (Sullivan, 1998).

The frequencies of gathered food use recorded here are considerably higher than those anticipated from existing studies of subsistence among livestock-keeping groups in sub-Saharan Africa. Also, it should be emphasised that the survey represents only a small proportion of days throughout the study period on which gathered foods may have been consumed, and overlooks both the frequently stated intention to collect these resources by households who were not currently utilising or storing veld foods, and the fact that edible plant parts consumed at home typically represents only a portion of the total consumed (Heinz and Maguire, 1974: 40). In

addition, some under-reporting due to 'informant inaccuracy' is to be expected given the retrospective nature of the 24-hour recall data (Bernard *et al*, 1984; Borgerhoff-Mulder and Caro, 1985: 324).

The preparation, nutritional value and availability of important food types is outlined below in the order of their monitored contribution to diets, followed by the findings of analyses of gathered food-use in relation to the research questions identified above.

Fruit. Many of the fruits consumed by the Damara comprise highly esteemed supplementary foods, often containing greater amounts of vitamin C than domesticated species (Wehmeyer, 1986: 8), and are consumed when available throughout the drier regions of southern Africa. *Grewia flava*, *Boscia albitrunca* and *Ziziphus mucronata* or closely related species, for example, are relished by San-speaking peoples throughout the Kalahari, by the Tswana-speaking Tlokwa of south-east Botswana, by Turkana, Gabra, Maasai and Kipsigis pastoralists in Kenya and by Senegalese Ferlo and Malian Tamasheq in West Africa (Glover *et al.*, 1966: 194; Heinz and Maguire, 1974: 41; Marshall, 1976: 113; Tanaka, 1976: 117–118; Grivetti, 1979: 148; Lee, 1979: 160, 162; Morgan, 1981: 101; Steyn, 1981: 12, 20, 27; Becker, 1986: 63; Stiles and Kassam, 1991: 27; Berge and Hveem, 1992: 13). Similarly, the pods of the naturalised legume Prosopis spp. are known as a major source of food for indigenous people in the North American deserts (Felger, 1979 in Lee and Felker, 1992: 309; Crosswhite, 1981: 51), with a high but variable nutritional content (protein and sugar content range from 9–18 per cent and 6–41 per cent respectively (Oduol *et al*, 1986). Table 4.5 indicates nutritional composition for some fruit species consumed by Damara households surveyed during the course of this study.

Herb teas. Five herbs were recorded as used for tea, the most common being the 'resurrection bush' *Myrothamnus flabellifolius* (**||khootorotorosen** when green and **!hotorotorosen** when dry). These teas often are added as flavouring to ordinary bought tea but may also be consumed on their own. Although their nutritional contribution generally is considered negligible they may contain important minerals.[7] The addition of milk and sugar when available also adds to their nutritional value. As with the consumption of herbal teas worldwide, there is some overlap between the use of teas as both beverages and medicines. A strong decoction of *Thamnosma africana* (**≠khanab**), for example, is one of the most widely used herbal remedies by Damara- and Nama-speaking people in Namibia (du Pisani, 1983: 12; Van den Eynden *et al.*, 1992: 50, 81; Sullivan, 1998). Herbs were recorded as consumed as tea only if they were reported under this category by interviewees themselves.

Seeds. An unusual resource-use practice initially highlighted by Vedder (1923: 71–3; 1928: 60) is the collection of grass seeds from harvester ant nests, generally from the grasses *Stipagrostis* spp. (**sâun**) and the Geraniaceae species *Monsonia umbellata* (occasionally *M. senegalensis* or *bosu*) (Sullivan, 1999). Seeds from the grass *Setaria*

[7] Values of 609mg/100g, 149mg/100g, 17.9mg/100g, 346mg/100g and 103mg/100g have been recorded for *M. flabellifolius* for calcium, magnesium, iron, potassium and phosphorus respectively (Wehmeyer, 1986: 29).

Table 4.5 Nutritional composition of some fruit species recorded as consumed by households during the course of this study

Species		Moisture	Ash	Protein	Fat	Fibre	Carbohydrate	Energy	Ca	Mg	Fe	Na	K	Cu	Zn	Mn	P	Thiamin	Riboflavin	Nicotinic acid	Vitamin C	Carotene
		g/100g						kj/100g	mg/100g *except where indicated otherwise*													
Berchemia discolor	*	78.8	1	1.1	0.6	2.8	15.7	305	88.6	30.9	2.24	6.04	270	0.2	0.27		40.1	0.03	0.06	0.53	50.3	0.11
	†		3.41	7.1	2.5				474	93	4.2	19	738	0.79	1.06		120					
Boscia senegalensis (mean values for max. 7 samples)	‡	93.3	3	25.5	1.6	2.9	64	1547.8	0.09g	0.06g	72	0.01g	0.64g		44							<50
Euclea pseudebenus	*	68.5	1.3	1.6	0.1	0.7	27.8	498	43.5	28.8	0.28	2.51	358	0.11	0.36	0.12	25.4	0.02	0.003	0.31	105	
	†		10	2																		
Ficus sycomorus	*	82.7	1.1	1.4	0.5	4.3	10	210	72.6	43.1	1.73	5.70	347	0.16	0.38		33.4	0.07	0.03	1.41	7.3	
Grewia bicolor	*	13.2	5.9	10.3	0.1	13.5	67	1302	268	317	5.92	12.4	1707	1.29	2.59		181	0.2	0.25	3.47	9.3	
	‡	95.6	5.5	6.9		39			1.2g	0.3g	16	0.01g	0.9g		1		0.2g					
Grewia flava	*	74.7	1	2.1	0.1	2	21	377	68.1	70.5	1.24	3.11	288	0.33	0.56		67	0.04	0.03	0.62	29.4	
	*	9.6	3	5	0.3	22.1	60	1103	163	169	3.85	3.1	981	0.32	1.26		86.5	0.07	0.2	1.63		
Grewia tenax	*	9.2	2.6	5.5	0.3	19.7	62.7	1157														
	‡	90.4	3.9	7.8	2.5	28.8	78.9	1534	0.4g	0.2g	9	0.01g	1.1g		1.6		0.2g					3700
Grewia villosa	*	70	2	3.3	0.2	1.9	22.6	443		34.6	0.9	3.8	224				41					
	†		2	3.3	0.2	1.9	22.6	443		34.6	1.9	3.8	672				41					
	‡	88.5		8.1	3.2	24.6			0.48g	0.13g	12	0.02g	0.98g		1.9		0.2g					1800
Salvadora persica	*	70.8	1.6	1.9	0.6	1.1	24	458													12.1	
	†		18.2	21.9	6.8	12.3	41.8	3007				2095	7095									
	‡	91.7	30.8	14.9	1.7	8	46.6	1093	6.95g	0.41g	22	0.01g	1.57g		1.2		0.11g					3400
Ziziphus mucronata	*	50.4	3.2	5.5	0.5	2.1	34.4	659	129	58.3	0.95	5.05	726	0.86	0.52		51.4	0.06	0.05	0.71	42.6	

Notes: Values are from: * = Wehmeyer (1986). † = Ministry of Agriculture. Water and Rural Development. Windhoek (1991). ‡ = Maiga (1992).
(Ca = calcium. Mg = Magnesium. Fe = iron. Na = sodium. K = potassium. Cu = copper. Zn = zinc. Mn = manganese. P = phosphorus).

verticillata (***≠ares***) are also collected directly from the plant. The extent of household consumption and storage of seeds recorded here contradicts the general consideration that 'grasses appear not to provide food items for humans' across eastern and southern Africa (Peters *et al*, 1984: 402; although see Maiga (1992: 1) for documentation of the widespread collection of grass seeds directly from the plant among contemporary Gourma pastoralist groups of Mali). It is also in contrast to Aboriginal people in Australian drylands, where seeds from woody species tend to be as, if not more, important as grass seeds (O'Connell, *et al*, 1983: 86–7; Veth and Walsh, 1988: 20). Additional grass species supplying seeds used for food include *Setaria finita* (***!gari-ao-oâ***), *Eragrostis* spp. cf. *E. annulata* and *E. cylindriflora* (***ǀ homara***), *Danthoniopsis dinteri* (***≠namib***), *Aristida* cf. *effusa* (***!gaebiburu≠gahe***) and the endemic species *Kaokochloa nigrirostris* (***≠hâ***). The latter two species are collected from harvester ant nests, either mixed with the more abundant *Stipagrostis* spp., or on their own (as occurs with *K. nigrirostris* in areas of calcretaceous hills where it tends to be the dominant grass species). Seeds also are used as the basis for brewing beer (***!khadi***) and for the distillation of a liquor called ***bâuga***; as documented elsewhere, these are important income-generating activities for women (Fox, 1938; Bishop *et al.*, 1994).

As stated in Renvoize *et al.* (1992: 7), 'The outstanding value of grasses as a source of food lies in their nutritious seeds' which have both high lipid and protein contents (Carroll and Janzen, 1973: 235). Of further significance in unpredictable arid environments is the fact that cereals lend themselves to storage for later consumption. The consumption of grass seeds as cereals is considered to have been a feature of subsistence in semi-arid and arid areas throughout human history and prehistory (cf. Tindale, 1977: 345–7), despite the apparently low diversity of species used in this manner today.

Caterpillars. Caterpillars, primarily the larval stages of various emperor moth species (Saturniidae), are consumed and traded lucratively throughout Namibia[8] and are 'the most commonly utilized food insects in Southern Africa' (Marais, 1996: 1–2; also Grivetti, 1979: 237; Silbauer, 1981: 217). Nutritionally, they are good sources of energy, minerals and vitamins, as shown for the Saturniidae species *Imbrasia ertli* in Table 4.6.

Caterpillars are noted as a 'favourite supplementary food' among Damara along the Ugab River by Steyn and du Pisani (1984/1985: 48), an observation supported by this study which recorded the consumption of caterpillars (***≠girus***) on 13 per cent of the diet survey-days on which gathered foods were consumed. As elsewhere, they generally are prepared 'by removing the head and squeezing out ingested leaf material' (Latz, 1995: 131). They are collected in large quantities when available and prepared for storage by sun-drying, and are later consumed dry or reconstituted by boiling into a soup or stew with water. *Imbrasia belina* (Saturniidae) (***≠hobe ≠giru***), was consumed rarely during this survey, despite being the commonly eaten 'mopane worm' found throughout southern Africa wherever the tree *Colophospermum mopane* predominates (Van Voorthuizen, 1976: 227). *Usta wallengrenii* (Saturniidae) (***≠nû ≠giru***), on the other hand, which was collected from *Commiphora* spp., was

[8] Analysis of data in Marais (1996: 8) suggest a mean return of N$18.2/kg (N$1.00 = US$0.23 at time of study) for primarily *Imbrasia belina* caterpillars traded in Windhoek in May 1996.

Table 4.6 Nutritional values for the caterpillar *Imbrasia ertli* (Saturniidae)

Nutritional value	Fresh, raw per 100g	Cooked/dried per 100g
water g	77.7	8.5
energy k/cal	98.7	386.8
protein g	14.8	5
fat g	3.5	12.6
carbohydrate g	2.5	17.3
calcium mg	24	232
phospohorus mg	–	619.5
iron mg	0.9	16
potassium mg	–	2,027?
sodium mg	–	2,616?
vitamin A retinol equivalent	–	37.3
ascorbic acid mg	0?	5.2
thiamin mg	0.3	0.3
riboflavin mg	1.2	1.4
niacin mg	7.4	7.9

Source: Based on Bradley and Dewees (1993: 132)

consumed with high frequency during this survey but generally is considered inedible by taxonomists (Marais, pers. comm.).

Sâun beer. Seeds of *Stipagrostis* spp. grasses, and occasionally *Monsonia* spp., are commonly used in the preparation of beer and, less frequently, in the distillation of a spirit known as ***bâuga***. The latter was only recorded in households to the south of the 'Red Line'. Sugar or honey are added as fermenting agents. Beers based on the fermentation of grains can make a substantial nutritional contribution[9] and, intermittently, may be the sole item consumed during periods of low alternative labour requirements such as after harvests (e.g. Fox, 1938: 39). The procedure for brewing ***sâun*** beer is much simpler than that described elsewhere, requiring only that several kilograms of unground seeds are soaked for two or three days in water sweetened with sugar or honey. The seeds can be reused over periods of one to three years during which time the flavour is improved by topping up with freshly collected seeds. It is common for women to prepare beer in 200 litre oil drums and to sell it for around N$1 a pint. The distillation of ***bâuga*** from beer is much more time-consuming, requiring a complicated apparatus of pipes and containers for heating the beer and collecting the finished product. The returns are much higher, however, with a 250ml bottle fetching upwards of N$5 and higher prices being gained by women who have the means to transport the liquor for sale in urban areas.

Leaves. Leaves of the wild spinach *Amaranthus* spp. (**ǁhâubes** or **ǀhoro**) are consumed in varied habitats worldwide as complements to carbohydrate staples (Fleuret, 1979; Crosswhite, 1981: 59; Ogle and Grivetti, 1985: 14). These species are known to be high in protein (particularly of lysine and tryptophan which compensates for

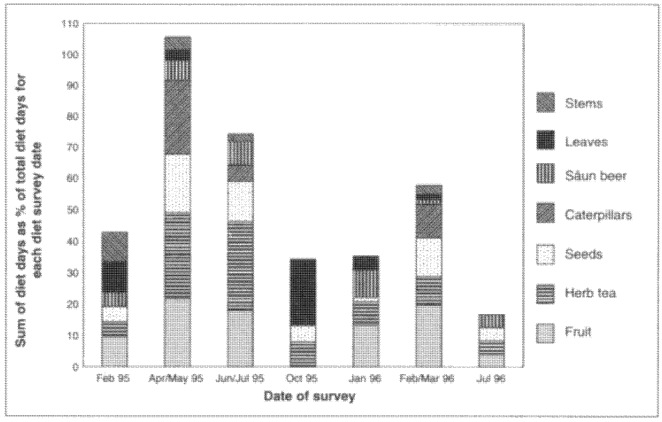
[9] 'Appreciable quantities' of vitamins B1, B2 and C have been recorded for local grain beers in South Africa with, for example, a mean of 0.8mg/100ml found for the latter (Fox, 1938: 46–7).

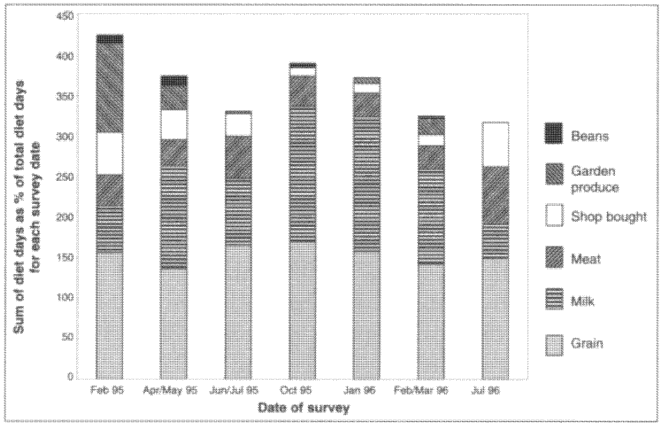
deficiencies in diets dominated by maize), calcium, magnesium, iron, and vitamin A (sources summarised in Fleuret, 1979: 265; Wehmeyer, 1986: 7). In north-west Namibia, species utilised as 'wild spinach' generally grow as weeds in cultivated plots and also may be promoted and planted by farmers thus blurring boundaries between categories of 'wild' versus 'cultivated' (cf. Harris, 1977: 423–37). In the study area, *Amaranthus* spp. have been planted in some plots in the irrigated gardens of Sesfontein through the introduction of seeds from north-central Namibia by Owambo men who have married into Damara families. *Amaranthus* spp. also are abundant in the environs around Sesfontein where they are common under the shade of *Acacia tortilis* trees following rains. Both sources of this species are utilised as spinach. Occasionally they are differentiated with the name ***||hâubes*** referring to plants growing in cultivated plots and ***|horo*** referring to those occurring in 'the field' or ***!garob*** (Sullivan, 1998: 365).

Corms and bulbs. Unlike the consumption of gathered foods by other societies in arid areas where a diversity of underground portions of plants are important (e.g. Lee, 1979: 159–65; Marshall, 1976; Tanaka, 1976; Heinz and Maguire; 1974; Kabuye, 1986), only two Damara 'ethnospecies' were recorded as consumed during the course of this study. These were used in relatively high quantities, however, particularly after the good rains of 1995, and are likely to have high energy values (for example, 342–633kcal/100g were recorded for the bulbs of three *Cyperus* spp. in Wehmeyer (1986: 24)). Also, the species consumed were unsatisfactorily identified and it is likely that ***ûias*** may be a category covering several different species, particularly as some 16 Damara names for edible roots were recorded overall (Sullivan, 1998). Von François (1896: 249–50 in Steyn and du Pisani, 1984/1985: 39) states that the availability of '*ointjies*' was so important to the Damara that it played a role in determining settlement location. The significance of bulbs is also indicated by their high exchange value (Büttner, 1879: 289), their apparent role in the payment of bridewealth prior to marriage (Alexander, 1838: 137), and the ritual-tasting of this food by men and Headmen at the time of harvesting of bulbous foods (Vedder, 1923: 66 in Steyn and du Pisani, 1984/1985: 39–40). Apart from self-collecting, a healthy regional trade existed at the time of fieldwork in ***ûias*** brought south by Himba from north-west Kunene Region, thus increasing the availability of this resource in the northern study settlements.

Stems. Stems of the succulent near-endemic *Hoodia* spp. are widely consumed following removal of their spines. Again, the use of this resource crosses two of the conceptual categories used in this analysis. First, as well as being a food, it is considered an important medicine active in reducing blood pressure and in preventing mosquito bites; second, it is commonly planted around people's homesteads and in gardens and is therefore both a 'wild' and cultivated indigenous resource. The latter point is of particular interest given both the high conservation value in Namibia of so-called 'spectacular' and endemic succulents of the north-west, and current concern regarding the impacts of local uses of these succulents.

Analysis. Differences in the frequency of gathered food use by date of survey, i.e. reflecting resource availability, were analysed through the application of a Kruskal-





Figures 4.2a & 4.2b Food use by date. In order to correct for the fact that the number of diet-survey days are not the same for each date of the survey, the figures represent the sum of days on which the use of each category of food was recorded, expressed as a percentage of the total number of diet survey days for each survey date.

Wallis one-way analysis of variance (ANOVA) on the summed frequencies for each category of gathered foods by each household diet-survey day. The results of this test were highly significant (Kruskal-Wallis = 32.27, df = 6, p=0.0001). In contrast, the use of foods from all other sources (livestock products, grain, shop-bought, garden produce, etc.) was not significantly related to survey date (Kruskal-Wallis = 8.34, df = 6, p=0.214). Figures 4.2a and 4.2b represent the pattern of food use by date for the duration of the household survey. As Figure 4.2a suggests, the use of gathered resources for food is strongly related to rainfall. The highest records for use occurred after the exceptional rain season of 1995, with somewhat lower levels of use occurring in the poorer rain season of 1996. It does not appear, therefore, that Damara people consume gathered foods as a response to dry season or drought conditions, but rather as and when they are abundant. This perhaps suggests a positive attitude towards these foods in the desire to consume them when they become available, even though the availability of alternative foods remains relatively stable. In addition, and not represented by this survey, high rates of consumption of gathered foods are associated with periods of mobility coincident with times of high productivity. For example, the members of one household from Sesfontein, who spent at

least a week travelling to, and collecting ***sâun*** (seeds of *Stipagrostis* spp.) from the ***|Giribes*** Plains some 40kms north-west of Sesfontein, spoke of how they had eaten 'a lot of ***|girus***' (i.e. *Usta wallengrenii* caterpillars) as they travelled through the landscape.

As well as the absolute contribution of gathered foods to the diet, the relative importance of some species also shifts with inter-annual variations in productivity related to rainfall. In some cases a non-intuitive negative relationship may occur between rainfall amount and fruit yields (e.g. Lee, 1979: 174; Gould, 1980: 66; Lee and Felker, 1992). In this current study, the fruit yields for *Salvadora persica* (***xoris***), for example, were extremely poor in 1995, despite the above-average rain of this season. Recorded incidences of consumption or storage of these fruits were therefore correspondingly low even though this species ranked first in 8 out of 12 household-based small-group interviews regarding fruit preferences for a sample of 16 fruit species, and had the highest mean rank score of 2.75 (NB: low score = high rank).

The relationships between food-gathering and household wealth were explored similarly by comparing the degree of recorded use of gathered foods with the total number of records for the consumption of alternative foods by each household on each day of the diet-survey. Underlying this approach was an assumption that the total food consumed by a household would reflect the range of resources to which that household had access. This includes the unique set of wider 'entitlements' a household might have to resources, and which may otherwise be obscured by a focus on strict definitions of wealth in terms of measures such as size of livestock herds, receipt of remittances or land cultivated (Nærua *et al.*, 1993: 21–3; Devereux, 1996; following Sen, 1981, 1984). However, the use of gathered food resources bore little relation to the use of alternative foods, other than indicated by a weak but significant negative correlation with the consumption of grain (Table 4.7). This suggests that the use of gathered resources cuts across the range of Damara-speaking households inhabiting north-west Namibia and is an activity practised exclusively neither by the poor with no access to alternatives, nor the wealthy, who can command labour or items for exchange in acquiring wild foods.

Given the common emphasis on wealth as an explanatory factor in the household use of natural resources for food, it is perhaps surprising that there does not appear to be a stronger linear relationship here between the use of gathered foods and wealth. A reason for this lies in the complexity of primarily kinship-based social relations which encourage the transfer of resources and thereby blur the boundaries between apparently well-defined households, and incorporate individuals, households and families into wider networks of exchange. These points can be illustrated by analysing the flow of resources between households at the family or ***||gâudi*** level.

One family in Sesfontein, for example, besides cultivating grain and vegetable crops in the settlement's communal gardens, at the time of study had some 415 goats, 19 sheep, 18 cattle, 78 donkeys and at least 40 chickens herded in the vicinity of the settlement. A proportion of these were kraaled close to people's homes in Sesfontein where they provided milk for daily consumption while the majority of the herd was kept at two farm outposts, Hoanipos and Tsaurob, approximately 10kms outside Sesfontein. Here they were looked after by various family members and paid labourers (in early 1995 these were one Herero man at Tsaurob and one Angolan man responsible for the goats kept in Sesfontein). Ownership by individuals

Table 4.7 Spearman's rank correlation coefficients for the relationship between consumed gathered and alternative foods

		Gathered foods	
		Spearman's rank	**p**
Total other foods		–0.016	0.759
Livestock products:	meat	0.029	0.584
	milk	0.026	0.632
Grain		–0.171	0.001
Shop bought		0.084	0.12

Table 4.8 Mean number of records of different foods consumed during the diet-survey by five households of a family in Sesfontein. (s = standard deviation)

Household	**Meat**		**Milk**		**Grain**		**Shop**		**Wild foods**	
	mean	**s**	**mean**	**s**	**mean**	**s**	**mean**	**s**	**mean**	**s**
1	0.63	0.49	1.25	0.99	1.21	0.83	0.75	0.19	1.46	1.22
2	0.77	0.53	1.14	0.89	1.82	0.73	0.14	0.35	0.45	0.8
3	0.63	0.65	0.92	0.72	1.42	0.93	0.75	1.19	0.54	0.83
4	0.65	0.59	0.45	0.69	1.5	0.51	0.45	0.83	0.05	0.22
5	0.5	0.58	1.25	0.5	2	0.82	0	0	0.25	0.5

to specific animals may be well-defined but is not exclusively so; members of the family will thus make reference to 'our' livestock when describing the herd, and membership within the family confers entitlement to the products of livestock within this herd. So, although one of the households (number 4 in Table 4.8) had direct access to relatively few animals, (namely ten goats, of which five were herded with the larger family herd at Hoanipos and five were kraaled at Sesfontein, and eight donkeys, all kept at Hoanipos), its members consumed meat and grain at a comparable frequency to others within the family group, although consumption of milk, shop foods and gathered foods was relatively low. Among other households in this family, the consumption of gathered foods was much higher and, as Table 4.9 suggests, was built on a variety of informal exchange arrangements as well the direct collection of resources by members of the household.

Links within networks of relatedness, reinforced by the inclusive logic of classificatory kinship[10], also usually extend far beyond the level of the immediate family, creating further implications for both current and potential patterns of resource exchange. For example, and as demonstrated by Figure 4.3, fieldwork over the longer term within Sesfontein revealed that all the families in which the household use of gathered-foods was monitored were tied together by kin relationships at various generational levels (also see Fuller, 1993: 152). An ability to draw on such

[10] As Knight (1991: 309, 311), following Radcliffe-Brown (1931) states, 'the essence of classificatory kinship is that siblings occupy similar positions in the total social structure', an implication of which is that 'large-scale coalition relationships have primacy over personal interests or bonds' (also see Fuller (1993: 142–5) for discussion of cross-descent and parallel cousins in relation to resource exchange among the Damara).

Table 4.9 Procurement of gathered foods by the heads of two households of the Ganuses family in Sesfontein during the rain season of 1995

Household #1

- Given **!garibe sâun** (*Stipagrostis hirtigluma* seeds) by her sister-in-law's son from which she made **sâun** beer to sell.
- Given **≠khari bosu** (*Monsonia umbellata* seeds) by a friend.
- Twice given **≠hûis** (*Berchemia discolor* fruits) from her sister-in-law and bought once from Herero people from Kaokoveld.
- Given **≠ares** (*Setaria verticillata* seeds) by her grand daughter.
- Twice given **ûias** (corms) by her niece's labourer who herds livestock outside Sesfontein at the farm-post of Tsaurob.
- Bought **|girus** (*Usta wallengrenii* caterpillars) from ovaHimbas when they were selling in Sesfontein.

Household #3

- Collected **|nomas** (*Ficus sycomorus* fruits) from trees in the gardens in Sesfontein.
- Collected **|girus** (*Usta wallengrenii* caterpillars).
- Bought **!garibe sâun** (*Stipagrostis hirtigluma* seeds) for **sâun** beer from Josef |Awob, son of a maternal relative of her aunt, who helps with livestock herding at Hoani-pos, east of Sesfontein.
- Given **xoris** (*Salvadora persica* fruits) by an 'uncle' who lives in the nearby settlement of Warmquelle.
- Bought **≠hûis** (*Berchemia discolor* fruits) from Herero people travelling from Kaokoveld.
- Given **ûias** (corms) by the labourer who herds her livestock at Tsaurob.

Note: Household numbers correspond to those on Table 4.8.

networks, even if only ephemerally, is extremely significant in relation to the exigencies of an uncertain environment. As Fuller (1993: 114, 128) states, 'The intimate connection between kin and the social imperatives of economic survival leads to an imprecision in the definitions of who is and who is not kin because the imperatives of economic survival are themselves constantly changing. ... A wide net of kin increases the area over which one could utilize resources thus counter-balancing the periodic localized droughts that occur.'

Finally, the relationship between consumption of gathered-foods and settlement history was explored by contrasting households located to the north and south of the veterinary cordon fence. These broad areas have experienced very different settlement and land-use histories, primarily related to the continuation of extensive, unfenced rangelands in the north versus delineation of land in the south into private commercial farms settled by European farmers, subsequently redistributed to Damara farmers, usually elsewhere in Namibia. Both areas currently are managed as communal land. Accompanying the widely different tenure histories of these two areas is a general reality of longer-term association by individuals and families with settlements to the north of the 'Red Line' (*cf.* Fuller, 1993), compared with the rather more intense history of displacement affecting people in the former 'Police Zone' of the south.

Current short-term mobility of individuals reflects these differences. For individuals who were part of the household resource-use survey and for whom repeat presence/absence information were available (N=224 over four visits for

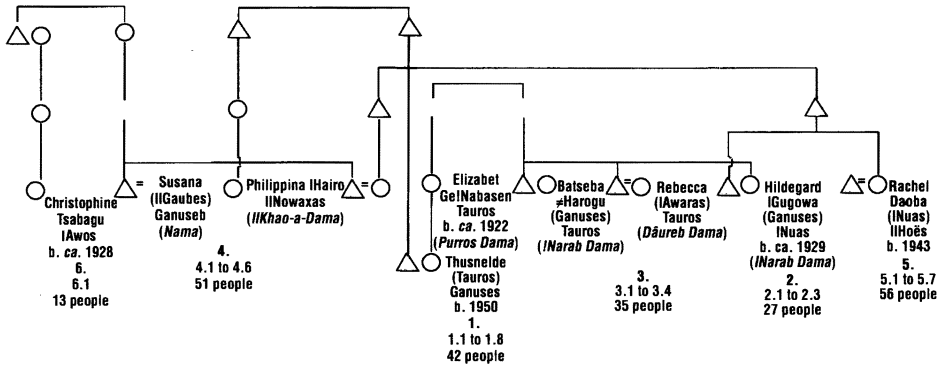


Figure 4.3 Kin relationships between elderly Damara women and their partners in the settlement of Sesfontein

Notes: The figures below the women included in this figure are the codes used in labelling families and households for analytical purposes, i.e. the large bold numbers are family codes and the smaller numbers refer to the households and numbers of individuals identified as part of a family during the course of the study. The names in brackets are a woman's maiden name, and those italicised and in brackets are the 'nation' with which individuals identified themselves.

Sesfontein north of the vet fence, and N = 180 over three visits for farm settlements south of the vet fence), a Cochran's Q test[11] was carried out. This indicated that, although mobility generally is high, it is much higher among individuals located south of the 'Red Line', thus supporting the suggestion of greater displacement south of the Red Line (see Table 4.10). The reasons for such short-term mobility are many, including: movements by normally absentee herders between jobs in an urban, formal economy and farms where they keep their livestock; movements by school-children spending holiday periods with relatives in rural areas; movement due to temporary employment of herd labourers' and a plethora of superficially haphazard movements by individuals between farm settlements and between rural and urban areas. Fluidity of population and land-use over the longer-term also is important, particularly as a means of offsetting herd losses due to spatially variable primary productivity (see migration histories in Sullivan, 1996b; Rohde, 1997).

A Mann-Whitney U test of the relationship between the consumption of gathered-foods and the location of households to the north and south of the 'Red Line' indicated that these areas were indeed significantly different ($Z = -2.13$, $p=0.03$). Households in the north used gathered foods more frequently than those in the south: the sum of records of wild food use or storage calculated as a percentage of diet survey days for each area was 71.67 per cent and 53.7 per cent for households in the north and south respectively. Conversely, however, the difference between the total number of records of household use or storage of gathered medicines by location of household was not significant ($Z = -0.05$, $p=0.964$).[12]

[11] Cochran's Q is a non-parametric test for several related samples with dichotomous nominal data which 'tests the null hypothesis that the proportion of cases in a particular category is the same for several dichotomous variables' (Norusis/SPSS Inc., 1993: 408).

[12] Corrected for the total number of survey days on which this use was monitored for each household because the diet survey was not able to incorporate every household at each survey date (see methods).

Table 4.10 Cochran's Q as a test for mobility by individuals surveyed to the north and south of the veterinary cordon fence respectively

	North of vet fence	South of vet fence
N	224	180
Cochran's Q	30.973	59.213
df	3	2
p	0.0001	0.0001

These somewhat conflicting results suggest complex and overlapping processes of both erosion and resilience of culturally-informed knowledge of local resources. On the one hand, people in both areas consume gathered foods and retain the technical knowledge relevant for this use as part of their subsistence repertoire. The disorienting effects of displacement, and the implementation of radical land policies divorced from local-level experience, however, also is associated with a reduction in the use of these resources by households located south of the 'Red Line'. This is recognised by Damara land-users themselves: For example, in instances where people have recently applied for the right to occupy land at a former commercial farm they might describe, for example, how they hear about ***sâun*** and ***bosu*** but do not know how to collect these resources because they are 'from the towns' (cf. interview with Martha Tsuses, Malansrust Farm).

On the other hand, the fact that food resources are used in the south, and that there is no quantitative difference in the frequency of recorded use of veld medicines between areas of such different settlement histories, also suggest a high degree of resilience of knowledge and practice relating to local resources (cf. Steyn, 1981: 2). An interesting adjunct to this is the observation that in some cases people who were new to farming, and who were otherwise employed in the formal sector, were actively pursuing the desire to learn about 'Damara knowledge' in an attempt to reassert Damara culture and identity. Thus Michael Doeseb, a teacher in Khorixas who recently invested his earnings in livestock and is farming at Rietkuil Farm, at the time of fieldwork was documenting 'traditional' Damara knowledge and, when at the farm, actively engages with his wife Susan in the gathering of 'wild' resources. This enthusiasm among some members of a Namibian middle-class for enacting practices seen as part of a traditional cultural identity, can be viewed as analogous to activities such as blackberry-picking in the UK: They are 'traditional' practices performed not out of economic necessity, but perhaps from a desire to be connected with a real or imagined past cultural experience of the landscape.

Discussion and Conservation Policy

This analysis of patterns and possible influences over of household-level food-gathering by Damara people in north-west Namibia suggests that several aspects do not conform with images conveyed both by wider studies of resource-use among dryland dwellers and in perceptions of the utilitarian and other relationships that contemporary Damara have with the wider landscape. For example, contrary to popular perceptions regarding the loss of culturally-informed natural resource-use

practices by Damara farmers, this study suggests that domestic use of gathered foods occurs at relatively high frequencies and employs a diversity of species. Similarly, the highest records of consumption occur at the times of greatest availability and not as a response to drought-induced shortages of alternative foods as is widely reported for other arid and semi-arid areas. This implies a positive view of these foods, in that they are procured and consumed even as the availability of alternative foods remains relatively stable. Again, wealth, summarised in terms of access to alternative foods, is an apparently weak explanatory factor in indicating why gathered resources are consumed at the household level. Instead, emphasis is placed on the role of kinship and social networks in blurring the boundaries between households and families, and in contributing to the flow of resources between individual members of these dynamic entities. Finally, the relationship between the domestic use of natural resources and land tenure and settlement history is complex and non-deterministic. There is some evidence to suggest that a history of greater displacement exacerbates processes of erosion of natural resource-use practices. Data for both food and medicine use, however, also suggest recursion and resilience in terms of the cultural legitimacy and practical value of resource-use practices, even in the face of the extremely disrupted histories of households currently located south of the 'Red Line'.

As I have suggested elsewhere (Sullivan 1999, 2000), such information is important in relation to a conservation policy context framed in the inclusive language of 'community-based natural resources management', but directed in practice towards a 'macho' and internationally-valued wildlife of large mammals, conventionally the preserve of men as hunters, herders, 'traditional' leaders and conservationists. Perhaps detail and data can be significant in unravelling dogma which seems to support an exclusionary status quo: here, that gathered resources are no longer important, therefore there is no need to engage at the level of detail required to explore their importance, and therefore there is no need to represent, or discuss, the specific concerns and socio-ecological narratives of those to whom such resources might be important. Academic posturing of detail and data, however, will not in itself constitute better representation in policy and planning of excluded individuals, groups and concerns; for this, political engagement is necessary (cf. Peet and Watts, 1996). If we accept a humanistic challenge to channel a critical realist research towards questions with local, national and global policy significance then, and following Bell (1993: 297–8), Lindholm (1997) and Leach and Fairhead (1998), the real question is how to lobby for a discursive policy space where obstructed narratives, affirmed by such researches, can be heard.

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Appendix

Nomenclatural authorities and families for Namibian plant species referred to in this paper (following species list from the National Botanical Research Institute, Windhoek, 1996; see also Kolberg *et al*, 1992). Listed in alphabetical order by family for ease of reference. Asterisked species are introduced.

AIZOACEAE
Trianthema triquetra Rottler ex Willd.

AMARANTHACEAE
Amaranthus spp. L.

ASCLEPIADACEAE
Hoodia spp. Sweet
Hoodia cf. *currori* (Hook.) Decne. currori

ASTERACEAE
Helichrysum sp. Mill.

BORAGINACEAE
Cordia sinensis Lam. (= C. *gharaf sensu*)

BURSERACEAE
Commiphora spp. Jacq.

CAPPARACEAE
Boscia albitrunca (Burch.) Gilg & Benedict
B. foetida Schinz foetida
B. senegalensis Hochst. ex Walp; Pers. Lam. ex Poir.

CYPERACEAE
Cyperus spp. L.

EBENACEAE
Euclea pseudebenus E.Mey. ex A. DC.

FABACEAE
Acacia tortilis (Forssk.) *Hayne heteracantha* (Burch.) Brenan
Colophospermum mopane (Kirk ex Benth.) Kirk ex J.Léonard
Cullen obtusifolia (DC.) C.H.Stirt.
*Prosopis glandulosa** Torr.
Senna obtusifolia (L.) Irwin & Barneby

GERANIACEAE
Monsonia senegalensis Guill. & Perr.
M. umbellata Harv.

MORACEAE
Ficus sycomorus L.

MYROTHAMNACEAE
Myrothamnus flabellifolius Welw.

POACEAE
Cenchrus biflorus Roxb.
Danthoniopsis dinteri (Pilg.) C.E.Hubb.
Eragrostis spp. Wolf
Eragrostis cf. *annulata* Rendle ex Scott-Elliot
E. cf. *cylindriflora* Hochst.
Kaokochloa nigrirostris de Winter
Setaria finita Launert
S. verticillata (L.) Beauv.
Stipagrostis spp. Nees
Stipagrostis hirtigluma (Trin & Rupr.) De Winter
S. cf. *hochstetterana* (L.C.Beck ex Hack.) De Winter
secalina (Henr.) De Winter

RHAMNACEAE
Berchemia discolor (Klotzsch) Hemsl.
Ziziphus mucronata Willd.

RUTACEAE
Thamnosma africana Engl.

SALVADORACEAE
Salvadora persica L.

TILIACEAE
Grewia spp. L.
Grewia bicolor C.Juss.
G. cf. *flava* DC.
G. tenax (Forssk.) Fiori
G. villosa Willd.

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5

The Contingency of Community Conservation

DAN BROCKINGTON

Community-based conservation has been widely viewed in recent years as a desirable strategy to complement and augment the effectiveness of biodiversity conservation in protected areas. Based on a set of incentives to promote mutual interests especially focusing on increased income flows to surrounding populations, community-based conservation has not been without its detractors – both biologists who are concerned with its uncertainty and social scientists who point towards the multiplicity and fallacy of the assumptions inherent in the paradigm. These criticisms are taken up and explored through the case of Mkomazi in north-eastern Tanzania, a reserve which was the subject of forced evictions of pastoralists and take over by a conservation interest group. At the core of reserve policy change was a pre-occupation with perceptions of anthropogenic degradation propagated by a contested understanding of rangeland ecology. One paradigm suggests a delicate balance between soil, vegetation and animals while the other claims such environments to be resilient through their nature of shifting chaotically through multiple alternative states depending on the circumstances. While the conservation group maintained the former as their guide to interpreting rangeland dynamics and the documented subsequent rejuvenation of vegetation, the ongoing processes within the reserve are equally, if not better, explained by the latter wisdom. In parallel, the pastoralists who were censured and evicted from the reserve suffered very substantial documented socio-economic loss which can not be compensated by any community-based conservation programme. Moreover, in the case of Mkomazi, such a programme is likely to be largely irrelevant for the conservation lobby given that they are able to achieve their aims without it and supported by the Tanzanian government which benefits directly from substantial tourism revenues. Thus while the resilience of the rangeland would support multiple use and the inclusion of surrounding populations, an alliance between western conservation and the local state precludes community-based conservation and the flow of real individual benefits to politically weak constituents.

Introduction

Community conservation posits that resources in protected areas should benefit local groups, either through direct use or through the profits from tourism. The hope is that if parks and reserves can make valuable contributions to livelihoods then local people will advocate their protection. Surrounded by supportive neighbours, their future would then be secure. Similarly, outside protected areas, wildlife or landscapes would not necessarily need special protection if their survival was useful to those controlling them (Hulme and Murphree 2001; Kiss 1990; Western and Wright 1994).

There have been two bodies of criticism of community conservation. For biologists and conservationists, community conservation offers too much, ill-affordable, uncertainty for small populations of rare species and threatened concentrations of rare habitat. There is too great a risk that such schemes will fail and that the resources will be lost. For those with stronger ideals, the prospect of financing conservation through hunting or sale of valuable animals is not tolerable. Community conservation may not work because it will fail the needs of conservation. Fortress conservation policies, which keep people out of protected areas, offer more certainty (Kramer *et al.*, 1997; Oates, 1995; Struhsaker, 1998).

For social scientists, community conservation runs into a whole gamut of other problems. First, it deals with problematic notions like 'communities' whose politics and history are often much more complex than ideas of community conservation allow for. Local 'participation' in 'community' schemes is often a fraught political process (Brosius, 1999; IIED, 1994; Korten, 1980; Little, 1994; Noss, 1997; Songorwa, 1999). Second, it assumes that conservation goals can be made important locally. There may be more important local values which will take precedence over conservation, regardless of their financial benefits. Some local groups in Africa and Asia may just not want to conserve the same aspects of land or wildlife that westerners value (Alexander and McGregor, 2000). Third, where conservation goals are palatable, it assumes that there will be enough money to go round from conservation schemes for local needs to be satisfied. This is questionable (Emerton, 2001).

These combined objections do not mean that community conservation cannot work. The difficulties facing it do not mean that it should not be attempted. As Marshall Murphree puts it, community conservation has not been tried and found impossible, it has been tried and found difficult (Murphree, 2000). The dual needs of conservation and of the rural poor in ecologically valuable areas provide good motivation for political will to surmount the particular complex of problems facing each scheme in each situation.

Community conservation may have an unquestionable mandate, yet the problem is that it has to reconcile forces that urge conservation and use respectively. These are not necessarily contradictory, but equally are not always compatible. Conservation may be about making compromises which enable the reconciliation of conflicting goals (Adams, 1996) but, in the conflict situations which surround African protected areas, it will most likely be the weaker and poorer groups which give way. These are usually precisely the rural groups with whom community conservation initiatives seek alliances.

These findings are based on the conservation practices of the Mkomazi Game Reserve in north-east Tanzania (Map 5.1). This Reserve was created in the 1950s but some human and livestock residence within it was allowed to continue. People and herds increased for the next 35 years along with concern over the impacts of their residence on the environment. In the late 1980s all residents were evicted. The narrative hereafter developed is, briefly, as follows: first, conservation has been costly to those who have been moved from the Reserve, and these costs are not, nor could be, compensated by returns from tourists' use of the Reserve; second, eviction was not necessarily essential for the Reserve's survival – the environment displays a resilience to human impact and, indeed, it is because of this resilience that it is able to simultaneously support both occasional use through lax protection and conservationist visions for its recovery. The third point is the most important – it is simply that despite being costly, and possibly unnecessary, the fortress conservation policies pursued at Mkomazi have proved remarkably successful. Both the costs of eviction, and environmental consequences of allowing use, can thus be ignored.

At Mkomazi there is a striking disengagement of conservation practice from local realities, and the environment within which it is working. Conservation has not had to engage deeply with local needs, histories and priorities. Protection policies are more a matter of reclassifying and categorising the environment than understanding and managing environmental processes. This disengagement has its roots in the national and international politics of conservation. If we are to understand conservation policies in Africa we need to look at the behaviour of African states within globalised conservation discourses and with respect to large-scale movements of capital and ideas.

Table 5.1 Cattle numbers in and around Mkomazi

Year	East (Lushoto District)	West (Same District)	Total
1960	21, 984	No data, probably not more than 15, 000	21, 984 + ?
1965	38, 561	19,031	57, 592
1967	45, 245	No data	45, 245 + ?
1978	28, 219	39, 539	67, 758
1984	48, 233	39, 977	88, 210

Source: Brockington 2002

The Setting – the Mkomazi Game Reserve

The Mkomazi Game Reserve was created in 1951 in north-east Tanzania. It is continuous with the Tsavo National Park in Kenya, for which it forms a wet season dispersal area for wildlife (see Map 5.1). It is a dry land, receiving 500–600 mm of rainfall a year, but with precipitation better characterised by its variability than its mean. The main vegetation is an Acacia-Commiphora woodland-grassland mosaic, but there are a number of hills in the western part of the Reserve which support montane vegetation (Coe *et al.*, 1999).

When Mkomazi was first gazetted, limited residence was allowed to some herders (a few hundred at most) and their livestock (estimated to include 5,000 cattle) in the eastern half of the Reserve. Over the years, human and cattle populations increased many times and they took over the western half of the Reserve also. In the mid-1980s, there were nearly 100,000 livestock and between 5–10,000 herders living within the Reserve's borders (Table 5.1). In 1988, the Department of Wildlife completed an operation to clear the Reserve of all human residents and all livestock. Since then it has received considerable support for its rehabilitation from western conservation organisations, principally the George Adamson Wildlife Preservation Trust (UK) and the Tony Fitzjohn/George Adamson African Wildlife Preservation Trust (USA). These organisations have improved the Reserve's infrastructure and successfully introduced black rhinoceros to a compound within the west of the Reserve. A Royal Geographical Society expedition has documented Mkomazi's biodiversity, and the Reserve (now officially named the Mkomazi/Umba Game Reserves but here just Mkomazi) is now managed centrally, with its manager directly responsible to headquarters in Dar es Salaam (Brockington, 2002; Rogers *et al.*, 1999).

What are the pressures on Mkomazi? The Reserve is bordered to the south and west by two mountain walls, the Usambaras and the Pares. The Reserve boundary runs close to the mountains, and there is little space for those living between the mountains and its border. The 1988 census recorded that over 50,000 people live here, all within a day's walk of the Reserve; they can look to it for fuelwood, wild vegetable and hunting needs. Most of all, however, the Reserve affords good pasture. It is renowned for the thriving livestock population it once supported, for having a good mix of sweet and salty grasses and for being relatively free of disease. The eviction of pastoralists in 1988 was hotly contested by the Parakuyo and Maasai herders, who had owned most of the evicted stock. They took their government to court in an unprecedented, but ultimately unsuccessful, court action (Brockington, 2002; Tenga, 1999).

On the other hand, it is also important to note that it is meaningless to speak of communities united in their opposition to conservation at Mkomazi. (Indeed, here as elsewhere, it would be misleading to speak of 'communities' at all in anything but a geographical sense.) The pastoralists who benefited so much from the pastures of the Reserve are a minority (at most 20% of the 1988 census). The rest of the people have either not been affected, because they were not dependent on the Reserve's resources, or they were affected in slighter ways, or indirectly. Some families have lost access to some supplies of fuelwood, others to wild foods and places to hang beehives (Kiwasila and Homewood, 1999). Agro-pastoralists who used to graze herds along the edge of the Reserve and on its margins find it harder to do so. Finally some farmers have complained that the eviction of herds have brought herds and crops too close together, increasing incidences of crop damage. All these disadvantages are considerable, but they have not been as devastating as the losses experienced by more pastoral people who were wholly dependent upon the Reserve. Consequently, opposition from the more agricultural majority, the Pare and Sambaa peoples, is more muted. Only in one particular location, where the boundaries of the Reserve are disputed, have they taken legal action.

Table 5.2 Cattle fertility at Mkomazi and elsewhere

Year	Place	Fertility	n	Place	Fertility	n
1981–3	Kajiado[a]	0.6	120	NCA[c]	0.61	153
1982–3	Baringo pre-drought[b]	0.83	68	–	–	–
1983–4	Baringo drought	0.69	76	–	–	–
1988	Same[d]	0.47	8.5	Lushoto[d]	0.52	34.5
1989	Same	0.7	11.5	Lushoto	0.46	44
1990	Same	0.33	15	Lushoto	0.52	51.5
1991	Same	0.29	25	Lushoto	0.31	61
1992	Same	0.46	35	Lushoto	0.4	80.5
1993	Same	0.59	44	Lushoto	0.47	105
1994	Same	0.67	58	Lushoto	0.51	125
1995	Same	0.7	68	Lushoto	0.57	135
1996	Same	0.71	35	Lushoto	0.37	65.5

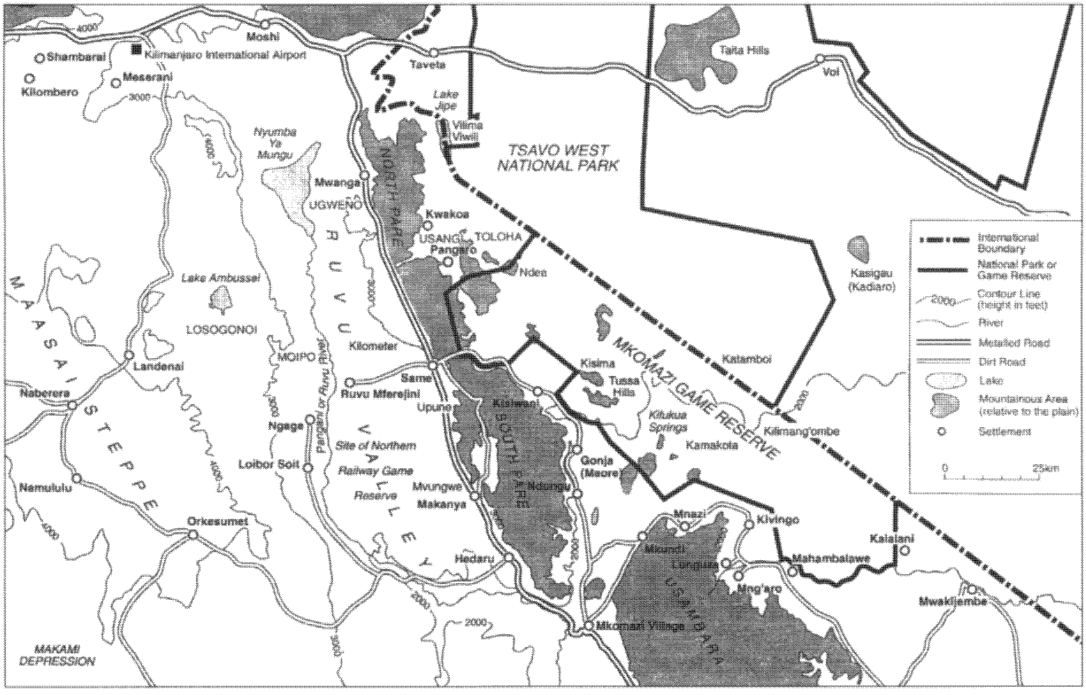
Notes: n = number of cattle monitored for Kajiado, NCA and Baringo; and number of 'cow years at risk of giving birth' for the data of this chapter.
[a] Bekure *et al.*, 1991; Homewood, 1992.; [b] Homewood and Lewis, 1987; [c] Homewood *et al.*, 1987; [d] This survey.
Source: Brockington 2002

Costing Conservation at Mkomazi

What has the impact of displacement been? Here the results of investigations into the livelihoods of some of Mkomazi's excluded neighbours are reported, focusing on the pastoralists as they were the most significant users of the Reserve before the evictions. The impacts of eviction on pastoralists around Mkomazi between 1995 and 1996 are investigated, using a household survey of 56 households whose livelihoods were followed for a year using repeat-round interviews. The households were taken as a sample from two Districts around the Reserve – Same and Lushoto. The village studied in Same District had very little space outside of the Reserve boundaries, while that in Lushoto had more room. I also made use of District-level government records to look at longer term changes to the wider economy. The results have been described elsewhere (Brockington, 2001b, 2002; Brockington and Homewood, 1999). Five points arising out of that research are emphasised here.

First, the pastoralists at Mkomazi were found to be poorer than pastoralists elsewhere, with regard to milk consumption and herd fertility. Using records derived from cattle histories, minimum calf mortality rates and maximum fertility rates were calculated. These are compared to other cattle populations in Table 5.2. Fertility rates at Mkomazi in general do not compare favourably with other populations. Milk is particularly important to pastoral families' diet and average milk yields in Mkomazi are low compared with other locations. Milk availability averages 0.42 and 0.16 kg/reference adult/day in the wet and dry seasons in Lushoto District, and 0.41 and 0.26 kg/reference adult/day in Same. These figures are equivalent to 4.7%–12.4% of recommended intake in Lushoto and 7.7%-12% in Same.[1] Homewood (1992) found dry-season milk-intake averages in Ngorongoro equivalent to 34% and, in Kajiado, annual averages of 48% of the recommended calorie intake.

[1] Recommended calorie intake is 2,530 k/cal/day.



Map 5.1 The setting of Mkomazi Reserve

It is questionable whether conservation must have local support in order to succeed. Community conservation has derived much of its support from the fear that, in the face of local hostility, parks and protected areas would slowly submerge beneath a sea of poaching and incursions. It is possible that this fear has been exaggerated. With some notable exceptions, rangers are often better armed and equipped than the poachers they are dealing with. Where rural groups resist and defy conservation policies, they tend to do so weakly and in ways which can be suppressed with sufficient force. Moreover, community conservation imagines making rural groups the lynchpin of natural resource use and management. However, they are not so easily brought to the centre of African states and their policies. It is argued in this chapter that the character of African states and the power of international conservation means that local needs are too easily marginalised for community conservation to be a serious force. The problem with community conservation is that it is not sufficiently necessary for conservation's purposes for it to succeed.

This argument is ambitious and will need careful demonstration and grounding in real lives and environments. This chapter therefore is an exercise in political ecology. This is a popular new label but one which rarely deserves its noun; ecology is more often absent than present. By combining the techniques of human ecology and environmental history with insights from political science, it is hoped that this study will show how all are necessary to understand conservation realities: the impoverished lives of conservation's losers as well as the visions and triumphs of successful conservation hardliners.

Table 5.3 Household herd sizes in Lushoto District before and after eviction

Year	Sub-Village	Cattle keepers	TLU[a]	TLU per household
1984	–	92	32,761	356
1995–6	Mahambalawe	10	1,341	134
1995–6	Kisima, Mazinde	10	101	10

[a] One Tropical Livestock Unit is equivalent to one bovine or 6 small ruminants
Source: Brockington 2002

Second, it is clear that the herders here used to be much wealthier and had many more cattle before the evictions. Comparisons of livestock census data from 1984 and stock counts made during the research shows that the size of the household herd present has decreased (Table 5.3). The most reliable data are from Lushoto District where household herd sizes have decreased to between 3% and 38% of their former size and average overall herd size is 75 Tropical Livestock Units (TLU) per household. Table 5.3 shows considerable inequality in livestock distribution – over half of

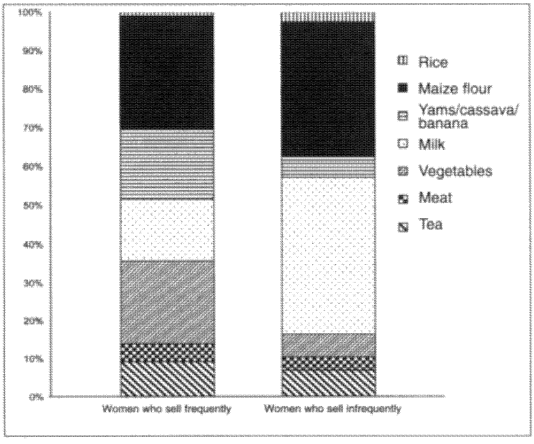
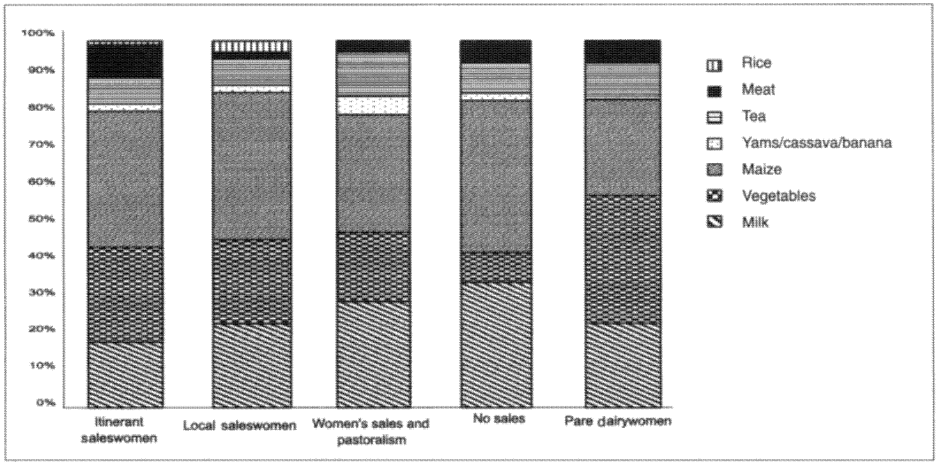


Figure 5.1 Frequency of food use for women in Lushoto District in 239 meal days

Figure 5.2 Frequency of food use for women in Same District from 325 meal days



the households do not have the lowest estimated number of cattle (four per capita) needed for subsistence requirements (*cf.* Fratkin and Roth, 1990; Roth, 1996).

Third, this impoverishment has resulted in a change in livelihoods. With the decline in herds, almost all families cultivate. The wealthier herders practise capital-intensive farming, paying labourers and investing in pumps for irrigation land. Poorer farmers work the land themselves and rarely use paid labour. Livelihoods have undergone a qualitative shift following eviction (*cf.* Dahl, 1979; Dietz, 1987). Fourth, the loss of livestock has affected the internal household dynamics so that women have lost control of earnings they could once set aside for their own needs. It was found at Mkomazi that trading activity varied according to the stock wealth of the families. In general, women from wealthy households sell milk or chickens but only irregularly. Women from poor households sell firewood, cows' and goats' milk and traditional medicine more often. The poorest do so every day in neighbouring villages or go on long journeys selling medicine in distant towns. These different livelihoods are exemplified in differences in diet (Figure 5.1 and Figure 5.2). The families which depend on milk for sale consume less milk themselves and eat produce bought on a daily basis from the proceeds of milk sales (Fratkin and Smith,1995).

A common grievance voiced by the women was that the income they had once used for their own purposes is now expected to support the whole family. Responsibility for household expenditure is a contested issue within the household, as men seen to be in charge of the herds try to defray some household expenses that they might otherwise meet, by selling animals onto women, who have to meet them by selling milk or other goods. However, where there is no herd, or it is greatly reduced, there is less room to manoeuvre. At Mkomazi, more of the responsibility of buying food now falls on the women than formerly (Brockington, 2001b).

Fifth, the effects at the household level are mirrored in changes in the district level livestock economy. Figure 5.3 shows the number of animals sold between 1974 and 1996. Sales are low for the early 1970s, when livestock numbers were low in the western part of the Reserve, and flourish as livestock numbers increase and the market develops later in the 1970s, although after the evictions, cattle sales decline. The mean number of sales before 1986 (261.7), just before moves to evict pastoralists began, is significantly higher than that after 1986 (146, see Table 5.4). These changes are not due to improved terms of trade for pastoralists. The value of cattle in terms of maize does not significantly change after the evictions. Rather, the decrease reflects the collapse of the Kisiwani market, which was closest to the Reserve, and the only one on the east side of the mountains. This has considerably decreased the circulation of cash in the local economy and is a major cause of complaint amongst local herders (Brockington and Homewood, 1999).

Finally the proportion of female animals sold has dramatically increased. Female stock are the productive nucleus of the herds. Their sale is a sign of stress amongst pastoralists. Figure 5.4 shows that the proportion of female cattle sold increased considerably after 1986. Before the evictions, 2.57 males were sold for each female. After the evictions, 1.76 males are sold. This pattern is maintained throughout the eviction period and beyond. The difference in the ratio of male:female animals is statistically significant (Table 5.5).

These costs are considerable. They are not offset by revenue from tourism: there

Table 5.4 Sales of cattle in Same District

Period	Months of data	Mean	std dev
all period	192	194.85	89.22
11/74-10/85	81	261.72	78.94
7/86-7/96	111	146.06	59.95
Periods Compared	**'t' test for separate variance**	**Degrees of freedom**	**Probability 'P'**
11/74-10/85 & 7/86-7/96	11.06	143.07	<0.001

Source: Brockington 2002

Table 5.5 Comparing the male:female ratio of cattle sold before October 1985 and after July 1986

Period Examined	Months of data	Mean ratio	Mean % females	Mean rank	U	P
all data	119	2.23	31%			
11/74–10/85	69	2.57	28%	76.32	599	<0.0001
7/86–7/96	50	1.76	36%	37.48		

Note: A Mann-Whitney U test is used because these data are expressed as a ratio, which is properly analysed with a non-parametric test.
Source: Brockington 2002

are no tourist hotels at Mkomazi. Those envisaged have tens of beds rather than hundreds. Even if there was a mechanism for distributing revenues to local villages, there are too many people involved, and their costs are too great for revenue from tourism ever to compensate for the losses experienced (Brockington, 2002; Homewood *et al.*, 1997).

Human Impacts on Mkomazi's Environment

Mkomazi may have sustained thousands of people's livelihoods and contributed to the broader regional economy, but at what environmental cost? If the impact of human use of the resources caused degradation of the environment, or depreciation of biodiversity, then it may be possible to argue that evictions were a regrettable necessity. Indeed, the history of the Reserve, and of resource-use on the plains before the Reserve was created, is replete with concern about environmental damage caused by herding peoples (Brockington, 2002). On several occasions objections to the Reserve's existence have been raised because of the difficulties caused by the Reserve to local livelihoods. Objections were over-ruled every time because of fears about the impact of people on the environment, thus justifying the evictions of people from the Reserve. It is essential that the arguments are examined fully.

There are two competing theories explaining resource use in these sorts of rangelands. The most powerful view has been that pastoralism causes overgrazing, soil

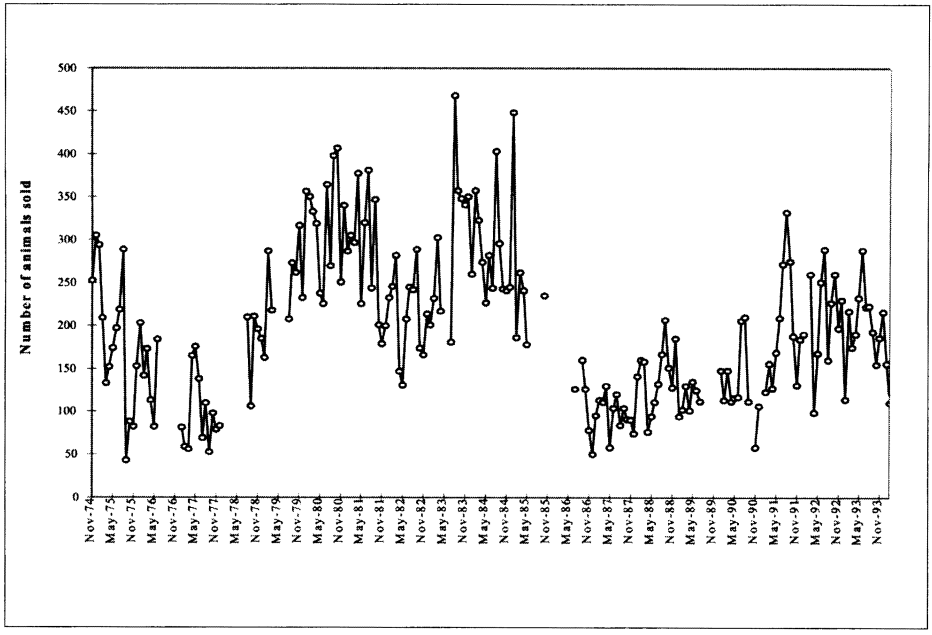


Figure 5.3 Cattle sales in Same District markets, 1974–1996

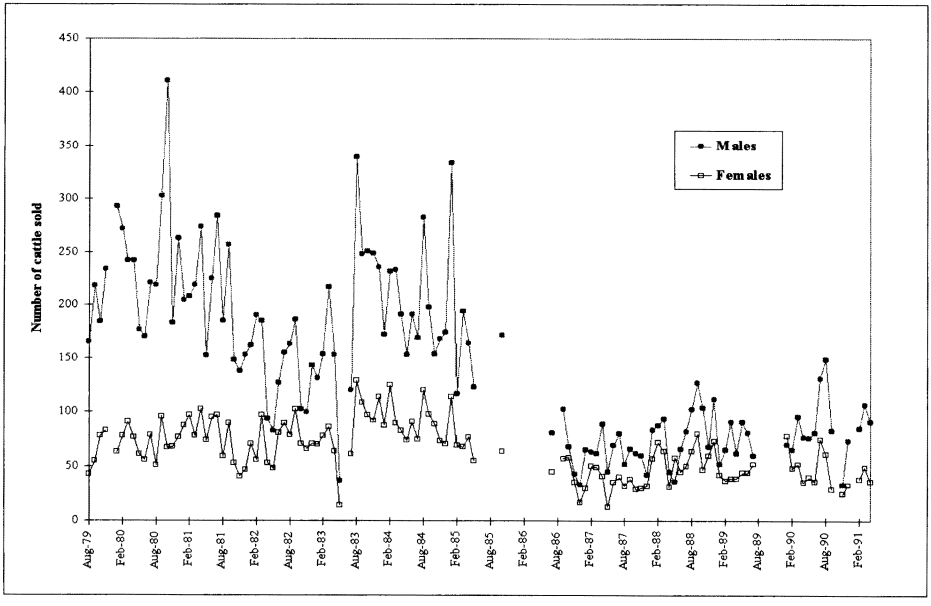


Figure 5.4 Male and female cattle sold at Same District livestock markets, 1979–1991

erosion, deforestation, burning and that it depletes biodiversity. This view follows from the perception that herders do not regulate livestock numbers to meet the feed available. The assumed overstocking is thought to damage the vegetation cover, exposing the soil to erosion as well as depleting biodiversity. The fires that herders set to regenerate the grasses are thought to be harmful.

The ecological principle behind this view is that stocking rates are crucial to plant dynamics. Interaction between grazers and vegetation determines vegetation cover and composition.[2] Wildlife numbers are naturally regulated, but livestock are not; they are protected by people, and may thus exceed the natural limits and induce unnatural change (Coe, 1990; Prins, 1992; Sinclair and Fryxell, 1985). The sociological assumptions are that communally owned pastures will inevitably become degraded and that herders' stocking rates are irrationally high. People's greed and preoccupation with cattle result in too many animals (Hardin, 1968).

The idea that pastoralism is not destructive is less powerful. This view holds that pastoral stocking rates are rational responses to environmental constraints (Dyson-Hudson, 1980; Dyson-Hudson and Dyson-Hudson, 1969). Effects of livestock use are seen as complex but do not correspond to the common concept of environmental degradation and, as such, livestock are rarely thought to cause environmental degradation. In a semi-arid savanna environment the disturbance caused by grazing and burning is believed not necessarily to cause damage, but is more likely to result in a level of disturbance that fosters biodiversity (Homewood and Brockington, 1999). Livestock are seen as not excluding wildlife; rather the greatest concentrations of wildlife in East Africa depend on using grazing together with livestock (Homewood and Rodgers 1991; Western 1982).

The ecological basis for this challenge is the theory that vegetation dynamics in drylands are not driven primarily by grazing pressure. Vegetation change is stochastic, non-linear and primarily dependent upon precipitation and the physical environment, rather than grazing, browsing or trampling. The stress of a prolonged dry season and frequent droughts mean that herd numbers are continually checked; they rarely approach the concentrations necessary for herbivory to affect vegetation (Behnke and Scoones, 1993; Ellis and Swift, 1988; Sullivan, 1996; Westoby *et al.*, 1989). The relative importance of infrequent, weak but nonetheless occasionally density dependent interactions is the focus of ongoing debate (Illius and O'Connor, 1999; Sullivan and Rohde, 2002). But empirical evidence for the relatively minor role of grazing pressure on long-term environmental change in arid and semi-arid areas is mounting (e.g. 30-year analysis of Serengeti-Mara ecosystem: Homewood *et al.*, 2001; Namibia: Sullivan 1998; Sahel: Turner 1998a, 1998b, 1999)

Furthermore, economists' theories of common pool resource management suggest that communal use will not inevitably lead to abuse of the resource (Agrawal, 2001; Berkes, 1989; Bromley and Cernea, 1989; Ostrom *et al.*, 1999;

[2] Variation in livestock numbers on a given range would drive vegetation communities up or down known seres in predictable ways. A sere describes the development of vegetation communities towards a steady state. The ideas come from Clements' succession theory which holds that in a given ecosystem bare ground will be colonised by successive assemblages of plants, each altering the environment in preparation for its successor until the most suitable vegetation for this climate, the climatic climax, is reached (Clements 1916). The principal mechanisms at work are interactions between biotic elements of the ecosystem. See A.Illius and T.O'Connor (1999) for a recent review advocating this.

Ostrom, 1990). Anthropologists and economists have shown that there are good reasons for having large herds; they enhance long term survival of household production systems through drought and optimise long term off-take in variable environments (Mace and Houston, 1989; Sandford, 1983; Western and Finch, 1986).

Two different conceptions of nature are implied by these competing ideas. One suggests a delicate balance between vegetation, soils and animals. Dryland ecosystems are seen as 'fragile', easily destroyed and threatened by clumsy, careless and short-sighted human action upsetting the equilibrium between the number of stock and the ecosystem's long-term ability to sustain them. The second conceives of dryland ecosystems not as fragile but resilient, shifting between multiple alternative states depending on circumstances and thus able to recover from disturbance and stress. Equilibrium is neither a goal nor an indication of ecosystem health. Change is stochastic, uncontrollable. Nature is independent of people, ungoverned by their actions.

At Mkomazi it is not easy to tell which set of ideas might best explain changes in the environment (Brockington, 2002; Brockington and Homewood, 2001). The continual increases in cattle population which dominate the history of the Reserve up to the evictions of the 1980s suggest that the environment was in a good condition. If the environment was being degraded by cattle then one would expect vegetation productivity to decline and cattle numbers to fall. Degraded land cannot support ever increasing numbers of cattle. In fact, over the Reserve as a whole, cattle numbers increase markedly and in the east of the Reserve, where records are longest, numbers fluctuate with no declining trend (Table 5.1).

People's observations of the Reserve do not help clarify matters. The remarks of local resource users about the changes which accompany the increase in livestock are equivocal. Letters exist complaining of the presence of large numbers of immigrant livestock in the Reserve and its environs which finish off local grazing. However, the letters could refer to the consumption of one year's biomass, not a steady downward trend in grazing quality which is what degradation describes (Box 5.1). Other letters refer to attempts to set up rules for the regulation of common pastures. However they are not detailed and could support both the idea that communal resources can be managed well or that they will be inherently weak. It is impossible to suggest which theory of common pool resource management best fits these data.

Box 5.1 Complaints of incursion onto pastures

'Our problem is our places for herds ... we ask we be given help, for our herds do not have grazing because thousands of other animals are brought by other herders from outside this village. And if they finish the grazing they leave and go back to their place; they await the monsoon and other rains that bring grass, they return and thus they have their benefits and our herds are very sick ...'
The people of Igoma sub-village to the Ward Secretary of Gonja Ward.
8/6/1977, Kisiwani Livestock File.

There are repeated observations from government officers of degradation and soil erosion in various parts of these rangelands which were attributed to livestock. However, it is difficult to explain how these descriptions could co-exist with

increasing cattle numbers. Indeed, they have been repeated for such a long time (65 years) that it is likely that they may be more indicative of an institutional mindset than of ecological processes (Brockington and Homewood, 2001; Homewood, 1994; Leach and Mearns, 1996).

Claims by conservationists are a little more helpful. If the Reserve was so degraded that immediate eviction of all residents was needed then it is reasonable to expect that it would take a long time to recover. But according to numerous visitors who monitored the progress of the Reserve's rehabilitation, Mkomazi's environment displayed remarkable resilience. Rupert Watson, a zoologist who had counted elephants in the Reserve in the 1960s visited it three years after the evictions and declared that Mkomazi had been, 'brought from the brink of collapse and restored to its former glory' (Watson, 1991:14).

Bob Marshall-Andrews, a trustee of one of the organisations supporting the Reserve visited it at about the same time and concurred:

> I first visited Mkomazi in 1989. The only resources in plentiful supply were hope and expectation. Years of uncontrolled poaching, burning and illegal overgrazing had left most species of game scattered and scarce... The progress that has been made in three years is, literally, spectacular. As we visited in the dry season game was not abundant but it was all there. Robert Marshall-Andrews, QC, MP. Report on the first Friends' visit to Mkomazi, August 1992.

The extravagant euphoria which has greeted the recovery does beg the question: how was such a dramatic turn around possible? Either the degradation was not as bad as feared, or the environment is better characterised by resilience than fragility.

Finally, an excellent study based on satellite data has recently been completed, shedding some light on vegetation change that occurred while Mkomazi was occupied by cattle (Canney, 2001). It shows that parts of the Reserve which were used by cattle did manifest some bare ground which developed in conjunction with increasing usage. At the same time, after the evictions large proportions of these areas of bare ground have recovered vegetation. These data are summarised in Table 5.6. This analysis refutes the hypotheses suggested by earlier analyses (Brockington 2002; Brockington and Homewood 2001; Brockington and Homewood 1999). It also shows that cattle grazing did have some effect on the environment, but this does not mean that eviction was necessary to protect it. The extent of vegetation change associated with cattle (16–34%) is not great. The ecosystem, despite decades of use, was still able to regenerate vegetation after the evictions. Eviction and continued exclusion may have been an unnecessarily draconian measure.

Table 5.6 Analysis of satellite data

Area	Percentage of land becoming bare ground, 1973–1987	Percentage of bare ground becoming bushy, 1987–1995	Percentage of bare ground becoming grassy, 1987–1995
Central (Kisima-Kavateta)	16	50	38
East-central (Kamakota)	17	12	44
East (Umba)	34	44	24

Source: (Canney, 2001) figures 6.14 and 6.9.

However, if the ecosystem retained its ability to sustain large herds of cattle, what of the impact of livestock on biodiversity? Mkomazi is highly diverse with respect to its vegetation, bird species and insect populations. Homewood and this author have previously argued that although the Reserve is exciting in its biodiversity, it is not exceptionally so; there is a low degree of endemism (Homewood and Brockington, 1999). Much of the excitement is concentrated in the west of the Reserve, where the topography is more diverse. We noted that the high levels of biodiversity were recorded only a few years after the livestock were evicted and it is impossible to tell whether biodiversity had been lower during the years of human occupation and then recovered, or whether it remained unchanged, or, even, had declined since the evictions.

However, herding may have had some effect on mammalian populations. It is possible that livestock may have out-competed herbivores and that residents hunted lions and other predators. Elsewhere in east Africa, compatibility between wildlife and cattle is enhanced because the cattle are excluded from rangelands by wildebeest whose calves carry malignant catarrhal fever which is fatal to livestock (Homewood and Rodgers, 1991). The wildlife thrive by enforcing the cattle's absence. At Mkomazi there are no wildebeest and the competitive advantage of the wildlife over the livestock is lost. Also pastoralists are hostile to predators and will poison them if needed or if the opportunity presents itself. At the same time Mkomazi is a wet season dispersal area for the Tsavo National Park in Kenya. Wildlife populations are never abundant there; the ecology of migration does not allow large populations to congregate (Inamdar, 1996).

Sustaining Fortress Conservation Policies

I have argued that the conservation policies pursued at Mkomazi have resulted in local hardship and impoverishment but have no clear environmental justification. I have not yet shown how successful these policies have been. Mkomazi has recently achieved some notoriety because of the battles which have been fought over it but, throughout, the cause of conservation has triumphed. In the first instance, the court case brought by evicted herders was unsuccessful. The initial hearing recognised the customary rights of some herders to live in the eastern half of the Reserve but denied that it was now possible for them to exercise those rights. On appeal the herders lost that right, with the judges using inaccurate and incomplete information to conclude that none had been there before 1940 (Brockington, 2002). In fact, herders had been present since at least the early years of the nineteenth century (Brockington, 2000). Indeed, in the 1950s authorities were lobbying for the right of herders in the east of the Reserve to use waterholes in Kenya on the basis of their having lived there for generations. Second, there was a furore over the plans to use the Reserve for tourist hunting. Many conservationists felt that the wildlife populations were not healthy enough to merit hunting. However, rights were given to firms with links to the then Minister of Wildlife and Natural Resources. After much lobbying, parliament decided to ban hunting in Mkomazi.

Finally, and most importantly, Mkomazi is now the focus of a high-profile attempt to reintroduce black rhino. A sanctuary has been built and stocked with four

rhino from South Africa. The sanctuary itself is not remarkable. Mkomazi has good rhino habitat and once had healthy rhino populations. A network of sanctuaries would be an excellent way of restoring the species, although what is surprising is the information that was used to promote the idea. When South African specialists visited the Reserve in 1994 they wrote of relations with local groups that:

> There appears to be limited resentment towards the Mkomazi Game Reserve by the Msaai [sic], as they were well aware that their permission to graze within the reserve was only a temporary one ... The more numerous Wapare and Wasambar [sic] tribe members within the Kisiwane [sic] and Uzambaras [sic] areas were never historically associated with the reserve and thus have no negative feelings towards it ... it would appear that the introduction of black rhino into the MGR would be ... little affected by the limited to dwindling negative feelings towards the surrounding communities. (Knight and Morkel, 1994: 6–7)

This assessment ignored the problems which the Reserve's evictions had created, the court cases which were brought that year and decades of conflict and tensions with local groups.

Similar problems are apparent in other publicity promoting the Reserve to western audiences and donors. The histories of contest over the Reserve are not mentioned. Some literature has stated that evicted residents were 'not indigenous' to the area, which is a misleading interpretation of the history of these plains (Brockington, 2000, 2002). Current problems of deprivation caused by the evictions are ignored or downplayed. The chairman of the George Adamson Wildlife Preservation Trust (UK), which has been funding the rehabilitation of Mkomazi has stated that 'The lot of the local villagers is no better and no worse than that of most of the rural population in Tanzania' (Eltringham 1997: 30).[3] The schools and outreach work which are supported (and which are important) are highlighted in fund-raising literature, but there is no attempt to match the benefits offered by these schemes with the losses that have incurred as a result of the evictions. Similarly, the ambiguities and complexity of interpreting environmental change here are also absent this literature. Instead, as has already been seen, the Reserve is celebrated as a wilderness saved, a fragile landscape restored. This extract from another fund-raising document emphasises the point:

> Mkomazi is potentially one of the most beautiful and important game reserves on the continent ... Until 1988, it represented a classic example of ecological decline and degradation, over grazed, persistently eroded and the subject of indiscriminate and widespread poaching... Since 1988 the entire resources of the Trust have been devoted to the project... One of the most fragile, threatened and beautiful parts of Africa has been reborn ... The Mkomazi Project has a unique aspect. The rebuilding of Mkomazi Game Reserve, the rehabilitation of its wildlife, the endangered species programmes and the outreach programmes do not simply attempt to 'hold the line' on conservation. They are an endeavour to re-establish a complete ecosystem and thus positively reverse the damage that has been done.
>
> (GAWPT (UK) fundraising document circa 1994)

[3] Letter to the editor, Tanzanian affairs; Journal of the Britain-Tanzania Society no 58. Sept-December. The problem with this claim is that it was based on regional health statistics dated from 1982 and 1972 (Eltringham to Lane 4/11/97). These are not good data to use. The impact of eviction cannot be assessed from data gathered prior to its occurrence, and regional statistics are not appropriate to monitor effects at the local level. The remark is also discordant with other ideas that the Chairman has published which stress the importance of wildlife paying for itself, and the unreasonableness of expecting people near Protected Areas to pay the expenses wildlife can bring (Eltringham 1994).

The emphasis of this literature on the beauty of its wilderness, the rigour of species protection and the hope of new schools and community projects thus misses out the problems of impoverishment, and the resilience of the environment. A particular interpretation of Mkomazi's history, and an agenda for its future is presented in a way designed to assist fund-raising. And it is accomplished. The images are evocative and powerful to western eyes. They insist on taking a strong line against the overwhelming of the world by people, drawing upon ideas of deep ecology which emphasise the rights of non-human species.[4] They enable the charities involved to raise hundreds of thousands of dollars to support the conservation work.

The power of African conservation then is in the dreams and visions of western sponsors who are prepared to spend a great deal of money to ensure the continued survival of their ideal landscapes. African landscapes and wildlife have a mythical status in western consciousness (Anderson and Grove, 1987). Myths are powerful ideas which motivate us and guide our thinking. Myths are not necessarily false. Some have little foundation, but that is not really the point. Regardless of realities on the ground, myths provide meaning to our worlds, they organise and shape our interpretation of the world, they provide structure, meaning and direction. At Mkomazi, idealistic and emotive appeals to save beautiful lands have been combined with scientific rhetoric about environmental degradation to depoliticise debates about the Reserve's management. These debates sidestep, 'the complex ethical and political considerations that lie at the heart of policies that ultimately result in land and other resources being targeted for wildlife conservation' (Duffy 2000: 2). Depoliticised debates avoid questions of the distribution of costs and benefits of particular policies; they make it difficult to discern who it is who benefits and who suffers because of them.

The power of myth in African conservation, and the strength of the alliance with African states makes it difficult to concur with Adams and McShane's argument that 'conservation based on myth is bound to fail' (1992: 245). Adams and McShane argued that conservation policies, particularly fortress conservation, was founded on false notions of wilderness and history which did not fit well with African realities. They were right to point out that there is a poor fit, but it does not necessarily follow that therefore conservation policies will fail. On the contrary, the myths are their strong point; because of them such policies have succeeded, and will continue to do so.

The evocative myths of Africa then finance conservation on the continent, but

[4] For example: 'the Mkomazi Project has a unique aspect ... (it does) not simply attempt to hold the line on conservation. (It) endeavour(s) to re-establish a complete ecosystem, positively reversing the damage which has been done' (fund-raising literature circa 1994). Deep ecological ideas are promoted on one of the charities' web site (www.mkomazi.com):

> We need another and a wiser and perhaps a more mystical concept of animals. Remote from universal nature and living by complicated artifice, man in civilization surveys the creature through the glass of his knowledge and sees thereby a feather magnified and the whole image in distortion. We patronize them for their incompleteness, for their tragic fate of having taken form so far below ourselves. And therein we err, and greatly err. For the animal shall not be measured by man. In a world older and more complete than ours they move finished and complete, gifted with extensions of the senses we have lost or never attained, living by voices we shall never hear. They are not brethren, they are not underlings; they are other nations, caught with ourselves in the net of life and time, fellow prisoners of the splendor and travail of the earth.' (Henry Beston).

For a critique of applications of deep ecology to the Third World see Guha (1997).

the disengaged images on which they depend are not sufficient to explain the equally disengaged policies apparent at Mkomazi. Foreign influence alone does not explain the presence of strong conservation policies in Tanzania. The power of fortress conservation, the detail of the policies pursued on the ground, reflect the thinking of African states. We have to explain also why the Tanzanian government is so ready to respond to the influence of international conservation.

Bayart's famous dissertation on African states is that they are characterised by the strategies of extraversion which their rulers pursue (Bayart, 1993). Their rulers use the external contacts of trade or military relations to extract the profit. With Ellis and Hibou, Bayart has recently extended that idea to suggest that the combination of strategies of extraversion with increasingly globalised criminal networks will result in the criminalisation of the African state, that is, government officers using their power and influence in drug, arms or slave traffic for personal profit (Bayart *et al.*, 1999).

Conservation benefits from the same processes. African governments are well positioned to benefit from the funds available for conservation projects. They can benefit too by being receptive to ideas about conservation policies. Conservation brings in a great deal of money, either from tourists, or to support protected areas and it is profitable for governments to be receptive to conservationist ideas.

In Tanzania, environmental projects supported by donors were worth over $400 million in 1999, equivalent to more than 4.5% of Tanzania's GDP for that year. Tourism brought in over 30% of foreign revenue in 1996 (Brockington, 2001a). These revenues were very probably less valuable than the returns to local people would have been, had they been allowed to use the resources directly. The point is that this is money which the central government directly controls, whereas it would see very little return from local resource use by farmers and peasants (*cf.* Hart, 1982). The value of environmentalism to the state helps to explain why Tanzania has such a large protected area – 31% of the country's land mass is set aside in national parks, forest reserves and game reserves where human resource use and habitation are forbidden. Significant elements of this have been set up in the last decade and more expansion is planned.

Mkomazi then, was cleared by a Tanzanian government determined to maintain and extend its conservation estate. Its aims have been supported by conservation organisations who use images of Africa with great emotive appeal, but which do not necessarily engage with local political, social and environmental realities on the ground. This all happens without too many problems for the conservationist cause, which can be successful in its own terms because of the alliance of western money and state support.

Conclusion

The drive for community conservation could fail because local opposition to protection policies is not united, nor vigorous enough, to necessitate listening to protected area's neighbours. It remains optional, and yet does not offer the security necessary to make it an attractive option. Yet, ironically, the resilience of the environments which ought to make some use theoretically possible, could make this situation more sustainable. This is because weak local opposition is expressed in

continued illegal use of protected resources. If the environments were fragile and threatened by this use then there would be more pressure to seek an alliance with local groups to protect the resources. It is the very resilience of the ecosystems that ensures that illegal use can be tolerated. It is neither ecologically or politically necessary to bring in local communities.

None of these arguments denies, the moral imperative behind community conservation. Locking resources away for the exclusive use of wealthy westerners and denying impoverished locals the right to use them is unpalatable, to say the least. But before we can prescribe how things ought to be, we need to analyse how they lie at the moment. If community conservation is to thrive, if power over resources is to be devolved to rural groups, then we must recognise that these are unlikely and unusual scenarios. It is because community conservation is so contingent and marginal to African conservation, despite the urgent need for it, that it deserves much more support and attention.

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PART THREE

Livelihood Strategies

Demographic & Economic Ways of Dealing with Unpredictable Change

As is the case in Namibian rangelands, people in the Sahel move around a great deal. In Burkina Faso, one person in five is on the move at any one time. Governments worry about the levels of migration and its consequences. In the Sahel, deteriorating environment and general impoverishment are seen as driving high levels of migration and as forcing major shifts from herding to farming. Those are, in turn, seen as driving further environmental deterioration and worse economic hardship. Development interventions are generally seen as having failed, and as having made marginal groups, particularly women, even more vulnerable. High fertility is seen both as a problem, in that population growth is assumed to exacerbate pressure on resources and people's vulnerability, and also as an indicator of a backward state of development. Caldwell's theory of intergenerational wealth-flows suggests the high risk of childhood mortality, and the need for one's children's support in one's old age, make for high fertility. With improvements in health and in education, fertility has declined in many other populations elsewhere. High fertility in African arid- and semi-arid rangeland populations is taken as associated with absence of those benefits. In these areas wild resource use, among other strategies, is seen as evidence of serious need exacerbated by an imbalance between growing population and dwindling natural resources.

Kate Hampshire and Sara Randall have looked at the interplay of environmental, economic and cultural factors influencing demographic decisions by FulBe agropastoralists, as well as decisions to herd or farm, to settle or move, and to sell or to store. Working from their demographic survey data on more than 8000 individuals, they used quantitative and statistical techniques to pick out the main determinants and analyse their relative importance in people's decisions. Long-term, in-depth, multi-round data made it possible to establish a detailed qualitative understanding of the processes and context within which decisions are made.

The Fulani in this study have very high fertility. This is not the result of some sort of cultural stagnation through isolation from outside influences, nor of Caldwell-style intergenerational wealth-flows. This study shows that since the droughts and associated impoverishment of the 1970s and 1980s, there has been a shift from specialisation of particular households in particular occupations (characteristic of the

strongly stratified pre-drought Fulani society), to economic diversification at the household level. People deal with the unpredictability of the environment by developing different alternative sources of income for different household members and different seasons. The data show that larger households with several adult men are able to optimise such diversification more successfully. High fertility is neither a hang-over from a bygone age nor simply a crude system of insurance. It is a positive strategy for seizing and making the most of opportunity in a seriously unpredictable environment.

Development interventions often emphasise autonomy and economic opportunities for women. This may not be perceived by those women as being in their best interests in the long term. Dan Brockington's study earlier in this book, and Solveig Buhl's in the present section, both show women from more secure households as more distanced from involvement in marketing. Poorer agro-pastoralist women among the Fulani of Burkina Faso, as for the Parakuyo of Tanzania, are more likely to trade, and use their earnings for household as well as personal needs. The poorer Parakuyo women around Mkomazi were driven by extreme need. In the present section, Fulani women pursue livelihood strategies shaped as much by social as by economic risk and constraint. Solveig Buhl's in-depth gendered study of production among three sub-ethnic groups of Fulani people in the Sahel of Burkina Faso suggests that for these agro-pastoralists, not only the biophysical environment but also socio-economic and marital circumstances are highly unpredictable. In these circumstances, Fulani women's guarantees of long-term security come more from their standing within established social networks, particularly the respect they command on the basis of their reputation and their long term relations with their natal kin, rather than their exact economic assets. As has been shown in very different societies (e.g. Agarwal 1989), reputation and reciprocal relations important in risk-spreading may be jeopardised rather than enhanced by a woman asserting property rights, expressing opinions in public and seeking economic independence.

Generally speaking, in African drylands (whether the Sahel, Namibia or East African savannas), access to and management of natural resources is increasingly placed in the hands of settled administrations operating on rigid boundaries (Bonte and Galaty, 1992; Toulmin and Quan, 2000). Those administrations encourage specific economic activities as the preferred pathway of economic development. Policymakers need to understand and acknowledge the benefits of people's established strategies, whether physical mobility; flexibility of spatial boundaries and of household composition; prevailing attitudes to fertility and to women's economic autonomy; or, access to wild resources and the central importance of social networks of support in decisions over activities.

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6

People are a Resource Demography & Livelihoods in Sahelian FulBe of Burkina Faso

KATE HAMPSHIRE & SARA RANDALL

Fertility decline is almost invariably seen as part of, or a consequence of, socio-economic development; conversely high population levels are portrayed as an indicator of underdevelopment. This rationale is challenged here using the example of a high fertility rural population of FulBe and RiimaiBe in northern Burkina Faso, where increasing resource competition might have been expected to have induced some level of voluntary fertility control. A demographic survey complemented by multi-round study suggests different interpretations of persistent high fertility. Until recently, individual household production strategies were highly specialised within a stratified society. Particular groups fulfilled their own production roles but social, political and ecological circumstances have resulted in the breakdown of this stratified production system and a transformation of household livelihood strategies. Nowadays most households have to adopt diversified economic strategies encompassing the roles previously fulfilled by the specialised categories and, in many cases, adopting seasonal labour migration which has lead to new demands on household labour. A natural response to such labour demands has been the maintenance of a high fertility rationale where larger families and kinship groups can diversify more successfully. Thus, contrary to held wisdom, the maintenance of high fertility is an adaptive response to modernisation and economic development.

Introduction: Themes in the Literature

Literature on future prospects for Sahelian countries, in terms of their development, economic security or just general welfare, invariably includes a section which refers to the rapid population growth in that region and the problems that this causes (e.g. Snrech, 1995; IIED, 1999). Although population growth is sometimes portrayed as a neutral but major driver of change, more often it is perceived to be a serious and

generalised problem for two reasons: firstly, because of the scale of the growth with little indication of a decline save in limited urban communities; and secondly, because this rapid growth occurs in an environment which is seen as having poor natural resources in relation to primary production – in particular, poor soils and inadequate, erratic rainfall.

In the development literature, indications of uptake of contraception or fertility decline are almost invariably expressed in terms of 'progress', 'hope', 'advance' etc. The demographic literature, both academic, but particularly the literature aimed partly at policy makers also tends to represent fertility decline as an inexorable sign of 'progress' (e.g. *Studies in Family Planning, Population & Development Review, International Perspectives on Population*). There is a constant theme that 'replacement fertility is the goal' (Freedman and Blanc, 1992).

Partly as a consequence of their close association with policy, the demographic community has struggled for decades to understand the determinants of fertility decline and the reasoning as well as motivations of those populations which are laggards with respect to fertility control and decline. Despite a huge literature on the demographic transition as it has gradually unfolded in many parts of the developing world over the last thirty years, the logic behind sustained high fertility remains somewhat elusive. Caldwell's intergenerational wealth-flows are perhaps the most attractive theory (Caldwell, 1976), but one that has yet to be empirically demonstrated despite attempts (e.g. Dow *et al.*, 1994 in Kenya). Our understanding of why people continue to have many children even when, theoretically at least, they are aware of the 'availability and benefits' of contraception, is still couched in terms of perceptions of risk of child mortality (Cohen and Montgomery, 1998), old age security, the need for labour on family farms under conditions of subsistence agriculture and other economically rational behaviours. However, the basic consensus is that such economic rationales for high fertility are rapidly disappearing with the advent of increased schooling for children, increased costs of children, greater integration into the capitalist work force, and the breakdown of the traditional extended family.

In this chapter, the idea that high fertility is necessarily associated with lack of progress, underdevelopment and 'traditional', static societies is challenged. While it is certainly true in much of rural Africa that the so-called traditional rationale for high fertility still persists (to do with the economic benefits of children and intergenerational wealth flows towards parents from children), this chapter argues that a more modern view of fertility dynamics should be taken. Changes in societies can provide new rationales for maintaining high population growth rates, and this should not necessarily be taken as a negative indication of lack of progress and economic development.

Methodological Issues

Issues concerning fertility decisions and outcomes cannot be addressed purely at the theoretical or macro level since is it essential to understand motivations for having children and the costs and benefits which accrue to individuals and households at a micro level. This study, therefore, focuses in detail on one small area of the West

African Sahel, Northern Burkina Faso, and on one broad ethnic category, the Fulani. A single round demographic survey obtained baseline data on fertility, mortality and migration. This was followed by an in-depth multi-round study, in which more qualitative understanding of observed patterns was gained. The following paragraphs give more detail about the study area and people and discuss the key methodological issues arising.

Sahelian Burkina Faso: Area and People

The study area covers a corridor some 150 km long and 70 km wide in Oudalan and Séno, two of the three provinces in the Sahel Region of Burkina Faso. It is a semi-arid area, between the 300mm and 500mm isohyets, with rainfall decreasing towards the North. Rainfall in the area is highly seasonal, almost all falling in the short rainy season from June to September (Barral, 1977; Claude *et al.*, 1991). The main economic activities in Sahel Region are extensive pastoralism and rain-fed agriculture. The major crops grown are pearl millet and sorghum, which are able to reach maturity within a short rainy season. There is no crop irrigation and cultivation outside of the rainy season is impossible. The major livestock types owned by Fulani are cattle, sheep and goats. Cattle are the most highly prized, but sheep and goats are useful for rapid herd growth. Donkeys and camels are also kept, but are more associated with Kel Tamasheq groups.

The Fulani constitute about a quarter of the population of the study area (INSD 1994). There are two main classes of Fulani: The high status group – the FulBe – and their erstwhile slaves – the RimaiBe. Traditionally, the FulBe were considered to be pastoralists and the RimaiBe, cultivators. But since the abolition of slavery under French colonial rule, and particularly since the social upheavals caused by two major droughts in 1973 and 1984, the economic distinctions between the two groups have become blurred, and almost everyone in the Sahel Region practises a mixture of pastoralism and cultivation, often alongside other supplementary activities. Besides the FulBe and RimaiBe, there are other, smaller, classes such as the JawamBe, known for their trading activities, and classes are further subdivided into ethnic subgroups.

Survey Methods

To test hypotheses about patterns of fertility and household size it was necessary to have good baseline demographic data on the Fulani. Unfortunately, existing census and survey data were inadequate for a number of reasons. Firstly, it is difficult to distinguish between ethnic groups, other than on a very broad basis. All groups speaking Fulfulde are classified together, thus making it impossible to distinguish between FulBe, RimaiBe and other Fulfulde-speaking groups, let alone take account of finer ethnic divisions. Secondly, the standardisation and definitions, necessary in a census which must be relevant to a great variety of cultural circumstances, are not necessarily the most appropriate for a study of the Fulani. In particular, the standard unit of enumeration, 'the household' is usually defined on the basis of people

'cooking and eating together'. While local definitions of households are not without ambiguity, they at least capture more of the complex patterns of cooperation and economic dependence which fall outside standard cooking units (Hampshire 1998). Incorporating some of this complexity and local understanding is crucial if we are to test hypotheses relating fertility to optimising household production strategies. Thirdly, the Burkinabe Fulani are known to be a highly mobile population. In particular, large numbers of the population are involved in short-term, seasonal movements, migrating with animals to fields as well as practising circular labour migration – all of which censuses are notoriously bad at picking up. Longer term migrants are likely to be missed out altogether, because censuses usually have an exclusion cut-off point of six months' absence, even though locally an absentee is often perceived as being an important member of the household and other social groups. Indeed, it is likely that the mobile Fulani might be seriously under-represented in a standard census, designed to cope with sedentary populations.

Thus a purpose-designed demographic survey is an essential tool for this research, in order to control for the peculiarities and complexities outlined above. In April to June 1995, a single round demographic survey (SRDS) was carried out in 39 villages[1] on a sample of 8834 Fulani (834 households[2]). Data were collected which allow indirect estimation of the main demographic parameters of fertility and mortality (UN 1983) for the population as a whole and by subgroup along with quantitative data on various kinds of spatial movements.

However, even the most carefully designed rapid large-scale survey is incapable of capturing the finer nuances of demographically related behaviour. In order to understand the broad demographic patterns observed, it is necessary to have a much more detailed, qualitative study over a longer time period, which is also able to examine some of the dynamics of household formation and dissolution, changing economic activities and livelihood security. This is especially important in the highly seasonal environment of the Sahel, where a single snapshot at one time of year might be highly misleading.

The SRDS was therefore followed by a multiple round study (MRS), which focused on a sub-sample of six of the original 39 villages. Each village was visited bimonthly over the course of a year (December 1995 – December 1996). The purpose of these visits was manifold. First, it allowed more detailed retrospective demographic data to be collected using birth histories, marriage histories and migration histories. It was also possible to collect longer-term oral histories pertaining to issues of social and economic change. Second, collecting these more detailed data for a sub-sample acted as a check on the SRDS data quality – an important issue in any rapid quantitative survey on a illiterate and marginalised population. Third, it allowed more qualitative understanding of the motives and outcomes behind the events documented by the SRDS. Fourthly, it created a more dynamic perspective as births, deaths and population movements could be observed directly as they

[1] Villages ranged from temporary nomadic camps of one or two households to large permanent villages of fifty or more compounds.

[2] Local definitions of households, *baade* or *wuro*, were used, depending on the ethnic subgroup, equivalent to the largest unit at which regular economic cooperation (herding, cultivating, cooking *etc.*) takes place. Temporary migrants are still perceived to be members of these units, even if they have been absent for a year or more.

occurred over the course of a year. Finally, there are certain kinds of complex or sensitive data, relating for example, to assets and wealth, or household formation, which cannot be obtained by direct survey questioning. Through careful participant observation over the year and the use of key informants, it was possible to gain some understanding of these important issues.

Demographic Dynamics

Analysis of the demographic data shows very clearly that the Burkinabe Fulani are a high growth, natural fertility population. Completed parity[3] for women was in the order of six to seven births (Figure 6.1), and indirect estimates of total fertility are around 6.5 to 6.6.[4] There was some variation between ethnic subgroups, the highest fertility being experienced by the highly mobile pastoralist FulBe DjelgoBe (total fertility of around 8 to 9), but all groups experienced a total fertility of over six, and there was no evidence among any group of any attempt to limit fertility. Mortality rates are high among all sectors of the population (Table 6.1) with some inter-group variation, although lowest mortality is experienced by the FulBe DjelgoBe.

The Fulani live in an area very likely to be identified by development literature as an area where high population growth is a serious problem. Soils are poor (Barral, 1977; Milleville, 1991) and rainfall is low and very erratic (Claude and Chevallier, 1991). Neighbouring populations are also growing rapidly (INSD, 1991; Langlois, 1991), which has led to an expansion of agriculture in the area and increased conflict between pastoralism and agriculture as the latter encroaches further on dry season

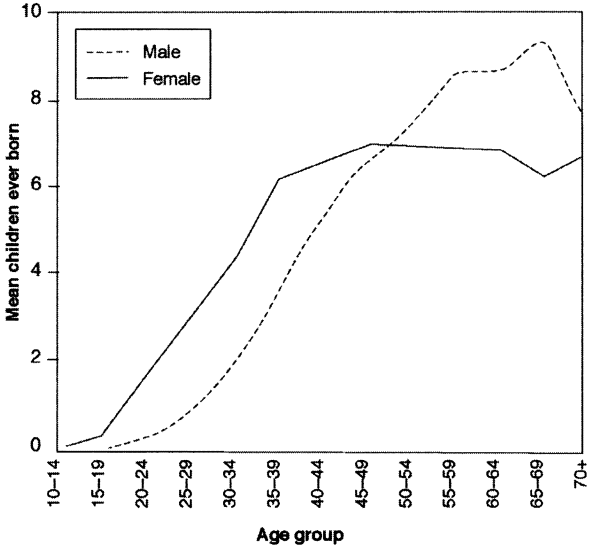

Figure 6.1 Age specific parity of Fulani men and women (SRDS data)

[3] Parity refers to the average number of children ever born (including those who subsequently died).

[4] Indirect estimates were made using the P/F method (UN, 1983), which gave an estimate of 6.5, and the Gompertz Relational method, (Zaba, 1981), which gave an estimate of 6.6.

Table 6.1 Mortality estimates for Fulani

Parameter	Estimate
Probability of dying before age 1 (both sexes)	0.14
Probability of dying before age 5 (both sexes)	0.24
Life expectancy at age 20 (women)	45.7 more years

Notes:

Probabilities of dying before ages 1 and 5 were estimated indirectly using proportions dead of children ever born, North model life table and Mortpak Lite.

Life expectancy at age 20 refers to the average number of additional years that a woman reaching her 20th birthday can expect to live. It was estimated using orphanhood data and Mortpak Lite. The data on paternal orphanhood were inadequate for estimates of adult male mortality.

pastures and reserves. From these land pressures, one might expect that, if there is increased knowledge about and availability of family planning, people might be beginning to control family size.

Instead, however, the reverse seems to be occurring: population growth is increasing, not decreasing. Although there are no data for specific sub-groups, total fertility in Burkina Faso in 1958 was around 6.1 – similar or slightly lower than among Fulani today, under five mortality was between 350 and 420 deaths per 1000 live births, and the rate of natural increase was about 1.3% per annum (Brass *et al.*, 1968). Burkina Faso has experienced a recent decline in infant and child mortality, largely through improved health provision. For example, among the Burkinabé Fulani, vaccination coverage is now extremely good (93% of children surveyed had been vaccinated at some point). The SRDS data show no evidence of a decline in fertility over recent years, and qualitative data from the MRS demonstrate that the Fulani in this area (both men and women) show absolutely no interest in controlling their fertility.

A superficial analysis might suggest this is nothing new. Even by African standards, this is regarded as an underdeveloped and laggardly area. Most people are subsistence producers, literacy levels are extremely low (less than 1% in the rural communities surveyed) and contact with modern health services is still limited. Certainly, the 'traditional' supports to high fertility persist, and children fulfil all the roles classically cited in the demographic literature. Labour is still the limiting factor in production in the area, and children increase the productive capacity of a household. Children are an essential component of social status for both men and women, whose position in the marital household is heavily dependent on reproductive success. Children are particularly important for security in old age, and those who reach old age without children to support them are in a very vulnerable position, dependent on the goodwill of more distant relatives or on village charity (both of which are a lot less reliable than having children around).

However, it would be a mistake to see the Fulani in an ahistorical light – as a static, isolated population. There is considerable evidence to suggest that Fulani society in the late twentieth century is changing very rapidly, due in part to substantial contact with other groups and other places. There is also evidence to suggest that far from simply undermining 'traditional' supports to high fertility, some of these changes are creating a new rationale for keeping sibling groups large. The remainder of this chapter explores these ideas in greater depth.

Mobility and Diversification outwith Agro-pastoralism

Data from this study support the observation that the Fulani are a highly mobile population. In 1996, nearly three quarters of all Fulani sampled had moved for a minimum of two weeks in the preceding year. The majority (around 75%) of these movements were transhumance movements within the Burkinabé Sahel, for the purpose of finding optimal pastures and water for livestock – the sorts of movements traditionally associated with FulBe herders. However, substantial numbers of people were moving temporarily out of the local area and also out of the agro-pastoral economy.

In particular, many Fulani men leave the Sahel each year for several months to find temporary employment in cities, particularly Abidjan in the Côte d'Ivoire. Of these migrating men, 15.5% of men aged 18-64 (N=2149) had been away to cities on seasonal labour migration[5] during the twelve months preceding the SRDS, and 22.8% of households (N=834) had sent at least one member. Fewer than half of households sampled had no one who had ever been on seasonal labour migration, and only five of the 39 villages had no migrants (and these were all very small nomadic camps with ten households or fewer). While other forms of temporary migration out of the local area and/or the domestic agro-pastoral economy were less frequent, significant numbers of men went to work in gold mines locally, while many women left the Sahel each cold season to fetch grass from the Mossi Plateau to weave into mats, and lots of other people moved in different ways. Some people even made the pilgrimage to Mecca.

These high levels of mobility outwith the local area and the agro-pastoral economy have two important implications for understanding fertility behaviour. First, they mean that this population is nothing like as isolated as might initially be supposed. Large numbers of men each year go and stay in the largest city and migration centre of West Africa – Abidjan – where they come into contact with populations from all over West Africa. Migrants come back speaking bits of other languages, with radios giving access to news and information over a large area with new ideas about the world. Although some institutions are very resistant to change, over the last 25 years, since seasonal labour migration began among the Fulani (see following discussion), there have been many changes in, for example, the way Fulani identity is constructed and the ways in which people think about the outside world (Hampshire, 2002). It is not acceptable, therefore, to suggest that high fertility persists just because this population has been isolated from modernising influences from the outside world.

Second, seasonal labour migration represents an important part of the strategy of economic diversification in the Sahel. In an area characterised by uncertainty, risk spreading is recognised as being an important means of improving livelihood security. The risk management aspect of seasonal labour migration has been emphasised by several authors (eg. Stark and Levhari, 1982; Stark and Katz, 1986). While economic diversification among Sahelian peoples in sometimes seen as a sign of increased vulnerability (eg. Maliki *et al.*, 1984; Davies, 1996), among this

[5] Seasonal labour migration is defined in this paper as migration outwith the Burkinabé Sahel, for between one month and two years with the *intention* of earning money.

population it is found to be positively associated with wealth and as a good strategy for optimising livelihood security for many households (Hampshire and Randall, 1999). It is the wealthiest[6] households, for example, who send most migrants to cities (Table 6.2), and for those households, migration represents a good strategy for optimising long-term livelihood security through allowing a build up of productive assets (herds). It seems that the Fulani are already following the advice of researchers (eg. Snrech) who believe economic diversification should be encouraged in Sahelian areas as a major strategy for increasing economic security in the region.

Table 6.2 Participation in seasonal labour migration in 1996 of all men aged 18–64 by household cattle holdings

HH Cattle Holdings	N Men Aged 18-64	Men on SEM in 1996
0-5	90	8 (8.9%)
6-30	99	17 (17.2%)
31+	88	26 (29.5%)
Total	277	51 (18.4%)

In order to understand the dynamics of economic diversification, particularly seasonal economic migration, as they affect fertility and population growth, it is necessary to take an historical perspective. Burkina Faso has long been the pivot of the major migration system in West Africa (Cordell *et al.*, 1996). However, these northern Fulani populations were not really part of that whole process which was dominated by the Voltaic and the Mande agricultural populations further south and whose development was intricately tied up with colonial policies (see Cordell *et al.*, 1996). The evidence from this study suggests that people from these Fulani populations only began migrating to cities following the major drought of 1973. Indeed, in many villages it was possible to interview the pioneering migrants of this era (Box 6.1). The catalyst was probably the drought itself, which caused considerable livestock losses following several years of increasing desiccation, although, the underlying cause seems to have its roots in a much more complex set of social relations embedded in the changing dynamics of the political economy.

It is well known that historically Fulani society has been highly stratified, based on a system of slavery or serfdom where whole classes of people (rather than a few rich patrons) had access to another class of dependents, and that the economic system was highly specialised (e.g. Hopen, 1958; Stenning, 1959; Dupire, 1970; Bonfiglioli, 1988). In pre-colonial Burkina Faso, the FulBe were cattle owners and herders, who did not demean themselves by engaging in agriculture. They had RimaiBe slaves to cultivate their land and give them a share of the harvest. Other specialist groups also existed: marabouts, blacksmiths, tailors, weavers, potters, etc.

[6] Measuring wealth in appropriate ways in different populations is a thorny problem, not yet satisfactorily resolved. Here we use household cattle holdings as a simple indicator of resources. Although not perfect, it is probably the best single measure to use in this population, as livestock are used an investment by all groups and represent a common currency. For more discussion of these issues, see Hampshire and Randall, 1999.

Box 6.1 Pioneering FulBe migrants

The first two migrants from one village, B and S, went to the Côte d'Ivoire for the first time in 1974, following the major drought of 1973. Their families and the rest of the village strongly disapproved of them embarking on this unknown adventure. They sold some animals from their inheritance herds to pay the travel costs to Abidjan, and began in a small way buying and selling small livestock in various Ivoirian markets. After around 12 years B had built up enough capital to begin buying cattle in the Sahel and transporting them to resell in the Côte d'Ivoire. At that time, his younger brother K, joined him in the trading and now they do very well, making several trips a year and earning several hundred pounds from each trip. A third brother A, looks after their animals while they are away. S was rather less fortunate: with no brothers or sons to look after domestic production in his absence, his migration has been much more limited and less successful.

Thus economic diversification existed, but it was between different classes of household within a community, not within households. Colonial decrees abolishing slavery were not implemented immediately (there are still communities in Mali where dependent groups are not far removed from slaves) but they caused the gradual erosion of specialisation at a community level.

Thus, during the pre-colonial period, and during the early stages of the dismantling of the feudal system, the whole social system of the Fulani had buffered them against the need for economic diversification within households. Society was diversified, but individual households were highly specialised. It was only towards the end of the colonial period and with Independence that the old feudal relationships really began disintegrating. The presidency of Sankara in the 1980s was an important step in this process and the final nail in the coffin of feudalism among many groups. Today, although a few FulBe in the area still maintain reciprocal links with RimaiBe, these are based on mutual advantage rather than obligation, and most of the FulBe/RimaiBe economic relationships have disappeared altogether. Economic diversification is no longer expressed strongly at a societal level: both FulBe and RimaiBe (as well as other groups) must today diversify within households.

The 'within household' diversification took a number of forms. Firstly, both FulBe and RimaiBe began to engage in both pastoralism and agriculture. Most FulBe did not have enough animals to survive from pastoralism alone, and without being able to command the agricultural labour of slaves, many became obliged to begin cultivating themselves. Some RimaiBe, once free of their obligations to their FulBe, began accumulating surplus wealth which could be invested in animals. Initially, such animals were almost always entrusted to FulBe herdsmen, since RimaiBe were not believed to have the appropriate herding skills. While these relationships persist, today many RimaiBe, particularly those with quite small herds, look after the animals themselves.

Second, probably due to the catalyst of the major drought from 1968–1973, there was a move towards more diversification outwith agro-pastoralism. This took the form of seasonal labour migration in particular and, to a lesser extent, other activities such as working in local gold mines (which opened in the area in around 1983–5) and contract herding.

Thus, there was a shift over the twentieth century from a feudal system, where the economy was diversified at the level of society, to a more egalitarian system where economic diversification was expressed at the level of the household. The changing social relations were not primarily driven by ecological or climatic changes, as is often suggested in literature on the Sahel, but have their roots in the complex processes of the organisation and dismantling of colonialism and colonial values.

Effects on Fertility

The transition from diversification within society to diversification within households has important implications for fertility rationale. It has been argued elsewhere (Randall and Winter, 1985; Fulton and Randall, 1988) that in the Malian Tamasheq population, the maintenance of at least part of the trappings of slavery in the 1980s meant there were far fewer incentives for Tamasheq individuals to have lots of children. This enabled them to have a marriage pattern which generated fairly low fertility rates and some deleterious child-care practices which were a contributing factor to high infant and child mortality. They ended up with relatively low population growth rates compared to neighbouring agricultural populations. However, the Kel Tamasheq used their dependant slaves for agricultural, pastoral and domestic labour. In contrast, the Fulani always needed more children than Kel Tamasheq because pastoral Fulani tended to look after their own cattle and their women did their own domestic labour.

Box 6.2 On the advantages of having a large household

In one village, the rains of 1996 were very late in coming. This was a period of great anxiety for everyone, and many households faced a difficult dilemma. Granaries were empty or almost empty and would not be replenished until the next harvest; at this time of year most people lived largely off milk. However, because the rains were late, there was no more pasture available near the village and very little water – cattle were struggling to survive and were producing no milk for human consumption. One solution would have been for households to leave the village with their cattle and travel to places where it had rained and where pasture and water were becoming abundant. However, leaving the village and going on transhumance meant giving up any hope of sowing and harvesting a crop that year, thus seriously compromising food security for the following year.

For households with two or more adult men, there was a simple solution. The majority of the household went with the cattle on transhumance, leaving behind one or two men, with the remaining grain, to sow a crop of millet should the rains arrive. In fact, when the rains eventually came, a month late, they were very good and those households who had left someone behind to cultivate harvested very well. However, the households with a single man fared badly. Eventually they all had to leave to save their cattle and have some milk. None were able to sow and tend a crop of millet. While some were able to draw on extra-household networks to sow for them, the additional, arduous tasks of hoeing and protecting their millet fields from animals were neglected, and harvests were very poor or non-existent.

With diversification comes the need for even larger family sizes. First agro-pastoralism (as opposed to specialising in either agriculture or pastoralism) is easier and more successful if households are larger, and particularly if they contain more productive adults. Gender division of labour is very strict among the Fulani and, unless there is really no other option, only men engage in the agro-pastoral activities of herding and growing crops. Thus in this population, diversification within agro-pastoralism is facilitated by large groups of adult brothers. The costs of not having many adult men in the household are severe, as shown by the example in Box 6.2.

Second, diversification outwith agro-pastoralism is much easier and more successful with big households. Note the difference in success between the two pioneering migrants described in Box 6.1. An important reason for B's success is that he had a large household (three brothers and some of their adult sons). B and K were thus able to devote all their time to pursuing the most optimal migration strategies, while the other men in their household took care of domestic agro-pastoral production. S, on the other hand, had no brothers to help out. In his absence, his animals were herded by his wife's brother. But, because this man was not part of S's patrilineage and therefore had no long-term interest in the welfare of his cattle (which are inherited patrilineally), there were doubts about how well he tended the cattle and S became worried he might try to claim some of the cattle as his own. Moreover, there was no one to cultivate or prepare fields for cultivation other than S himself. The result was the worst of all worlds: S could neither pursue optimal migration strategies, nor could he do the best for domestic production.

It can be shown statistically that, controlling for possible confounding variables, both total household size *and* the number of adult males in the household are important predictors of the likelihood that a given man will engage in seasonal labour migration (Table 6.3). The odds ratio of leaving on migration increases as the number of potential migrants / agro-pastoral producers increases.

So, with new pressures to diversify, large households do well. The focus is particularly on having a large group of adults, capable of engaging in diverse economic activities. Because of the way household organisation and lineages work in this area, the best way to have a large household is to have a large group of brothers or sons. Under most circumstances, brothers are expected to stay together in a single household at least until the death of their father, and often beyond that. Those without large male sibling groups are obliged to adopt alternative strategies. One is to delay household division for another generation, so that cousins stay together in one large household. This is not unusual among the Fulani, but it has its costs. Cousins do not share the same common interests as brothers, as their inheritance cattle do not come from the same herd, and the free-rider problem was frankly acknowledged. Moreover, the wives of cousins are often said to argue a lot, creating tension and friction within such households. Another solution is to rely on extra-household help, either through reciprocal kin links or through paid labour. While both of these can enable men from demographically inadequate households who have either sufficient wealth or sufficient extra-household networks to pursue diversification strategies, neither is as reliable as having kin within the household.

Table 6.3 Logistic regression model of individual participation in seasonal labour migration in 1994-95: men aged 18-64 (N=2149)

Variable	Odds ratio (e^B)	sig
Household Size (Total)		**
1–9	REF	
10–16	1.4	NS
17+	2.1	**
Adult Males in Household		***
1–3	REF	
4+	1.9	***
Ethnic Subgroup		***
RimaiBe Liptaako	REF	
FulBe Liptaako & JawamBe	0.9	NS
FulBe GaoBe	2.2	***
FulBe DjelgoBe	0.3	***
Household Economic Activity		***
Pastoralist + cultivation	REF	
Pastoralist	0.5	*
Cultivation + animals	1.4	NS
Cultivator	1.9	**
Age Group		**
18–27	REF	
28–40	1.6	**
41–64	0.6	*

* sig at 0.05
** sig at 0.01
*** sig at 0.001

Note: Odds ratios refer to the relative odds of a positive outcome (in this case, the man going on seasonal labour migration) with a particular condition, compared with the reference group. For example, the odds ratio of a man migrating if his household size is 10–16 compared with if his household size were 1–9 is 1.4.

Conclusions

The idea that rapid population growth is the major problem facing people living in arid and semi-arid lands is not borne out at the individual and household level experience. In the Burkinabé Sahel, being part of a large male sibling group, or indeed any large kinship group, greatly facilitates diversification of economic activities at the household level. Having many children is a strategy which, under current circumstances, will maximise future possibilities of such economic diversification and thus economic security. Changes over the last century (which include colonial legacies, human rights policies, agricultural expansion as a consequence of rapid population growth, and increasing outside opportunities as well as contacts with urban areas) mean that high fertility still makes sense for households and individuals, not as a hangover from the past, but as a rational response to rapidly changing circumstances in a modernising society.

In other words, high fertility should not be seen in a static light – as a strategy pursued by 'traditional' populations before they 'modernise' and start limiting their fertility. In this example, the very process of modernisation and economic progress brings a new rationale for high fertility, which can only be understood by examining the nature of the social and historical processes at work. Ironically, it may be the very success of diversification that may eventually lead to a fertility decline, not because it is the rational thing to do, but because of the constraints it places on fertility. There is considerable evidence that those groups which diversify most into seasonal labour migration, especially those who go to Abidjan, have a higher incidence of sterility and sub-fecundity and thus lower fertility (Hampshire and Randall, 2000). Moreover, work by Garenne *et al.*, (1995) on AIDS in Abidjan and the association of the disease with seasonal labour migrants in Burkina Faso, suggests that these diversifying groups may in the future have to deal not only with lower fertility in the next generation, but higher mortality in the current one.

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7

Gender Equality? No! What do Fulbe Women *Really* Want?

SOLVEIG BUHL

Development practitioners often take it for granted that empowerment of women is achieved through facilitating women's income-raising possibilities and thus frequently promote co-operative production and solidarity networking. Although many women in Sub-Saharan Africa have benefited greatly from such interventions, the research findings in this chapter suggest that these strategies may not always be in accordance with the goals women themselves prioritise. Based on 18 months research in the north-eastern Sahelian part of Burkina Faso among pastoral and agro-pastoral FulBe, a combination of qualitative and quantitative research techniques were used to shed light on gender relations in household production and women's own perceptions of their socio-economic status. This chapter shows that pastoral FulBe women in northern Burkina Faso would likely lose as much as they were to gain if they were to diversify their income source, and that a monetary income of their own may not necessarily improve their personal livelihoods as men may then disengage from their household expenditure responsibilities. Likewise, engagement in co-operative production is not always feasible, especially when it is among relatively mobile groups. This knowledge is of considerable importance for development projects' interventions in relation to pastoral and agro-pastoral groups.

Introduction: the FulBe

The FulBe are a broad ethnic category found in many parts of West and Central Africa. Although there is huge variation in FulBe production and social systems (Hagberg, 1998) there are some features that, even if they do not unite all FulBe groups, still differentiate them from others. Two most important phenomena are the FulBe cultural code of *pulaaku* (Riesman, 1977) and FulBe's general association with

cattle (Grayzel, 1990; Bierschenk, 1997). In addition, most FulBe groups, both rural and urban, are increasingly adhering to Islam.

While urban FulBe have long been engaged in a variety of occupations, rural FulBe have usually specialised on a more or less transhumant lifestyle, rearing cattle. There are two key factors which have influenced rural FulBes' production strategies: First, the two most recent Sahelian droughts caused a widespread loss of pastoral resources, and second, the nature of the changing relationship between FulBe and their former slaves, the RimaiBe. Rural FulBe men are thus more than ever diversifying their income sources and many of them have increasingly taken up agriculture.

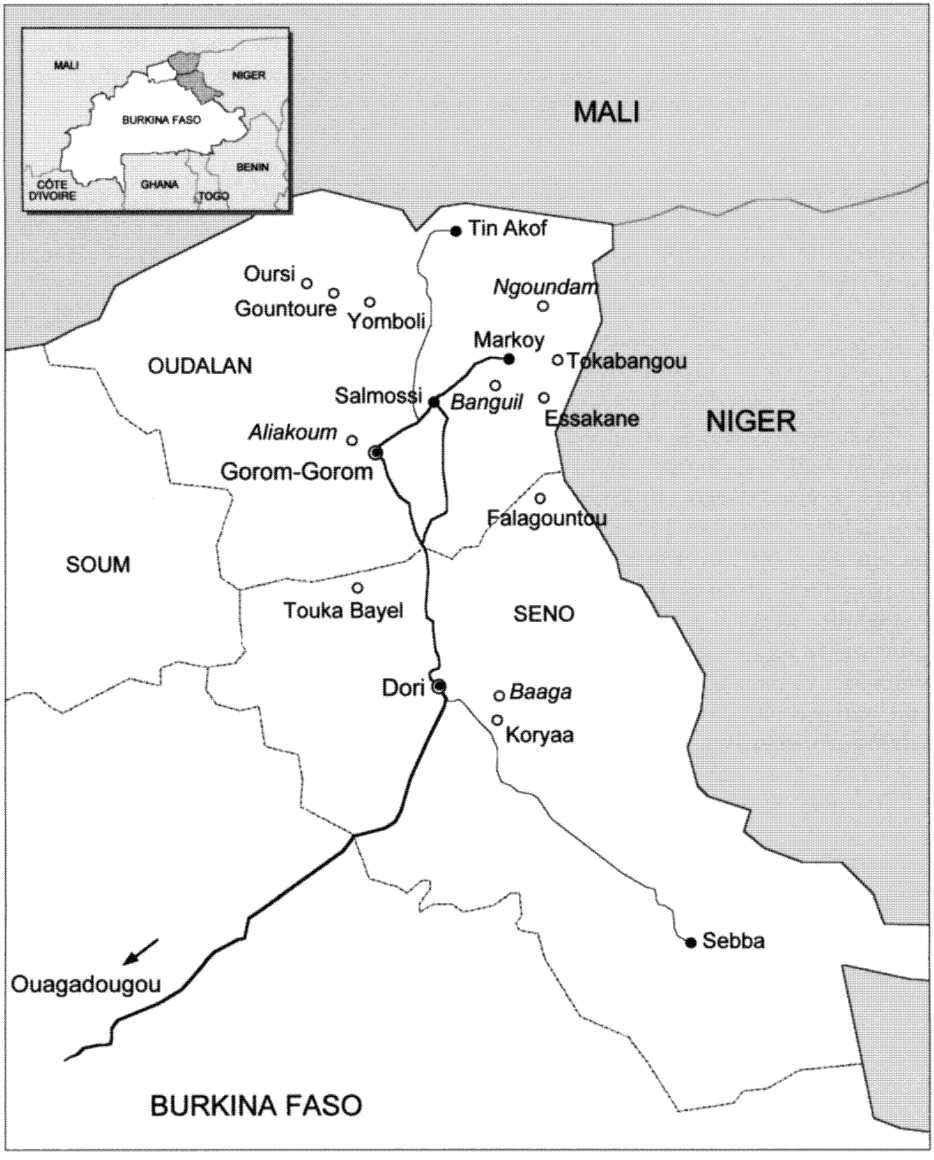
Gender in Pastoral Societies

In recent years it has been widely acknowledged that women cannot be regarded analytically as constituting a homogenous category, but that age and lifecycle stage (Katz and Monk, 1993; Warner *et al.*, 1997), class (Bourgeot, 1987; Oxby, 1987) and wealth (Ellis, 1998) influence women's status and socio-economic rights and obligations. Irrespective of these differences, most studies on gender and development in sub-Saharan Africa have found that women are becoming more marginalised than ever due to a variety of socio-economic forces (Monimart, 1989; Momsen, 1991).

In many pastoral and agro-pastoral African production systems, women have been found to be confronted with dwindling rights in livestock, no rights over land, increasing workloads and declining rights in determining their own labour practices (e.g. Talle, 1988; Sikana *et al.*, 1993; de Bruijn, and van Dijk, 1995; Huss-Ashmore, 1996; Smith Oboler, 1996; Hodgson, 2000). Only very few studies documented reverse trends where pastoral women have either retained their economic and social status (e.g. Waters-Bayer, 1985; Kuhn, 1997) or gained advantages through changes in their societies as a whole (e.g. Ensminger, 1987). Three prevalent factors are generally considered to be responsible for worsening pastoral women's livelihoods: cultural patterns favouring males, general impoverishment and social and economic transformations – for example, the growing commercialisation of livestock production (e.g. Joekes and Pointing 1991).

This study focuses on rural FulBe groups in north-eastern Burkina Faso. It aims to analyse gender relations in household production while at the same time discussing socio-cultural values influencing these. In the light of recent droughts and general impoverishment, the economic strategies taken up by men and women in the study area and gendered expenditure obligations towards the household are discussed. Of particular importance is how cultural ideals and women's own perceptions of their roles influence the range of activities taken up by men and women as well as the nature of gendered obligations and rights.

This is important in view of current development trajectories that promote the empowerment of women through facilitating their income raising possibilities and frequently promote cooperative production and solidarity networking (for a critique see Lewis, 1990; Davison, 1995). This may not always prove to be in accordance with the goals women themselves prioritise (Buhl, 1999).



Map 7.1 The research area, north-eastern Burkina Faso Design: S. Fraser

The Research Site

The research took place in the northern part of Burkina Faso, in the provinces Seno and Oudalan. The research area has a typical dryland eco-system, characterised by aridity, a dry season of eight to ten months and high spatial and temporal rainfall variability. Long-term average annual rainfall totals show a marked gradient from

around 370 mm in the northernmost to around 500 mm in the southernmost parts of the study site. Rainfall variability increases with aridity towards the north of Oudalan (Tyc, 1992). The main data collection for this research took place in 4 villages: Ngoundam, Banguil, Aliakoum and Baaga (Map 7.1).

Methodology

Neither the quantitative techniques of a large household survey nor those of rapid rural appraisal could satisfactorily answer the questions at the core of this research project. Only a combination of qualitative and quantitative techniques, focussing on a limited sample size, could shed light on the mechanisms of gender relations in the groups studied, on how women perceived themselves and what their primary goals were in terms of achieving a high socio-economic status.

The research sample included Islamic FulBe from three different groups: highly pastoral FulBe DjelgoBe, agro-pastoral FulBe GaoBe and more sedentary agro-pastoral FulBe Liptako. In-depth research was undertaken among 39 households in the four selected villages. The sample covered poor and rich households, households heavily engaged in cattle trade, highly mobile pastoralists as well as those whose primary production is sedentary agriculture. The production strategies of sample households as well as the gender-differentiated contributions and decision-making processes in production were studied, together with the obligations and rights of both women and men within and towards the household. This cross-section of pastoral and agro-pastoral groups enabled a qualitative assessment of how cultural features and relative impoverishment are currently affecting women's status in the research area.

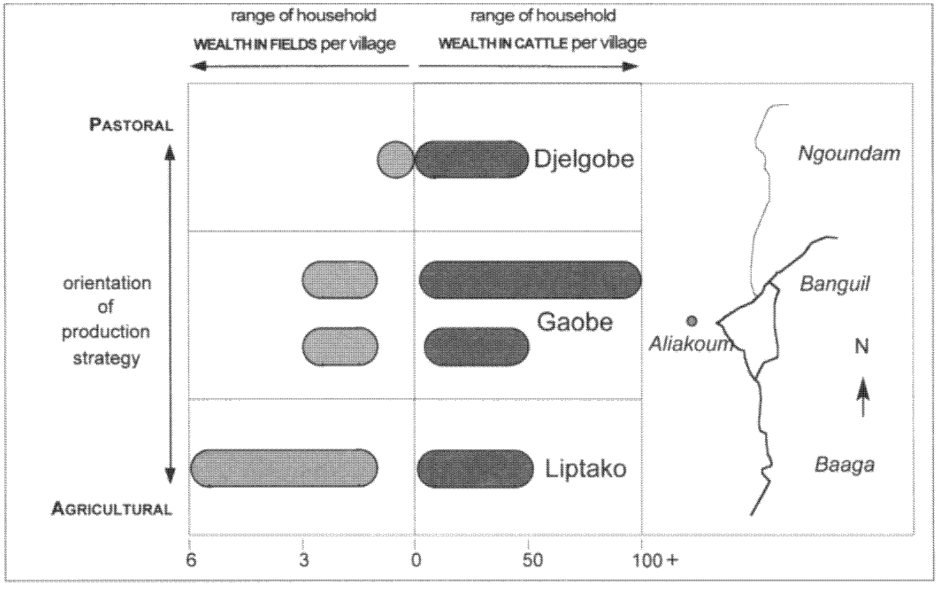


Figure 7.1 Summary of general characteristics of the selected sample households
Design: S. Fraser

A multi-round, bimonthly survey on income and expenditure was carried out among all adult individuals[1] present of all sample households over a calendar year. This included a total of 94 women and 88 men. Survey data obtained were, however, highly unreliable as was discovered through cross-checking during participant observation and prolonged stays in the villages with close contact to the individuals. Either answers reflected the norm rather than the reality, or informants were interested in giving an impression of even more severe poverty than actually confronted them. It may be suggested that in areas with an increasing impact of development projects – such as northern Burkina Faso – local people, quite understandably, find strategies to channel this help by directly pointing to the needs they feel a particular project may be best equipped to relieve. Researchers are often associated with ongoing projects even if it is repeatedly made clear that this is not the case. In addition, even remote rural communities are increasingly questioning the use of research which brings no obvious immediate benefits. During my own study, almost all informants were ready to discuss at length any subject in a less formal way, but many informants were intimidated or bored at the sight of even a short questionnaire.

An enormous amount of qualitative data were therefore mainly obtained through informal and semi-structured interviews with all adult householders on production-related topics: access to productive assets (pastoral, agricultural and others), usufruct rights, the decision-making processes over resource use and priorities. It was only due to prolonged stays in the villages and close contact to key informants that cattle numbers owned by FulBe could be obtained as opposed to those herded. Furthermore, field sizes and the agricultural yields in 1996 were measured. Additionally, labour allocation in agricultural and pastoral production, other income generation work and domestic work was discussed and observed.

Quantitative survey data did reveal that women were usually disadvantaged in accessing productive resources and in raising an income. However, only the collection of in-depth qualitative data could shed light on women's perception of their own socio-economic status and the priorities they set for themselves (Buhl, 1999).

Pastoral Production

In this research area, as elsewhere in the Sahel, the droughts of the 1970s and 1980s have led to a dramatic change in livelihood strategies in many households. Most had lost a great part of their herds and could therefore not live off pastoral resources alone.

Cattle among the FulBe in northern Burkina Faso were invariably owned by individuals and not by households or groups of people, although use-rights went beyond actual ownership. Table 7.1 shows that nearly half of all the households sampled owned less than 10 cattle. Only in Banguil were there three exceptionally rich households that had more than 100 cattle. All these households were renowned for successful cattle trading extending to Côte d'Ivoire.

[1] An adult was defined as a man or a woman above the age of 15.

Table 7.1 Cattle holdings of FulBe households (percentages of households in brackets)

Village (number of households in brackets)	FulBe group	No. of households with ... cattle					Mean no. cattle owned per household ±SD[a]
		0	1–10	11–50	51–100	101–400	
Ngoundam (n=11)	DjelgoBe	1	2	8	0	0	21 ± 17.6
Banguil (n=11)	GaoBe	0	5	3	0	3	26[b] ± 37.6
Aliakoum (n=6)	GaoBe	0	3	3	0	0	24 ± 22.6
Baaga (n=11)	Liptako	0	8	2	1	0	15 ± 18.5
Total (n=39)	-	1	18	16	1	3	
Percentage		(3%)	(46%)	(41%)	(3%)	(7%)	21 ± 24.2

Notes:
a. SD = Standard deviation of the sample mean
b. The mean number drops to 14 if the 3 exceptionally rich cattle trader households are excluded.

Although wealth is primarily defined in cattle holdings and these rural FulBe's pride is based on cattle rearing, most households also kept goats and sheep. Only one household head in the sample owned a camel. The tropical livestock unit (TLU)[2] owned per capita is thus presented in Table 7.2.

Table 7.2 Mean TLU holdings in the sample, per capita

Village	FulBe group	Mean TLU per capita ± SD
Ngoundam (n=11)	DjelgoBe	2.7 ± 2.4
Banguil (n=11)	GaoBe	4.5 ± 4.3 (*2.4 ± 2.1*[a])
Aliakoum (n=6)	GaoBe	1.5 ± 1.2
Baaga (n=11)	Liptako	2.3 ± 2.1
Total (n=39)	–	2.9 ± 3 (*2.3 ± 2*)

Note: [a] Figures derived when the three richest households are excluded.

The mean TLU per capita per village ranged from 2.7 in the DjelgoBe village of Ngoundam to 1.5 in the GaoBe village of Aliakoum (excluding the three very richest households in Banguil) (Table 7.2). It is apparent that most households in this sample would not have been capable of living off their own pastoral resources, i.e. milk, alone[3] (see Dahl and Hjort, 1976) and some of them, especially among the more sedentary Liptako had no aspiration to do so. The highly mobile DjelgoBe sampled particularly expressed a wish to limit themselves to pastoral production to the extent that some of them did not engage in agriculture at all. It is surprising then,

[2] Tropical Livestock Units (TLU) combine various livestock into one standard unit based on weight (1 TLU = approximately 250 kg of weight). In this study camels are multiplied by 1 TLU, cattle by 0.7 TLU, sheep/goats by 0.1 TLU (Dahl & Hjort, 1976).

[3] Daily cattle milk yields ranged from less than 0.21 in the dry season to up to 21 in the rainy season.

that the DjelgoBe were not that much wealthier in livestock than Liptako. However, most DjelgoBe had a relatively high proportion of entrusted animals in their herds,[4] thus enabling them to stay in the pastoral economy without cultivating much and without having to take up much other income-generating work, despite their comparatively low cattle holdings.

Table 7.3 Ownership of cattle among women (n=89) in the sample villages

Village	*FulBe* group	No. of cattle owned by women				
		0	1	2–5	6–9	10+
Ngoundam (n=24)	DjelgoBe	6 (25%)	4 (17%)	11 (46%)	1 (4%)	2 (8%)
Banguil (n=31)	GaoBe	4 (13%)	8 (26%)	16 (52%)	3 (9%)	0
Banguil (n=11) [a]		4 (37%)	5 (45%)	2 (18%)	0	0
Aliakoum (n=18)	GaoBe	8 (44%)	7 (39%)	2 (11%)	1 (6%)	0
Baaga (n=16)	Liptako	11 (69%)	2 (12%)	3 (19%)	0	0
Total (n=89)		29 (33%)	21 (24%)	32 (35%)	5 (6%)	2 (2%)
Total (n=69) [a]		29 (44%)	18 (28%	18 (24%)	2 (2%)	2 (2%)

Note: [a] Figures derived when the women of the richest 3 households are excluded.

Ownership of cattle among women

In our research sample, if all women in the sample are included, more than half of them either owned no cattle at all or only one cow. A third of the women sampled owned 2–5 cattle and almost a tenth possessed more than 5 (Table 7.3). Considering the mean TLU per capita is 2.9 for all the sampled villages combined (Table 7.2), it might be argued that the women in the research area held a considerable proportion of the households' cattle. However, if the 20 women of the three very rich households in Banguil are excluded, the pattern is very different. Then, only a quarter of the women in the sample owned more than one cow, leaving a quarter owning only one and nearly half (44%) owning none (Table 7.3).

Assuming that these extremely rich households were the exception rather than the rule, and so that they can thus be disregarded for the moment, it could be inferred that especially GaoBe and Liptako women were disadvantaged in accessing

[4] Arrangements between FulBe herders and herd owners varied considerably. Among FulBe there was no remuneration for herding. If a RimaiBe entrusted his animals to a FulBe herder he usually entitled the herder to some of his animals' milk and often helped him during agricultural work. Non-FulBe and non-RimaiBe owners allowed the herder to keep some or all of the milk (depending on the location of the herd) and occasionally gave the herder gifts of money, shoes, sugar, tea or cloth. The formerly common practice to occasionally give a calf to the herder was no longer practised in the research area.

animals as compared to men. The richest woman in Baaga, for example, was reported to own three cows (she was not part of the research sample). Only among relatively mobile and more pastoral-oriented FulBe DjelgoBe in Ngoundam did more than half of the sampled women own at least two cows. It is important to note here that in two of the richest households in Ngoundam it was the women who owned most of the cattle. In one, a woman owned approximately 50 cattle; in the other, this woman's daughter, living in an independent household with her husband and children, owned around 30 cattle. Although we do not have comparably robust data for men, we can safely say that women – especially among GaoBe and Liptako and generally in animal poor households – were usually disadvantaged in accessing animals as we have reliable data on how access is regulated.

Animals are given as gifts at the naming ceremony, as part of pre-mortem inheritance and post-mortem inheritance. Most informants confirmed that before the droughts women were given similar amounts of animals by parents or close relatives as men, as part of their naming ceremony. At the time of the research, however, due to the present low level of animal numbers, women were increasingly discriminated against and were given far fewer, if any. A similar trend was seen in terms of pre-mortem inheritance. Although women had always been disadvantaged, they found it more difficult than ever to access animals by way of pre-mortem inheritance. Post-mortem inheritance is theoretically regulated according to Islamic laws that grant daughters half of what their brothers get. In the research sample it became clear, however, that few women knew what their rightful part was and were given much less. In former times, bridewealth paid in cattle given by the future husband to his bride or her family was an effective means for women to access animals. Traditionally, women kept most if not all cows given as bridewealth as their own property. Only one bull was slaughtered during the wedding ceremony. However, only among DjelgoBe and among the exceptionally rich GaoBe household in the sample were animals still given as bridewealth. In almost all other households and villages, cattle bridewealth was now replaced by money which was either spent on household items for the bride and the construction of the bride's house (traditionally given to her by her mother and sometimes completed by her father) or, more often than not – especially in some poorer households, this money was kept altogether by the bride's father to buy millet for his own household. No single case was reported where bridewealth money was invested in cattle for the bride. Even those women who received cattle as part of their bridewealth complained that it was common practice in these days for their fathers to keep the animals given to their daughters – especially if they were poor or had important expenditures to settle. This confirms the results of other studies observing that most FulBe women are disadvantaged in accessing animals especially when households are increasingly impoverished (e.g. de Bruijn and van Dijk, 1995).

Women's perception on decreasing animal holdings

The important issue, however, is how did women themselves perceive this obvious discrimination in accessing animals. Did they complain? Did they try to find ways to oppose men's monopoly of livestock? In the research sample, women were very aware of the fact that with few exceptions they had fewer animals than their

menfolk. Still it was exceptional for a woman to complain about unfavourable treatment by her own kin when receiving less than her brothers in post-mortem or pre-mortem inheritance. A woman also would not oppose the sale of any of her animals by her brothers or her father, nor did a woman complain if her own kin kept any of her bridewealth animals. Due to high divorce rates (Hampshire, 1998) women were dependent on keeping good relations with their kin as a place to return to when they divorced and until they subsequently remarried. Also, a woman's reputation might suffer tremendously if she complained. Women were generally not supposed to argue with their own kin and might find it difficult, unless for exceptional reasons, to find support for their arguments. Their reputation in society was extremely important for them as their chances of remarrying were linked to it: being married was essential for a woman unless she had an adult son who was wealthy enough to take care of her.

On the other hand, if a husband sold his wife's cattle without her approval in order to cover expenditure for which he was culturally responsible, the woman had the opportunity to complain and she usually did so. Under normal circumstances, she would then have the support of her own kin as the animals owned by the wife were ultimately animals of her own kin – unless they were given (through pre-mortem inheritance) to her children belonging to the father's kin.

Although women certainly did aspire to accumulate animal holdings, and although the number of animals they owned was relatively low, it was not women's primary goal to insist on their right to access cattle from among their own kin. Women carefully weighed the pros and cons of such complaints. Whereas an additional animal would not secure a woman's economic security in the long run, good relations with her kin usually did. However, relations with her husband and his kin were often temporary. A woman would thus feel freer to insist on culturally sanctioned access to animals as she usually had her own kin to fall back on.

Agricultural Production

As we have seen above, most FulBe households in the sample could not have lived off pastoral resources alone. Thus, most had taken up agriculture on an increasing scale. Cultivation was most prevalent in the most southern Liptako village, with an average of 0.76 ha cultivated per capita and least prevalent in the DjelgoBe village, with an average of 0.09 ha per capita under cultivation (Table 7.4). Land, just like animals, was owned by individuals, not by households. All fields in the sample were owned by the male household head with only one exception: the cattle-rich DjelgoBe woman mentioned previously owned and cultivated a millet field[5] while her nephew, the official household head, herded the animals.

Why did women not own fields?

It could be assumed that women did not own fields because of land scarcity. Recently, in the proximity of semi-urban centres (i.e. Dori and Gorom Gorom, the

[5] Her nephew helped her clear the field.

Table 7.4 Field size in relation to capita per household

Village and FulBe group (number of households in brackets)	**Mean area (in ha) cultivated per capita ± SD**
Ngoundam, DjelgoBe (n=11)	0.09 ± 0.15
Banguil, GaoBe (n=11)	0.31 ± 0.25
Aliakoum, GaoBe (n=6)	0.14 ± 0.08
Baaga, Liptako (n=11)	0.76 ± 0.55
Total (n=39)	0. 35 ± 0.42

two provincial capitals, Map 7.1) and in some more southern areas of the research area, land had started to enter the market and was sought after for purchasing. However, only one individual in the whole research sample had ever bought a field. All other fields among the sample households in Banguil, Aliakoum and Baaga were accessed through pre- or post-mortem inheritance. In Ngoundam, the northernmost DjelgoBe village, those households that owned fields had only started cultivating five to seven years previously. Thus, all FulBe fields in Ngoundam had been cleared by the present owner. An assumed scarcity of land could therefore not explain the fact that FulBe women generally did not own fields.

When discussing the subject with men, it became clear that they did not object to women owning fields. Men actually would have liked their wives to cultivate and thus contribute to the millet provision of the household (and thus lessen men's work) but still no woman had received a field as pre- or post-mortem inheritance. One reason may be that marriage is virilocal – a woman leaves her father's compound to move to her husband's who may live far away. She would therefore not be in a position to cultivate the land given to her by her kin. This fact, however, does not explain why a wife was not given or lent any land to cultivate in her husband's household. The main reason was that virtually all women of all three FulBe groups did not want to own a field for the simple reason that they strongly despised agricultural work. Although men equally disliked cultivating they did not have any choice unless they were wealthy enough not to cultivate as in the FulBe societies studied, where men, not women, were responsible for providing grain for the household. Women were still in a position to use cultural ideals in order to not have to engage in the cultivation of grain. In fact, they feared the ridicule of other women should they be seen in the fields helping their husbands with tasks other than sowing and crop thinning. Women in all groups usually participated in sowing and thinning[6] the crop, but never in weeding, where labour scarcity was most felt. Men often did not succeed in weeding twice, which was considered best for the crop.

The only woman in the sample who owned and cultivated her own millet field was clearly an exception in every respect. Her engagement in agriculture was not ridiculed by the other women in the village due to her tremendous wealth in cattle (50+).

[6] Thinning was not considered necessary in Ngoundam.

Millet production

Most households cultivated millet, although those in the more southern areas also sowed sorghum in patches of more loamy soils. Some GaoBe and Liptako also grew condiments (roselle and gombo) at the edges of their fields. Women usually helped sowing and harvesting these condiments. Some Liptako men and women tried sowing condiments within their compounds – an endeavour that usually failed as poultry ate the seeds.

The millet and sorghum yields were highly variable due to the unpredictability of rainfall. Although in some years millet yields in the northern, usually drier regions, exceeded those in the south (see Table 7.5), in general – and also due to the greater area cultivated per household – only in the more southern regions did millet production sometimes result in self sufficiency in household food requirements for the whole year.

Table 7.5 Approximate mean millet yields (±SD) per ha in 1995 and 1996

1995		1996	
Village (number of cases)	**Mean yield** (in kg per ha ± SD[a])	**Village** (number of cases)	**Mean yield** (in kg per ha ± SD)
Ngoundam (n=4)	174 ± 60	Ngoundam (n=3)	510 ± 246
Banguil (n=4)	457 ± 186	Banguil (n=10)	149 ± 92
Aliakoum (n=1)	89 ± 0	Aliakoum (n=6)	183 ± 132
Baaga (n=8)	607 ± 157	Baaga (n=11)	414 ± 209
Total (n=17)	439 ± 234	Total (n=30)	289 ± 212

Notes: a. Based on recall data.

In general, all households had to procure some cash income to provide for items such as housing, clothes, shoes, sugar, tea, additional millet or sorghum, etc. These expenditures could be partly covered by the sale of animals (especially small stock) but considering the few animals most FulBe owned, this was hardly an option that anybody chose if avoidable. Thus, as much as it is the case with many other pastoral groups (e.g. de Bruijn and van Dijk, 1995), it could be assumed that FulBe in this research area took up a variety of other income generating activities. This is discussed in the preceding chapter.

Diversification of Income Sources of Household Members

If we compare the range of activities taken up by men and women, one striking observation can be made. Men took up a variety of activities outside the pastoral sector, most prevalently in agriculture, but also in seasonal labour migration involving a variety of paid labour, such as working as butcher, watchman, salaried herder, etc. Many of them went to gold mines in the surrounding area, while some men engaged in animal trade, or other activities.

However, women hardly diversified their income sources. FulBe DjelgoBe and GaoBe women wove mats for constructing traditional houses but hardly ever sold to anyone. Some women in every village occasionally produced lids for calabashes, selling one or two per year, and two elderly Liptako women manufactured mats of millet stalks used for beds and for sitting on. Both products were sold with little profit, if any at all. The only income-generating activity most women of all groups pursued was the selling of milk products from animals allocated to them, but not necessarily owned by them. Milk products were mainly sold in the rainy season and particularly among more sedentary GaoBe and Liptako women. DjelgoBe women engaged somewhat less in milk selling as their diet depended more on milk products than that of GaoBe and Liptako. However, contrary to what could be expected, women from rich households (100+ animals) did not engage in milk selling at all. This may be due to the fact that the husbands of these women were heavily engaged in the live animal trade and thus one could assume that investing milk in cattle growth was more important than selling it. However, interviews revealed that women preferred to adhere to Islamic ideals of seclusion and therefore chose for themselves not to frequent markets, as it would lower their status. As the husbands in these rich households could afford to satisfy these women's material needs (including clothes and silver), the women preferred to refrain from milk selling although it meant that they could not dispose of a personal income nor have the entertainment of a day at the market (Buhl and Homewood, 2000).

Why did women not diversify their income sources?

It could be argued that women lack the time, resources or initial capital to pursue other income generating work, or alternatively, that men discourage or even forbid women to gain an independent income. In addition, the survey showed that women had a large workload to tackle. Weaving mats for the construction of their houses was time-consuming, domestic work was hard and took up several hours per day and some women also helped in livestock production e.g. milking cattle. Time was thus a factor limiting women's possibilities in taking up other work that could possibly provide them with an income.[7]

Men generally did not oppose their wives gaining an income as they often struggled to support their households and would have appreciated financial input by their wives. Only if their wives were still young would they resist letting them frequent markets and other villages for reasons of jealousy.

When all women sampled were asked whether they would start up some petty trade or other activity if they had some initial capital, only two women in the proximity of the provincial capital of Gorom Gorom expressed some interest. They would have liked to have a small stall to sell everyday items (e.g. matches, soap) in their village. Most others either emphasised that they did not have the time to engage in other activities or that FulBe women were not supposed to engage in activities other than those they already pursued. When talking to these women more fully, it became clear that the 'self-definition' of women was the most important factor that limited their range of activities. Very few women showed any interest in

[7] In this context I will not discuss at all which income generating activities would be feasible and beneficial.

taking up activities that were not in accordance with *pulaaku* unless absolutely necessary. If the husband could not provide for them and their children, unless their relationship was based on love and very good understanding, they often would rather consider divorce than be ridiculed by other women for engaging in non-appropriate activities. What then did *pulaaku* mean for those women? Riesman (1977: 128) described *pulaaku* thus:

> to behave like a Fulani[8] means especially, and before anything else, to act like the others, to act in such a way that the others don't detect any difference between the actor and themselves.

Mirroring Riesman's observations, one of the most frequent reasons given during interviews for not pursuing certain activities was that, *'the others do not do it, therefore it cannot be done'*. This applied for men just as much as for women. There was a constant challenge of carefully balancing social status and economic advantage. One woman illustrated the situation with a proverb: 'If you come to a village and everybody dances on their heads, you yourself have to dance on your head as well'. Many examples during the research confirmed this dilemma. For example, during the course of research in Banguil, a woman was encountered preparing the *fonio* (Graminaciae: *Panicum laetum*) her husband had collected. There was a crowd of women around her, making fun of her saying that FulBe were not supposed to collect and prepare *fonio* as it was poor man's food, not worthy of the FulBe of Banguil. Although the scarcity of millet in that year made it a very sensible decision to fall back on gathering products, the shame and the loss of status made it difficult for that woman to continue this activity. Subsequently the woman was never seen preparing *fonio* again.

Culturally appropriate activities and obligations of both men and women have been, and will always be, in a process of change. It seems that such change either needs a person courageous enough to start a new activity or a person desperate enough to disregard cultural norms in order to pursue an activity that is generally considered inappropriate. Only then may it gradually be taken up by others and integrated into the normal code of behaviour.

De Bruijn and van Dijk (1995: 417) suggest that *pulaaku* is a handicap rather than an asset for the FulBe women of their research area because they are becoming economically marginalised. Although FulBe in this study's research area may find it difficult to pursue certain work and thus may at the moment lose out economically compared to other ethnic groups who do not have such a cultural code of behaviour, it cannot be considered as operating to the disadvantage of women *per se*. On the contrary, these values and norms may help women to avoid having their labour exploited and to exact certain responsibilities from their menfolk. Women were aware of this, and knew, how to use such values and norms to their advantage, in some cases with great success.

Expenditure obligations in the household

Most household expenditure was men's responsibility. In all FulBe groups surveyed, men were responsible for providing grain for all household members whether

[8] In the translated version of Riesman's book, the English term 'Fulani' is used for what I describe as FulBe (plural) and Pullo.

through cultivation or purchase. This is clearly different from the classic studies of some FulBe groups where mostly women bartered milk for millet (e.g. Dupire, 1963). In the current survey, sample women usually sold milk for cash, and only reluctantly for millet. Milk money was women's own money and they disposed of it as they wished, mainly for mat-making materials (among DjelgoBe and GaoBe) and for material to construct beds (in all groups studied) (Buhl and Homewood, 2000). These were expenditures that men hardly ever contributed to, for tents among DjelgoBe and GaoBe, and beds in all groups were constructed and owned by women and taken with them in the event of divorce. Women also spent parts of their milk money on the dowry of their daughters (mats, silver, utensils) as well as on silver and utensils for themselves. Among more sedentary GaoBe and Liptako some money was spent to decorate tents and houses. A well-kept house was necessary for achieving respect from other women. Although men were theoretically considered responsible for this, some women also contributed a little money for bran and some food supplements for their own animals, and among the Liptako occasionally to organise work invitations for thinning the crop. Furthermore, women from poorer households had to spend some money on sauce condiments.

Men usually had to procure supplementary food and vaccinations for all household members' animals that were kept in the herd. If a wife's animals were kept in her father's herd, her father was supposed to buy supplementary fodder if necessary and pay for vaccinations. Furthermore, men were supposed to provide their wives with new clothes if possible for the two biggest Islamic festivals at the end of Ramadan and at Tabaski – *idd el fitur*. Those FulBe GaoBe and Liptako men who lived in mud-brick houses were also responsible for expenditure involved in their construction. No money was spent on school fees (only one boy in the sample went to school, while some boys were sent to Islamic schools). Women frequently declared that they would have the support of their kin if their husband did not fulfil his expenditure obligations towards the household. This could even be a reason for divorce. Considering the relatively strong bargaining position women had in terms of responsibilities for household expenditure, despite impoverishment, it is hardly surprising that women tried to avoid adding more activities to their already considerable workload, or putting at risk their reputations measured on cultural ideals of *pulaaku* and possibly Islam as well.

Co-operative work among FulBe *women*

Among the FulBe studied, contrary to many other African societies, women in general hardly co-operated with each other. Co-wives did not share domestic duties. Also, milk selling was hardly ever organised jointly although the distances to the markets were sometimes long and the quantities of milk products sold meagre. But even if there was little milk to sell, a woman preferred going herself rather than entrusting her milk to a co-wife or a friend as this was frequently reported to cause arguments and problems. When they had to thin the crop, some Liptako women organised working invitations, but food and some kola nuts had to be provided for those participating. There was no form of co-operation on a mutual basis. Among GaoBe and DjelgoBe, visiting women joined their hosts weaving mats while chatting, but this was on a purely social scale rather than as mutually organised help.

Among all FulBe women sampled, co-operation existed only between mothers and daughters, or between mothers-in-law and daughters-in-law, and very rarely among other relatives, friends or co-wives.

In one of the research villages an NGO tried to organise a *tontine*[9] among some women of the same village quarter to facilitate the buying of goats for fattening by its members. After a few months the system failed owing to delayed contributions, arguments and jealousy among its members although these women were related to each other and knew each other well. The women themselves admitted that organising the *tontine*, and indeed any group activity among FulBe women, was extremely difficult. The women who participated had no intention of repeating a similar experience.

The main reason given for this lack of co-operation was mainly mistrust. For pastoral societies, co-operation is not as essential as among some agricultural societies. Women mainly competed for cattle to be allocated to them. Thus their problem was less a lack of labour than concern over access to milk. Furthermore, especially among mobile GaoBe and DjelgoBe, individual households were on transhumance during the dry season and stayed close to their fields in the rainy season. Therefore, any form of co-operation could only be very temporary as households were usually rather dispersed. Another reason for this lack of co-operation was the frequent divorce and remarriage in virilocal context. Women were often confronted with living in different villages among different neighbours in the course of their lives. Thus real bonding may have proved difficult. In general, hardly any woman in the sample expressed any desire to pursue any income-generating activity on a group basis.

Conclusion and Relevance to Development Trajectories

This in-depth research design, with a combination of qualitative and quantitative research techniques, revealed nuances of gender relations in household production and expenditure obligations. It also contributed to a better understanding of FulBe women's perceptions of high socio-economic status. Development practitioners often take it for granted that empowerment of women is achieved through facilitating women's income-generating possibilities and through promoting co-operative production, solidarity and networking. This research suggests that this may not always be in accordance with the goals that women themselves prioritise.

In the context of the study's research area, FulBe women might at the moment actually lose out if they diversified their income sources. Although widespread impoverishment of FulBe in the research area made it necessary for men to diversify their income sources, women rarely did. This was not just due to a lack of accessible resources or because of growing islamisation, restricting women's movements, but mainly due to women's own definition of status. The only income-generating activity most women pursued was the selling of milk products. In rich households,

[9] *Tontines* are associations of individuals who each contribute a certain amount of money at fixed intervals. Each time they contribute money, a different member of the group receives the combined sum. This is a form of co-operation has proved to work well for many West African women in rural and urban areas.

where men could afford to pay for all household expenses – including jewellery and clothes for the female members – women did not even sell milk. It increased their standing in the community, among their fellow women and towards men, if they could adhere to the ideal of Moslem FulBe women not leaving the house to go to market. The cultural ideal suggests that men are responsible – whenever possible – for paying for all household members' needs. Women were in a relatively strong bargaining position when it came to enforcing their husbands' obligations despite their own impoverishment. Women already had heavy workloads in the domestic and pastoral domain and any new activities only added to these.

Women's attitudes towards pursuing 'new' activities may change, especially when confronted with further impoverishment and, for example, more men migrating on a permanent basis. However, these women's right to choose when and what sort of activities to pursue should not be overshadowed by blueprint policies and solutions aiming to help 'empower' women. Policy makers and development practitioners should be careful not to assume standardised 'recipes' for their women's empowerment programmes. They have to question, at least in some circumstances, whether it is 'empowering' for women to take up 'new' activities that risk reducing men's obligations towards the household and subsequently increasing women's workloads. Furthermore, the research has shown that most FulBe women were not enthusiastic about working co-operatively. Given the fact that many households were transhumant for parts of the year and individual women were always likely to divorce and re-locate, collective work would be sporadic or might not be feasible at all.

As much as in other domains of development, women have to be asked first how they could possibly promote their social standing and improve their livelihoods. Pastoral development intervention in recent decades has failed to a large extent. New trajectories in pastoral development and a 'new thinking' are emerging, based on a more differentiated understanding of the social, cultural and historical roots of gender inequalities (e.g. Hodgson, 2000, 2001). Addressing the needs of pastoral women as perceived by outsiders is unlikely to be successful for their societies as a whole. Observing the choices they make is more likely to lead to an understanding of the strategies they pursue and the real nature of the problems that pastoral women face.

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PART FOUR

Social Institutions of Resource Management

Conservation & Development

Earlier chapters have raised questions about outsiders' perceptions and formulations of resource use and livelihood strategies issues. In many cases outside agencies are attempting to foster new local institutions that will work towards goals of sustainable resource management while building equitable, transparent, accountable structures of local representation, consultation, decision-making and revenue allocation. However, the institutions that result may be as much an expression of long contested local identities and power struggles as of the new order they are assumed to represent. The fourth section of this book sets out studies looking at the historical and social background to such efforts, as well as current developments, in the forests of Cameroon and Kenya.

Barrie Sharpe's chapter brings together many of the ideas developed elsewhere in the book, and sets them in historical and social context for Cameroon rainforests. He examines forest degradation debates and emphasises the need to re-read the narratives and counter-narratives in a social and historical light. Whose perceptions drive the debate? How do west Africans read patterns of environmental change? Why are certain questions asked, and are they the 'right' ones, if the answers are to contribute towards forest conservation alongside sustainable development? While other papers in this book deal primarily with the problems of measuring and interpreting change, Sharpe sees as central the question of why different people perceive those changes in different ways, and how those perceptions have been shaped by people's past experience of interaction with governments, entrepreneurs, conservation NGOs, missions and other agencies. How are ethnicity and identity shaped by ideas of indigenousness and exclusion of 'strangers' – a category which may include, for example, fourth generation, economically integrated settlers? How are local elites in turn able to use those ideas to assert control over natural resources, as the basis for wealth accumulation and competition for political office?

There is a striking mismatch between the Cameroonian political hierarchy that has emerged and continues to arise from the confrontation between the Forestry

Division and self-constituted local elites representing villages or lineages. Sharpe shows the mismatch between the Forestry Division's stated aims and objectives and their actual activities and achievements. The rhetoric of mission statements, legal codes, job descriptions and their bureaucratic rationales only draws attention away from the real political and institutional processes of establishing control, 'corrupt' institutionalised accumulation and political power. As Brockington's chapter showed of Mkomazi, Sharpe shows how most donor-funded projects make simple appeals to the degradation narrative, to the myth of indigenous forest people (the 'ecologically noble savage'), and to the face-value agenda of institutions. As a result they miss this complexity and overlook the real nature of interaction between institutions, and between institutions and local people. Sharpe concludes that this has resulted in a misleading focus by research, policy and practice on ethnobotany and NTFP use, rather than on studies of gap ecology and farming systems research more relevant to actual processes of forest use. The 'current panacea' of institution building completely misses the internal debate, critique and contestation of extant institutions, and not surprisingly produces results which are rarely the ones for which donors have aimed.

Monica Graziani and Philip Burnham document the multi-layered complexity and legal plurality of resource control institutions in African forests, including the emergence of such new institutions in Cameroon. They explore the idea of indigenous people and 'communities' of resource management in a frontier zone, and the invention of 'customary' systems for management of rain forest revenues. They test the veracity of ideas of traditional institutions managing local resources. Do such institutions exist to be strengthened? Do they have to be built from scratch? How is revenue money managed as a common property resource where no customary management system was in place before? How are institutions created for managing royalties from logging? What is the interplay of these emergent institutions with local systems of tenure (and/or their absence)? As Graziani and Burnham make clear, 'concepts have power to frame debates and orient action'. In failing to take account of local social and political complexities, particularly with regard to plural legal systems, development agencies have not only constructed precarious and unsustainable interventions around simplistic models, but have actively promoted top-down impositions in the guise of participatory and consultative approaches.

8

Understanding Institutional Contexts to Define Research Questions Settlement, Forestry, Identities & the Future in South-west Cameroon

BARRIE SHARPE

Recent mainstreaming of environment in development discourse and practice has located (local) people at the forefront of landscape management. Many of the associated ('participative') narratives and institutions rely on generalised and mythical assumptions about the meanings of 'tradition', 'indigenous' and 'community', without sufficient recourse to cultural and historical data. Often omitted, and frequently overlooked, are the diverse yet fluid narratives and understandings of history, culture and environment held by local people. Set within south-west Cameroon, this study unfolds the history of a complex interrelationship between the state, local people and contested categories of identity, key to the management of forests. Past colonial emphasis on ethnic identity and exclusivity between indigene and migrant in access to forest resources, has led to current ethnic and settlement identities constituted as much in relation to, and in confrontation with, outside agencies and institutions as they are a product of fluid pre-colonial history. Simultaneously, since its inception, there have been contested forest management rationalities within Cameroon's Forestry Department, and contradictory interventions at local level despite continuing consistencies in facilitating logging. Any simple degradation narrative in this context would fail to capture the complexities of the interactions between institutions as well as between institutions and local people. Recently arrived donor-funded conservation projects, in adopting popularised assumptions about traditional and indigenous practices, have conflicted directly with the reality of pan-local concepts of development through forest valorisation, and hence have failed to identify the key issues for understanding a complex environment and addressing contemporary African resource management problems. Such a legacy of misunderstanding is a fertile and particularly relevant ground for reframing the research agenda through avoiding the constraints of tired degradation narratives and instead focussing on the critical inter-relationship between science and society in contemporary Africa.

Introduction

In line with this book's targets, this narrative aims to do two things: First, to address debates in environment and development, most specifically that between the deforestation/degradation dogma driving attempts at rainforest conservation and scientific forest management *versus* the 'new' development/environment discourse (Fairhead and Leach, 1998). Second, this chapter looks beyond the contestation of discourses or environmental narratives, which is becoming central to policy debates on the 'forest future', to issues of methodology, most specifically the need to understand institutions in historical and organisational context in order to frame research questions. As a colleague said of these institutional discourses: 'Our aim should be not to choose between degradation myths, but to discover measurable realities.'

Before beginning two caveats are in order. Firstly, this narrative is not arguing for a return to a crudely positivist concern with 'the facts'. Broadly, it supports the view that discourse on environmental trajectories and development options has been central to the way that institutional policy and field research have been framed. But it also argues that the replacement of one orthodoxy by another has the potential of foreclosing important research issues on the interface of natural and social science. Thus, while disagreeing with views that accuse social scientists of being 'biological illiterates' or 'social development fundamentalists' (Gartlan, 1997), the paper does argue that research can be informed productively by both 're-reading' environmental narratives *and* by developing new methods for defining change. As argued at the end of the study, the quest for new understandings of the environment, and for accurate measures of change, is all the more urgent since Africa is undergoing institutional (and, perhaps, environmental[1]) changes at a rate that is paralleled only by the period when formal colonialism was established. Like colonial deforestation dogmas, new narratives and research agendas are also embedded in the evolving institutional structures of power/knowledge in the contemporary world.

The second caveat is less complicated: the paper only tangentially addresses the actual use of resources in Cameroon, and certainly not at the level of detail of other chapters in this volume. This is not because such data are unavailable. Considerable data on resource use have been collected under the rubric of a UCL research project[2] (see Burnham and Graziani, this volume, Malleson 2001, Pollard, 1997), and also by biological researchers associated with our team (Sunderland, 1999a, 1999b; Laird, Cunningham and Lissonge, 2000; see also previous work in Sierra

[1] Environmental changes in the early colonial period are not particularly well documented. Ford (1971) describes the role of colonial organisation in the spread of tsetse and Trypanosomiasis, Feierman (1990) documents the environmental consequences of forced resettlement (see also Burnham, 1975, on 'administrative regroupment' in South-east Cameroon). In South-west Cameroon, there is some evidence of massive depopulation and forest regrowth in the late 19th/early 20th century.

[2] The research was part of a wider project funded by the Economic and Social Research Council, UK under the title, 'The Cultural Context of Rain Forest Conservation in West Africa'. The researchers were Philip Burnham, Paul Richards, Michael Rowlands and Barrie Sharpe, with Ruth Malleson as a Research Assistant. Funding by ESRC is gratefully acknowledged. ESRC bears no responsibility for the research findings, which are the authors' own. Further research into the issues of group formation and ethnic/national identity raised in this paper is funded by ESRC by a Global Environmental Change Programme Fellowship, under the title, 'Citizenship and Forests: the political context of sustainability in West and Central Africa'.

Leone by Davies and Richards, 1992). Therefore, the focus here is not on resource use *per se*, but on developing means of understanding the institutional context through which research questions were generated.

Prologue: Degradation Narratives and the Genesis of a Research Project

In 1992 the deforestation and degradation dogma was enshrined in international conventions on the environment. In accord with what has long been the orthodox view of foresters and administrators in West Africa, control of deforestation caused by an ever-growing army of slash-and-burn cultivators and loggers became a major focus in international aid. Notwithstanding a more recent counter-orthodoxy arguing that forest has actually increased in various locales across West and Central Africa (Fairhead and Leach, 1998) and that African landscapes have been misrecognised, deforestation/degradation dogma has been responsible for driving attempts at rainforest conservation and scientific forest management. At the same time, however, the 'new' development/environment discourse adopted during the 1992 'Earth Summit' at Rio puts local people at the forefront of landscape management. Myths of indigenous people (Burnham, 2000) and fables of 'traditional' management and 'community participation' were rapidly deployed from other forest regions and led to a fantastic invasion (Marnham, 1987) of ecological projects. Narratives of forest destruction allowed the construction of an urgent agenda for saving the rainforest which was pushed on the Cameroonian government as part of a World Bank-inspired 'structural adjustment programme conditionalities package'. As increasing amounts of aid were disbursed, conservation projects and timber companies joined in strange alliances to achieve the bureaucratisation of space: its division into tranches of actual or proposed protected areas, managed forest and non-permanent forest estate. In most of Cameroon, though not in the area covered here, this urgent agenda resulted in the Plan de Zonage which allocated territories with little regard for existing patterns of forest use by local people (Penelon & Mendouga, 1995; Sharpe, 1998b).

As anthropologists observing these processes, it was clear to us that this 'new' environmental programme had little or no foundation in knowledge of West African cultures and history. Degradation narratives and the institutions to which they give rise have been shown to have considerable durability, even where they conflict with measurable reality (Fairhead and Leach, 1998). Accordingly, this situation generated a field of research in which Anthropology has relatively little previous experience: how do institutions articulate within the culture of forest West Africa, including that of the state?[3] Specifically this research aimed to document what people of West Africa make of these issues, and to further research into the relationship of science and society in the contemporary African world – a topic which the narrative of degradation either inadequately explores or even conceals.

[3] This topic was researched in a variety of institutional and geographical settings, and amongst a wide range of groups. Details of the methodology are given in Burnham *et al.*, 1996; Sharpe, 1998a and 1998b; Burnham and Graziani, this volume.

Institutions and the Making of Meaning: South-west Cameroon

Studies of natural resource use in rural Africa tend to fall into two styles:

a) Those which view rural life as an unproblematic continuation (albeit in an impoverished, acculturated form) of 'traditional' livelihoods;

b) Those which seek to document causal factors in changing resource use, most often those associated with population change or commercialisation of natural resources. Both styles are founded upon degradation narratives of some form or another, even when the aim of the research is to counter them. Typically, the first style is associated with studies of 'indigenous people's' use of resources, especially the 'pygmy' populations of the Congo Basin, whilst the second is often commissioned directly to inform policy in geographically defined areas for intervention (development projects, protected areas and zones, or planning zones). Both positions are deployed by institutions (governments, political networks, international agencies and NGOs) in less scholarly or more rhetorical ways, to justify development or conservation.

What is common to both styles of framing research questions is their failure to appreciate that the people whose use of resources is being researched have their own narratives of environmental continuity and change, as well as histories based upon memories of past relations with institutions – government departments, NGOs and private companies. This includes, for example, the forestry department, political administration, mission churches, timber firms, European hunters and animal collectors, botanical researchers. While sometimes such interactions may well have been superficial and temporary, many have entered collective memory, and some have had profound effects on the structure of contemporary society. To show how this has occurred in South-west Cameroon, and reverberates in contemporary resource use, it is necessary to present a sketch of the historical background.

A major theme in this account is that there has been a very close intertwining between the development of local level ethnic or settlement identities and the institutional framework governing forest in the colonial and post-colonial state. In tracing this nexus, this chapter also situates forestry in relation to the changing governmental system, especially the system of local and national administration or state power that ultimately enforces forestry policy.

Background

The South-west of Cameroon is now one of the most densely settled areas of the country, inhabited by a polyglot population of settlers, short time migrants and 'indigenes' or 'natives' (the term used in local Pidgin). Over the past century, these indigenous groups have been exposed to forced labour under German colonial rule, the establishment of plantations and in-migration by large numbers of plantation workers and settlers from Nigeria and the Bamenda Highlands. These factors have deeply affected local society and land use today. It is important also to mention that Cameroon has been influenced by three distinct colonial systems, first by Germany (1894–1915) and then British and French (1915–64) as a mandated territory split between Britain and France. One important consideration is that the institutions

established by the German, French and British regimes continue to influence the politics of forest. This is despite there having been major changes to the legal framework governing forest and organisational changes in the forestry service and local government, as well as the arrival of a number of high-profile conservation projects, most of which aim to vest conservation in some form of management by 'indigenous communities'.

These indigenous communities consist of a large number of small linguistic and cultural groups. In the linguistic and ethnographic literature these groups are called Bakweri, Bambuko, Bafaw, Balong, Bakundu, Balue, Bai, Mbonge, Ngolo, Batanga, Korop, Bakole, Mbo, Bakossi, Basossi, Elung, Ninong, Obang etc. Under colonial rule each of these was recognised as occupying a bounded territory, so that administrative maps of the period represent a jigsaw puzzle of political units – 'clans' or 'tribes'. But the reality of these groups as units seems largely to have been a colonial invention. Referring to the precolonial period, Ardener (1975) describes such 'tribal' names as 'hollow categories': a categorical label attached to a group occupying a necessary space in the economy and trading networks of the region. In essence he argues that the 'label' remains over time, but the population occupying this 'niche' changes. Hence language, ethnicity and the particular population are independent forms of classification. The fallacy of colonial rule was to rigidify the ebb and flow of people and categories, and to impose these labels on groups of formerly independent, though linked, village polities.

Ardener's argument to explain shifting 'indigenous' identities in the past cannot be used uncritically, however, since it does not take account of the overwhelming presence of another social category existing alongside the 'tribes' – the category of 'strangers'. The argument explicitly excludes from its explanation of hollow categories precisely the elements which, in the context of colonial South-west Cameroon, made those categories salient. These elements are ethnicity and identity, 'inclusion' and exclusion, 'indigenousness' and 'strangerhood'. It is suggested here that it is the presence of large numbers of 'strangers' that makes 'indigenous' ethnic identity salient, and that the key question is why indigenous identities are nowadays so particularistic and localised. As transpires more latterly in this narrative, membership of these 'hollow' ethnic categories has in fact become more exclusive over time as identity and ethnicity have been contested and constructed under colonial rule and in post-independence politics.

British Cameroon was generally perceived as a 'punishment posting' for colonial administrators. Because of its peculiar legal status, as a League of Nations and then latterly as a United Nations mandated territory, it was ruled from 1915 by Lugard's system of 'Indirect Rule' – the same legal code as implemented in Northern Nigeria. Indirect Rule posited rule through 'traditional' leaders with the establishment of Native Authorities (NAs) based on 'traditional' polities (as identified through intelligence and assessment tours by district officers) as well as the eventual establishment of native treasuries with tax raising powers. Most importantly, all forest and land was vested in the 'traditional' leaders. In all these respects, colonial rule in British Cameroon differed markedly from that in southern Nigeria (where indirect rule was not established until 1931) or in French Cameroon (which followed the infamous system of the *indigenat* – in which natives had few or no legal rights to land). Incidentally, this dual colonial history has considerable resonance in

contemporary Cameroon, which now follows a modified version of the French legal code governing forests (Republic of Cameroon, 1974, 1981, 1994).

Unlike native authorities in Northern Nigeria, where highly stratified pre-colonial states with tens of thousands of subjects had existed for centuries, native authorities in British Cameroon were fairly nominal; many consisted of no more than some hundreds of people, with no political institutions beyond the level of the village. For many years native authorities had few functions and virtually no income. British administrators continually complained of the ineffectiveness of native authorities and of the lack of any overarching political structures above the level of the village.[4] Native authorities, like village politics, were virtually moribund for the first 15 years of British rule.

Alongside this administrative system of Indirect Rule, British colonial government established a number of technical Departments. Forestry was one of these, based in, but not responsible to, the provincial administration.[5] In Cameroons, the Forestry Department was unstaffed until 1929, when the first Forestry Officer was posted to the Province.[6] Coincidentally, this was the period during which the Northern Nigerian system of Indirect Rule was being imposed upon the colonial service of Southern Nigeria after the Aba riots – which meant that colonial rule was in a state of considerable institutional flux. The cases discussed below show that it was the creation of a Forestry Department and of Forest Reserves which vitalised native authorities, led to political contests around forest and office, and made indigenous identity and power worth contesting. In essence, contests with the Forestry Department constituted and changed local identities. Three brief examples of this are given below, selected from a complete review of the relevant Forestry Department archives and District files, drawing out the processes involved and the institutional context in historical sequence.

The first attempt to establish a Forest Reserve in the mangroves of Rio del Rey (Qh/a (1932)/1) immediately sparked off what became known as the Abana Women's Riot (1931): an attempt at resistance by precisely the ethnic group – Bakole – that Ardener takes as his paradigmatic example of a 'hollow category'. Bakole and Efik inhabitants of Abana were already subject to the depredations of the Nigerian Forestry department in their trade with Calabar, where canoes and smoked fish were routinely seized if their owner did not possess a licence to cut canoe trees or firewood. Significantly, the rioters not only rejected a Forest Reserve but also issued demands for an independent native authority.[7] In the event, no Reserve was created, and the area continues to be the subject of both conservation NGO pressure

[4] See e.g. Buea Archive Aa (1942:47): 'Political development of the Scattered Unorganised Clans of Kumba Division.' This is a selection of secret memoranda regarding political developments in Eastern Nigeria and proposals to settle Ibo in Cameroon.

[5] The Forestry Officer in each Province was responsible to the Chief Conservator of Forests in Lagos and later Enugu, Nigeria.

[6] No evidence can be found of any activities other than a tour to survey the forest (Unwin, 1915; Macpherson, 1915). The Buea Archives Qh series provides a near complete run of papers relating to forestry from 1915 to 1974.

[7] Rio del Rey was administered under Indirect Rule by Paramount Chief Manga Williams of Victoria, essentially continuing a German administrative tradition, itself probably based upon the pre-colonial establishment of slave settlements in the area.

and currently international conflict (a small border war with Nigeria over the Bakassi Peninsula).

After this initial failure, the Forestry Department began a process of demarcating forest reserves which constitute the present day reserve system of South-West Province (see Table 8.1). Almost all of these demarcations were carried out between 1931 and 1935, always in response to approaches by logging companies, and always led to considerable local opposition. In many cases actual gazettement was delayed for years, after the logging company withdrew, or due to staff shortages during the Second World War. In either case, legal reservation seems to have had little political priority except where economics overcame the objections of District Officers.

Table 8.1 Dates of forest reserve creation

	Original gazettement	**Amendment**
Korup NA FR	1937	1980 (National Park)
Bambuko NA FR	1939	–
Southern Bakundu	1940	1952
Rumpi Hills NA FR	1941	1953
Barombi Lake	1940	1948
Mokoko River	1952	–
Mbonge NA FR	1953	–
Buea Fuel Plantation	?	1953 (Crown Land)
Bakossi NA FR	1950	1956 (Gov. Prot. FR)
Mungo R. FR	1951	? (exists?)
Bakweri Protected Forest	1958	1988 (degazetted)

The second *vignette* relates to the late 1940s/early 1950s. Based on colonial land law, Forest Reserves were under the custodianship of native authorities – in practice, a loose assemblage of village chiefs and elders constituted as a Native Authority Council. From the archives and from oral history, there is little doubt that these village leaders profited personally from their legal custody of forest by giving permission for small-scale timber extraction, farm-land or hunting and collection rights. By the late 1940s, however, a new generation of village politicians was contesting their elders' power. For example, in 1948 the opposition of young Bakundu to the extension of the South Bakundu Forest Reserve was such that the Administration considered the use of armed police (Qh/a 1946/3; Qh/a (1949)1; Qh/a 1950/3); and in 1951 the Kumba Native Authority were accused by young men of the Cameroons National Federation, 'of being traitors for allowing Forest Reserves'. Around the same time, the younger generation of Bakweri contested native authority control of Forestry revenues on the basis that these were benefiting only the members of the Native Authority Council and not the villages from which these royalties were earned (Qh/a 1957/1). Whilst the Bakweri Council cohered around control of forest royalties, the Bakweri Young Men's Association sought to bring control of forest revenue down to particularistic village-level groups.

In this case both the colonial native authority administration and the Forestry Department were overtaken by events. Starting in 1958 (Brandler, 1993) and accelerating with the arrival of heavy mechanised logging equipment, an almost

uncontrolled timber boom began. One of the effects of this was to give even further impetus to ethnic and village-level identities as groups and individuals scrambled to identify themselves as the native owners (now phrased as 'indigenous custodians') of forest. Amongst the wealth of papers (Qh/a series, 1917–74) in the Buea Archives concerning disputes over village chieftaincy and membership, astonishingly detailed inventories of forest resources are also furnished. Thus from the village of Ekona Lelu:

> 50,000 merchantable trees and our share according to our existing Agreement [with a timber company] is £2:-s-d. per tree.
>
> Plantations and farms for the ten square miles which is equal to 8600 acres will yeiled [sic] Approximately (p.a.) 25,8000 this in the real case can't work unless there is a motor road. [parentheses inserted]

The letter (Qh/a 1957/1) goes on to separately list the total value of, 'sticks, rafters, ropes, bamboo, honey, pineapple, bush pepper, bush animals', all totalling £4,352:-s:-d. Finally the, 'Men and Women of Ekona Lelu' conclude with an appeal to their model of development:

> We want more people, Strangers and Firms in our land and the only way to attract the people is the Land, and if the Land is reserved then the development of this area may be lacking for the next ten or fifty years.

In the event, villagers around Mount Cameroon entered into private royalty agreements with logging companies, often on overlapping 'traditional' village territories.

Opposition to the Forestry Department and forest reserves during the colonial period was piecemeal (especially in contrast to parts of Eastern Nigeria) and reflects the fragmentation of indigenous political units and village institutions – a theme continually occurring in colonial assessment and intelligence reports. But this obscures other more general developments in local political systems and local models of development which were more fundamental to the subsequent history of the forest and of conservation. Forest reservation and forest resources provided the base for the native authority system of wealth accumulation and for the development of community and ethnic political identities associated with it. At the same time, confrontation with the Forestry Department and logging firms helped to create the exclusionary identity of village 'citizenship', which is nowadays used to exclude 'strangers' from almost all political institutions (village or national). The intertwining of forest and politics provided a base for self-constituted elite 'representatives' of the indigenes: representatives who may claim an overarching 'ethnic constituency' but in fact may represent only a village, a lineage, a household, or themselves. This in turn, led to a proliferation of elite 'representatives' and reinforced the schismatic 'crab antics'[8] politics of clan, village, and ethnic identity.

Finally, the native authority system began a dynamic process, by firmly linking the possibilities for accumulation of wealth from timber resources with competition for political office. Thus, the succeeding post-independence history of the forest is

[8] 'Crab antics' (Wilson, 1973) has been used to describe political processes in the Caribbean by which successful local politicians are recurrently brought down by their opponents: The comparison is with crabs in a bucket whereby any of them which may climb to the top of the pile (and thus escape from the bucket) are brought low by other crabs climbing out from under them.

closely tied to the process of centralisation of political power at the apex of the emerging hierarchy of the Cameroonian state. Forest concessions became the spoils of office, and the history of resistance to Forestry law reflects contests between levels of the political hierarchy: first, between chiefs and villagers, then between native authority and chiefs, and later between the government of West Cameroon and the native authorities. The final transformation was the legal decree of 1981 which effectively wrested control of forests from local 'communities' to the unified state centred in Yaoundé (and now, reportedly, to the Presidential office itself).

The narrative thus far can be summarised as follows: it has been suggested that the contemporary stress on indigenous ethnic identities, on exclusionary village 'citizenship' and the problems of mobilising political constituencies have been formed within the context of colonial legal and technical institutions governing land use and forest resources. Thus, to take up again the theme of Ardener's 'hollow categories', these are revealed to be far more historically constituted than Ardener suggests, and to have been constituted in relation to outside agencies and institutions as much as by the pre-existing regional economy itself. Current ethnic and settlement identities have been created in the confrontation with forestry institutions.

However, it was suggested earlier that the other problem of Ardener's account was that it only sketched one side of the development of new ethnic and settlement identities – that of the 'indigenes'. But these groups are only a tiny minority of the population of south-west Cameroon.[9] The majority, composed of numerous distinct groups, but collectively known as 'strangers' (even if they are third or fourth generation settlers), have been excluded from political office and yet have not been able to mobilise to alter their position. This second part of the chapter therefore aims to explain the paradox of inclusion of strangers in settlement organisation and identity formation alongside their exclusion from political constituencies. As will be seen, forest was central to this process, but is now on the larger canvas of the Cameroonian state.

Indigenous Models of Development: Forest Conversion and Attracting Strangers

Thus far, emphasis has been placed on the attempts of colonial government and the post-Independence state to establish a bureaucratic organisation of space (the alienation of land for plantations and forest reserves, the mapping of concessions, the establishment of native authority or, later, local council boundaries). Much of this activity was technically almost impossible to achieve given the institutional and manpower resources available[10] – an issue that continues to plague the Forestry

[9] Just how small a minority is hard to quantify: Recent Cameroon censuses have not distinguished origins – all are notional citizens of the nation. Ardener and Warmington (1960) estimated that Bakweri were outnumbered by strangers 16 to 1 in Victoria District in the 1950s. Konings (1993:68) gives figures for 1985–6 for the CDC workforce but not the surrounding settlements, in which only 5% are indigenous to Fako Division, 19.5% originate in South-West Province, and 73.5% from North-West Province.

[10] For example, the boundaries of forest reserves were marked only by cairns, mud pillars or natural boundaries (streams, paths) rather than concrete markers. Accordingly, many reserve boundaries are no longer known, with consequent conflicts with local communities, or arbitrary destruction of farms by forestry guards.

Department, the State and international institutions to this day (see Burnham and Graziani, this volume). For most of the indigenous population, there were considerable areas of forest in which to develop new strategies for forest conversion and development, informed by new institutional and legal frameworks but using or avoiding them in innovative ways.

These strategies focus upon expanding the frontiers of settlement, increasing cash-cropping and farm incomes, gaining roads, dispensaries, schools and water or electricity. Local people recognise that such development is impossible from local resources alone. It depends upon valorising the forest through logging or artisan chain sawing and upon increasing the population by attracting settler 'strangers', which in turn demands new developments in institutions for social control and communal security. The forest societies of south-west Cameroon have been able to incorporate such strangers only partially within local institutions, whilst both strangers and natives rely upon co-opting various institutions of the State as a means to maintaining social order within settlements.

Identity and political (community) constituency in these composite settlements are deeply problematic. For many residents and observers they are perceived as unstructured, dangerous and disorderly. Indigenes and strangers accuse each other of causing violent crime. 'Graffis'[11] cite the weakness of chieftaincy; Ibos[12] term Cameroonians 'bush men' (and *vice versa*). Ethnically based subgroups of south-westerners blame communal insecurity on the youth of each quarter. Finally, youth in general blame their elders' greed (in selling land) for their current poverty (Sharpe, 1998a).

Political control in such forest settlements depends partly upon quasi-traditional institutions such as village councils of 'indigenous' citizens and co-opted 'stranger' quarter heads. In villages containing a high proportion of 'floating' migrant labourers or smugglers, indigenous households employ various means of surveillance and invoke local bye-laws which effectively curfew strangers' movements at different times of the day or night[13]. Many settlements levy a payment on strangers entering the forest, ostensibly in case they get lost and have to be rescued (Malleson, pers. comm.) but also as a means to control the movements of strangers. Surveillance alone has its limits, however. Responses to this problem have developed within a nexus composed of the sale of forest land as a means to incorporate of wealthier strangers, and achieving an accommodation with the state.

Strangers do not form a homogenous group. They vary from indentured day labourers to smallholders renting or buying small parcels of land right through to wealthy urban people who lease or buy 50 hectares or more. This variation reflects historical changes in patterns of accumulation and the progressive rise of the urban

[11] 'Graffis' is the Pidgin term used by other Cameroonians to denote the people originating from the Bamenda Highlands or 'Grassfields'. The political organisation of Bamenda chiefdoms is markedly more highly centralised and stratified than any of the indigenous forest societies. This distinction is exacerbated by multi-party politics: The main opposition party has its power base in Bamenda, and many party branches in the forest zone are supported mainly by highlanders. In contrast, many indigenes, and certainly the indigenous elite, support or have been co-opted into the ruling party.

[12] Ibo is used here in preference to the more current spelling - Igbo - since this is how the name is spelt in Pidgin.

[13] For example, a labourer who is not on his master's farm in the daytime will be interrogated on whether he has his master's permission to be in the village.

elite and their investment in farming. In many cases, sale of farming plots has led to 'downstream benefits' for indigenes (e.g. larger supplies of market goods, reciprocal services). Strangers often have important roles in the organisation of towns and the continuing construction of social order: in one case a stranger was granted land in return for killing elephants which were believed to be local villagers/witches. In others, retired government workers brought their skills with them as pharmacist, agricultural officer or other similar, or provided access to trading networks or patronage. Fundamentally, the social composition of settlements reflects a whole series of micro-political processes – 'reputation' or 'respectability' in Wilson's terms – by which individuals and groups with a huge range of skills and resources are melded into the semblance of a community. But at the base of this is the local 'model' of development through forest valorisation which we have already noted in the inventory from Ekona Lelu.

Forest colonisation is subject to some local strategies and control but is also responsive to the changing regional and national political economy/distribution of powers. On the one hand, powerful strangers contribute social resources to village organisation in return for access to forest resources such as land (and the timber standing on it). On the other, wealthy strangers have superior access to the resources of the state – in particular, officials in the Ministry of Territorial Administration and Forestry Department. At the local level, their power comes directly from outside and relies upon the state. Yet, at the same time, forest colonisers fear that their construction of order is unsupported by effective state control. Like villagers, they share a sense of pervasive insecurity. Forest colonisation is an entry into a 'frontier' beyond the state, a frontier where the institutions of the state are rather unreliable, where official laws are contested by historically grounded 'tradition' backed by supernatural power.[14] Just as the native authority system relied upon forest reservation and exploitation, and in doing so created elites and 'indigenous people', so also the co-option of wealthy strangers, using forest and land, is creating new identities – with settlement membership (not citizenship), with property (but not village level power) and using a mixture of pre-existing and novel institutional forms.

Many of these relatively new institutional forms, dating from the 1970s and 1980s are themselves now being confronted by even more recent attempts to impose further bureaucratic controls over the forest, introduced with externally imposed institutional conditionalities such as multi-party elections and good governance. One response to this has been to reinforce calls for the reintroduction of the native authority system into new arenas, focussed upon the issue of indigenous forest management, but with the new institutional concern of conservation.

Continuities and Changes in Forestry Department Practices and Laws

Earlier, a very brief sketch was given of the historical development of a colonial Forestry Department and the attendant construction of a category of 'indigenes'. Since Independence, land and forestry law (and the bureaucratic institutions which

[14] In a number of cases, villages have closed their forest to loggers or conservationists using emblems of the *Male* or *Ekpe* cult associations. Equally, many elite politicians are unwilling to either publicise their visits to their natal village or to remain there overnight, for fear of witchcraft or sorcery.

administer it) have had a rather complicated history, one that is far too difficult to trace here. In brief, there have been three major revisions (in 1974, 1981, 1994) of law and ministerial 'placement' of the Forestry Department. Only two of these have major importance for this study. The law of 1974 followed on from the unification of anglophone and francophone Cameroon and replaced the structure of (British) native authority control of forest resources with the francophone system where forest, as 'land without master', became the property of the state. It also had the (intended?) effect of changing the way that log volumes were measured (from cubic feet to metric measures), thus making it impossible to gauge whether forest exploitation had increased. (Several people have stated to us that the records for the period 1969-79 were taken to Yaoundé and burned.) The 1994 law followed on from the establishment of a Ministry of Environment and Forests (itself a response to the need for representation at the 1991 Rio conference). Of these two legislative changes, only 1974 can be said to be a response to national political concerns. Much of the rest of the environmental legislation was imposed from outside. The 1991 submission to the Rio conference was largely drafted by consultants and NGOs. The creation of a Ministry of Environment and Forest and the separation of the Forest Department from Agriculture both seem to have been responses to World Bank conditionalities. The 1994 Forest Law contains provisions for community management as well as rather draconian provisions for protection of biodiversity. Indeed, it envisages a major reorganisation of both the aims and the values of the Forestry Department toward local people and the forest estate (for example, by setting up a Community Forestry Unit). However, there have been considerable obstructions placed in the implementation of these provisions (see Penelon and Mendouga, 1995; Burnham and Graziani, this volume).

Beneath these legal changes, though, there are considerable continuities in Forest Department culture.

Logging concessions

The main priority of the Forest Department remains, as it has been throughout its history, the facilitation of logging concessions. Whilst now, when logging royalties and taxes go directly to the central Treasury[15] there is no direct link between logging revenues and institutional expansion (as there was during the colonial period) there are nonetheless powerful pressures on the Forestry Department, and individuals within it, to grant concessions and to minimise bureaucratic control. Indeed the under-funding which makes most Forestry posts unable to carry out any of their technical functions probably reflects the real institutional priorities within Forestry and also in government at large.

Besides ratifying logging volumes, and collecting taxes and royalties, the Forestry Department has a number of other activities within its remit. These include supervising management plans submitted as a legal requirement for logging concessions, protecting the forest estate 'for all time' (as one anglophone forester put it), controlling illegal extraction of timber or NTFPs, and controlling hunting by 'non-traditional'

[15] Under pressure from donors, especially the World Bank, Cameroon is being urged to set up a fund from logging revenues to support forest regeneration. At the same time, however, donors plan eventually to privatise most of the FD's activities.

means. With a few changes in detail (such as the explicit ban on the use of sub-machine guns and searchlights for hunting, in the latest Forestry Law) these activities are largely a continuation of the colonial forestry service's role. In most respects, except attempts at control of illegal timber, NTFP collection and hunting, local officials significantly fail to carry out these duties. Forest Reserves, for example, are often conspicuous in having no trees, even in otherwise densely forested areas. Management Plans are ignored or negotiable. In their role as controllers of hunting NTFP collection and 'illegal' chainsaw operations, forestry officials are amongst the most disliked government servants at the local level. Thus in a survey of young peoples' career aspirations that was carried out in a number of locations including villages around Korup National Park, not one respondent mentioned Forestry as a possible career. (This was in spite of the widespread perception that working for the Forestry Department is a road to a significant illicit income.) Overall, the Forestry Department conforms closely to M.G. Smith's (1963) analysis of corruption, with attacks on corrupt officials serving more as a pretext for their transfer or defeat in intra-Departmental politics than as an attempt to create a functioning forestry service. Since Independence, and even before that, it is hard to find any evidence of effective activities by the Forestry Department in forest management and protection. Thus for example, whilst the Forestry service embraced FAO's recommendations for logging in a report commissioned for the TFAP, there is no evidence that the Forestry Department has ever controlled logging before the TFAP or since. Similarly, the organisation responsible for forest regeneration – ONADEF – is widely recognised as having completely failed in its remit with annual reports detailing visibly small areas of regeneration.

The debate on forest use

Contested rationalities in regulating forest use were marked even in the colonial period. Officials within the Forestry Department had contradictory views on forest futures. Thus, while H.N. ('Timber') Thompson was addressing strident calls for forest reservation to the Cameroons administration (and to that of the Gold Coast [now Ghana]), his colleague Unwin had written that he saw, 'no need for reservation at present, nor for the foreseeable future, except to protect watersheds and steep slopes' (Unwin/Macpherson, 1915). Similarly, when it was proposed to establish a forest reserve on Mount Cameroon to prevent the spread of grassland and the hunting of elephants, these proposals were resisted and eventually ruled out by the colonial Forestry Department, on the grounds that, 'this would preserve no useable trees' (See National Archives, Buea, Qh/a 1926/1, Qh/a 1933/2). These and numerous other inter-Departmental debates quite clearly contradict the supposed uniformity of a degradation narrative emphasised by Fairhead and Leach in 'reframing deforestation'. And yet the same arguments were rehashed in planning meetings and 'participatory' workshops in the 1990s (LBGRCP, 1994; MCP, 1996)

Forestry department interventions

Notwithstanding the considerable funds devoted to institutional reform, the Forestry Department continues to make contradictory interventions at the local level.

Different branches of Forestry Department are engaged in uncoordinated activities (e.g. community participation versus confiscating chainsaws). Different Ministries thwart each other's programmes. In one case that I witnessed, Forestry Department staff confiscated and sold the crops of a women's cooperative which had been formed by the local Ministry of Agriculture official with loans from a donor funded programme. Crops were confiscated, allegedly, because the farm encroached on a Forest Reserve, even though the land had been allocated by the village council and confirmed by the district officer. Staff of conservation projects own chainsaws and rifles, and rent them out to 'illegal' hunters and loggers. Ministries and projects argue over who has responsibility for forest related programmes, and who takes the spoils.

Past forestry policies

Current preoccupations of the Cameroon state (and popular culture) with development through forest valorisation are mirrored by the diversity of earlier views, amongst colonial officials. Whilst foresters argued for reserves and income generating logging concessions to build up 'scientific forestry', political officers were often very strongly opposed to this, with some arguing that local development should be left in the hands of native authorities, using timber revenue as they pleased, whilst others argued that South-west Cameroon was largely empty and under-utilised. Thus, for example, the Buea archives contain a highly secret proposal to resettle Ibo from densely populated eastern Nigeria. This file was clearly never intended for Cameroonian eyes, though there is good evidence that it was leaked to them (Amazee, 1990).

Some conclusions on forestry policy

From the foregoing points I would argue that any simple appeal to a single degradation narrative or concept of local resource management completely fails to comprehend the complexities of the interactions between institutions as well as between institutions and the local populace. Over all, it is clear that by sticking to the rhetorical level of legal codes, bureaucratic rationales for action and the terms of reference/job descriptions of forestry officials (or contemporary consultants), any analysis which tries to draw some single degradation narrative merely scratches the surface of a complex political and institutional process. Yet, that is exactly what donor-funded projects for conservation and resource management did, when they arrived on the scene.

Contemporary Changes: Enter the Conservationists

In brief, the entry of rainforest conservation projects into south-west Cameroon, beginning in the early 1980s, was largely a matter of happenstance. The Korup Forest Reserve (established in 1936) became a candidate for conservation (and eventually a National Park in 1980) only because a higher priority area in Littoral Province of francophone Cameroon became unavailable. Mount Cameroon has long been a candidate for protected area status (even though this was rejected repeatedly

by the colonial Forestry Department [Qh/a 1926/1]). Attempts to establish a biodiversity reserve, under the aegis of an ODA (now DFID) project were largely an add-on to an infrastructural development/refurbishment of the Limbe (formerly Victoria) Botanical Garden.[16] Possibly the Mount Cameroon reserve may have been included to make the project acceptable in an era of new-found environmental concerns, or possibly for its usefulness as a 'green' project in ODA's aid portfolio which was otherwise largely skewed towards trade and aid (for example, the Pergau Dam). The third, much smaller, conservation project at Mount Kupe seems largely to have been selected after visits by frog collectors who, adventitiously, pushed up its biodiversity index in much the same way as has been documented for the Gola forest of Sierra Leone (Richards, 1996).

It is noteworthy that even conservationists such as Gartlan (1997) now protest against the hegemony of a crude count of 'biodiversity' in defining areas as candidates for protection. The origins of all three projects are shrouded in myths of consultation with local people, but the realities of their 'fantastic invasion' (Marnham, 1987) are very different. The proposal to turn Korup Forest Reserve into a National Park was lobbied by WWF at the national level in Yaoundé. The consultation process for the LBGRCP project was so minimal that it took some years for the project to discover that much of the area it was seeking to protect was leased to the CDC, the largest parastatal agro-industrial company in Cameroon. Now, eleven years after the project began, it seems finally to have recognised that a formally bounded Biodiversity Reserve is unlikely ever to occur (especially since there is no legal status for such an entity).

Basically, both Korup and Mount Cameroon were promoted as part of an urgent agenda for conserving rainforest pushed on the Cameroonian government as part of a multi-donor, but World Bank-inspired, structural adjustment programme conditionalities package. Similar urgency could be seen at work in 1994, when a German funded project on Mount Cameroon, overlapping the area of operations of LBGRCP, was pushed through the GTZ and Cameroon bureaucracy in record time (GTZ consultant: pers. comm.). A final layer of unsolicited funding came in 1995, via the GEF and resulted in survey work and inventories which, like much of the GEF funded activity world-wide, has been evaluated as being neither scientifically innovative nor of benefit to the development of the countries concerned. Overall, the total expenditure on these projects to 1999 was at least $26 million, excluding the Cameroonian contribution.

Lack of consultation and over-hasty implementation led to bureaucratic confusion. Each of the projects is placed under a different Ministry: the ODA/DFID arm of the Mount Cameroon project is under Environment and Forestry, the GTZ arm is under the Ministry of Planning, whilst Korup, as a National Park, falls under the Ministry of Tourism. From the mid-1990s until recently, the ODA and GTZ projects were pursuing contradictory objectives in the same area, whilst Korup and the ODA project were assimilated into one by local people on the basis of the almost identical white Land Rovers both projects used (Sharpe, 1998a). Accordingly the

[16] Established by the Germans around 1900, the Limbe Botanical Garden is one of the few functioning botanical gardens in West Africa with ready access to a range of ecological zones. It is also, purportedly, in an area of uniquely high biodiversity. ODA became involved after an intervention by the Royal Botanic Gardens Kew.

'participatory' attempts to negotiate boundaries for the reserve on Mount Cameroon were vitiated by the anti-poacher and resettlement activities of Korup. Further confusion reigned supreme when the vehicles were used for 'unofficial' control activities by project staff. How much of all this bureaucratic confusion was intentional is questionable, though it does reflect the spoiling tactics characteristic of inter-Ministry relations that occurred at the local level in the previously described Bambuko case.

The arrival of conservation projects added a further layer to an already complicated 'bureaucratisation of space'. Protected areas and managed forests were laid over a pre-existing pattern of CDC leasehold lands dating from the German period; British inspired forest reserves; the francophone legal code which defined vacant land as state land in either the 'Permanent' or 'Non-Permanent Forest Estate'; various uncodified customary tenure arrangements; and, finally a richly confusing series of zoning plans relating to the preparation of Cameroon's Five-yearly Development Plans. (There was also a South-West Province Integrated Development Project plan, though this project had been effectively inactive for years.) For some reason anglophone South-Western Province was spared from inclusion in the *Plan de Zonage* (cf. Graziani and Burnham, this volume), most probably because the latter was funded under bilateral aid between Canada and francophone countries, possibly in recognition of the Quebecois lobby in Canadian politics.

In this confusion, the Forestry Department, with its official remit of forest protection and control, came to play a major part in conservation activities. Once again invoking the danger of forest degradation by local farmers, hunters and NTFP collectors, conservation projects set out to control their activities either through the standard protect-and-patrol techniques of Forestry Departments world-wide, or through negotiations and institutional capacity building in local communities. Bringing with them, also, the notions of indigenous people and pristine rainforest, and the threat to them both from migrant farmers, projects sought to build up a local lobby for conserving the forest. In doing so, they excluded the vast majority of the population – the strangers – from consultations, though this has latterly been rectified to some extent.

Degradation Narratives and Research Questions: Finding the Wrong end of the Stick

Reviewing the historical and institutional context in south-west Cameroon it is hard to see any on-the-ground correspondence between local use of forest resources, and attitudes towards them, and the degradation myths which have generated research and intervention by the Forestry Department or, more recently, by conservationists and development workers. Some key points emerge:

- Contrary to stereotypes, 'indigenous people' are at least as concerned with forest conversion as are immigrant farmers. Indeed, their very identity as indigenous people has been constructed in response to challenging control of resources by institutions of the colonial and post-colonial state.
- Attitudes and practices toward forest resource use are not sharply distinctive as between indigenes and strangers. Both share a similar set of ideas and attitudes

about forest valorisation. A more salient distinction is between urban-based large-scale capitalist farmers and small-scale peasant producers (*cf.* Homewood and Lewis (1987) on a similar distinction in impacts of stocking in a pastoralist context).

- So far as is evident, high forest increased during the nineteenth and most of the twentieth century. But, *pace* the 'new' environment/development paradigm, this might have had less to do with local management than with population decline and social fracture.
- Rather than managing forest, the Forestry Department has been far more active in facilitating logging, and the establishment of Forest Reserves was for production not protection.
- Korup (Forest Reserve) was not chosen for gazettement as a national park due to its unique, untouched, biodiversity, but because it was available and had little logging value at the time.
- The 'one-size fits all' notion of conservation promoted by outside agencies conflicted directly with the concept of development through forest valorisation held by local people and officials of the Cameroonian state.
- Changing law and policy failed to address continuities in Forestry Department practice and roles.
- Promotion of indigenous community management was not founded on any historical or institutional knowledge and excluded the majority of the population.
- Attempts to control 'poaching', to introduce permanent farming, animal husbandry and substitutes for NTFPs were not founded on any knowledge of either animal population dynamics or local farming systems.

In spite of these facts, the policies and research agenda followed by conservation projects was set virtually exclusively by deforestation dogma. One botanical survey, for example, hailed the Mabeta-Moliwe forest on the coast near Limbe as one of the most species diverse in Africa (Cheek, 1994). In fact, we know from historical records that this same locality was densely settled up to the middle/late nineteenth century (Saker, 1908)

The myth of indigenous forest people led to a heavy concentration on local use of NTFPs and medicines/ethnobotany, to the exclusion of gap ecology or farming systems research, both of which are of far more use to both understanding a complex environment and addressing contemporary African problems. The same myth, promoted through film and the portrayal of forest people in conservation propaganda, has served to misinform its western audience significantly: contributing, for example, to a highly misleading representation of NGO's relations with the environment, local populations and the African state (*cf. New Scientist* 7/11/98 'Rumble in the jungle', see also de Merode, this volume)

Irrespective of whether they are government departments or NGOs, to take institutions at face value (in accordance with their stated mission statement, roles and functions) is seriously misleading. While evident from interviews that local people, officials, politicians, conservationists have highly varied prescriptions for the forest future (and the steps to be taken to reach it) it is the case that *institutional* capacity building has become the new panacea for protection of forest reserves and the Korup National Park. In many respects, this move to making the state work (again) is to be supported, though not that it is necessary to reform law once again. But

institutions cannot easily be divorced from their history. The near-universal establishment of Environmental Action Plans under World Bank conditionalities, the new structures of forestry departments and laws, the massive retrenchment of the bureaucracy are all supposed to be part of a reform programme. But if the institutions, whether they be colonially inspired indigenous citizenships or post-colonial government departments, already have internal modes for evaluating institutional capacity and a rich seam of internal critique, why not work with it? Simple critiques and simple panaceas are not much use.

An alternative research agenda would include:

- Understanding social as well as natural resources and the interrelation of the two via concepts such as the reproduction and investment of land and forest revenue in social relations (Sharpe, 1998b)
- Analysing the (common) distinction of indigenes and strangers as a dynamic process, interacting with resource use in various complex ways besides simple competition and conflict.
- Research into stranger livelihoods as well as those of 'indigenous' forest dwellers (Malleson, 2001)
- Research into commercial trade in forest resources rather than a presumed simple trajectory of resource degradation through commercialisation and over-exploitation.
- Research into gap ecology/regeneration (Dounias, 1993).
- Research into rural resource use by urban elites, and social differentiation in resource use.
- Overcoming the rather limited spectrum of work on rainforest/human interactions in comparison with other environments.
- Research into the politics of environmental citizenships, especially in relation to the current fashion for deconstructing the state (Sharpe, 2000).
- Perhaps most important of all, is the need for further research into the relationship of science and society in the contemporary African world, a topic which the quasi-certainties of simple degradation or regeneration narratives prevent from being adequately explored.

Conclusions

This chapter has set out to illustrate the complexity of institutional cultures surrounding contests about forest. It is important that this complexity should not just be understood as simply contests for a 'resource' – though it certainly is that. Rather the contest around 'forest' is also a contest around identity, community and political mobilisation. It is a contest to control institutions but it is also an historic process in which imposed institutions – notably the Forestry Department itself, but also the entire administrative system of 'Indirect Rule' and the post-colonial state – have structured the arena within which the formation of identities and political mobilisation have taken place. On the one hand, local-level identities have been constructed in reaction to administrative institutions, especially the Forestry Department. On the other hand, local groups have fought out the contest to control these same institu-

tions, creating in the process the highly fissile and exclusionary political system which is characteristic of the region today. The history of the forest is thus, inextricably, also a history of contested and contesting identities and groups developed in specific institutional frameworks.

Glossary

CDC	Cameroon Development Corporation
DFID	Department for International Development
FAO	Food and Agriculture Organisation
GEF	Global Environmental Facility
GTZ	Gesellschaft Für Technische Zusammenarbeit
LBGRCP	Limbe Botanical Garden Rainforest Conservation Project
ODA	Overseas Development Administration – now DFID
ONADEF	Office Nationale pour l'Aménagement et le Développement des Forêts
TFAP	Tropical Forestry Action Plan
WWF	World Wide Fund for Nature

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9

Legal Pluralism in the Rain Forests of South-eastern Cameroon

MONICA GRAZIANI & PHILIP BURNHAM

Donor-sponsored rainforest management programmes in much of Africa have been characterised by social naiveté, inadequate understanding of local tenurial systems and use of ethnocentric socio-legal terminology. Common misconceptions of 'traditional' systems of resource rights and sociologically uncritical concepts of 'community' have hindered recognition of the complex, legally plural and changing nature of African forest tenure systems. Using two ethnographic cases drawn from the East Province of Cameroon, that of the Nzime and Baka peoples of Lomié Arrondissement and the Gbaya Boli of Bimba Canton, this chapter describes the socially differentiated patterns of rights to forest resources in these two areas and considers the local level impacts of Cameroon's new national forestry legislation and management plan. The new legal provisions for villagers to benefit from commercial logging taxes, as well as attempts to promote community forest management, have generated numerous conflicts at the village level, as competing local interests attempt to assert more exclusive rights to forest resources in the face of more inclusivist kinship-based modes of usage. In these contexts, actors have drawn on multiple tenurial notions to substantiate their claims and to exclude others. Moreover, Baka people, due to their lack of an effective political voice, have been unable to use their longstanding relations with the more politically articulate Nzime to benefit from logging concession income. The case studies demonstrate the complexity of systems of resource tenure in the societies of the forest zone of Cameroon and emphasise the necessity for forest management initiatives to begin to recognise and engage with more nuanced understandings of social order, accountability, collective action and political competition if they are not to continue their track-record of failure.

Introduction

This chapter aims to highlight the central importance of an adequate understanding of the marked degree of legal pluralism that is typically found in societies of the

humid forest zone of central and west Africa, for effective programmes of forest management.[1] Over the past fifteen years or so, increasingly urgent concern has been expressed in environmentalist circles regarding the need for conservation of the region's rainforests. Central to these initiatives, and the donor aid programmes that are associated with them, has been a debate over the most appropriate tenurial framework for rainforest management, which has mainly been conceived in terms of three competing alternatives: 1) forests as state property; 2) forests as private property, or; 3) forests as the property of local communities. A particularly strong influence in these debates, in the context of the structural adjustment programmes to which Cameroon and many other African countries have been subject, has been the voice of the World Bank, whose neo-liberal policies have been strongly anti-state and pro-privatisation. Nonetheless, over the past several years, a faction within the World Bank that has become increasingly visible has favoured communal property rights as a solution to environmental management. In consequence, a more pluralist approach to resource tenure is emerging and being advocated by some World Bank officials, although there is still a marked aversion to state control (Burnham, 2000; see also Bassett, 1993; Goldman, 1998a and 1998b; Schroeder, 1999).

As a result of this policy focus on the management potential of common property regimes, there has been an upsurge of interest in recent years in environmental management and development circles in 'traditional' systems of resource tenure, associated with an increased emphasis – at a rhetorical level at least – on participatory modes of development. Unfortunately these moves have typically been characterised by a marked sociological naiveté and an inadequate grounding in the substantial ethnographic and theoretical literature available on African tenurial systems. Various reasons have been adduced for this inadequacy. Bailey (1996: 317–18), for example, points to the inherent complexity of the various knowledge domains and disciplinary specialisms implicated in the conservation and development nexus and the 'necessary preoccupation' of conservationists with issues other than social ones. Ferguson (1994) has argued, on the other hand, that such knowledge gaps (or, one might say, purposeful oversights) are intrinsic to the way in which external interventions, such as development or environmental management projects, are planned and executed. In particular, as the title of his book *The Anti-Politics Machine* suggests, Ferguson has shown how development agencies such as the World Bank manage to define their interventions in narrowly technicist terms, thereby excluding consideration of fundamental and determinative socio-political dimensions of the societies in which they work.

There is no space in the present paper for us to review the large literature on

[1] Most of the information for the present paper was gathered in the course of a collective research project funded from 1992 to 1995 by the Economic and Social Research Council's (UK) Global Environmental Change Programme under the title 'The Cultural Context of Rainforest Conservation in West Africa'. The researchers were Paul Richards, Michael Rowlands, Barrie Sharpe and Philip Burnham, with Ruth Malleson as research assistant. Monica Graziani also worked on a similar research theme with funding from an ESRC doctoral studentship. In the course of this research, Philip Burnham, Monica Graziani and Barrie Sharpe also served as social advisors to the Department for International Development (U.K. Government), in the context of its support for the Community Forest Development Project, attached to the Cameroonian Ministry of Environment and Forests. Funding by the ESRC and DfID is gratefully acknowledged. However, neither organisation bears any responsibility for the arguments advanced in this paper, which are the authors' own.

resource tenure and legal anthropology of Africa. In any case, quite a few useful reviews and discussions are already available (e.g. Biebuyck, 1963b; Moore, 1978; Roberts, 1979; Allott and Woodman, 1985; Peters, 1987; Merry, 1988; Bassett and Crummey, 1993; von Benda-Beckmann, 1993; Karsenty, 1999; Ribot, 1999). For our present purpose, we will simply summarise several fundamental insights arising from this literature that have long been widely accepted. Firstly, as expressed by Biebuyck (1963a: 3–4), African systems of resource tenure are typically characterised by a complex 'imbrication of rights'. For example, tree tenure may be separate from land tenure, and socially differentiated categories of persons often exercise differential rights in these various categories of resources. Second, given the socio-legal complexity of African tenurial systems, there is a marked risk that Western observers may misinterpret the content and social implications of these systems, particularly as a result of the application of inappropriate and ethnocentric terminology derived from Western property law (Bohannan, 1963). Third, contrary to popular images of timeless, static, 'traditional' systems of customary rights, the modes of resource tenure commonly found in African societies are typically quite responsive to historical change. As Bruce (1993: 35) has remarked,

> (African tenure systems) ... are frequently referred to as 'customary' or 'traditional', a misleading practice because they change and evolve quite rapidly; often an important customary rule turns out to be only a generation old.

And fourth, African systems of tenure are usually characterised by very marked degrees of legal pluralism, that is, the co-existence within a single society of multiple legal corpuses, derived from different historical sources and applied in differentiated ways and in varying degrees to different social categories within that same society. This last feature is not simply the result of colonial and post-colonial history, with western-derived law overlaying indigenous conceptions of rights, but also derives from the fact that many African rural societies are themselves marked by ethnic pluralism and histories of conquest, mobility and incorporation of culturally diverse populations.

Many of these insights have been amply borne out in observations made in the respective research fields of the authors over the past decade or more, in the humid forest zone of South-eastern Cameroon. In the course of this fieldwork, the authors have had the opportunity to document the active debates and contestations over forest resources that are commonly occurring in the rural communities of this region today, primarily as a result of external interventions of logging companies, biodiversity conservation projects, environmental management planners, and the Cameroon state. We will shortly turn to an analysis of two ethnographic cases to illustrate these points, after a brief discussion of recent legal changes in the Cameroon forestry sector.

Cameroon's 1994 Forestry Law

Potentially, the most important development in Cameroon's forestry sector during the whole post-colonial period was the passage of a new national forestry law in 1994. Enacted under the pressure of donor-mandated environmental and economic conditionalities, with the World Bank taking a leading role, the new law represented an attempt to modernise and rationalise Cameroonian forestry. Drafted by expatriate

consultants, who made considerable use of standard 'off-the-shelf' clauses and who engaged in very limited consultations with the diverse range of persons having interests in forestry issues, the law was rammed through Cameroon's National Assembly against the widespread opposition of deputies from forest-zone constituencies. Although the 1994 Forestry Law is too lengthy and complex to discuss fully here (see Nguiffo 1994; Ekoko 1997; and Brown 1999 for useful discussions), it is appropriate to highlight some of its main features as they relate to our present cases.

Although the 1994 law reinforced the conception of the state as ultimate owner of Cameroon's national forest estate, the law did create the possibility, for the first time, for local communities and municipalities to gain control over forest resources in their neighbourhood, through the institution of community and council forests. Through the creation of a community forest, the inhabitants of a rural community can establish exclusive rights to the sustainable management and exploitation of a 5,000 hectare tract of forest. The legal steps involved in this process are quite elaborate, including the creation of a community management committee with a written constitution, the precise survey and physical demarcation of the forest tract, and the formulation of a simplified management plan, all of which steps must be approved by the prefectoral authorities and the Forestry Department. Several commentators, remarking on this procedural complexity which is quite ill-adapted to the realities of rural community life in Cameroon, consider that the existence of such substantial legal hurdles is a reflection of the fundamental mistrust of rural people's motives and management capacities on the part of many expatriate and Cameroonian foresters, who have little sympathy for notions of community forestry.

The conception of a council forest as defined in the new law, on the other hand, appears to be closely associated with the World Bank's favoured policy of governmental decentralisation. As more and more responsibilities are being devolved from the central government to the level of municipalities, there is a correspondingly greater and greater need for new modes of revenue generation at the local level. Whether or not this was the original thinking behind the concept of council forests in the 1994 law, they are now being seen as (ostensibly sustainably managed) logging concessions of some 50,000 or more hectares in size, the revenues from which accrue to municipal coffers. The 1994 law also stipulates the channelling of a proportion of logging taxes, paid by private sector timber firms, toward local *communes* and village populations.

Finally, the 1994 Forestry Law also envisioned the creation of a national forest management plan (commonly referred to as the '*Plan de Zonage*') for the whole of the humid forest zone of Cameroon. Under this plan, the forest zone was to be subdivided into areas reserved for particular uses. The responsibility for establishing this plan was allocated to a firm of Canadian consultants who, once again, engaged in no local-level consultations (Côté, 1993). Indeed, the plan was produced on the basis of interpretation of air photos and satellite imagery, with no ground-truthing. The key distinction in this plan, as far as forestry is concerned, is that between the 'Permanent Forest Estate', which is reserved for (putatively sustainable) commercial logging or forest conservation activities, versus the 'Non-Permanent Forest Estate', which is the zone in which diverse forest usages are permitted, including agriculture, community forestry and logging. Although the *Plan de Zonage* remains provisional, with the theoretical possibility remaining that it can be subject to detailed

modifications resulting from confrontations with the reality on the ground, the practical implementation of such local adjustments, on a country-wide level, seems quite unlikely. Indeed, it is very much an open question as to whether this plan, in its present form, will ever be systematically implementable, although it is already being used, in a largely adventitious manner, to promote the aims of powerful interests in the commercial logging and conservation fields.

It is perhaps appropriate to close this section by emphasising just how text-governed the Cameroon state administration is. Under Cameroon's French-inspired legal system, which is based on a tradition of Napoleonic law rather than common law, government administrative procedures are, in principle, based only on legal texts. Without a specific legal text to authorise action, a Cameroonian government administrator should not act. Of course, this administrative tradition is absolutely made-to-order for the bureaucrat who does not wish to act, or who wishes to endlessly complicate matters by quoting conflicting passages of the law, or who is blatantly seeking a bribe in return for 'facilitating' an administrative procedure. It is also important to recognise that the co-existence of plural and often conflicting legal principles, in present-day Cameroon, offers further scope for bureaucratic prevarication and obfuscation.

The Case of Lomie Arrondissement

The first of our case studies is based on field research carried out by Monica Graziani, from 1996 to 1998, in the *Arrondissement* of Lomie in the East Province of Cameroon. This area is one of the last relatively densely forested zones in Cameroon which, only in the last few years, has begun to attract intensive commercial logging activities. In such conditions, Graziani was offered a privileged opportunity to observe legal change in action, as conceptions deriving from Cameroon's newly enacted forestry law, combined with the influx of logging companies, first impacted upon the rural villagers of this region. The reader should certainly not get the mistaken impression that the authors are claiming here to describe a case where a timeless system of 'traditional' law first came into contact with externally imposed state law. The history of more than a century of varied colonial and post-colonial contacts and change in this region gives the lie to any such naïve notion (see Kaeselitz, 1968 for example). However, the populations of the Lomie *Arrondissement* do display complex and varied corpuses of customary principles of land and resource tenure, which have been visibly influenced by the recent innovations in Cameroon's forestry law, as Graziani was able to document at first hand.

With a population of some 16,000 inhabitants in its 13,600 km^2, the Lomie *Arrondissement* has one of the lowest population densities in Cameroon (1.2 persons/km^2). The Nzime, a people speaking a language of the Bantu family, are the largest autochthonous people, but linguistically related Bantu groups like the Njem and the Njeme also inhabit the area. The Baka pygmies, for whom we do not have accurate demographic figures, are also found in significant numbers. The present settlement pattern in the Lomie *Arrondissement* consists of small villages of some 200 to 400 inhabitants, situated along roads and tracks. Adjacent to Nzime villages Baka encampments are often found. This settlement pattern is the result of policies of resettlement and sedentarisation implemented by the colonial governments and

supported by the efforts of Christian missionaries.

Nzime social organisation

Clusters of Nzime villages are grouped in separate politico-territorial areas (***ngura*** or ***epan***), often associated with a dominant patriclan and today coterminous with cantonal units within the state administration. Nzime social organisation is characterised by a segmentary patrilineal structure, and the Nzime conceive of their socio-political organisation as a hierarchy of progressively more inclusive co-residential (***mbè bur***) and politico-jural groupings (***jyèè***). Several 'households' (***mbèr***), the smallest residential grouping, form the ***mbè bur*** or 'extended family' which is still seen as the primary socially important unit and is normatively based on shared identity, cooperation and production. ***Mbè bur*** members are linked by kinship or by affinal or clientelistic ties. One or more ***mbè bur*** together constitute the patrilineal descent-based residential quarters (***jyèè***) that constitute villages, which in turn are grouped into village clusters associated with clans (***eyong*** or ***mbè bur***). The agnatic core of the ***mbè bur*** group is referred to as ***bèn e kunu***, of five to six generations depth, and is formed by those constituent 'households' whose heads are patrilineally related to a known deceased ancestor. Local descent-based segments (***bèn e kunu***) are still in some cases demarcated by the existence of a men's meeting house (***ma mpah***). The unity of this group is conceived of as resting on collectively held rights over property (livestock, land holdings, bridewealth), custody of dependants, as well as collective action, responsibility and representation. The totality of its agnatic members and other residents and dependants is referred to as ***mbè bur jyèè*** – followed by the name of the most recently deceased common ancestor. The word ***jyèè***, which in its general meaning refers to 'descent', can also be used to refer to any level of descent segmentation, according to the context in which it is employed. Therefore, each village, represented as a higher order of ***jyèè***, is seen as a sub-unit of a patriclan (***eyong*** or ***mbè bur***), which is today largely localised within a territory.

For the purposes of our present discussion, it is important to note that Nzime terms for descent groups and those for residential groups are often used, in normal day-to-day contexts, in an inexact and ambiguous manner – the normative assumption being that since residential groups are formed on the basis of descent relations, the one set of terms maps accurately onto the other set. However, in fact, among politically uncentralised forest peoples such as the Nzime, the constitution and persistence of village groupings is a political accomplishment of competing leaders rather than the mechanical expression of normative rules of descent. Such leaders draw upon a diverse array of social organisational discourses, including relations of patrilineal descent, matrilateral kinship, marriage, generosity and exchange, to attempt to recruit and retain their followings. In practice, therefore, significant numbers of a Nzime village's population may well not be patrilineally related but may be linked to village elders by relations of clientage, often glossed in terms of matrilateral ties. It is to draw a veil over this fact, in the course of everyday life, that Nzime often obfuscate the terminological distinctions between members of a residential group who are 'true' agnates versus those whose connections to the group are based on other ties. However, in situations of heightened contestation over resource rights or in other contexts in which social exclusion rather than

inclusion is the goal, Nzime social organisational terminology offers ample potential for distinguishing agnates from non-agnates.

Up to the present day, then, Nzime social organisation still presents characteristics of an acephalous society, although a formalised village chiefship has been instituted as a result of incorporation into the colonial and, subsequently, into the post-colonial state administrative structures. The effectiveness of the judicial and representative role of the village chief, whose position is in principle inherited today, largely depends on the support and recognition of village members and varies between settlements. A pervasive 'egalitarian ideology', the internal contradictions between pragmatic individualism and collectivism, as well as flexible processes of group formation based on a competitive 'ethos of big-man-ship' (Vansina, 1990), still work against the legitimisation of such leadership and repeatedly call into question social cohesion and cooperation.

Baka social organisation

There exists a longstanding inter-relationship between Nzime and Baka groups, based on clientelistic ties, which is rooted in the history of the political economy of the region and of Equatorial Africa more generally. Relations phrased in terms of 'friendship' and kinship were often sealed through ritualised pacts in the past. Today they are more commonly established through practices of hospitality and 'generosity' by Nzime toward individual Baka and their descendants, mainly involving exchanges of goods and services. Nzime also act as mediators for their Baka associates vis-à-vis the outside world.

Reciprocal social and economic relations, based on the different systems of knowledge of the two groups, mutually influence their modes of subsistence and environmental usage. Despite an increasing tendency toward sedentarisation, forest activities still remain significant determinants of Baka individual and group mobility, and forest products are still of primary importance for their subsistence. For a large number of Baka agriculture is still an activity mainly undertaken in the context of labour prestations provided to Nzime villagers. Baka spatial mobility and resource usage are as much functions of connections with Nzime villagers as they are of links between Baka themselves. Such links with Nzime villages and a relative decrease in mobility are also inevitably affecting Baka principles of social organisation and patterns of land and resource appropriation. Over the course of their annual round, the Baka reside in several types of settlement (***bala*** – general term for forest camp), which are differentiated according to season as well as the location, duration of stay, group composition, and types of activity carried out there (see also Bahuchet, 1992; Joiris, 1998). For the purposes of this paper, we will only briefly describe the collective, semi-permanent village camp (***gba***) and the collective forest camp (***gbagala***).

The village camp (***gba***), often located near a road, has nowadays become an important point of reference in the mobility patterns of Baka individuals and families and also represents an important element, albeit not the sole one, in the definition of their collective political identity and solidarity. This type of encampment is constituted around a core descent-phrased residential group (***nda na bo***) representing the dominant patriclan (***yee***), usually formed by a set of brothers and sisters (categorical or real), with their respective spouses and children, as well as other

attached kin and affines who may reside in the camp for variable periods of time.

Yee-, followed by the name of a 'totem', refers to the categorical patriclan. It is defined by a rule of exogamy, as well as by totemic dietary prohibitions but lacks a comprehensive internal genealogy and lineage segmentation. Typically, the total membership of a single patriclan does not live together but is scattered across a number of camps and/or 'regional bands' (Bahuchet, 1992), often identified with a demographically dominant patriclan, and a camp may be comprised of several different ***yee***. These other descent-phrased residential groupings (***nda na bo***) of different clan memberships represented in the camp are attached to the core group through various kinship (***mobila***), affinal, as well as ritual ties between important elders in present or past generations (see also Joiris, 1998). The composition of a camp is thus not homogeneous but is likely to change during the year due to temporary fragmentation and aggregation dictated by seasonal mobility for forest activities and for occasions such as ritual gatherings, births, or funerals. Each encampment is, in fact, a part of a larger social entity ('regional band' – Bahuchet, 1992) and maintains special relationships with other encampments through kinship and ritual ties (Joiris, 1998). 'Absenteeism' and even more permanent withdrawal from a camp may result from disputes and, in this sense, mobility is a mechanism for conflict resolution.

During seasonal forest activities, members of a village camp (***gba***), sometimes joined by members of other neighbouring encampments, often reside for a period in a collective forest camp (***gbagala***). At this forest camp, members will regularly separate and re-aggregate to form temporary groups in order to undertake specific activities. In summary, Baka society is characterised by a fluid social organisation with no institutionalised political leadership. Membership of a camp can be claimed through ties of kinship, patriclan membership, marriage, and ritual association, as well as on the basis of longstanding residence and solidarity in collective activities.

Concepts of resource tenure in the Lomie region

The vocabulary used by Nzime to express property relations, that is relations between individuals or groups with respect to control over things, reflects the differential statuses of the persons involved as well as the relations of power underlying their day-to-day social interactions. There is a risk that one may fail to grasp the flexibility inherent in these notions of resource tenure if they are presented as a highly systematised and homogeneous repertoire of normative rules. Property concepts among the Nzime and other Cameroonian forest peoples do not constitute a *corpus juris* as such. Rather, they reflect basic orienting principles that inform and constrain behaviour and expectations, while at the same time providing opportunities for re-interpretation and manipulation by social actors placed within networks of social relations. As we shall see, much therefore depends on the social contexts in which such terms are applied.

Among the Nzime, different conceptions relating to various notions of identity and 'belonging to' are expressed through the utilisation of three different verbs: ***egumo e***, ***ejo'o e***, and ***edumo e*** (cf. Beavon and Beavon, 1995). Patrilineal affiliation is defined by ***egumo e*** ('to engender'; 'to reproduce') which is used in the context of any order of descent grouping. Group membership of non-agnates, based on

residence and matrilateral ties as well as on relations of dependency to the head of the residential group, is expressed by ***ejo'o e*** ('to be under the authority of'; 'to obey'). In fact, the same term can be applied to the authority exercised by senior elders over resident patrikin as well. ***Edumo e*** ('to be the concern of') refers, in the first instance, to reciprocal rights over resources and property 'collectively' held at any level of residential descent grouping. This term also refers to membership of the category of matrilateral kin of the individual speaking and, by implication, to the enjoyment of shared rights for certain purposes. As Graziani observed, however, these different acceptations of the above terms were not clearly and consistently applied by informants who, in everyday life, tended to use the verb ***ejo'o e*** indiscriminately.

One could say that all three terms refer conceptually to qualities proper to 'corporate' groups. ***Egumo e*** expresses group membership and solidarity thought of as resting on descent-based rights and obligations; ***ejo'o e*** defines membership and solidarity based on residence, as well as the power and legitimacy of a 'leader'; and ***edumo e*** refers to collective representation and collective action in common affairs based on consanguineal kinship as well as on residence. The same terms, ***egumo e***, ***ejo'o e***, and ***edumo e***, are also extended to express notions of 'control' and 'proprietorship' relative to objects, land and resources. Yet, the above notions do not specify the content of the rights and prescriptions they express, nor do they define the nature of individual and group liabilities. Such norms embody ambiguities and are only general, abstract principles that are subject to interpretation when applied in practical cases. Furthermore, an individual's social positioning within the hierarchy of local groupings is often multiple and overlapping, and the multiplicity of alternative meanings gives scope for manipulation and choice.

The diverse patterns of Nzime forest utilisation tend to create multiple and cross-cutting 'activity areas' which are subject to multiple tenurial arrangements. By and large, the forest is still today criss-crossed by paths leading to and delimiting hunting, fishing and gathering areas exploited by inhabitants of different Nzime villages as well as Baka encampments, especially neighbouring ones linked by kinship and co-operation (in particular those belonging to the same ***epan***). The more a forested area is subject to an increasing and repeated utilisation by one or more individuals or groups, the more sub-units of utilisation are created. The spatial extent of 'activity areas', as well as the degree of social exclusion practised with regard to these resources, are both conditioned by various factors including the nature of the activity; the resource's scarcity and its spatial distribution; the duration and frequency of the resource's exploitation; concepts of vegetational and other resource classifications; the composition of the user groups; the presence of plantations and/or abandoned fields nearby as well as; individual socio-economic exigencies and priorities. As a result of such factors, these sub-units can be further subdivided and redefined and their surfaces may shrink or enlarge accordingly.

In this context, the underlying principles implicit in the concepts of 'belonging to' described above, have to be interpreted against the backdrop of these modes of resource use, which are primarily based on the central notion of the embodiment of an individual's labour in a resource (or 'agency'). The intensity and frequency of human utilisation and impact also influence the degree of legitimacy of claims, as well as their perpetuation over time. Clearing the forest for cultivation and planting perennial trees is the most extreme, long-term form of 'appropriation'. Finally,

concepts of 'belonging to' must be understood with reference to Nzime moral constructs that also uphold abstract notions of each person's rights to a minimum level of individual well-being and social reproduction – rights that, at least ideologically, imbue forest resources with a notion of 'common good'.

In addition to such 'customary' concepts, within the day-to-day resource tenure practices of the Nzime other tenurial notions pertaining to colonial and post-colonial 'formal law' have also been accommodated and are available as possible alternatives to press claims. Two such are the French concept of *mise en valeur* – valorisation through productive improvements such as perennial crop plantations, or the establishment of administrative boundaries through government action. Depending on the context, the nature and purpose of the 'object' or resource in question, and the degree of human impact, the three Nzime terms discussed above have come to refer to different potential degrees of exclusiveness of tenure – from 'communal' to more individuated rights of control, use, and disposal.

Thus, the three terms ***egumo e***, ***ejo'o e***, and ***edumo e*** may be applied to the same type of resource, with subtle distinctions in meaning that often remain implicit. At the most encompassing level, ***egumo e*** can serve to express the 'socialisation' of land and resources over which local groups hold 'sovereignty', and which is transmitted by the ancestors and perpetuated through social reproduction and human intervention. Members exercise 'custodianship' and enjoy reversionary rights of access as well as of decision making (***edumo e***). The effective legitimacy, boundaries and principles of membership in these groups are, however, only defined by the specific context. Members also acquire rights of usufruct and control over land and resources (***ejo'o e***) by virtue of membership, residence, and affiliation in local groups. The degree of exclusiveness increases with individual 'agency', and ***ejo'o e*** has come to express more individuated rights when referring to swidden plots, perennial crop plantations, standing crops, purchased or built 'objects', as well as livestock and money. Yet, ***ejo'o e*** can also be thought of as being a function of descent, and to signify ultimate decision-making powers and control (***egumo e***) exercised by the leaders of descent groups. With respect to cash-crop fields, ***egumo e*** acquires a significance closer to a western notion of 'ownership' because rights of control, use, and even alienation rest primarily with the individual who created or inherited them. However, kin still enjoy reversionary rights of access (***edumo e***).

Nzime 'activity areas' intersect or overlap with those exploited by neighbouring, associated Baka groups. In many cases, forest areas were opened with the aid of Baka associates, or else, Nzime utilise the same forest trails to access areas exploited by their Baka partners. Seasonal mobility for forest activities is undertaken by Baka within areas (termed 'home ranges' by Bahuchet, 1992) called ***epaki na bele*** or ***epaki na gba***, which extend into the forest from the road and village sites. A whole Baka encampment community (***gba***) moves and settles at different locations along a forest trail (***kpaje***) which is the axis of its 'home-range'. This is not a bounded territory as such but is said to be delimited by certain natural landmarks at the extremities that border other 'home ranges'.

On the one hand, spatial mobility and resource usage are the expression of ritual and socio-economic practices between Baka groups themselves. On the other, the extent and spatial layout of Baka 'home-ranges' are influenced by Nzime activities

and 'activity areas', as well as by administrative boundaries between villages and *cantons*, a fact that is also acknowledged by Baka informants. However, there was a certain disagreement among them regarding the extent to which boundaries on the road do indeed conceptually extend into the forest and whether such delimitations of the forest itself really regulate access to resources between neighbouring encampments. While some informants stressed the observance of such 'boundaries' and the existence of norms and practices defining rights of exclusion, others emphasised the egalitarian and communal aspects of resource usage as well as the relevance of ties of kinship, affinity and ritual relationship in facilitating access. Graziani's own observations revealed several criteria and moral rationales that informed and regularised practices of resource usage, even in cases where there existed antagonism between encampments. Indeed, she did not observe any instances in which putative exclusionary rights were ever enforced. Although there was a general tendency to use forest trails associated with the camp of residence, actual processes of resource exploitation rendered the spatial layout of adjacent 'home-ranges' more blurred and flexible than normatively described by informants. Further inland from the roads, trails merge or converge in areas that are exploited by several neighbouring camps belonging to the 'regional band'. Moreover, families and individual members of different encampments, linked by kinship and ritual networks, might gather and disperse for relatively long periods of time in forest camps situated in different 'home ranges' (see also Bahuchet, 1992: 232).

The Baka case also exemplifies the way in which, for most activities, people advance claims substantiated or legitimated by several different 'institutional' arrangements and/or socio-economic considerations. In practice, Baka residential mobility and access to resources are affected by quite a variety of factors, including: 1) residence in an encampment based on clan membership or on matrilateral kinship or alliance with the local patriclans (***yee***) represented at the camp; 2) networks of ritual association, as well as of kinship ties, alliance and 'friendship', between members of different encampments; 3) the aggregation of different camps for collective forest activities and for initiations, funerals, etc.; 4) the notion of 'home-range' established through the opening and regular utilisation of forest paths and surrounding forest areas by the camp; 5) notions of state administrative boundaries and residence in a camp defined as an administrative unit; 6) varying tenurial claims attached to particular resources according to their cultural and economic values, including their scope for commercialisation; 7) clientelistic ties with Nzime associates through whom they acquire access to land (for agriculture), residence, consumer goods, cultivated foodstuffs and protection and 8) the presence or establishment of their own farms and cocoa plantations as markers of tenurial rights.

Nzime people, for their part, conceive of Baka rights to forest resources in different ways. The opinions they hold range from idealistic egalitarian concepts of universal rights to a livelihood, notions of 'communality' and 'shared good' between 'brothers', and indisputable rights of the Baka as first inhabitants of the forested area, to ideas of generosity and mutual obligation implied in the binding relationships of 'friendship' and 'kinship' that link them to the Baka. Ultimately, however, it is the last-mentioned criterion that most informs practice and that justifies Nzime action in situations where access to resources is called into question. Then, Baka are considered by the Nzime to acquire rights by virtue of their association with Nzime

descent groupings, upon which 'guardianship of the land' is thought finally to rest. In extreme circumstances, as was the case in the context of logging exploitation in two villages Graziani observed during 1997, the rights and obligations implicit in this already rather fluid inter-ethnic relation were subject to drastic re-interpretation. In this case, Nzime patrons proved themselves to be unwilling to act as intermediaries and to defend the interests of their Baka 'clients'.

Distribution of logging taxes and local resource tenure

As explained above, the Lomie *Arrondissement* was one of the last areas of dense humid forest in Cameroon to be opened up to commercial logging. By the end of 1996, the first small-scale logging permits had already been allocated in the 'Non-permanent Forest Estate' in the district where Graziani was working, and negotiations were taking place about upgrading roads and bridges. The allocation of larger concessions in the 'Permanent Forest Estate' was still in the bidding stage, and sources at both the local and the national level reported that the political party in power was awaiting the results of the national elections to determine the successful bidders, based on the amount of political and financial support received during the campaign. Although only tangential to the subject of the present paper, it is nonetheless important to recognise that commercial logging in Cameroon is an activity that attracts the close attentions of numerous interest groups external to the local village context. Local and 'external' elites attempt to seize on these opportunities for personal gain, through obtaining small-scale logging permits for themselves; by sponsoring illegal, opportunistic timber exploitation; or by acting as political brokers on behalf of the large, expatriate logging firms. Many of these elites are also involved in party politics and are looking to consolidate or reaffirm the support of local constituencies. (See Geschiere, 1982 for an extended discussion of relations between elites and their villages of origin.) In this context, they are likely to act as mediators between rural villagers and timber companies in negotiations over the construction of local infrastructure. Likewise, the Government of Cameroon can also be seen to play multiple and often contradictory roles in such situations, as it attempts to maximise its financial returns from timber revenues, to pay off its creditors, and to enhance its political support in local forest-zone constituencies while, at the same time, improving its credibility with the World Bank and other external donors and non-governmental organisations by adhering to the 'Green' conditionalities associated with the 1994 Forestry Law. It is this complex of political-economic forces that impacts on the local level in situations of commercial logging and defines the larger context within which diverse, legally plural logics work themselves out in practice.

The arrival of logging activities provoked an immense turmoil in the villages where Graziani was working. Suddenly, villagers were faced with the immediate consequences of the Cameroonian state's basic principle of land tenure that all lands that are 'vacant and without master' belong to the state, as well as the new forest management policies stipulated in the 1994 Forestry Law and the *Plan de Zonage*. The brief remarks that follow are based on Graziani's observations in one village following the arrival of a logging company, a situation never encountered in that area before. The aim here is only to give a general sense of the implications of legal

pluralism in such situations, the detailed documentation of which may be found in Graziani's doctoral dissertation.

To benefit from the new fiscal arrangements relating to logging royalty distribution under the 1994 Forestry Law, the village population was required by the Government of Cameroon to organise themselves into a village committee (*comité du développement villageois*; CDV). Evidently, those who had drafted the relevant legal clauses had sought to stimulate collective management of resources for the general good of the 'community' and, as observed by Graziani, villagers did indeed make an initial attempt at mobilisation, encouraged by local and external elites, to guarantee the interests of the local 'collectivity'. However, the considerable and unprecedented monetary value that standing trees had now acquired (the CDV in this case had some £10,000, plus gifts in kind from the logging company, to administer), combined with the prospect of employment opportunities, further gifts and fees from timber companies, and other personal gains (economic, political, and prestigious), provided enhanced support for the individualistic and antagonistic tendencies within Nzime society. As a result, criteria of 'the common good', equality, group solidarity and legitimate enjoyment of access to communal property resources were reformulated in ways that exacerbated longstanding intra-village conflicts and provoked the emergence of new ones.

In the end, the creation of the CDV did not result in effective community management of resources. The CDV did not enjoy widespread legitimacy and, as is commonly the case in Cameroon's acephalous forest societies when control over money or other wealth objects is at issue, there was evident mistrust of any arrangement that implied that certain individuals would be responsible for investing funds, ostensibly for the general good of the 'community'. Moreover, the CDV was unable to control disorderly behaviour within the village directed toward the logging company or to have its decisions accepted. It became evident that, in opposition to the CDV's plans for collective investments which had been promoted by village leaders and external elites, other social categories in the village held different ideas as to what constituted development and modernity. Of the options proposed for infrastructural development, the purchase of an electrical generator was perceived by the majority as offering scope for 'elders' to extend their authority by taking control and dictating its use. Concerning the digging of wells, people expressed pragmatic preoccupations of maintenance, liability and responsibility for inappropriate use, which would have been difficult to enforce. In contrast to these proposals, a vociferous group of women and youth, joined by some of the senior male population from opposing factions, pressed for the individual sharing out of money rather than collective investment. These opposing groups all had different agendas but united in this same cause which was in clear opposition to the 'establishment'. For the majority of the villagers, the timber royalties were definitely a situation to be seized upon but they wished to do so in terms of local conceptions of appropriate usage of wealth (purchasing clothes and other forms of consumer goods, building a following through sharing of wine, organising dances and travelling to town). Very few invested in home construction or modernisation, although some of the women seemed to capitalise better on the opportunity by investing in products for sale. For a few villagers in dire need of cash, access to their share of the revenues permitted them to purchase foodstuffs, medicines, etc.

That the CDV, and the elders and elites who gave it public support, failed to push through their plans for community development and instead yielded to the villagers' demands for the distribution of revenue on an individual basis should not be too surprising. The CDV had simply been grafted onto a politically uncentralised society – that is, one that lacks effective structures, in the form of formal political offices or corporate institutions, with the legitimate authority to regulate that society's collective affairs (see Karsenty, 1999: 158 for a comparable analysis of such events). The literature on Cameroonian forest societies is replete with discussions of the lack of effective mechanisms of consensus building in such cases and, particularly, the prevalence of witchcraft beliefs as social levelling mechanisms (Geschiere, 1982, 1995; Eyoh, 1998).

As regards the various notions of 'belonging' discussed above, different members of the village drew on competing interpretations to bolster their positions in the debate over rights to forestry revenues, although there was a notable tendency for the patrilineal descent principle to be the most frequent point of reference in these discussions. And yet, even within local descent groupings, although conceived of on a day-to-day basis as having clearly established boundaries and membership, status claims and associated rights were not always defined, in practice, with reference to the usual criteria of ***jyèè*** membership. Instead, actors drew on multiple tenurial notions in efforts to substantiate their claims and exclude those of others. The first instalment of 'gifts' (money and goods like machetes, hoes, cocoa pesticides, and sheets of aluminium roofing) was shared, apart from the Baka, in a rather equal way. But during the subsequent distributions, criteria of social differentiation (young unmarried women, 'sisters' sons', and 'strangers'), social stigmatisation (illegitimate birth, descent from a slave, and other secrets that, previously, had been jealously kept by the elders) became more overt and were used to legitimise biases in sharing and in deciding priorities for employment in the timber company. Even people who had long lived or were born in the village and owned plantations and/or who had 'strong' genealogical links with local descent groups, were suddenly faced with this new social status of stranger and increasingly lost their ability to press claims. This was not solely a decision taken by the CDV but one which was imposed and supported by the majority. The youth took a large part in these animated confrontations. In the end, as already stated, collective control over timber royalties was rejected in favour of an individualistic solution and unequal share-out.

In the case of the Baka, as intimated above, the circumstances of accentuated conflict over resources within the village led to their exclusion from access to timber revenues, apart from a few thousand francs CFA, although they were given some minor gifts in kind. Some did attend the early village meetings, but they never had a say in the entire process. Conscious of their inarticulateness, shyness, and fear of intimidation, they were prevented from speaking up. They initially tried to express their opinion and to obtain what was due to them through the mediation of longstanding clientelistic ties with some village figures, but with little success. Despite the language of friendship and brotherhood that normally predominated in daily relations between Nzime patrons and their Baka clients, the Baka's lack of an effective voice in the public affairs of the village rendered such concepts null and void in this competition over 'communal' resources.

The Case of Bimba Canton

Our second case study, that of the Bimba Canton, offers the opportunity to examine issues of legal pluralism within the context of the new 'community forest' conception, as embodied in Cameroon's 1994 Forestry Law. The Canton of Bimba, which has been the site since the 1970s of ethnographic and historical studies conducted by Elisabeth Copet-Rougier and Philip Burnham, also offers an excellent example of some important socio-legal processes that are characteristic of environmental management projects. By happenstance, in 1994, a French-funded forest management project known as API (*Aménagement Pilote Intégré*), set up in the first phase of Cameroon's Tropical Forestry Action Plan, selected Bimba as the location of a pilot project to establish a community forest according to the principles of Cameroon's 1994 National Forestry Law (Pénelon and Mendouga-Mebenga 1995). Prior to this, the history of Bimba had been a complex one, having been founded in the nineteenth century by Gbaya Boli migrants from what is now the Central African Republic. In the mid-nineteenth century, the area into which the Gbaya Boli had moved was, in Copet-Rougier's words (1998: 53), 'an ethnic mosaic without unity' and conflicts were frequent between neighbouring peoples such as the Boli, the Mejime and the Kako. From the about 1870s onwards, both the Boli of Bimba and their present neighbours the Kako Mbogendi had become politically subordinated to the important Gbaya chiefdom at Bertoua, which itself had been established as a client chiefdom within the slave raiding and trading system of the Muslim Fulbe state of Ngaoundere. Our purpose here, however, is not to rehearse the details of this history, which has already been documented in several publications in any case (Burnham 1980; Burnham, Copet-Rougier and Noss, 1986; Copet, 1977; Copet-Rougier, 1987; and Copet-Rougier, 1998). Rather, it is simply to establish the facts that: 1) the population of Bimba and adjacent areas is constituted of a complex layering of populations of different cultural origins, and; 2) inter-community relations in this zone have long been the subject of contestation.

Although the API-aided effort to set up a community forest in Bimba was the first such attempt in Cameroon's history, having been initiated prior to the full enactment of Cameroon's 1994 forestry law, it still remains today the most comprehensive and thoroughly researched attempt of this sort yet undertaken in Cameroon. Indeed, as we write some five years after the law's passage, no community forest has yet been created in full accordance with the new law's prescriptions, although several community forests have been granted to prominent elites in the name of their 'communities', in an irregular manner, effectively as cover for illegal logging activities (Milol, 1998). The Bimba community forest proposal remains blocked today, having failed to surmount various legal and procedural hurdles in its path. Notwithstanding its still-born nature, the well-documented Bimba case offers several important insights into the implications of legal pluralism for programmes of forest management.

The steps toward the eventual creation of a community forest at Bimba, as discussed by Pénelon and Mendouga-Mebenga (1995),[2] consisted of: 1) creation of

[2] Throughout this chapter, reference is made to the unpublished report by Pénelon and Mendouga-Mebenga (1995) as our primary data source on the Bimba community forest experience, since it is more detailed than the published version by Pénelon (1996).

a community forest management committee within Bimba village, in conformity with the requirements of the 1994 Forestry Law; 2) cartographic demarcation of the 'traditional' territorial limits of the village of Bimba, vis-à-vis neighbouring villages (some of which are inhabited by different ethnic groups – especially the Kako and Mejime); 3) comparison of these boundaries with the boundaries between the Permanent and the Non-Permanent Forest Estates, as defined in Cameroon's new Forest Management Plan, and; 4) determination, on the basis of these mapping and participatory consultation exercises, of the extent of forest available within Bimba's village 'territory' that could be allocated to community forest management. Beyond these steps, had the Bimba community forest proposal not become stalled by bureaucratic blockages at the prefectural level, several other procedural requirements would have had to be fulfilled, most notably the establishment of a 'simplified' plan to be used by the community for the management of its forest (MINEF, 1997), as explained above. What strikes one immediately when reading the detailed texts relating to community forests in the 1994 Forestry Law, is the complexity of the procedures that communities must negotiate, and it seems doubtful whether, without outside technical assistance, a rural community could ever pass through them successfully. It was with this in mind that, from 1995, the Cameroon and British Governments set up a Community Forestry Development Unit, within Cameroon's Ministry of Environment and Forests, with the brief to facilitate the implementation of the new community forest management policies.

Focusing in on the legal pluralism issue, an obvious, but nonetheless significant feature of Cameroon's new law on community forestry is the requirement that as part of its community forest application, a village must be able definitively to map the boundaries of its community forest. Although the rhetoric of participatory development, with its reference to 'traditional communities', might have encouraged many development projects to foresee the existence of traditional notions of territorial boundedness, the API project did not commit this error but rather accepted from the outset that the fixing of community forest boundaries would necessarily entail a long process of negotiation between neighbouring villages, as well as at least some exploration of local cultural and historical knowledge. Given the history of frequent village mobility and inter-ethnic conflict that has characterised this region over the past century or more, the rights of usage over tracts of forest between villages have been a continual focus of contention. In the pre-colonial period, the Gbaya Boli, like other ethnic groups in this region, were not politically centralised, and local leaders had limited means of ensuring long-term group cohesion. The patrilineal clans of the Boli were not corporate entities, and struggles for influence between senior men, both within and between clans, were often resolved by one group moving some distance away to found a new settlement.

During the colonial period, the German and then the French colonial administrations attempted to re-group and stabilise rural populations such as the Boli by the appointment of village and canton chiefs, by encouraging the establishment of larger villages through the provision of schools, wells, dispensaries and other amenities, and by severely sanctioning small groups which attempted to move away and set up new hamlets (Burnham, 1975). The introduction of perennial cash crops such as cocoa and coffee also served to encourage the development of more individuated and longer term tenure rights than had typically been the case in Boli

swidden agriculture. Nonetheless, despite these changes, the fluidity of Gbaya Boli social structure has remained marked up to the present day, as Copet-Rougier, Burnham, and the API project have all observed in recent times.

In the API report on the Bimba community forest initiative, the discussion of the land tenure conflict between the villages of Bimba and Nzeng, along with their associated agricultural hamlets, provides an example of Boli social organisational fluidity (Pénelon and Mendouga-Mebenga, 1995: 12–13). However, as interpreted by the API project researchers (based on their apparently uncritical acceptance of oral history recounted to them at Bimba), the movement of population from Bimba to found the village of Nzeng was the result of a strategic attempt on the part of Bimba to extend its zone of influence against the neighbouring Kako people. In contrast, the important fact of the on-going internal political competition between senior Boli men is not acknowledged in the API report. Here we can observe how an essentially political dispute can become rephrased, in response to the influence exercised by externally defined conservation and development initiatives, in terms of an economistic language of population pressure and agricultural appropriation of land, which is more consonant with the 'modernising' assumptions built into a legal innovation such as Cameroon's 1994 Forestry Law.

The API report also discusses the issue of the tracts of more distant forest that typically separate villages but which are not the object of well-defined notions of exclusive community control (Pénelon and Mendouga-Mebenga, 1995: 15; see also Dounias, 1993 and Dounias, 1996: 164–65 for a similar, well-documented case among the Mvae of southern Cameroon). Indeed, with regard to the utilisation of such zones, we find Pénelon and Mendouga-Mebenga (1995: 16) using a terminology very similar to the 'activity area' concept employed above by Graziani for the Nzime, when they speak of '*aires d'influence par activité*'. Used for purposes such as hunting, fishing and gathering, such spaces are normally accepted as communally accessible to the populations of several neighbouring villages. However, attempts on the part of members of any one village to begin more intensive exploitation of such zones, in the form of cultivation or the demarcation of a tract of community forest, for example, will elicit oppositional responses by the people of other villages, as the API project soon discovered. Indeed, it is particularly interesting to note several points that emerged in the course of the API project's attempt to demarcate the Bimba community forest. As explained in the API report, it is the elders who are thought to be the repositories of knowledge regarding territorial relations between villages and, under normal conditions, these elders tend to complain that the younger generation ('the youth') are not interested in the oral histories on which such knowledge is based (Pénelon and Mendouga-Mebenga, 1995: 18–19). The preoccupations of the youth are often more modern and pragmatic – e.g. access to hunting grounds for bushmeat trapping and new agricultural lands for cash crop farming. On the other hand, the elders' historical accounts do refer to a complex layering of past political competitions and provide a potentially rich source of 'traditional' precedent that can be invoked in cases of land dispute.

Once a project like API has arrived, which in effect is working to firm up notions of exclusive control over territory as a reflex of its community forestry remit, inter-generational and inter-communal tensions are very likely to be stirred up. This was precisely what occurred in Bimba and surrounding villages (Pénelon and Mendouga-

Mebenga, 1995: 19), as youth and elders adopted different views on the implications of creating a community forest and as different ethnic groups (especially the Boli versus the neighbouring Mejime people) offered different interpretations of past inter-ethnic conflicts. Not only were there diverse traditions of 'customary' law and varying historical accounts of inter-village relations to be drawn upon but there was also the fact that due to the complex layering of Cameroonian state law pertaining to village-level administrative institutions, there was considerable scope for contention over the relative legitimacy of various possible resource tenure claims.

Following on from the French colonial tradition of direct rule, the post-colonial Cameroonian state has generally been averse to giving formal legal recognition to land tenure claims based on local concepts of 'custom'. Of course, this has not effectively abolished what remains a flourishing domain of informal land tenure arrangements, based on local (re)interpretations of 'tradition'. Likewise, although modern Cameroonian law clearly vests the decision-making power over land tenure issues in state administrative institutions at the sub-prefectoral and prefectoral levels, the colonially created offices of village and canton chieftaincy have also acquired a degree of local influence and informal legitimacy, at least in some circles, in the arbitration of land disputes. It is all these varying and potentially contradictory notions of 'rights' which come into play at moments of contestation over claims to resources in Cameroon's humid forest zone, or in the context of externally motivated attempts at 'clarification' or demarcation of rights.

Conclusion

In an often-cited article on law and development, Franz von Benda-Beckmann (1993) remarks that in the context of development policy and practice, law is often treated both as a magic charm and as a scapegoat: magic charm, since many development practitioners adopt the view that a desired development outcome may be achieved by normative prescription alone, via the enactment of new laws. Scapegoat, since it is these very laws that are blamed when the desired development fails to come to pass. Before the ink had scarcely dried on Cameroon's 1994 Forestry Law, we could already see von Benda-Beckmann's prediction being fulfilled, with commentators such as Diaw (1997) and Nguiffo (1998) pillorying this law in print.

As indicated above, certainly no brief is held here to defend Cameroon's new forestry law, which was hastily drafted, in a markedly generic fashion, without adequate consultation, and in a form that assured that it would be difficult to apply, for community forestry at least. However, the aim in this chapter has been to provide a more realistic, ethnographically-informed perception of the socio-legal context in which current programmes of forest management are typically operating in African humid forest zones. As we have argued, a marked degree of legal pluralism is the normal case – a complexity that is not adequately captured by simplistic contrasts between 'traditional' versus state legal systems. This last point is not just a definitional quibble. Combined with a recognition that the operation of law in local situations of environmental management is not simply a matter of the application of normative legal principles, the acknowledgement of the diversity of legal viewpoints, historical precedents and formal codes in operation in such

settings is a key step in understanding the likely outcomes of concrete cases.

Indeed, although Cameroon's 1994 Forestry Law was certainly hastily drafted, it is nonetheless an inescapable fact that no matter how carefully the work might have been done, one would still have been confronted by a situation of legal pluralism. And even if Cameroon were to replace its present top-down, statist system of law with one that gives serious recognition to 'customary' law – a step that several commentators have been actively promoting (see Fisiy, 1996; Diaw, 1997; and Nguiffo, 1998), legal pluralism would still be an active issue, as Burnham (2000) has recently shown. Although 'customary' law has often been viewed in a timeless, a-historical manner, close analysis of such legal settings has typically revealed them to be markedly flexible and subject to on-going processes of adaptation to changing social circumstances (von Benda-Beckmann 1993; Moore 1986). Moreover, situations of legal pluralism provide complex fields of negotiation and contestation, in which different elements of the legally plural amalgam are competitively invoked by different actors and social categories to bolster their opposed positions (see also Comaroff and Roberts, 1981). In other words, these are eminently political processes in which the considerable flexibility of unwritten, 'customary' legal traditions is mobilised by competing individuals and groups.

In such cases, as Sharpe (1998) has rightly argued, putting faith in an unhistoricised and politically naïve view of 'the community' is a recipe for misunderstanding and project failure. The constitution of village 'communities' in the fluid and acephalous societies of the Cameroonian rainforest is an on-going achievement of politically motivated leaders, who must draw upon land and forest resources to achieve their goals. Exploiting resources to construct society is never a politically neutral process and has a fundamental impact both through competing categorisations of the environment (in terms of differing conceptions of rights) and in creating the flows of value through which political followings are built. This creates complex local social settings for debates over resources in legally plural situations, which in turn are linked with fundamental problems of social order, accountability, collective action, political competition, legal sanctioning and enforcement. These local political processes are also contextualised within larger scale regional, national and international arenas. As Peters (1987: 192) has argued,

> Competition among rights and claims takes place through competition in meanings. These are assigned, accepted, and imposed: Whose right, which meaning, whose definition are critical questions in deciphering changes in land rights.

In other words, concepts have power to frame debates and orient action – a key issue in the confrontation between development agencies' simplistic notions of 'community' and 'customary law' versus legally plural, culturally nuanced, and politically situated sets of concepts such as those discussed in the two cases above. But a common response on the part of environmental and development planners and project staff to such anthropological discussions of cultural complexity is that workers with applied concerns require immediate, practical results, not academic musings or proposals for extended periods of ethnographic research. But against this view, which seems to us to be particularly untenable in contexts where projects are being designed with very long-term 'sustainable' goals, we would argue that unless such projects are prepared to acknowledge and treat seriously the political processes

inherent in situations of legal pluralism, and in other culturally complex settings, all the rhetoric about participatory methods and decentralised modes of management will merely remain a cover-up for top-down impositions.

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10

Conclusion Rural Resources, Local Livelihoods & Poverty Concepts

KATHERINE HOMEWOOD

This concluding chapter comes back to the questions raised in the introduction, and draws together the ideas that have emerged for approach and methodology. Political ecology debates over rural resources and livelihoods are often pursued at perhaps too general a level. Social scientists may see them as discourse between alternative systems of knowledge, and condemn as naïve any positivist search for 'the facts'. Natural scientists are more likely to see them as conflicts that pit objective management, founded on western science, against less rational alternatives. In their documentation and analysis of 'hard' quantitative outcomes, natural sciences may lose sight of the real socio-cultural, historical and political forces driving events.

Environment/development debates are essentially political issues of who should have access to and control over resources, of whose views should count in identifying and prioritising issues and problems, and in deciding desirable management goals. These debates polarise, and are reinforced by, splits between natural as against social sciences approaches, western versus local perceptions, and national government against village level interests. Where these debates are pursued over specific cases in the absence of data, assumptions and perceptions become the basis for policy, rather than a starting point for question and investigation. Challenges to those assumptions at a general level, and the resulting debates couched in general terms, may perpetuate power struggles rather than help resolve them by developing new insights. Outsiders intervening in the name of conservation or development are then readily co-opted by established interests, and the synergies that result may have devastating impacts on rural resources and local livelihoods. We need to use more in-depth and more carefully considered qualitative and quantitative data to tackle these debates, keeping in view 'the implicit sociologies and politics of so-called scientific "facts"'. As Barrie Sharpe shows, 'research can be productively informed by both "re-reading" environmental narratives and by developing new methods for measuring change'. Whether at household, local or regional levels, rigorous evidence grounded in detailed studies, combined with insights based on integrated

interdisciplinary approaches, are needed in order to grasp the variety of and continuous shifts in rural livelihood strategies, and to evaluate policy and practice in resource use issues affecting local livelihoods in rural Africa (cf. Guyer, 1997). African states often operate to turn development inputs to the advantage of the elite few and to further dispossess rural populations (Bayart, 1993; de Waal, 1997; Schatzberg, 1988). At the time of writing, the current 'New Partnership for African Development' has those same states promising internal pro-poor reforms in exchange for international reform of agreements over debt relief, trade, and aid for education and health. The real outcomes of such initiatives need to be understood. They need to be measured not through the policy statements either of donors or of African states, but in terms of socially and historically grounded, differentiated understanding of livelihoods impacts on different groups, households and individuals.

Approaches and Methodologies

This book is not just another appeal for more research. It calls for a reappraisal of the way research issues are formulated and research data collected. With the current policy emphasis on poverty reduction, it has become more important than ever to understand dimensions and measures of poverty. This book helps keep in view both the implications of particular indicators or systems of classifying relative poverty, and also the importance of understanding the qualitative context within which those criteria or thresholds are being applied.

Networks of patronage operate differently in different groups to channel access to and returns from resources (cf. Graziani and Burnham's account of Nzime and Baka's relative shares of logging revenues in Cameroon, this volume). Incoming agencies need to grasp the different values to different groups, not just of the resources on which their interventions focus, but of the other resources and issues that risk being overlooked, (see Chapters 4 and 5 by Sullivan and Sharpe respectively). Within any one group, how is relative poverty best understood? The focus by international agencies on the dollar-a-day criterion, however pragmatic and politically expedient, misses the complexities of structural and conjunctural poverty, life cycle poverty, and fails to capture the historical and socio-cultural trajectories creating and reinforcing conditions and cultures of poverty (Iliffe, 1987; Watts, 1991). To what extent do people on pathways into poverty simply disappear as they migrate away or cease to be defined as part of the group or the system under view (Anderson and Broch-Due, 1999)? Many methods in common use tend to gloss over these questions.

Rapid approaches use 'participatory' wealth ranking to derive operational measures of poverty, constructed on dimensions identified as central for, and by, a particular group (Grandin, 1988). Wealth ranking holds within, but not between, different groups. It conflates different dimensions into a single ranking and is not amenable to disaggregation. Wealth ranking is open to the drawbacks known to influence information from rapid survey methods (IIED, 1995; Abbot and Guijt, 1997). Formal sociological work has relied more on wealth indicators which disaggregate and measure land, tenure, assets, livestock, income/expenditure,

household size and composition, labour commanded, housing and water resources, education/ literacy, health, fertility and mortality, political representation, positions of power. Any of these components used in isolation is likely to be problematic as an operational criterion, measure or indicator of poverty. Income and expenditure are notoriously difficult to measure accurately. Assets may be to a great extent culturally defined. For example, livestock are central in some systems, of little importance to other neighbouring or overlapping systems. Individual standing within social networks is another case in point. It translates into a variety of types and degrees of support in times of need, which are not readily comparable between different individuals and situations and certainly not meaningfully quantifiable (see Buhl, Chapter 7). Indicators measure specific dimensions of poverty but may miss vital linkages between different components, and fail to capture any lack of, or changes in, such linkages. It is necessary to recognise that different members of the household do not have equal access to measured wealth; that initiatives which increase community wealth may impoverish some households within the community; and initiatives which apparently increase household wealth may impoverish some individuals within the household (see e.g. Hodgson, 2000, 2001).

'Participatory' rapid approaches grew out of the desire to 'put the farmer first' in development-related research, to make it as relevant as possible and to focus on the in-depth knowledge of local people as agents rather than subjects of research. These approaches vary in the extent to which researchers see their purpose as learning from local people, and empowering local decision-making and locally driven initiatives, rather than extracting information to be fed into decision-making processes remote from the local forum. All the methods focus on speed and relevance, using 'quick-and-dirty', informal, iterative, continuously updated methods, rather than long term, formal, systematic, rigid research designs. They emphasise the trade-off between precision and relevance and aim to ensure that communities identify issues of importance to them, and priorities for action that they will own and work towards, rather than letting interventions be imposed top-down, in an ultimately unproductive way, or letting research drift into areas of perhaps academic interest rather than immediate development relevance. However, where 'community' is a dubious category and 'participation' may well not be representative, these aims are at risk (see Chapter 8 by Sharpe and Chapter 9 by Graziani and Burnham).

'Participatory' methods using rapid versions of long established techniques, as well as an increasing array of novel ones, can be of great value in turning up issues, processes and linkages of importance in community development. They can also be misleading, given that their reliance on speed inevitably limits the possibilities for developing in depth background knowledge, and for the cross checking and validation that longer-term research should allow. Ultimately these methods are as good as the practitioner: an informed, perceptive, rigorous researcher can use rapid methods to great effect; those with little experience of the area and issues, or working to lower standards, may generate poor quality or misleading information. 'Participation' is supposedly the means whereby community needs and aspirations are heard and incorporated within joint conservation-with-development goals. In reality, participation is often passive acquiescence to an externally imposed goal, or monopoly of development interventions by the more prominent, more vocal, politically better placed, who as a result are able to exert even more control over resources.

In Chapter 9, Graziani and Burnham have documented the way 'development agencies' simplistic notions of "community" and "customary law"' can override cultural complexities to perpetuate and mask top down impositions made in the name of participation. At worst, 'participatory' rapid methods make it possible for development agencies among others to project their own institutional needs onto rural communities. Communities are not homogenous groups with consensus views, and some subgroups may be in a better position to put forward their views than are others, whether in public meetings or more subtly in monopolising access to the research team. There are particular problems in dealing with sensitive issues such as income or wealth, or issues of access to resources, where these are contested and a source of conflict within the community. Rapid methods alone offer no chance to accumulate representative information on such issues over a long period through indirect means. Instead, they rely on surface identification of key players and stakeholders and assume these will give a straightforward account of the conflict and of their own involvement.

However, it may not be straightforward to identify the main groups involved – high profile polarisations commonly mask the vested interests of silent third parties. It is unlikely that outsiders asking about sensitive issues, and present for only a short period of time, will be given accurate information directly. This is especially likely to be the case where those outsiders are in some way associated with particular local stakeholders – whether with government, with protected area management or a conservation group, or indeed, with a particular subset of the reserve adjacent communities, like farmers or pastoralists. Local people being interviewed will automatically second-guess ulterior motives, real or perceived, underlying questions, and may give answers with a view to manipulating longer term outcomes. Local stakeholders may be straightforward about their grievances against other stakeholders, while being economical with the truth about dubious activities in which they may themselves be involved – from petty poaching, illegal wood and timber collection, theft of stock or honey, bribery, manipulation or diversion of irrigation water allocation, through to major mismanagement of communal or project funds and facilities. There is no way, other than long-term, in-depth research, to establish the extent to which the groups and individuals contributing to rapid data collection are representative of the wider community. The vagaries of people's memories, and their possibly selective nature, can affect the accuracy of oral testimonies narrated by key informants in ways only gauged by intensive cross-checking with other sources, archival records and contemporary historical accounts. Focus group and other data from rapid consultation of 'key informants' will give types of information radically different from that gained by observing what different people actually do, what decisions they make, what conflicts they pursue, what resolutions they seek and what strategies they employ.

Environmental Trends and Resource Use Impacts

In-depth studies like those of Jo Abbot (Chapter 2), Emmanuel de Merode (Chapter 3), Sian Sullivan (Chapter 4) and Dan Brockington (Chapter 5) unpack the complexity and diversity of environmental changes and continuities in African forests,

woodlands and savannas. Degradation narratives and counter-narratives may hinder the understanding of environmental dynamics, land use impacts, and their implications for local livelihoods. Simple correlations (for example, between canopy decline and local population increase) can mask causal relations and lend themselves as a deceptively 'scientific' basis for inappropriate management policy. There are many possible technical ways of measuring perceived environmental trends in an objective way. Some of those are summarised in Table 1.2. While those data are an essential part of understanding change, it is even more important to understand the underlying significance of the measured trends, and of the processes and linkages that produce them. Just as there is a range of methods for measuring quantitative trends, so there are many potential methods for tackling this qualitative and conceptual understanding. Alongside mastery of social, cultural and historical context there are fundamental tools in understanding and managing rural resources and livelihoods. These are: critical challenges to conventional wisdom, openness to alternative models of causation, alertness to possible tests of competing hypotheses as well as an awareness of the background to conflicting perspectives. Over and above the nature and identity of key resources, research must identify dimensions significant in their control, and crucial indicators of their availability to the poor and vulnerable. Most of the studies in this volume have seen natural resource management policy and practice as focusing on excluding the most vulnerable, purportedly for conservation reasons, while often turning a blind eye to unsustainable extraction by the more influential.

Shifts in Livelihood Strategies with Conservation and Development

Outsiders often diagnose problems of environment and development as arising from stagnant *mores* in the context of shifting livelihoods. This is particularly the case for poor populations with high fertility where lack of education and lack of economic autonomy, are seen as both arising from high fertility, and also perpetuating it. Studies in this book give empirical evidence of the importance of high fertility for diversifying production strategies and maintaining household viability in the ecologically and economically unpredictable environment of the Sahel. The potential economic advantages of limiting fertility do not easily compensate for the loss of flexibility and the risk-spreading made possible by economic activity of additional adult males. Networks on which the opportunities for income generation depend are extended and consolidated through daughters' marriages. People are a resource, making it possible to pursue those opportunities and establish those networks. The economic choices people make underline the importance of those social networks and of the possibilities they represent. Where not only the biophysical environment, but also socio-economic, political and especially marital circumstances are unpredictable, women's interests and choices may diverge from those of other household members. Where a socially appropriate economic activity is preferred to a more lucrative but culturally problematic pursuit, even among the poor and vulnerable, this choice should not be dismissed as economically irrational, as the product of ignorance or cultural inertia.

The rhetoric of community conservation emphasises synergies between environ-

ment and development, and highlights win-win scenarios. This optimism has become increasingly guarded as growing numbers of case studies query the real nature and scale of benefits to poorer people (e.g. Thompson and Homewood, 2002). The present book has looked at several examples of environmental policy and management within national and international contexts that emphasise community conservation. In both Tanzanian and Namibian drylands, local livelihoods have been profoundly affected, and in the case of Mkomazi the whole local economy suffered a sudden and devastating impact. In these areas, as in Cameroonian forests, the community conservation perspective has added a new dimension to the long running and continuously evolving contest for political power and control over resources. Livelihoods are affected as much by the way institutions are impacted, shift or emerge in response, as by any direct access to the new sources of wealth. Current attempts to evaluate the implications of community conservation and other environment/development interventions need to move beyond surface analyses of project inputs and revenue, to differentiated analyses of livelihood strategies, household economies, terms of trade and local markets, and to track the trajectories of diversification and its implications (Brockington, Chapter 5). This needs to be balanced by an equal depth of understanding of changing intangibles in political and cultural structures. On the one hand, policy and structural effects shape the continuously changing environment within which resource-use opportunities and constraints evolve for men versus women, wildlife versus plant resources, or with settled, fixed boundaries versus mobile ones. On the other, ways of managing, gathering, and using resources are bound up with the way people define themselves and find their fulfilment (Sullivan, Chapter 4; Sullivan, 2000).

Social Institutions

Development programmes all too commonly carry out rapid appraisals of institutional context and on this basis recommend institutional capacity-building as a quick-fix remedy. Commonly this approach misses the deep political structures governing access to and control over resources and livelihoods opportunities. It sets up conditions for those established structures to reproduce themselves in the guise of a supposedly new order, and also potentially sets up new competing pathways of power and influence, crosscutting already multiple alternative hierarchies and channels of decision-making, and heightening conflict. Western outsiders take at face value official statements of roles and objectives, despite the perennial mismatch between the official rhetoric and the real political and institutional processes of resource control. It is usual to find outside agencies making simple appeals to the degradation myth and peddling unrealistic assurances that are highly suspect to local people who have been given assurances of this kind before and seen them fail. There is almost always need for a reality check based on historically aware and socio-culturally differentiated understanding. Whose perceptions drive the debate and shape the whole context within which environmental changes and continuities are perceived and interpreted?

The contributions by Barrie Sharpe, Monica Graziani and Phil Burnham in this book set out in social and historical context the ways that West Africans read those

patterns of change and their interplay with political and economic structures. Different groups make use of different interpretations to assert control over natural resources as the basis of wealth and power. They draw on multiple overlapping and conflicting systems of law and tenure, and use the ambiguities set up by the discrepancies between western and local concepts of property and authority, to contest that control. Awareness of multiple perspectives, and cross disciplinary approaches, suggest that particularly in African forest environments, dominant concepts of 'indigenousness', 'community', and 'participation' have been misleading, and the focus on degradation has hindered the development of insights from forest gap ecology and forest farming systems. A better understanding of local and evolving concepts of tenure and ownership, of continually shifting frames of reference and channels of authority through which rights over resources may be asserted, will be necessary to analyse rural resources and local livelihoods in African forest environments.

This final chapter brings together the different strands contributed by individual chapters in the book to review lessons for research into resource use and livelihoods. It does not make a case for simplistic debunking of orthodoxies. Indigenous understanding of ecological processes, and indigenous institutions for resource management, may have much to teach outsiders, but may also leave much room for new insights. Sian Sullivan points to the need to resist, 'the "ethical nihilism"... of an increasingly murky and individualistic relativism'. Western positivist approaches are very powerful at answering certain types of question, but are not necessarily effective at identifying the right questions to ask, nor at recognising that some types of question lie beyond their sphere. This book does not argue for any single model, nor is it a recipe book for specific methodologies. Rather, it uses a series of case studies to illustrate a broad-based approach to framing resource use issues, identifying research questions central to those issues and integrating interdisciplinary, complementary methodologies to tackle those questions in a way that keeps both external and internal validities in view.

Much research culture has discouraged interdisciplinary work at the interface of areas of specialism. The aim of this book is not to pit one system of knowledge against another, but to combine the strengths of different approaches, so as to make up for the shortcomings of each, and to bring more effective tools to bear on pressing questions of environment, development and poverty. The book marries natural and social science, qualitative and quantitative methods, rapid appraisal and long-term in-depth observation, broad- and fine-scale levels, theoretically driven and empirical work. The studies in this book emphasise the way insights and approaches from both social and natural sciences are essential in reaching some reasonably robust understanding of the processes, linkages and outcomes that we see. There is considerable room for improvement in the interaction of western agencies with African environments, in people's land use decisions and associated institutional processes, in the conflicts and complementarities between conservation and development. Ultimately, we hope this work will stimulate researchers, policy-makers and practitioners to reflect on the complexities they face, to beware of simplistic models of understanding and to seek broader-based perspectives so that policies take better account of people's strategies in forests and savannas, to the benefit both of rural livelihoods and of the environment in sub-Saharan Africa.

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Index