Community Based Natural Resource Management in the IGAD region

J. Awimbo, E. Barrow, and M. Karaba

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Authors Details

1. Nabil Mohammed, Head, CERD, B.P.1010, Djibouti. Nabillahgui@yahoo.fr (Djibouti chapter).
2. Ekube Tesfagiorgis, Rural Development Consultant, DEES, P.O.Box 1891, Asmara, Eritrea. Asghedom@gemel.com.et (Eritrea chapter)
3. Shribu Tedla, General Manager, Eco-Consult, P.O.Box 5998, Addis Ababa, Ethiopia. Esat@telecom.net.et. (Ethiopia chapter)
4. Violet Matiru, Consultant, Nairobi. Mmatiru@net2000ke.com. (Kenya Chapter)
5. El Nur Elsiddig, Dean, Faculty of Forest, Shambat, University of Khartoum, Sudan. Elnour_elsiddig@yahoo.com (Sudan chapter)
6. Cornelius Kazoora, Director, Sustainable Development Centre, P.O. Box 5463, Kampala, Uganda. Sdc@imul.com (Uganda chapter)
7. Janet Awimbo, Training Officer, World Agroforestry Centre (ICRAF), P.O.Box 30677, Nairobi, Kenya. J.awimbo@cgiar.org (editor)
8. Edmund G.C.Barrow. Coordinator, Forest and Dryland Conservation, and Social Policy, IUCN-The World Conservation Union Eastern Africa Regional Office, P.O.Box 68200, Nairobi Kenya. egb@iucnearo.org (editor)
9. Mainia Karaba, InterGovernmental Authority on Development, P.O.Box 2653, Djibouti, maina.karaba@igad.dj (editor)

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Top right - the Green Belt of Eritrea
Middle left - the mist of the Green Belt, Eritrea
Middle - children silhouted over lake in Kenya
Bottom left - leaves in Kakemega forest, Kenya
Bottom middle - non timber forest products from Sudan
Bottom right - Acacia woodland in Djibouti
(Edmund Barrow, IUCN)

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IGAD Secretariat
P. O. Box 2653
DJIBOUTI
Tel: +253 354050
E-mail: igad@intnet.dj
Website: www.igad.org

IUCN Eastern Africa Regional Office
P.O.Box 68200 - 00200
Nairobi, KENYA
Tel + 254 20 890605-12
E-mail: mail@iucnearo.org
Webstie: www.iucn.org/places/earo

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IGAD are very grateful to IUCN, for compiling and editing this pulication. The completion of the work has taken longer than originally expected. This was mainly due to the editing work required to reduce often long national consultancy reports (often in excess of 100 pages) to chapter length documents (20-30 pages) of a similar layout, language style and flow. In the process of editing the chapter length document, certain details may have been left out, and the editors apologize for this, but it was done in the interests of brevity, style and flow. In this IGAD and IUCN are very grateful to all the national chapter authors for allowing their work to be edited into book chapters.

This book has its origins from the participation of diverse experts in natural resources management during the formulation of a regional programme on Community Based Natural Resource Management for the IGAD region. The book draws heavily on case studies and work of many institutions, researchers and practitioners of different natural resources management practices. It is not possible to mention them by name although their contribution forms the backbone of this publication. IGAD would like to thank the IUCN and member states experts who prepared the country reports from which this synthesis is prepared. While it is not possible to name everyone who contributed to this book, I would like to mention the IUCN and IGAD staff who encouraged us to produce this book as a product of the project formulation.

The country summaries together with chapters 1, 2 and 9 have been translated into French. These French translations have been compiled into a separate French edition. This is one reason why the summaries of the country chapters are slightly longer than normal - so as to facilitate the translation into French, and ensure that the richness of experience is translated.

The costs of developing and publishing this books were made possible through USAID, who provided financial support, encouragement and guidance that was very useful in preparation of this book. We would like to extend special thanks and appreciation for the financial support provided by the USAID in undertaking country workshops in all countries and the regional workshop, all of which gave us impetus to prepare this book for information and experiences exchange.

Finally any mistakes, omissions belong to the editors, and they apologize in advance

Maina Karaba (IGAD)

PREFACE

The origins of the idea for this book go back to the development of a CBNRM project for IGAD. In 2000 IUCN-EARO was contracted by IGAD to help them in the development of an IGAD Community Based Natural Resources Management Programme (CBNRM) for six of the IGAD member countries, namely Djibouti, Eritrea, Ethiopia, Kenya, Sudan and Uganda. Within the confines of the project development process, IUCN-EARO used a participatory process that;

1. Used national consultants who compiled national reports on the status of CBNRM in their respective countries;

2. Facilitated two day national level workshops to deliberate on the national reports; identify key issues and opportunities; and agree on key issues which need to be addressed at a regional level, together with suggested areas of intervention;

3. Held a regional planning workshop in Nairobi to develop the key project document elements, including the goal and purpose, and key activity areas; and

4. The compilation and submission of the formal project document to IGAD.

Given the richness and variety of experience relating to CBNRM in the region as reflected in the national studies and workshops, IGAD and IUCN sought additional funding to compile these experiences into this edited book.

Edmund Barrow (IUCN)

FOREWORD

Communities in the IGAD region who comprise 90% of the population have meant the rural people characterised by general poverty. No other group has perhaps been the object of so many studies, plans, programmes and strategies as this group with so little to show. Yet deepening rural poverty prevails in this setting despite the presence of vital resources such as land including minerals, water, flora and fauna. Developed over centuries, the rural communities are rich in knowledge on the value and properties of plants, seeds, algae and other biological resources which are now coveted by scientists for medicinal, agricultural and other purposes. Nevertheless, rural poverty has many faces and there is not one way to describe it or combat it. However conspicuously absent in government strategies and policies are the people as vital resources and prime movers for wealth and wealth creation from the natural resources that surround them. The rural poor are not able or do not realise the intrinsic value and monetary gains that could be accrued from the resources surrounding them. As a result, and due to world markets and international financial conditions, a growing population and a stagnated technological resource base have led into farming and livestock practices as well as to other economic behaviour pattern that are detrimental to durable eradication of poverty and sustainability of agriculture productivity. Consequently the communities are becoming poorer both in monetary and resource base terms. In essence therefore the rural poor not only export more and earn less but also sell at a throw away price the inherent fertility of their countries.

The community based resource management booklet has examined and compared various approaches in the region and would wish that the countries share these experiences among themselves. Our basic conclusions point to the fact that while communities supported by NGOs and CBOs are at the centre, the governments should play the overarching role in providing an enabling environment such as conducive policies, security and appropriate infrastructure. It would be impossible for the communities to undertake research, survey, develop and market natural resources products without government involvement. For example, due to general condition of poverty and occasional paralysing effects of recurrent droughts, the rural people have lacked resources and organisational capacity needed to set up and manage the resources near them. Community participation in planning and management should be at the level commensurate with the peoples' capacities and resources.

While the above differ from country to country, there is a convergence of response in that, *communities, with minimum government interference have inbuilt capacities to organise themselves in exploiting their resources provided there are short term or long term incentives*. Our role as a regional organisation is to strive to demonstrate to various communities potential utilisation of the wealth that surround them by promoting exchange of information and experiences among and between countries. Inter-state exchange visits and other activities that are more cost effective have proved very effective in transmitting the message in the region. Finally, I would wish to reiterate that the community based natural resources management is more than economic activity for alternative livelihood for communities. It is a bulwark against starvation and ensures food security while forestalling present and future resource-based conflicts which undermine sustainable development in the region.

Dr. Attalla Hamad Bashir

Executive Secretary

IGAD

CHAPTER 1: INTRODUCTION

Edmund Barrow and Maina Karaba

1.1 The IGAD Region

The IGAD (Inter Governmental Authority for Development) countries of Sudan, Eritrea, Djibouti, Somalia(land), Ethiopia, Uganda and Kenya (Map 1), display a very rich diversity of cultures and peoples, geographical features and biodiversity. This complexity has created great diversity in resource use and management by rural people. Unfortunately, economic growth and the conservation of this rich biodiversity has tended to be carried out in isolation from each other, and from local people, often resulting in accelerated degradation. As economic improvement is both a moral imperative and essential for environmental sustainability, "the deeper agenda, ……. is to make nature and natural products meaningful to rural communities. As far as local communities are concerned, the agenda is to regain control over natural resources, and through conservation practices, improve their economic well being" (Western & Wright 1994). As a means to improve their economic well being, communities tend to invest where they can get better, and quicker, returns within a short term. Though there are important exceptions to this, for example forest areas of cultural and spiritual importance.

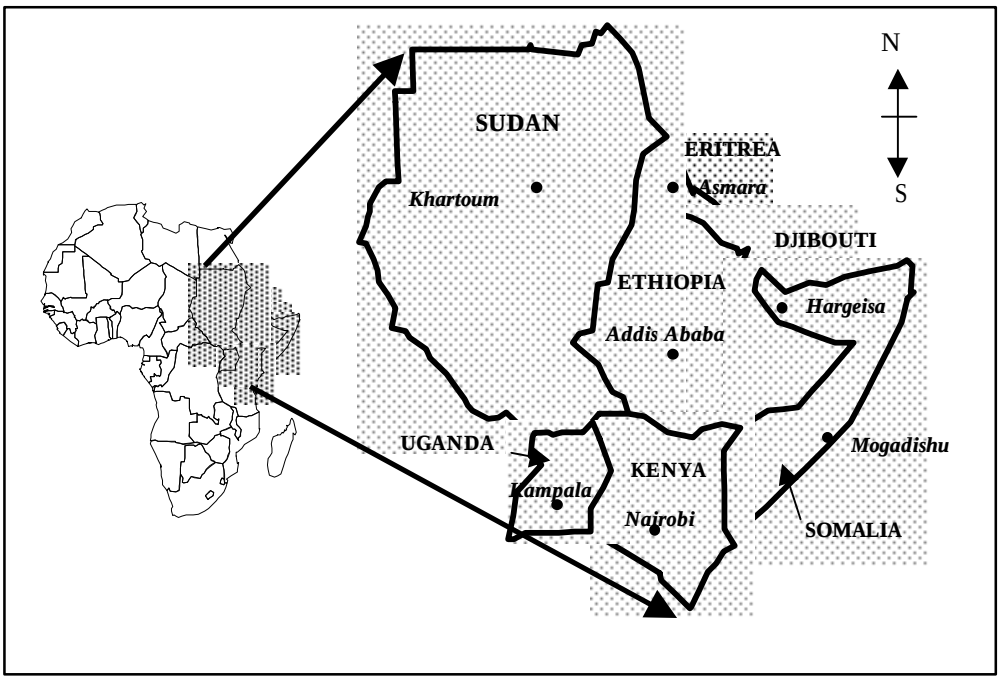
Community based approaches to natural resource management in the IGAD region have evolved through complex interactions between factors operating at many levels. Many of these approaches were adapted to suit the particular mix of cultural and biodiversity conditions which the region displays, with its diverse geology, biology and ecology. Events before and since independence, have influenced the development of the region's institutions, economies and peoples. In recent years, differences in circumstances and experience have influenced both the development and implementation of community conservation, creating a range of policies and programmes. While most countries have a strong subsistence and commercial dependence on agriculture, this is often linked to natural resources.

In terms of biodiversity and ecology, the wide range of climatic and geographical characteristics give rise to habitats ranging from coral reefs to the gum arabic woodlands of Sudan, extensive wetlands to savannah grasslands, afro-montane forests to deserts, and the central highlands of Ethiopia and Kenya which are important water catchments. This diversity is threatened by the growing needs of rural communities, and poverty due to high human population growth rates. Land is cleared, forests cut down, fisheries over exploited, and the frontiers of cultivation pushed into drier lands to satisfy these livelihood needs. Striving for food security is coming at a high risk to the environment and its natural resoruces, and so to food security. It is in this nexus of competing demands, and the requirement to balance regional food security, biodiversity conservation, and functioning ecosystems, that community based natural resource management (CBNRM) has the potential to play a significant role.

The importance of the range of community conservation approaches, including protected area outreach, collaborative management and community based conservation or natural resource management is now not disputed as a means to better integrate conservation and livelihood objectives in the region, and has been well described. This has provided a stronger economic justification for stopping, or at least slowing, the continued degradation of the land and natural resources which the majority of the countries are facing in the region.

It is important that the achievement of regional food security and rural livelihood improvement takes on a more holistic approach that seeks to integrate conservation objectives and benefits into improved livelihoods, and contribute to food security. Natural resources have played a vital role in improving peoples' livelihoods, and particularly during stress times. However, many of the local and customary regulatory mechanisms were lost and replaced by distant government control. This combined with population pressure has resulted in significant natural resource degradation and biodiversity loss.

Map 1: The Countries of the IGAD Region



CBNRM activities are now evolving in the region, but not as fast as in Southern Africa. Several reasons may explain this. The heterogeneity of the peoples in Eastern Africa, where many groups, cultures and languages may exist in relatively small areas, can make the creation of institutions necessary for community management of natural resources more difficult. The complexity and number of government institutions responsible for the conservation estate, and the strength of centralized government control makes the absorption of community based conservation into government institutions difficult. Population pressures are often high, and have fostered a more preservationist approach and policies which favour more centralised control. The preservationist lobby, which tends to support central control, has been strong in Eastern Africa, as the region is a centre of international conservation interest.

Thus, at first, protected area outreach programmes were more acceptable, as they did not fundamentally change the nature of the relationship between the people and government. Protected area outreach has the limited but important function of providing a linking mechanism between two different management regimes, usually conservation area management inside and community management outside. However. tt is not in itself a system of management, but can contribute to conservation objectives, as well as support community objectives. This re-orientation grew in a climate that encouraged decentralization and community enablement. Pressures grew

on conservation authorities to embrace this more enabling approach. Partnerships between conservation authorities and NGO's seemed to provide the right mix of conservation, flexibility and community experience. As such, community conservation has been evolving and changing the relationships between rural people and governments, so that rural users and communities become increasingly empowered.

The entire IGAD region is experiencing a decline in the conditions of its renewable natural resource base. Soil erosion, deforestation, biodiversity loss and changes in the hydrological regimes of rivers and streams are becoming widespread. Unfortunately, all the IGAD member states have not yet adopted the natural resource accounting systems which go beyond measuring a country's growth by GDP but also adjust it for the costs imposed on society by natural resource degradation and deterioration in environmental quality. There is evidence that the IGAD region is suffering from the poverty–population–environmental degradation nexus. As its population has increased over years, poverty has persisted, and the region is vulnerable to famine and food insecurity. Yet, because of its rich biodiversity associated with varying ecosystems, the region holds the natural capital that could transform it.

As a result there is need to institute changes in current resource management regimes with a view to establishing new ways of managing the resources. Such change requires a fundamental shift in the way stakeholders align themselves for the management of natural resources. Hitherto, national governments bore the principle responsibilities for management, but this approach has not been entirely successful, and is one basis for Community Based Natural Resource Management (CBNRM).

1.2 Livelihood and Food Security as a Basis for Responsible CBNRM[1]

The over-arching influence for any CBNRM activity is the nature, security and complexity of people's livelihood strategies, including such questions as:

- What goods and services are used, how and by whom?
- Who has what rights to natural resources, and why?
- What are the trade-offs and indirect uses of natural resources, in the context of, for instance, agriculture and livestock rearing?
- What is the relative importance of spiritual, cultural and other "indirect economic values"?

Apart from resource availability, the diversity of products and users is dependent on a wide variety of other factors. These include the proximity of resources, the existence of local markets, property rights and institutional controls, the intensity of use, household wealth status, education, availability of labour, alternative sources of products and incomes, the levels of livestock ownership, and cultural preferences. These factors can be grouped into the following three areas.

[1] Some of the content for Sections 1.2 an 1.3 come from Barrow, E., Clarke J., Grundy, I., Jones, K-R, and Y. Tessema (2002): Analysis of Stakeholder Power and Responsibilities in Community Involvement in Forest Management in Eastern and Southern Africa. Forest and Social Perspectives in Conservation No. 9. IUCN. Nairobi, 154 p.

- **Nature and value of the resource**: What goods and services are available, or not available? This relates to seasonality and timing and is particularly important in patchy environments, where non-equilibrium systems may have to operate. Aspects of this inclue the changing markets for forest products, and the commercialization of resources.

- **Institutional arrangements:** What tenurial arrangements exist, both in policy and legislation, and what are the authority and enforcement structures which govern and underpin the various rights and responsibilities of stakeholders? An under-acknowledged aspect of this is the various spiritual and cultural attributes of trees and forests and the importance of the underlying institutional arrangements, for instance spirit mediums and traditional chiefs.

- **Macro-economic and inter-sectoral forces**, such as Structural Adjustment Programmes, AIDS, land reform, changing policies, legislation and macro-economic forces. What impact do such forces have on livelihood strategies, resource use and stakeholder interests.?

All of the above are inter-related, forming a mix of bio-physical, social and economic variables which underpin patterns of stakeholder relations with respect to natural resource management. Taking a livelihood rights and security focus provides strong arguments for, or not, the multiple roles that natural resources can play in the livelihoods of rural people. The sustainable livelihoods approach is a framework that helps understand livelihoods, and promotes a more holistic, less sectoral thinking, which is at the core of both food and environmental security (Figure 1). It is an appropriate tool for CBNRM to be housed in. Within this framework it is clear that assets are not simply financial but also include:

- Social capital (relationships, trust, inter and intra community);

- Human capital (skills and knowledge, customary knowledge, rules and regulations);

- Physical capital (infrastructure);

- Natural capital (land, water, wildlife, trees and plants); and

- Financial capital (available stock and savings, regular flows of money).

These assets are influenced by a range of both internal and external factors. They include government, private sector and community structures, a variety of processes, policies and laws, and links between the macro national level and, the more micro, local level. Within this framework, strategies can vary greatly, and the role of natural resources within such systems can also vary.

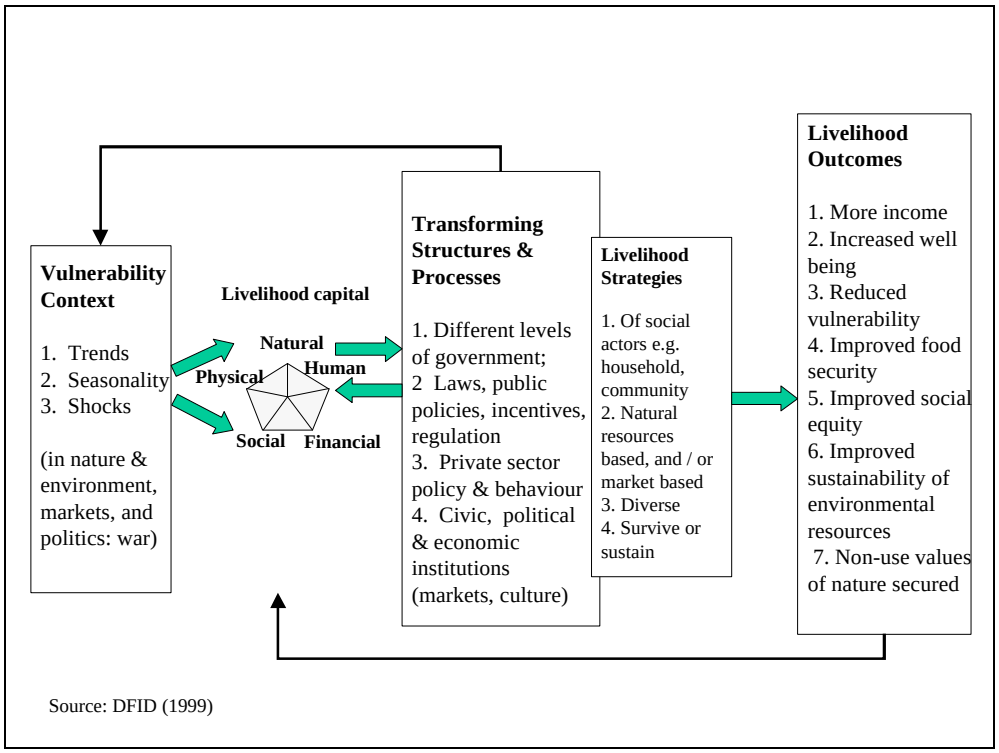


Figure 1: The Sustainable Livelihoods Framework

Basing this analysis around the sustainable livelihood framework helps to ensure that we think of, and address, the different issues and contexts which rural people and communities have to manage. Such a framework operates out of the context of vulnerability and how rural people and communities cope and manage for vulnerability. In this context, all people have a range of assets or poverty reducing factors, which gain their meaning and value through the prevailing social, institutional and organizational environments. This approach recognizes the multiple dimensions which rural people and communities have to cope with, and puts people, especially the poor and rural, firmly at the centre of the process and development, including conservation and natural resource management. It allows us to focus on the range and variety of means by which people use and manage their resources by:

- Being non-sectoral, as it recognizes the multiple influences on people;
- Seeking to understand these relationships and recognizing multiple actors;
- Acknowledging the multiple livelihood strategies that people have to adopt; and
- Seeking to achieve multiple livelihood outcomes which are determined and negotiated by people themselves.

Taking a livelihood security approach is vital given the threat of starvation which affects over 33% of the African continent's population. This is exacerbated by a steadily declining per capita food production based, which has declined by 23% over the past 25 years. This food insecurity has had a disproportionate impact on the IGAD countries where 46% (71 million people) are chronically food insecure (based on 1989 estimates). The problem of trying to achieve food security has been compounded by continued conflict, entrenched poverty and environmental

degradation. Therefore, promoting CBNRM as one means to widen the food security base is urgently required. Making an effective link between food and environmental security requires the integration of social security, consisting of political and economic security and social equity and justice. These are all key elements of CBNRM.

1.3 What is Community Based Natural Resource Management?

Three categories of community conservation have emerged in Africa:

1. **Protected Area Outreach** seeks to enhance the biological integrity of parks by working to educate and benefit local communities and enhance the role of a protected area in local planning.
2. **Collaborative Management** seeks to create agreements between local communities, or groups of resource users, and conservation authorities for negotiated access to natural resources which are usually under some form of statutory authority.
3. **Community Based Conservation** schemes seek to have the sustainable management of natural resources through turning over control, or responsible authority, for these resources to the community as their chief objective.

These three categories of community conservation are on a continuum from state control, to one of complete community control. For the purpose of this analysis, CBNRM focuses on collaborative management and community based conservation, and so emphasizes the importance of center-periphery shifts that are taking place.

There can be no common framework for community conservation, but different arrays of arrangements to suit different tenurial and institutional mechanisms. The three forms of community conservation, though based on ownership as the dominant variable, need to be cognisant of, and influenced by, a range of other variables (Table 1.1). Different objectives influence the tenurial arrangements. Different tenure regimes determine the nature, scale of, and scope for community conservation, and the role conservation plays in the landscape, and to land users. Recognizing ranges of stakeholders with tenure interests in the land and natural resources, including global interests, can influence the form of conservation management. Community conservation activities will not necessarily address all variables. However, the wide range of examples from practice in the region allows for analysis against this framework and across the variables discussed. This framework has the following key characteristics:

- Is functional - it is based on land ownership, resource, or resources, or a combination;
- Recognizes that the state, through its conservation area system, has rights and obligations to strategically conserve nationally important biodiversity;
- Recognizes that the state can and should enter into a range of viable and affordable benefit-sharing arrangements for its protected area system;
- Allows for, where policies and mechanisms exist or are being put in place, collaborative management arrangements for the more sustainable and equitable use of resources within conservation areas;
- Assumes that where land is held, either *de jure* or *de facto*, by rural resource users or communities, either individually or communally, that the people have prime rights to, and responsibility for, conservation as part of economic livelihood based land use;

- Allows for flexibility in that arrangements can change with changes in tenure or resource status, and there can be changes within categories; and
- Allows for a wide range of participatory arrangements from essentially top down mechanisms (for example where park authorities allow people to collect thatching grass once a year), to arrangements based on partnership, to ones where rural people are empowered to use their resources in a manner which they see fit.

Table 1.1: Location Of Different Components Of Community Conservation

Component	Protected Area Outreach	Collaborative Management	Community Based Conservation
Whose agenda	Protected area management	Protected area and community management	Community
Who owns process	Protected area management	Legally the state, but towards joint management and use	Community
Who plans	Protected area management. For outreach activities many have joint planning	Protected area management and community	Community, often with technical assistance
Who controls	Protected area management	Protected Area Management as land is state land	Community, may be under some forms of national legislation
Ownership of resources, area	Protected area management	Protected area management	*De facto* community, or individual
Dominant objective	Conservation: Enhanced integrity of protected area	Enhanced conservation and rural livelihoods through increased access and use of resources	Development: Rural livelihoods enhanced and needs met. Conservation values usually incidental
Fate of conservation resource	Maintained, as part of atates national conservation heritage	Maintained, as part of atate's national conservation heritage; however may reduce conservation values	Maintained: if culturally and economically valuable. Otherwise lost or severely modified or reduced.
Role of local rules and regulations for resource management	Low: may be incorporated as part of strategy to build positive community relations	Low to high: Depending on how local and government rules of access are integrated Protected area rules and enforcement	High: Will govern access and use of resources; generally under some form of state regulation
Effect of population pressure	Reduced value of outreach, as benefits shared more thinly. Increased protected area protection	Negotiations over pressure for increased production; some stakeholders may be excluded; joint management may collapse	Benefits value per person may reduce. Some stakeholders may be excluded; switch to more productive land use.
Murphree (1996) analysis	Conservation for, or with, the people	Conservation with, or by, the people	Conservation by the people
Land Category	National Park, Strict Nature Reserve, Forest Reserve	Forest Reserve, Game Reserve, Communal Wildlife Management Areas	Private and communal lands; communal wildlife management areas

Placing this analysis on a conservation livelihood matrix allows for a comparative analysis of which major conservation or livelihood objectives are being achieved and to what degree. This in part relates to a changing emphasis in conservation from one of "hands off" to sustainable use. Conservation objectives are still important, but are increasingly embedded in, related and contributing to livelihood objectives. It also relates to government decentralization and retrenchment, necessitating increased resource user responsibility for, and rights to the natural resources and management thereof.

An important tenet of community conservation approaches is that conservation and development are not contradictory, but are mutually dependent. At the practical level on the ground, conservation may require that certain forms of development are halted or channeled in certain restricted directions in order to prevent its destruction or prevent serious impacts. Ultimately a nation wants to conserve its biodiversity for its present and future generations to enjoy sustainably. However, this often impacted by a nations overriding need to provide for its citizens so as to contribute to rural people's and nation's economic bases. The different frameworks for community conservation allow for this by recognizing that, under certain conditions, national concerns and conservation objectives are more important even though the may contribute to rural livelihoods, while in other areas conservation is part of rural land use and livelihoods.

1.4 IGAD, and its engagement with CBNRM

The Challenge: The IGAD region has many social-economic challenges as well as extraordinary physical, biological and human resources on which we have so far not been able to capitalise. Our chosen path of development poses a major threat to the stability of natural environment since the resource base has failed to deliver what is expected in a developing community. It is for this reason that the concept of CBNRM is fundamental to the region mapping of the road ahead since this path may well be different to what has been followed in the past. In examining different approaches of CBNRM in the region, it is conclusive that there is urgent need to re-examine the content of conservation concepts that have largely emanated from international forums and which often came embedded in conditions of external assistance. Unless these concepts are given content that is relevant to our own condition and understood by donor community and communities living with the natural resources, we may miss the opportunity to achieve sustainable development in a globalised world.

Within Africa, the IGAD region in particular, the historical development path from hunter-gatherer society to agrarian to ICT society has been compressed into a small time frame. Almost all stages of development exist in the region and we have been left with no room for manoeuvre amidst liberalisation and globalisation, which have turned us into a consumer society of people who produce what they don't eat and eat what they do not produce. This poses a threat to ecological balance because the natural resource base cannot deliver both the required goods and services to sustain the perceived life-style for a growing population. Insecurity from degraded life support systems is therefore real and not limited to apocalyptic projections of a few sentimental conservationists. At a regional level, to understand and accept that the strategies developed in the past have not worked is the first step in redressing this problem. IGAD as a regional economic community has a central role of promoting cooperation and integration among its member states. Transboundary management of natural resources is one area that would benefit from this arrangement. Indeed the analysis and exchange of information on different CBNRM approaches in the region can be used to guide IGAD and other institutions in formulating a regional approach to promote CBNRM in the IGAD sub-region. IGAD is further convinced that no economic community can survive in the longterm, unless the

members eventually grow to share some basic scientific, political, socio-economic values and habits for managing their resource base.

Fundamentals of our new CBNRM approaches: With fast growing population, the pressure on land has been enormous yet the present strategies for intervention have failed to address the individual land user. We have further failed to appreciate that conservation without incentive and profit for individuals and communities becomes a lone cry in the wilderness and a non-starter. Without personalised benefits there is little hope of having conservation that is desirable and self-driven. CBNRM takes it as *a priori* that there is need to satisfy a consumer who has roots in a traditional community that derives its livelihood on land and water based production systems. The needs of the individual consumer have to be addressed and incentives provided to either refrain from environmental destruction and assume a more sustainable creative role in managing the resources that surround him/her. It is first and foremost this strategy that government must evolve and sell to its people as a foundation for individual action. Unfortunately, in most of the region, rural poor have little faith in their government capacity to honour promises made. This mistrust is further intensified by the inability of officials to communicate and establish meaningful contact with the rural people. When they finally do it, they are overwhelmed by the amount of work that has to be done and the little information that is available. What comes out clearly is the urgent need for knowledge transfer and the input needed for its application by communities to generate income and alternative livelihoods from the resources surrounding them. Some of the lessons derived from these experiences indicate that:

- Consultative and partnership building with all stakeholders, including the private sector, as espoused by the CCD are a must for CBNRM;
- Low input technology and financial resources commensurate with the absorptive capacity of communities should be utilised to ensure sustainability;
- Networks for facilitation of information and experiences exchange should be created;
- Involvement of the private sector for provision of insights into market possibilities, capital and capacity building is essential;
- Advocacy for community empowerment for local level natural resources management is necessary; and
- The policy, institutional and statutory enabling environment must be in place.

IGAD engagement with CBNRM: The IGAD member states realised the need for exchange of information and experiences between themselves to enhance natural resource management. In implementing this policy directive, one issue that came up clearly is the nature and focus of IGAD programmes. All IGAD programmes are intended to produce the following core outputs/products:

- Harmonisation and evolution of development policies
- Development information
- Research agendas
- Capacity building initiatives.

It is the use of these products by the Member States that ensures successful accomplishments of IGAD's objectives of sustainable development under regional economic cooperation and integration. IGAD, as a regional institution, is well placed and has comparative advantages in

various aspects of regional programme and policy formulation. The implementation takes various shapes but continues specifically to:

- Organise and facilitate meetings at ministerial level in addition to initiate other high level topical discussions on policy and other issues of common interest;
- Initiate, facilitate and participate in fora for lobbying, advocacy and policy development and harmonization;
- Assist the Member States in developing concepts and regional strategies;
- Work together with other regional bodies, institutions and experts in the development of an IGAD position in international affairs pertaining to its priority areas;
- Assist in identifying regional priority needs and initiating formulation of interventions;
- Mobilize and leverage project resources for development interventions; and
- Coordinate and facilitate regional project implementation.

An important role of IGAD is in enhancing the physical and human resource capacities of the Member States. IGAD has therefore increased its efforts in capacity building by participating in the production and dissemination of relevant development information, providing fora for awareness creation and experience exchange, and facilitating linkages between the private sector, civil society and public sector. Inter-country exchange visits have proved very successful in on-site, group training for communities in different sectors. A clear co-ordination mechanism has been put in place in order to avoid overlap and duplication of efforts. One of the important roles assigned to IGAD is to assist the Member States analyse important issues and challenges and develop a common position and issuance of co-ordinated statements in international fora. Finally, IGAD operates on the principle of subsidiarity. It does not do what member states can do better and only undertakes activities that add value and are cost effective when undertaken at a regional level.

1.5 Background to, and layout, of the book

The IUCN Eastern African Regional Programme (EARP) worked with IGAD to develop a regional CBNRM project for six countries of the IGAD region, namely Sudan, Eritrea, Djibouti, Ethiopia, Kenya and Uganda. This process was undertaken through six national reports on CBNRM, compiled by national consultants, a series of six national stakeholder workshops which culminated in a regional project planning workshop. It was then decided that this publication should be compiled, based on the national consultancy reports and the workshop series. The national reports were summarized into the chapters, which follow the first two chapters. An introductory chapter was written, while chapter two provides a broad background to the natural resources, and the policy and institutional arrangements that are in place for the region. The last chapter provides an overall analysis and conclusion to the book, based on the national chapters. A range of annexes is included that highlight some of the case studies on CBNRM in the IGAD region.

Each national chapter is preceded by a summary which has been translated into French. The whole of Chapters 1, 2 and 9 have also been translated into French. This French version has been published separately so as to help ensure that the experiences from the IGAD region, which with the exception of Djibouti are all English speaking countries, gain wider exposure in francophone Africa.

CHAPTER 2: THE NATURAL RESOURCE AND POLICY BASIS FOR CBNRM IN THE REGION

Edmund Barrow

2.1 Introduction

Given the size and diversity of the region, there are a range of broad natural resource types, some common to all the countries in the regions, others more country specific. Some of the ecosystems are transboundary and are potentially for regional collaboration. A number of characteristics determine the natural resource type, including:

- **Altitude**, where precipitation rises with altitude and the vegetation is richer, for example the Afro-montane forests in the region. Though above a certain altitude, temperature limits diversity and richness;
- **Rainfall**, where it is estimated that at least 74% of the region receives less that 750 mm of rainfall per annum making such areas semi arid to arid. This in turn limits the cultivation potential, and accentuates the importance of dryland natural resource management;
- **Key geographical features** such as the Great Rift Valley, the Nile Basin, the high mountains and the coast and Indian Ocean all affect the climate and natural resource types found; and
- **The diversity of peoples** in a broad sense determines the type and scale of land and natural resource use in the region ranging from nomadic pastoralism to intensive agriculture, and coastal fisheries to forest dwelling peoples.

These factors create the foundation for the mosaics of natural resources and ecosystems found in the region, most of which have been managed and manipulated by people. Policies and laws of the nations have, over time, resulted in changes in these landscapes as people increasingly impact on their natural resources. Many landscapes have been modified dramatically, as rural peoples and countries seek food security through agriculture. Other areas of conservation value have been reserved as national parks, forests, game and marine reserves, and so may have been alienated, albeit with the best of conservation intentions, from rural people. For example, in the drylands, many of the rich patch vegetation areas have been expropriated from pastoralist natural resource management strategies.

This seeking of food security for rural people, because of its historically narrow traditional focus, i.e. a focus on agriculture and livestock rearing, is coming at a high conservation and environmental cost. This results in a loss of resilience and increased risk, a factor particularly prevalent in the large dryland areas of the region. Now, contemporary thinking on food security is becoming more holistic and recognizes the multiple roles that natural resources can play. CBNRM attempts to integrate natural resource management into food security, while at the same time trying to ensure the conservation of natural resources. While the broad natural resources may differ, some of the underlying principles are similar. This chapter provides a more generic overview of the natural resource issues in the six countries, and is based on the country chapters and the relevant literature.

2.2 The Natural Resource Base

2.2.1 Dryland systems

The IGAD region is dominated by semi arid and arid lands. With the exception of Uganda (25%) all countries have over 75% of their land classified as semi-arid to arid, including savannah grasslands. Aridity calls for a range of land management and coping mechanisms which are very different from those of high potential areas. Various forms of pastoralism are the dominant form of land use. In some areas, such as the gum arabic gardens of Sudan, this is integrated with dryland cultivation. In other areas, the lack of rainfall precludes any form of cultivation, unless by irrigation.

While such drylands may not be as species rich as higher potential areas, the biodiversity and natural resource base in such areas is critical to food security, as well as forming the basis for many of the famous wildlife areas in the region.

CBNRM is the dominant land use system for such dryland ecosystems, and is the key component that secures pastoral livelihoods and food security in the region. Historically, pastoralism has tended to be equated with livestock management and improvement, with less attention being paid to the sociology of pastoralism. Livestock improvement activities, through improved veterinary services, provision of water and access to markets, were easier to implement than, for example, improved management of the livestock and the natural resources. Taking a pastoral livelihoods approach changes this perspective, and puts the emphasis on CBNRM.

Various forms of traditional nomadic and transhumant pastoralism have been practiced over vast areas of the region for hundreds of years. As a result, there is a rich customary knowledge and institutional base which has shown remarkable resilience, given the pressures of change over the past century. This knowledge base, relating to the biodiversity and its use, can be optimized for livestock production and human food security in high risk environments. The knowledge is both species specific and based on management systems and institutions, where extensive and often complex rules and regulations have been formulated and implemented governing access to natural resources over space and time, and where communal and private usufruct can be a vital component. In the past, this knowledge base has been all but ignored. It is now well demonstrated that pastoralism is the main and most viable form of land use for most of these areas in terms of both food and environmental security .

Because of the necessity for mobility, pastoralists and pastoralist natural resource management systems may straddle national boundaries, for example Borana pastoralism in northern Kenya and southern Ethiopia. This has caused confusion for national authorities, and is a basis for much natural resource conflict in such areas, particularly with respect to water.

Given the extent of drylands in the region, and the increasing influence of climate change, it is likely that drylands are going to become an increasingly important source of food security for its people and countries, paradoxical though that may seem. It is likely that the natural resources will be the continued food security base both directly through livestock, or through an increased realization of the economic importance of other plant and non-timber forest products in the region, possibly combined with other activities such as tourism. Further, an improved understanding of risk and resilience for such fragile systems is needed as a key tool for adaptive management, now more than ever, given the reality of climate change.

2.2.2 Forests

The range of forest types in the region is wide and diverse, from the Afro-montane forests of Mt. Elgon straddling Kenya and Uganda, to the riparian woodlands found in many parts of the region, the mangrove forests along the coastline, and a range of "mist" forests found on certain hill and small mountain tops in a number of countries. In addition, there are vast areas of dry bushland which are of great importance to pastoralists.

All these forests contain a wide range of biodiversity, some of it endangered, and most of it used in some way or other. Many of these forest areas are under great pressures as cultivators increasingly push into, and convert forest lands for other, so called "more productive" forms of land use. The wider ecosystem, watershed and catchment functions are not given the attention deserved in the push for short-term food security and land acquisition in such areas. The recent examples of the effects of drought in Kenya, and the degazettment of forests in Kenya is an indication of this. Satisfying food security and land needs through forest conversion is a short-term path, with grave long-term environmental consequences.

A history of focus by most national governments on timber products has helped further alienate rural people. Most important area of forests were gazetted as forest reserves for these wood-based forest forest resources. The importance of non timber forest products was down graded to permit based rights. Though, in some of the drier countries, for instance Somalia, Sudan and Eritrea, these non-timber forest products are very important and well recognized nationally. For example, Sudan is the world's largest producer of gum arabic, and Somalia is the world's largest producer of frankincense.

2.2.3 Wetlands

Wetlands used to be considered wastelands. They were drained and converted to agricultural land as this was seen, at least in the short term, as a more productive form of land use. More recently, work in Uganda has demonstrated the real importance of maintaining wetlands for both rural people's and national economies. The two main regional wetland systems are the Ethiopian highlands and the Lake Victoria catchment, both of which contribute to the Nile basin.

The most extensive wetland in the region is the Nile basin whose catchment includes Kenya, Uganda, Ethiopia, Eritrea and Sudan. Thirteen per cent of Uganda is classified as wetland, though the Sudd of Sudan, through which the White Nile flows is larger in terms of actual area. Within the IGAD region, 77% of the wetlands are found in Sudan, 10% in Uganda, and 13% in the remaining countries This water system not only provides the water life line for many millions of people, the lakes, rivers and associated wetlands are very important from the perspective of biodiversity and as a livelihood source for fishers, farmers and pastoralists.

Wetlands present a difficult issue for CBNRM. Unless carefully planned there can be down stream effects. But it is clear that wetlands provide important goods and services to rural people, and many of these are being acknowledged as important for food security. Many of the wetland areas are important areas of biodiversity, for instance the Rift Valley lakes, and have been conserved as such. Other wetlands, particularly the Nile Basin, are become very important regional and international ecosystems.

2.2.4 Marine areas[2]

There are two broad marine areas in the IGAD region namely the East African Coast (Kenya and part of Somalia), and the Red Sea and Gulf of Aden coast (Sudan, Eritrea, Djibouti and Somalia). While both coastlines have a similar marine environment, dominated by coral reefs, there has been a great difference in use. Along the coast of Sudan, Eritrea, and Djibouti, there has been less interest in marine products for food security, as such areas are dominated by pastoralism as the main subsistence and economic base. As a result, the coastlines are relatively undeveloped, and marine resources relatively unexploited, compared with those along the East African coast.

Along the Red Sea coast, tourism and fisheries are less developed and less intense than along the Kenya coast. It is equally clear that the community institutional arrangements are not well developed along the Red Sea coastline. This has resulted in a near real "tragedy of the commons" in Somaliland waters resulting in unregulated commercial and international exploitation of important marine resources. However, it is interesting to note that Somaliland has developed a national marine resources policy that has been participatory in its process, and has resulted in a range of training activities relating to fish monitoring for community elders and fishermen. In Eritrea, and with GEF support, there is a project to improve the conservation and management of Eritrea's coastal, marine and island biodiversity. This is being carried out through participatory management involving the traditional leaders or "Baitos", fishing communities, and women's groups.

Various forms of marine protected areas are being developed in the region, some with strong community involvement, and indeed a sense of community proprietorship. Others have been gazetted in a more traditional, exclusionist fashion. Such marine protected areas have the potential to not only conserve valuable areas of marine resources, but also act as fish breeding grounds in the area. This difficulty of "fencing in" fish in the marine environment can be turned into an opportunity for conservation area managers combining such activities as tourism in the protected area, with improved and more sustainable use of the fishery resource outside.

Fisheries in the region have tended to be managed in a top down manner, by government departments through the issuing of permits to control use. As with forest management, many of these policies separated the rights to, from the responsibilities for the resources. Now more participatory processes are slowly being put in place that will ensure that resource users have more rights to their resources as well as the responsibilities for them.

2.3 Policy, Legislation and Institutions

2.3.1 Introduction

National governments have a powerful role in the use and management of natural resources. For example, during colonial times, timber was seen as a strategic resource. As a result forest reserves were demarcated and gazetted. This set the scene for government involvement in forestry. Forestry departments or equivalent institutions in many countries still directly manage and control vast tracts of forest and woodlands, both through reservation and legislation controlling the harvesting of valuable timber species. However, national governments still see

[2] Sue Wells, IUCN-EARO marine coordinator from 1999 to 2002 provided valuable input and comment to this section.

their role as custodians of the important national and international service values of natural resources such as watersheds and biodiversity. This is used to help perpetuate, in some instances, continued "command and control" natural resource management systems, despite evolving policy rhetoric to the contrary.

Policies and laws of various forms and origins have been enacted in the different countries in the region so as to create the environment for national development, for achieving food security, and for conservation. Many of these policies and laws have their origins in former colonial government laws and policies. One key characteristic of these laws and policies is the general separation of policies and laws promoting food security with those which are more conservation focused, and this is a significant policy failure. Combined with the relative lack of horizontal integration of government ministries and departments, this sectoral approach has further contributed to the separation of conservation and natural resource management as key components in food security. However, the more recent trend and emphasis on decentralization should result in a greater integration of the agriculture and conservation sectors.

2.3.2 Broad National Level Policies and Laws

As a reaction to the increased needs for participation at all levels, and of democratization, government policies started to encourage decentralization, including devolution of power to local authorities, and increasingly to the local level. This has created an enabling framework, and a positive pressure for CBNRM. However, while many of the functions of the production and service sectors may have been devolved to a local level, this has not necessarily been the case with the conservation and natural resources sectors. Many forest areas and national parks remain under central management, with little functional integration at a local level. Though this is starting to change as conservation authorities seek better local level integration, the perceived need for some of the region's conservation estate to be centrally managed remains strong.

In recent years, and coinciding with the mainstreaming of participatory approaches in development theory and practice, there has been a policy shift to advocate that local resource users and their institutions play a much more active role in the protection and management of natural resources. Concomitant and complementary to this is a recognition that state control has been largely unsuccessful, costly and financially unsustainable. Thus, over the last 10-15 years community involvement in natural resource management has received considerable policy, development and research attention, and the “move to local control” has seen the emergence of a range of so called “community based” models and initiatives for natural resource management.

New trends toward decentralization and strengthening communities and their institutions placed pressure on authorities to embrace community approaches for the protection and management of biodiversity and natural resources. Declining government budgets and structural adjustment forced retrenchment of government staff, and conservation organizations began to understand that management of protected areas would be increasingly difficult without community support. Partnerships between conservation authorities and NGOs provided the support necessary for this ‘re-tooling’ of institutions more familiar and comfortable with a preservationist, law-enforcement based approaches. Though the development of community conservation policy has tended to be uncoordinated and, in many cases, driven by donor funding, a rich variety of approaches emerged, often in response to situations on the ground and how projects tried to deal with them.

While decentralization is one key component in developing CBNRM systems, security of rights to land and resources may ultimately be a stronger driver and incentive for CBNRM. Under

conditions of low population and natural resource pressures, rights to and responsibilities for natural resources were often clearer than they are now. Policies and legislation in many countries have often separated the rights to resources from the responsibilities for those resources or areas of land. With that separation, the real or perceived sense of ownership was lost. This combined with government's increasing inability to actually manage those resources it had taken control off, has resulted in much natural resource degradation, encroachment and conversion.

Clarity of tenure, whether individual or communal, is key. If the tenure arrangements cannot be clarified, then clarity of access rights is equally important, but may not have the legal support that actual tenure would have. It is only more recently that tenure rights have become closely linked with natural resource management, and have been identified as a key issue throughout the region

2.3.3 Sectoral policies

Most countries have a plethora of sectoral policies relating in one way or other to natural resource management. Some complement, while others conflict. Some are more supportive of community based approaches than others. Historically, the more productive, agriculture-based policies have tended to be separate from those dealing with natural resources, even if they are in the same ministry. Likewise national development has favoured production based policies over those of natural resources, because of the obvious food security focus. Less attention was paid, at a policy level, to the wide range of other food security strategies that are often so important in risk-prone environments, such as the use of wild foods and fruits, natural medicines, and resources to meet contingencies.

Government departments or ministries dealing with agriculture and livestock development are often the most important sectors in a country. In contrast, those departments that work with natural resources, for instance forestry, wildlife and fisheries, are often relatively weak, even if they have good policies. Though many countries have put in place environmental agencies or departments, they are weak in terms of national development planning, and often lack the power or authority necessary for responsible environmental management.

The natural resource focused sectoral policies have a history of being more preservationist and exclusionist, resulting in the centralized management of these resources. In many instances, they have been the last, and then with some reluctance, to embrace the more participatory and enabling approaches to food and environmental security.

But there are changes in these policies, some as a result of internal pressures, others due to externalities, such as pressure from donors. As a result of declining budgets and forced retrenchments, governments can no longer carry out the range of activities they might once have. They have been forced to seek innovative ways of carrying out their mandates. The broad decentralization policies have been one expression of this. Other policies are actively fostering community involvement, for instance in forestry (Uganda and Sudan), and wildlife conservation (Kenya). However, there is still broad reluctance to hand over the "stick" of control to the local level, ostensibly in fear of mismanagement, but more realistically due to a loss of perceived power.

2.3.4 Institutions and CBNRM

As natural resource management covers a range of natural resources, the government institutions concerned with natural resource management are diverse, with different affiliations

and primary objectives ranging from exploitation (forestry) to preservation (wildlife authorities). There is often institutional overlap for different resources resulting in confusion and a lack of coordination. Forests may be under the purvey of the forest departments, but wildlife authorities may also manage forests. Wetland and marine areas are usually dominated by fisheries departments, yet they may be equally important as conservation areas to wildlife authorities.

One major institutional division has been between the production and conservation sectors. Those with a primary focus on production, for instance livestock development, range management, fisheries and forestry, have exploitation as their primary driver to help secure livelihoods and create foreign exchange. While conservation agencies, sometime with forest departments, are more interested in the conservation of the natural resource, not the level of exploitation.

This creates confusion and competition between and within institutional mandates, and is broadly similar across all the countries. This is compounded by frequent changes in the institutional arrangements, where government ministries or departments may be merged or disbanded, or new ones created. Institutions concerned with natural resource management, conservation and sustainable use are often weak in a government's institutional hierarchy, as the main driver is exploitation.

As governments have recognized the cross cutting nature of the environment, many countries created ministries or departments of the environment to have a clearer oversight of environmental issues. Laudable though this may be, no government has given these departments the stature and importance required to implement their often wide ranging mandates, as the recent example of the degazettment of a large natural forest area in Uganda for oil palm plantations, and the massive degazettment of forests for settlement in Kenya demonstrate.

It is clear, that at the national level, while many governments may have good policies, laws and institutions for addressing environmental and natural resource issues, and many countries are signatories to some of the important global conventions, especially the CBD, land use continues to be dominated by cultivation and livestock based agriculture. CBNRM has the potential to demonstrate that conservation (i.e. the sustainable use of natural resources) can contribute significantly to national economies, and lessons learnt should assist governments to rationalize their institutional arrangements to recognize this. If this institutional confusion is not clarified, then the conservation mandates of those institutions is likely to be compromised, with conservation objectives falling between the "institutional cracks", as is clearly happening.

If the institutions working with the natural resource sectors were not confusing enough, all countries have a focus on the decentralized provision of services to the lowest accountable level. Local government and district or sub-district, or equivalent levels have become the main decision makers for most issues. In some cases this includes natural resources, for example some forests, fisheries and rangeland management. But other forests and wildlife areas may be considered nationally important, for instance as catchment areas, and so are managed by national level institutions.

This confusion and competition is also reflected at a community level, where different messages from different institutions about the same or similar resources creates further uncertainty. This uncertainty often results in the loss of important natural resources, and replaced by resources on farm about which there is certainty. But there are still strong customary natural resource

management institutions at the local level, many of these inherited from times when natural resource management was the basis for livelihood security. Some of these community institutions are still strong, for instance those related to pastoralist natural resource management, while many are no more than memories. However, this is an important opportunity for CBNRM, and a means to integrate natural resource with others forms of land management at the local level.

Local, national and international NGOs have played an important role in the evolution of CBNRM approaches. This has been driven by two main agendas; the importance of participatory and community based approaches, and the increasing global awareness of the importance of conservation to rural people. Both rural development and conservation based NGOs are involved. Again agendas may differ, and there may be confusion and overlap between and within NGOs. Some NGOs may work closely with certain government institutions, while others may work on their own. In some situations NGOs may "take over" an area, as they can often mobilize resources more quickly than government bureaucracies.

For CBNRM to contribute to both food and environmental security, it is vital that there is greater clarity on the institutional roles and responsibilities at all levels. This needs to be driven, not from political, and often power-based, administrative agendas, but from reality on the ground and the importance that natural resources do or do not play in different situations, and should be informed by sound data, particularly economic data. Unfortunately, this data is only starting to become available (see section 4.3.). As a result, emphasis is skewed to where there is economic data, namely towards cultivation and livestock based land management.

2.3.5 Training and Capacity Building[3]

One way to enhance CBNRM would be through both short and long-term training programmes to develop and expand knowledge and skills for the design and implementation of CBNRM activities. At present, such training is not institutionalized because it is not part of training policies in most countries of the region. A few, for instance the Makerere University Institute of Environment and Natural Resources (MUIENR) and Egerton University, offer training courses in some areas relevant to CBNRM. But it would appear that this is due to the foresight and enthusiasm of individual academicians, and not a consequence of any deliberate national policies. What it means, though, is that given the right training policy environment, there are already some building blocks upon which new courses could be designed. Similarly, there are a number of NGOs in the region (e.g. Winrock International, SNV) which conduct short training courses that are relevant to CBNRM. But these are usually undertaken in response to specific needs of projects they implement, and not as a deliberate policy to build a core group of professionals who are well trained in the wide array of skills that CBNRM calls for, including:

- Conflict management and negotiation;
- Stakeholder analysis;
- Cost/benefit analysis, and valuation of natural resources;
- Property rights and tenure;
- Policies and laws (both national and international) relating to management of natural resources, and the capacity to translate policy into practice;

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[3] Francis Karanja and Lucy Emerton (IUCN) provided valuable input and comment to this section.

- Project planning and implementation;
- Awareness raising and empowerment;
- Resource assessment and monitoring; and
- Participatory techniques.

In terms of resource economics training, it is fragmented across the IGAD region. To date the bulk of biodiversity economics work has been focused on East African Community countries. There are also few mechanisms for disseminating or sharing the limited biodiversity economics information and experiences that exist. Only one environmental economics information network is – in theory – available throughout all IGAD countries. As access to this network is gained through email, to which few agencies are connected, participation is limited to selected capital cities, major organizations and lead government agencies. The Environmental Economics Network for Eastern and Southern Africa (EENESA) has since 1994 been supporting environmental economics training and research, primarily in the anglophone countries of Eastern and Southern Africa, and have included Eritrea, Ethiopia, Kenya, and Uganda of the IGAD countries. It has successfully established a wide network of government and university partners and assisted them in developing environmental economics training courses and carrying out environmental economics research activities. Building on this, MUIENR runs a range of 1-2 week short courses in valuing natural resources each year for trainers, policy-makers and planners.

2.4 Social and Economic Issues in CBNRM

2.4.1 Introduction

Social and economic issues are at the heart of good CBNRM. Because of the variety of social issues involved, institutions and groups have often found it difficult to work with these wide ranging social issues. This is exacerbated by the fact that many of these activities are driven from natural resource, not social perspectives. This relates in part to the technical, and not social background that many natural resource managers have.

Many of the rapid participatory processes and tools, whilst very useful for certain forms of rapid assessment and monitoring, have, in many cases, not allowed for the understanding required of the range and variety of social issues at play. One fundamental principle, often ignored, is that good community work hinges on trust, and trust can only be developed with time and mutual respect. Carrying out "a PRA" is not a substitute. However, the responsible use of participatory tools can foster trust and local capacity building.

2.4.2 Communities Organizing for CBNRM[4]

Community based organizations, associations, co-operatives and a range of other groupings have evolved as rural people seek to organize themselves for group action. In some cases, for example some of the older co-operatives, such organization may have been more top down than participatory in process.

[4] Wahida Shah (IUCN 1999-2004) provided valuable input and comment to this section.

Many fishery co-operatives have developed in the region so as to work with government in securing technical services, access to loans for boats and fishing gear, and an improved access to markets. Such co-operatives have had a checkered history. For example the Association of Fishing Co-operatives in Djibouti was started but never maintained. It is clear that there has to be a demonstrated community or user group ownership of such institutional and organizational arrangements, and that they should not be imposed by external interests

Problems arise, however, when we try to apply the ideal type model of "community" everywhere and in all cases. The model is static, giving little hint of the heterogeneity and changing membership composition of rural locales that may arise from forced relocation, migration, rural/urban labour, resource flows, and/or changing agricultural practices. As a result "communities" are far more internally differentiated than the model implies. Their boundaries also change as development shifts land from one jurisdiction to another, and governments impose new units of local governance on rural landscapes. The resource management community, defined in terms of residents, may not coincide with the accepted resource use community, defined socio-culturally. In particular, the model is not easily applied to semi-arid and arid areas where various forms of pastoralism prevail and where " communities of place" interact with each other over a much wider range in a system of reciprocity, either seasonally or at times of environmental stress, to mitigate risk and enhance resilience.

Communities need to be able to organize for joint action on some functional basis, for example as fishers, as a village or as a pastoralist association. An effective organization needs to be internally "owned", not externally imposed. Such community organizations require both internal legitimacy and legal recognition. There are many examples in the national reports which illustrate the variety of type of community organizations in the region.

2.4.3 Economic Issues[5]

Community level economic factors, and the status and integrity of natural systems, are closely interlinked in the IGAD region. Rural communities typically depend on the continued maintenance of natural resources for their day-to-day survival. A good land base, fertile soils, regular water supply and protection against climatic extremes all enable human consumption, production and settlement to take place. Natural systems such as forests, woodlands, grasslands, rangelands, wetlands, and coastal and marine zones yield resources which are used directly to generate income and subsistence, sometimes as a community's sole livelihood source, but more often in combination with other production systems. These natural resources tend to be particularly important for poorer households and at times of stress, and often provide the ultimate safety net when other sources of subsistence and income fail.

But community livelihood activities sometimes contribute to the degradation of the very natural systems they depend on. Almost all forms of human production and consumption have the potential to deplete, convert, pollute or otherwise degrade natural systems. Activities such as over-grazing, over-fishing, conversion of forest and wetlands to agriculture and unsustainable wildlife utilization all degrade and deplete natural systems directly. Other activities such as the use of destructive fishing or timber harvesting techniques, slash and burn agriculture, open pit mining and the disposal of untreated agricultural and domestic wastes degrade natural systems as secondary effects of the technologies and methods they employ.

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[5] Francis Karanja and Lucy Emerton provided valuable input and comment to this section.

As natural systems become degraded, livelihoods are progressively weakened and the economic welfare of communities suffers. Conversely, natural resources can provide a means of sustaining and strengthening community livelihoods. Recognizing that local economies depend intimately on the availability and quality of natural resources, conservation has become an increasingly important component of rural development activities. Simultaneously, there has been a growing recognition that local economic concerns play a central role in natural resource management. Most strategies for nature conservation now involve and benefit local communities in some way. Both development and conservation efforts aim to make it economically desirable for local communities to maintain the status and integrity of nature.

In line with the links between economic welfare, local livelihoods and natural resource integrity, it has become clear that an understanding of economic issues, and the use of economic instruments, form a central part of CBNRM in the IGAD region. Contributing to this, the IUCN EARO Biodiversity Economics for Eastern Africa Project works with IUCN government and non-government partners and members in Djibouti, Eritrea, Ethiopia, Kenya, Somalia, Sudan, and Uganda. Its main aim is to strengthen regional capacity to integrate economic tools and approaches into biodiversity assessment, planning and management, and to use economic measures in efforts to conserve biological diversity, to use biological resources sustainably and to equitably share the benefits arising from such use. The first phase of this project is primarily concerned with generating and disseminating biodiversity economics case studies, information and training.

The key economic issue in CBNRM facing the IGAD region is that, unless it makes tangible economic sense, communities are unlikely to be willing, and indeed are frequently unable, to conserve natural resources in the course of their production and consumption activities. This requires that economic factors are taken into account in CBNRM, including:

- An understanding of the economic value of natural resources for local communities, and of the local economic costs arising from their degradation and loss;
- An understanding of the economic trade-offs involved in natural resource conservation for local communities, especially of the opportunity costs in terms of alternative, degrading, land use and livelihood activities foregone;
- The provision of sufficient economic incentives to compensate for any local costs involved in natural resource conservation, and to increase the profitability and economic desirability of natural resource conservation, in itself and relative to competing or degrading land and resource uses;
- The generation and allocation to community members of sufficient financial resources to enable natural resource conservation at the local level; and
- Recognition of the local economic importance of natural resources, and of the need to provide incentives for community natural resource conservation in both macroeconomic and sectoral economic policies, and in the policies of natural resource sectors, at local, national and regional levels.

There are clear links between economic factors and CBNRM at regional, national and local levels. While natural resources typically have a high economic value to communities, local economic forces simultaneously constitute major causes of natural resource degradation and loss. In turn, economic tools and instruments can provide valuable measures for strengthening CBNRM attempts. In most countries in the IGAD region, broader economic conditions continue to be generally unsupportive to, and economic factors have yet to be adequately dealt with in, community-based approaches to natural resource management.

2.4.4 Private Sector[6]

There has been a general tendency not to really cooperate in a meaningful manner with the private sector on CBNRM. Sometimes those working with CBNRM projects do not have the necessary skills for working with the private sector, in the same manner that the private sector may not have the appropriate skills for CBNRM. There are often accusations that the private sector exploits communities. Some governments are uncomfortable with such approaches. However, in an increasingly competitive world, equitable partnerships between communities and the private sector are an important opportunity for increasing community and natural resource benefits. As a result, there is a clear need to make those links with the private sector, as this will help widen the range of opportunities and partnerships which communities can make with others. Private sector involvement could be at different levels, for example:

- Joint management of an area for tourism, as is happening in areas of Kenya (e.g. Ill Ngwesi, some of the group ranches around Maasai Mara, and with some communities along the Kenya coast). Here the partnership brings the strengths of the private sector to manage tourism enterprises, with those of the community with their intimate knowledge of their lands and culture. Where tourism is well developed these sorts of partnerships are becoming increasingly strong and important, as is being demonstrated in Kenya, and to a lesser degree in Uganda;
- When communities lease out an area of land for private sector activities; or
- Assistance with the processing and marketing of non-timber forest products, such as frankincense in Somaliland, or gum arabic in Sudan (though the Government is responsible for the marketing), or the increasing importance of medicinal plants in the region, where over 70% of rural people regularly use herbal remedies.

2.4.5 The Importance and Role of Indigenous Knowledge, Culture and Sacred Sites

All over the region, culture has played a very important role in how natural resources are used and managed, and has often formed the basis for indigenous natural resource management systems. Many of these systems are forms of CBNRM, for example pastoralism, the management of some forests, and the importance of sacred sites. Along the Kenya coast, the Kaya forests are a well documented example of indigenous CBNRM.

Customary resource management regimes have provided us with the context for contemporary efforts with CBNRM. Many of these natural resource management regimes have been well documented in the region, for instance pastoralism in a number of countries, the range of systems to manage trees, different forms of conserving areas as reserved grazing areas, or enclosures, or as protected fish breeding sites. These experiences demonstrate the importance of a range of resources to rural people, but equally the range of institutional and organizational systems which communities and resource users have put in place to manage such resources. Some of these arrangements worked well under conditions of low population and resource pressure densities, conditions which no longer exist. The important issue is not to discard such traditional systems as being out dated, but to learn from, build and adapt them to better suit the present sets of conditions for natural resource management.

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[6] Francis Karanja (IUCN) provided valuable input and comment to this section.

2.4.6 Securing Community and Resource User Property Rights[7]

Ownership, control of and access to land (including fresh and salt water) and resources is becoming the single most important issue for sustainable natural resource management. This relates to responsible local and community involvement and empowerment, and the restoration of viable natural resource management institutions. Currently, a number of countries have processes in place for the revision of tenure and land use policies. It appears that conservation has had little impact on, or involvement with these processes, or been able to integrate conservation as a valid form of land use. Issues concerning tenure are similar and include the role of the state in land ownership, the future of customary forms of land ownership, the extent to which land regulation should be democratized, and the extent to which a market in land may be encouraged without unrecoverable social costs.

Tenure is a critical factor for conservation, since it determines the linkages between responsibility and authority over land and natural resources, and the incentive structures for sustainable use. It can take a variety of forms ranging from rigid statutory defined individual title to *de facto* customary rights of access and use, to one where resource users are granted rights of access to, or authority over, natural resources owned by another, usually higher, body.

Frameworks for CBNRM will differ depending on the ownership of the land, or the resource(s), the policy and legal frameworks of countries and institutions, and the objectives of land users. Use is the real, at least *de facto*, if not *de jure*, determinant of ownership. If this is linked to responsible authority that use may be sustainable, but if the authority is vested in distant state bodies and there are no perceived local benefits, then use may not be sustainable. Distant state ownership is no longer a valid form of local management, and has been shown to be unsuccessful, though the state does have an important role in regulation, arbitration and overall enforcement. However, the state needs to retain control of its core conservation and bio-diversity estate, as well as ownership of last resort.

Ownership linked to the rights to benefit, and to the notion of sustainable use recognizes that conservation may suffer if not seen as an "important" economic and/or cultural component of land use. If it is not considered as important it may give way to more economically productive forms of land use. In other areas conservation may become increasingly significant, as its benefits outweigh other forms of land use types. This may depend on a range of issues, inlcuding subsistence-based (use, meat, fuel, cultural), and increasingly market-based benefits (eco-tourism, non and consumptive use, sale of primary and secondary products etc.).

While ownership may change, it represents a given point in time as to who owns the land, and who owns the natural resources. This is a fundamental and important reference point (Table 2.1). Establishing a framework to examine community conservation in practice, based on resource and land ownership allows for:

- Clarity in understanding as to who owns what land and resources;
- Communities and conservation authorities to work towards more secure rights and responsibilities for that land and the natural resources;

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[7] Some of the content for Section 2.4.6. comes from Barrow, E., Clarke J., Grundy, I., Jones, K-R, and Y. Tessema (2002): Analysis of Stakeholder Power and Responsibilities in Community Involvement in Forest Management in Eastern and Southern Africa. Forest and Social Perspectives in Conservation No. 9. IUCN. Nairobi, 154 p.

- Setting a legal framework for negotiating rights and responsibilities for different interest groups;
- Changes in ownership of land or resources;
- Redressing past inequities, land expropriation, etc.;
- Greater participation, collaboration between conservation authorities and local people; and
- A firm *de facto* or *de jure* basis for "participation" in conservation.

Tables 2.1. and 2.2. summarize the different types of community conservation in terms of land and resource ownership. This in turn determines the rights and responsibilities which can accrue to the different institutions involved to make such community conservation a success. Resources can refer to an area of land and all the resources therein, e.g. community forest, a national park; or it can refer to a bundle of resources - access to papyrus, fuelwood, water, certain wild animal; or it can relate to one resource, e.g. a tree species. Figure 1 (Chapter 1) illustrates this continuum from one of pure state control (no CBNRM) to one where community objectives as the most important (CBNRM).

Table 2.1: Links Between Different Tenurial Arrangements And Potential For Community Conservation

<table>
<tr><th colspan="2">Tenure – State</th><th>Tenure - de facto people</th><th>Tenure de jure people</th></tr>
<tr><td colspan="2">National Park, Game Reserve, Forest Reserve</td><td>Customary, trust, mailo (in Uganda)</td><td>Titled group or individual, company, freehold/lease</td></tr>
<tr><td colspan="2">Conservation main objective either national or global, rarely local</td><td colspan="2">Conservation seen as component of rural livelihoods, but undervalued and with often negative perceptions</td></tr>
<tr><td>Protected Area Outreach</td><td>Collaborative Management</td><td colspan="2">Community based natural resource management</td></tr>
<tr><td>Revenue and benefit sharing, conflict resolution, problem animal control</td><td>Agreement on resource use by type, amount, whom and over what time frame; conflict resolution, problem animal management</td><td colspan="2">Conservation as part of land use - may be a major component - and so more likely to be used sustainably; or may be minor, and, unless critical to people, will probably not last. Basis on cultural and economic benefits which accrue</td></tr>
<tr><td colspan="2">Wildlife part of "controlled", "pristine" landscapes. Control normally vested in State, but some community conserved areas can fit such management, e.g. sacred forests</td><td colspan="2">Wildlife as part of "managed" landscape. If wildlife is not a significant economic component, it will probably tend to disappear, and be substitute by "more economic forms" of land use. If wildlife is a significant economic component to users, then population pressures, and issues of inclusion and exclusion will be important so that wildlife can continue to be economically important.</td></tr>
</table>

Table 2.2: Ownership as the Main Determinant of Rights and Responsibilities

	Total State ownership of area or/and resources	**Collaborative Management Arrangements**	**Community or land user based ownership**
Ownership of Resource or land (*de jure* or *de facto*)	State owned land, e.g. national parks, Ffrest and game reserves.	Communities may have specified rights to certain resources (e.g. grazing in game reserves, forest products in forest reserves etc.), though land is State owned.	Private land - individual or group ownership through customary or modern law. State may have some control of last resort, and may have some rights over resources
Some components of management	State agencies determine type and level of use, by whom and under what circumstances, given through legislation	Agreement between state and user groups or individuals for management of area or/and resource(s) which are state owned	Conservation as part of land use, rural economies
Type of community conservation	Protected area outreach	Collaborative Management	Community Based Natural Resource Management

Within the IGAD region, laws and policies related to tenure are varied and are broadly based on traditional land rights. These traditional rights have been strongly shaped by colonial and post independent land law. In some areas and countries, formal and individual title is the most important, while in others various forms of traditional usufruct are still the basis for land management. In general, the judicial powers concerning land affairs have been shifted from the local level to the government. As land law has not been properly linked to land and natural resource use, natural resource management has suffered as land affairs have become increasingly politicized. For instance, in Uganda large tracts of unreserved forest land now lie on private lands, with no conditionalities of use being put into place. In parts of Eritrea, land is leased on short, 5 to 10 year leases, acting as a perverse incentive to, for example, the management of trees on farm land.

Clarity and security of land and resource tenure, and land use rights is probably the single most important basis and foundation for CBNRM, and broader land use. Unless addressed at both the tenure and use levels, this will result in continued ambiguities and uncertainties, and continued conflicts between different land uses and land users. The conflicting interests of traditional rainfed farmers, pastoralists and commercial farming will continue, and conservation is likely to be the losers. Further, this instability and uncertainty over land use discourages investment in land and natural resource management, and encourages conversion to agriculture where rights are felt to be more secure.

CHAPTER 3: COMMUNITY BASED NATURAL RESOURCE MANAGEMENT IN DJIBOUTI

Nabil Mohamed

Djibouti Summary

Background

Lying along the Red Sea at the mouth of the Gulf of Aden and bordered to the North by Eritrea, to the West by Ethiopia and to South-East by Somalia, the Republic of Djibouti covers an area of 23,000 square kilometers. It has a coastal strip of 1,000 sq. km. and a 372 km long coastline bordering the Red Sea, the Gulf of Tadjourah and the Gulf Aden. It has an arid to hyper-arid tropical climate with a weak rainfall pattern (average150 mm/year), hot winds in the summer and a high evaporation/transpiration equivalent to 2,500 mm/year, or over 10 times the potential rainfall.

The Republic of Djibouti is faced with a difficult socio-economic situation, resulting from an unfavourable conditions marked by a fall in external aid since 1991, troubles within the sub-region (massive inflows of about 120,000 refugees), reduced global trade and internal armed conflicts (1991-1994) causing immense military expenditure. The constraints of IMF imposed structural adjustment have equally affected the people.

The country's economy mainly relies on the service sector with a high concentration in the capital city (seaport, airport, railways, banks, insurance companies, public administration). The tertiary sector contributes 76% to the GDP. The primary sector affected by severe arid climatic conditions, poorness of the soil and water salinity, is poorly represented. Nevertheless, the fishing sector has a lot of potential (10,000 tons per year), which is still not fully tapped, 800 tons in 1990.

Due to the scarcity of the country's natural resources that can be developed, coupled with high costs of production and shortage of skilled manpower, the secondary sector accounts for only 20% of GDP. In general, due to economic difficulties, the country is experiencing a rather acute poverty situation that is compounded by a sharp urban drift. There are difficulties in all sectors, especially in those sensitive areas such as health, education and urban sanitation.

In recent decades, rather worrying indeces of environmental degradation have been evident everywhere in the country, resulting from a mismatch between existing natural resources and the people's needs. In an exclusively pastoral society, livelihood relies on the use of natural resources, which people have learned to manage and protect as long as they were living in harmony with their environment. Population growth, overgrazing, high demand for fire wood, extension of wrong farming practices, decline of customary law and poor legislation… are the main causes of such unbalance.

The environmental degradation observed is exposing more and more of the important refuges and feeding areas for wildlife, as well as threatening the extinction of species that have managed

to adapt themselves to an unfavourable natural habitat. The current status of black partridge, beira antelope or Balanites trees are among the most striking examples of a biodiversity in distress.

Studies on the present state of the environment in general, and that of the biodiversity in particular, indicate significant potential for preserving existing resources if sustainable management measures are implemented as a matter of emergency. In that respect, natural resource management by communities, by its very concept, present several alternatives to finding a compromise between the needs of the people and local potentialities with a view to maintaining a sufficient balance that would make possible the regeneration of species. Adopting this type of management may be justified inasmuch as there are in the country traditional rules that had already experimented it over the ages in different forms and which may serve as a basis for projects like CBNRM. Lastly, and this is a key component in government policy, evolving CBNRM projects may contribute to abating urban drift, reducing rural poverty and offering job opportunities to fight unemployment.

Natural Resources

Given its unique geographic location and despite unfavourable climatic conditions (low rainfall, high temperatures…), the Republic of Djibouti has a rather rich wildlife together with the presence of varied ecosystems (protected forests, mangrove swamps, coral riffs, areas with rare species in the country…). The most striking facts are undoubtedly the rich marine fauna of an exceptional diversity even though not well known. To date, over 167 species of corals have been listed with their numerous fish types. The variety of bird species whose impressive number for such a small country exceeds 359 species (migratory and non-migrant), i.e. as much as that of a country as big as France!

The flora though not very thick, provides an important source of pasture for a millennium old transhumant grazing, which is still being practiced using the same land over the seasons. The presence of this remarkable but equally endangered species such as the juniper (*Juniperus procera*), the dragon tree (*Dracaena ombet*) or the Bankouale palm tree (*Levistona carinensis*), testifies to how the vegetation has long adapted to its environment despite the harsh climatic conditions that have marked the region over the years.

Existing resource management policy

Faced by the threats to the environment and aware of the benefits of a long term protection of natural resources, the Djibouti Government has made environment and biodiversity conservation a national priority. Accordingly, the Djibouti Government has voted a series of laws to regulate hunting (1983) and fishing (1985), to establish protected zones and to ratify several conventions such as the one relating to biodiversity or to the fight against desertification. At institutional level, the Djibouti Government has also established a number of Ministries (Ministry of Agriculture, Livestock and Fishing, Ministry of Tourism and Handicraft) and a research institute (ISERST).

To better demonstrate its commitment to ecological heritage conservation, the Djibouti Government has set up a National Committee on Environment (CNE). The main mandate of this committee is to ensure coordination between all the players in the sector of environment and prepare a national paper on environment for the United Nations Conference on Environment and Development (UNCED) held in Rio in 1992. In the report, Djibouti recognized the need to conserve biodiversity and was in the process of taking concrete measures to ensure a sustainable management of its resources.

Thereafter, the establishment of a Ministry of Environment came to reinforce the resolve of the country to foster the protection of its resources. Within this ministry, the Department of Environment prepares and coordinates activities relating to the National Plan of Action for Environment (PANE), to biodiversity and climatic change. The national plan of action prepared under the initiative for fighting against desertification, is part and parcel of PANE.

Aware of the fact that it is today largely admitted that there can be no conservation without the full involvement of communities to attain a sustainable management of natural resources, all those action plans emphasize the importance for the people concerned to take charge of conservation activities. Government commitment must go hand in hand with the political will to empower the civil society with the means of taking charge of the development and protection of the ecological heritage. As such, the actions of associations, the creation of cooperatives, strengthening the management capacity of the communities, have become the government's priorities. Concrete measures to support the policy of decentralization have been initiated with the establishment of regional councils in each district endowed with an autonomous fund for their operations as well as project monitoring and evaluation committees.

It should be noted right from the onset that in the case of Djibouti, all the plans and programmes (National Action Plan for Environment (PANE), National Strategy and Programme on Biological Diversity (SPANDB), National Action Plan for the Fight against Desertification (PAN) prioritize the strategy of resource management by communities. On that basis, CBNRM is emerging as a key mechanism in the implementation of all those plans and programmes in general and that of the SPANDB in particular (whose objectives in terms of conservation, sustainable use and fair and equitable distribution of the benefits accruing from biodiversity, form the very basis of CBNRM).

Opportunities for CBNRM in the Republic of Djibouti

Government policy: The government's engagement in environmental protection is evident at various levels, i.e. through strengthening the capacity of those ministries involved in environmental management or through the execution of a series of conventions (e.g. CCD and CBD) relating to the conservation and development of natural resources. This commitment is in tandem with the political will to afford the civil society the means of taking charge of its own development and of ecological heritage protection. Furthermore, the different programmes under the National Action Plan for Environment, all agree on the need to implement joint conservation and income generating activities to meet the objectives set for sustainable development.

Institutional capacity building for associations and communities: A new trend in community involvement in development projects has emerged in the country. Accordingly, many spontaneous and uncoordinated activities are being organized with the aim of building the capacity of associations and communities, for example through teaching the population to read and write, raising awareness, training in project planning and management. Moreover, the number of associations involved in environmental protection has been growing in the country. Since the CBNRM experience is lacking in the country, those associations will be able to initially play a major role in educating and training the rural communities to provide them with the necessary assistance with the support of government technicians, so that in the long term, they might be able to manage their own resources in a sustainable manner.

Donors' policy: The present policy of donors and international organizations is marked by a new paradigm: there can be no development prospects without the effective participation of the population. Moreover, the major parts of conventions relating to natural resources do foster such a policy. On that basis, any chance of securing project funding is predicated on the importance of providing for the "involvement and participation of communities" and more especially of women. Such developments are placed in the broader framework recommended by the international community as a whole through the Conferences of Rio, Copenhagen, Beijing, Cairo… and aimed at creating a society founded on individual and community welfare and happiness, taking into account ecological constraints and the needs of future generations.

Tourism: Presently on a small scale (excursion on foot, sub-marine diving, camping…), the tourist organization is rather the initiative of some private individuals who are more and more sensitized on the need to protect the natural resources, main sources of their income. The involvement of local communities still remains confined to the role of guides or maintenance staff at tourist camps. The communities have potentials that they can develop through:

- their know-how,
- their knowledge of the area and resources
- their traditions.

Financial gains generated by tourism and equitably distributed would provide them with the necessary resources that would make it possible for them to abandon unsustainable practices such as over-grazing and deforestation.

Civil society - Traditional systems: In an environment as difficult as that of the Republic of Djibouti, pastoral people have been able to establish codes that would enable them to better manage their environmental constraints. As such, they have been able to adapt their way of life to the conditions of the surrounding area with the aim of managing natural resources in a sustainable manner. While it is a fact that traditional law has greatly declined these past years, those codes present a real opportunity for the following reasons:

- their principles are still observed by rural and urban communities.
- it is still an example of what the population can do to conserve the biodiversity. In fact, it is a testimony to what communities through true life experiences over the years, have been able to contribute to the management of their lands (organization, setting priorities in times of drought, prohibitions for preserving resources…).

It would therefore be very appropriate to reflect on the means and modalities of applying some of those rules and to adapt them to the present context within a programme of natural resource management by communities.

Civil society - The role of NGOs and communities: The fact that NGOs are participating in the development process is a demonstration that the civil society in general and communities in particular are willing to work for a better future. Recent domestic political developments have resulted in the democratization of the political life in Djibouti and development of concepts of good governance and decentralization. Building a dialogue, broadening the base of political choices and decisions as well as participation by all segments and classes of society in the political, social and economic agenda, are key elements for ensuring emergence of a civil society that is capable of managing projects geared to sustainable human development.

Their actions for environmental protection (reforestation project, developing tree nurseries, sensitization and literacy programme…) albeit on a modest scale, would contribute in the long run to providing them with the necessary experience for effective supervision and training activities. Furthermore, the institutional capacity building provided to NGOs these past years should, after a trial period, lead to the emergence of associations capable of taking charge of projects for natural resource management by communities. Some NGOs have already acquired this capacity in other areas, the most remarkable of which is the socio-cultural area.

Constraints

Political constraints: The Republic of Djibouti does not have any specific policy for natural resource management by communities. The policy for livestock development adopted since independence has still not favoured the conservation of resources even if it has the merit of contributing to enhancing the living conditions of the nomads. In fact, the improvement of animal health (veterinary care), establishment of catchments areas (without taking into account their management systems), settling the pastoral people, the high number of rural development projects focusing agricultural development, etc. have resulted in an increased pressure by communities on their natural resources and destabilization if not progressive neglect of traditional rules.

The coexistence of customary law, Moslem law (sharia) and modern law as regards land tenure regime, causes in itself a legal confusion: as is demonstrated by the unregulated establishment of tourist gardens and spaces generally belonging to financially well-off urban dwellers who do not have any title deed. Since it is difficult to enforce modern law in those areas, customary laws are still predominant in most cases while there is no legislation in place to regulate the effects thereof.

Institutional constraints: The management and development of natural resources by the communities require knowledge in the area of town and country planning and management which neither associations, private players nor communities fully have at the moment. In general, resource management capacities are very limited in the country and need to be enhanced. The main feature of those institutions is lack of qualified staff and material resources. Government technical services, which could have helped build the capacities of the communities, show little collaboration and coordination. This often leads to duplication of efforts. Moreover, low salaries and their delayed payment slow down initiatives and stifle motivation.

Due to their lack of experience and unavailability of a conducive legal framework (the French law of 1910 is not adapted to the national context), local NGOs have hitherto played only a very marginal role, in the management of natural resources. Poorly supported by the government and donors, Djibouti NGOs are suffering from a chronic lack of the technical and financial capacity for them to develop action programmes aimed at improving the living conditions of the population and participate in a medium- and long-term development strategies.

Government actions as well as those of NGOs generally rely on development aid availed by international donors and organizations. The activities take place when funding is available, often for a short period. Technical players in the field therefore have to achieve a number of results within a very limited period leaving very little time for training, sensitization and actual ownership of the project by the communities. Once the funding expires, communities are not able to continue with the work since they had been spectators more than actors. Hence, the project stalls.

At community level: The institutional weaknesses mentioned in the case of associations also apply to the communities. The problem of village associations is that they lack experience in all mechanisms that could facilitate full ownership of activities under a CBNRM programme.

The high illiteracy rate in rural areas is a serious barrier to the effective participation of local communities in the management of their resources. In fact, if they do not understand nor absorb sensitization messages, it is impossible for the communities to actively take part in discussions at meetings, make decisions, develop written proposals or maintain accounting books. At that level, the role of NGOs could be important if they were to attain the required levels of efficiency.

Poverty, a result of economic difficulties, compounded by a rapid population growth, remains the major problem for sustainable management of natural resources. Since there are few alternatives, the people continue to exploit the natural resources without taking into account the impact of their actions on the environment.

Main barriers to the development of CBNRM programmes

The management of natural resources by communities is faced with several obstacles that must be removed through discussion and practical implementation. The following are some of such barriers:

- Lack of human, material and financial resources in all sectors (public, private, NGOs, communities)
- Lack of coordination between the institutions responsible for the management of natural resources, which leads to duplication of efforts.
- The legislative weaknesses in the laws relating to land tenure and use, may cause conflicts if appropriate decisions are not made. The progressive transformation of pasture lands into tourist gardens and sites could give rise to problems in the years to come, if rules are not clearly spelt out for land tenure, rights of access and use.
- Designation of the communities to be responsible for the management of resources.
- Concretization of the concept of equitable sharing of benefits accruing from the CBNRM.
- The co-existence of district authorities and traditional power could be a source of conflict that would adversely impact the establishment of a system of resource management by the communities.
- There is a danger that protection of natural resources may be neglected by the regional councils (elected under the decentralization programme), for which such protection may seem of less priority compared to all other problems to address (water, sanitation, education, health).

Recommendations

That there can be no protection of natural resources without the involvement and ownership of the management of those resources by the communities that are using them, is recognized widely. But the mechanisms that would make it possible to achieve an effective involvement of communities, are still being reflected upon.

Conservation of resources requires that the people concerned change their attitudes and way of life. The restrictions imposed for safeguarding biodiversity would not be observed as long as alternatives that will be proposed would not generate real benefits that can improve their living conditions.

Sensitization at all levels about sustainable resource management is very important, and in particular for decision makers, technicians, NGOs and communities. Accordingly, workshops should be organized throughout the country with the aim of sharing experiences, viewpoints, brainstorming on ways and means of fostering a policy of resource management by the communities.

Institutional capacity building for all the stakeholders through training and skills development is required for effective action and creativity. Exchanges with countries in the region through visits to CBNRM model projects, could assist in the acquisition of experience that could be applied in Djibouti.

This legal framework can be achieved at different levels:

1. At legal level: A better definition of land tenure systems and regulations governing the rights to land development and use, with specific emphasis on protection of the ecosystems.

2. At institutional level: Clarity in the mandates and responsibilities is required for the different implementers and their jurisdiction of authority, so as to avoid conflict and duplication of effort.

3. At economic level: For the communities to gain from conservation activities, it is necessary to identify income-generating projects that would add a monetary value to resource management. Establishing specific protected zones (marine and land) on the basis of one of the sustainable development modalities, are in the interest of Djibouti given the diversity of existing potentials (landscape resources, active geology, traditional type caravan circuits, sub-marine resources…). In this respect, ecological tourism with private sector involvement seems to be quite appropriate. The priority sites (Iles des Sept Frères, Ras syan, Obock, the Goda and Mabla Highlands, Allol depression, the Doda region, peri-urban coastal areas…) have already been proposed because of their exceptionally rich wildlife resources.

4. At organizational level:

Launching a partnership process: A process of partnership between the communities and all stakeholders (governments, administrative services, NGOs, private sector), on the basis of concerted mechanisms of resource management through establishment of management committees, decision making and planning bodies.

Joint pilot management projects: For effective application of the CBNRM concept, it is necessary to go through an exercise of learning and concrete actions in the field to develop appropriate and specific methods for each community according to its tradition and culture. Pilot projects for joint management of resources on demarcated zones, should initially be prepared and implemented by the communities with the support of governmental and non-governmental organizations. Participation of the people in the preparation of those projects, in their management and in the redistribution of the benefits they will generate, is a precondition for their success. The experience thus acquired will be used to develop CBNR extension programmes at other sites all over the country.

Empowerment policy: A policy of gradual empowerment of communities to take over the management of their resources would be a sure way to a sustainable management of resources. Since the government has an advisory and supervisory function, it shall have the right to withdraw this authority if necessary.

Enhancing decentralization: Enhancing decentralization requires safeguarding decision making autonomy at the local level by strengthening the decentralization process fostered by the government, and empowering the decentralized structures at community level to manage natural resources. Modalities for redistributing income shall be determined by those structures by consensus.

Using customary laws: The use of customary laws and mechanisms for conflict resolution, to strengthen sustainable management of natural resources.

Encouraging regional collaboration: Encouraging regional collaboration through IGAD under the CBNRM programme is an opportunity for experience sharing (regional workshops, networking, exchange of expertise…). Such collaboration is especially important in the case of shared ecosystems between two countries: i.e. the case of Lake Abbé (between Ethiopia and Djibouti). In this respect, the Global Environmental Fund (GEF) has already initiated this year in Addis Ababa, a first meeting between the officials of both countries, to undertake an environmental diagnostics of the region and review the actions to take.

The way forward

The multi-faceted richness of the physical and biological environment of the Republic of Djibouti is an important potential in the government's efforts to finding solutions to national development problems in general and in the fight against poverty in particular.

However, the existence of conservation efforts in the face of the mismatch created between the overexploitation of the lands and their potentials is a real threat to biodiversity. Examples of resource conservation by communities observed almost everywhere in the world and especially in East Africa, open prospects for developing those types of initiatives in Djibouti. Such prospects are so promising that the country has already embarked for some years now on a sustained policy of decentralization, environmental protection and promotion of ecological tourism.

Community associations and their gradual empowerment to fully manage their resources through institutional capacity building are for Djibouti the two key elements for the successful implementation of the CBNRM programme. Since grazing is one of the major uses of land in the country, it would be advisable to identify appropriate sites for launching a CBNRM type project, on the basis of traditional laws regulating Pasture Lands. Immediately and on the basis of proceedings of the workshop on CBNRM programmes held in Djibouti on 20th February 2001, the following sites have been retained:

At national level, one project per district seems most appropriate to strengthen the policy for environmental protection in the country as well as the decentralization policy. As such, among the sites selected, the following should be taken into account:

- In the north of the country, the Mabla and Goda regions including the Day forest where 60% of the country's biodiversity is concentrated. Moreover, the coastal zone of Obock should also be taken into consideration because of its pastoral and marine resources.

- In the south, the Ali-Addé and Assamo region on the one hand and the Gobaad lowland on the other hand.

At regional level

- Lake Abbé which is of a vital interest to Djibouti and Ethiopia has already received a special attention from the Global Environmental Fund which has facilitated a meeting of technical experts and officials of both countries at a regional workshop held in Addis Ababa (Integrated Land and Water Management and Conservation of Wetlands in Southwestern Djibouti and Northeasthern Ethiopia, 2-4 May 2000 ». Communities living on either parts of the border should be encouraged to manage their own resources under the CBNR programme.
- The coastal zone between Djibouti and Somalia also has both pasture and marine potentials. The pasture lands in that area have reached an advanced stage of degradation because of over-grazing and tree felling.

On the other hand, the development of the existing protected sites or even the creation of new ones to be jointly managed by the communities and the private sector under government supervision would be among the possibilities to take into consideration, including the re-introduction of animal species that have disappeared or endangered species such as the Beira or Oryx.

Community participation must not only be on paper but it should be effective on the ground with the main purpose of sharing the income generated by tourist activities, handicraft development and traditional knowledge. Under such an arrangement, in the long run the government role could be limited to an advisory and regulatory function.

Research would be needed to ensure the collection and analysis of the data necessary for assessing the impact of land use on the environment. The indicators provided will be used to guide political decision makers and other partners to prevent all adverse impacts on resources with a view to attaining sustainable management and development.

3.1 Background to the Country

The Republic of Djibouti is situated at the entry of the Gulf of Aden and the Red Sea. The country covers an area of approximately 23,000 km^2, and is bordered by Eritrea in the north, Ethiopia in the west, and Somalia in the southeast. The eastern coastline of Djibouti extends for approximately 372 km along the Red Sea, the Gulf of Tadjourah and the Gulf of Aden. Within the country, altitude ranges from sea level to 2021 m above sea level at Mount Moussa-Ali. Between 500 m and 1,000 m, the dominant landforms are plateaux that are intersected by tectonic depressions filled with alluvial or lacustrine sediments. The major geological features of Djibouti are associated with activity in the Great Rift Valley, particularly within the region of Assal.

The climate ranges from arid to hyper-arid. Total rainfall varies between 150 mm and 350 mm per annum, depending on the altitude. Rainfall patterns correspond to either Mediterranean or tropical regimes, and there are two main seasons. From October to April, the weather is relatively mild, with average daily maximum temperatures of 26°C. The hot season extends from May to September, with average daily maximum temperatures of 37°C associated with very dry winds known as the Khamsin. The relative humidity is highest during winter, when it may reach 90%, and lowest during the summer, in the order of 40% (Abdou 1990). Evaporation rates exceed 2500 mm per annum and are approximately 10 times the potential rates of rainfall, or 83% of total precipitation.

In Djibouti, it rains only three or four times a year, usually in heavy storms. The little surface water that accumulates after these rare storms is mostly lost in the plains, or as runoff into the sea. Water runoff rates are estimated at 6% of total precipitation and are particularly high during heavy storms. The effective rate of water infiltration is very low and is estimated at only 5% of total precipitation. Water infiltration and recharge of shallow, underground water reservoirs, known as wadis, only occurs during the flood period. There are acquifers at depths of about 100 metres that comprise the main source of water for Djibouti's people (Jalludin 1995, ISERST 1997).

Djibouti is a major port and a communications hub for the Horn of Africa. Although advances in shipping and aircraft technologies have diminished the need for a refuelling point at this location, the country continues to be of strategic importance by virtue of its position at the mouth of the Red Sea, close to the Gulf states (Emerton 1998a).

Djibouti has a very limited natural resource base and few options for agricultural or industrial development, mainly because water is scarce. The national economy is characterised by high levels of external dependence and domination by the service sector. The service sector accounts for over 75% of GDP, and provides almost all foreign exchange earnings. Although activities in the agricultural sector are important in the rural areas, where livestock production is the main option for household livelihoods, the contribution of agriculture to the national economy is negligible. The industrial and manufacturing sector is poorly developed because of a small domestic market, lack of locally available raw materials and a largely untrained labour force.

The total population of Djibouti is estimated at 636,000 people, including 120,000 refugees and migrants (World Bank 1998). The population growth rate is high and estimated at approximately 6% per annum. In 1997, The Republic of Djibouti was ranked 162 among 175 countries rated according to the UNDP Human Development Index. More than half of the country's population lives in poverty and people in rural areas are the most affected (World

Bank 1998). The scarcity of natural resources and economic difficulties in rural areas have resulted in a high rate of rural-urban migration. Sixty-five percent of the population lives within the city of Djibouti. High population density in the city is associated with problems in the provision of sanitary, health and education services, and poverty. The average life expectancy among the country's citizens is estimated at less than 50 years. The rate of illiteracy exceeds 54%. The high level of illiteracy within the population hampers the dissemination and assimilation of messages on better sanitary, hygiene and environmental practices.

The Republic of Djibouti is divided into five districts, namely Djibouti (the capital city), Tadjourah, Dikhil, Ali-Sabieh, and Obock. The boundaries of these districts were defined during the colonial era and officially demarcated after independence, in 1979. The Government of Djibouti is pursuing a policy of decentralisation, with the aim of granting more autonomy to district authorities and facilitating representation of the country's citizens during decision-making processes. Following a presidential decree (No. 79-078), a regional council was established in each district for the management of public infrastructure and services (e.g. public roads and markets). The government gave regional councils the mandate to establish administrative services, levy taxes and identify other means to finance district development projects.

Each district is managed by a commissioner who is assisted by a deputy commissioner, customary chiefs (known as okals) and village chiefs. The role of a commissioner is similar to that of mayor to maintain public order and ensure security, public health, hygiene and justice. Following another presidential decree (No. 99-0088/PRE, Annex III), decentralization and the autonomy of each regional council is strengthened by a Social Assistance Fund established to support the implementation of projects proposed at the regional or community.

3.2 Natural Resources

During the last few decades, degradation of natural resources has become more severe and widespread in the country, due to the imbalance between the existing natural resource base and the needs of a growing population. Changes in demography, overgrazing, excessive harvesting of fuelwood, the spread of inappropriate land use systems, gaps in legislation and the erosion of traditional institutions and legal systems have led to this unsustainable resource use (Nabil *et al.* 1997, Nabil 1999).

Desertification is a serious problem, caused by the arid climate, overgrazing, excessive felling of trees, and high rates of soil erosion. In rural areas, habitats surrounding water sources frequented by livestock have proved particularly vulnerable to loss of vegetation cover. Contamination of these water sources by animal wastes has been associated with the spread of waterborne diseases affecting livestock and humans.

Very few studies have been done on the fauna and flora of the Republic of Djibouti. The inventory of species is far from complete and the geographic distribution, habitat characteristics and population size of most species are not well known. Some information on the countries fauna has been compiled by the Ministry of Town Planning, Habitat, and Environment (MHUEAT 2000a, Table 3.1, Box 3.1 and 3.2). Wildlife populations have been affected significantly by the destruction and degradation of their habitats, including feeding and nesting sites. Wildlife populations that are threatened with local extinction include the francolin (*Francolinus ochropecterus*) and beira (*Dorcatragus mega loti*).

Table 3.1: Terrestrial species in Djibouti

Group	Confirmed	Number of potential species	Total
Mammals	54	37	91
Birds	359	79	438
Reptiles	36	47	83
Amphibians	3	4	7
Butterflies	79	?	79

Source: (MHUEAT 2000a)

The World Resources Institute estimates that there are 2,000 ha of forest and 68,000 ha of open woodlands in the country (CNE 1991). The distribution of various vegetation types is associated with variations in altitude, rainfall and other ecological conditions (Audru *et al.* 1987). Most parts of the country, and almost all plateaux and hills, are covered by shrub land, dominated by species such *Acacia mellifera* and *Acacia tortilis*. This type of vegetation is characteristic of the areas at the margins of the Goda and Mabla ranges, and the chain of the Dadar.

The high plateaux are characterized by succulent steppe vegetation dominated by *Euphorbia spp.*, *Cissus spp.*, *Caralluma spp.* and *Salsola spp.*, with occasional stands of *Dracaena ombet* and *Acacia etbaica*. Forests are dominated by species of Mediterranean and Ethiopian origin, including *Juniperus procera*, *Terminalia brownii*, *Olea africana*, *Aizoon canariense*, *Psidia punctulata* and *Euryops arabicus*, which cover the higher zones in mountainous areas. In the plains and depressions, the main vegetation type is a graminaceous steppe associated with sparsely dispersed shrubs such as *Acacia tortilis*, *A. asak*, and *A. horrida*, and occasional thickets of *Cadaba rotundifolia* and *Salvadora persica*. In the south-eastern, coastal zones *Prosopis chilensis* is the dominant tree species. Periodically flooded plains and depressions are habitats for *Jatropha glauca* and woody species such as *Acacia ehrenbergiana* and *A. nilotica*. In some areas of the country, there are marshes that host rare species of typha (*Typha ssp.*), and doum palms (*Hyphaena thebaica*). In littoral zones, vegetation types include grasslands, scrublands dominated by *Limonium sp.* or *Suaeda sp.* and some mangroves.

Box 3.1: Distribution and status of wild birds and mammals in Djibouti

Birds: At least 360 species of birds occur in Djibouti (Welch and Welch 1984, Welch *et al.* 1986, Welch *et al.* 1992, Blot 1987, Laurent 1990). The relatively high diversity, for such a small country, is attributed to its geographical position at the head of the Great Rift Valley, close to one extreme of the Red Sea and the Arabian Peninsula. At this location, the avifauna is associated with eight zoogeographical types (Laurent 1992). Djibouti is an important migratory zone for several species of birds, especially birds of prey.

Djibouti's avifauna includes 127 migratory species, that are mainly of paleoartic origin. On one occasion, more than 246,000 individuals of 28 different species were counted on the north coast during a period of 38 days between October and November (Welch and Welch 1988). There are also 117 breeding species. Among these, 38 species are limited to Africa, 44 to both Africa and the Middle East, and 35 are widespread around the world. A further 64 bird species are considered itinerant and 51 species are of uncertain status.

The francolin is an important endemic species that occurs in the mountainous regions of Goda and Mabla. The francolin is gravely threatened by extinction. For example, the population around Goda is estimated at only 500 to 1000 (Welch 1999). The main reason for the decline of this species is habitat degradation, arising from human activities like deforestation and farming, particularly in the Bankoualé region. Other rare species are the Arab bustard (*Otis arabs*) and the eagle of Bonelli (*Hieraaetus fasciatus*) (Welch and Welch 1999).

Notable among the sub-endemic species, is the beaumarquet of Djibouti (*Pytilia melba flavicaudata*). This species occurs in bush and shrub lands of the Goda, the Dadar and the Mabla. In more arid zones, characteristic avifaune are ganga (*Pterocles senegallus*, *P. lichtensteinii* and *P. exustus*) and larks (*Ammomanes deserti*). Wetlands, such as those at Lake Abhé are important habitats for flamingos (*Phoenicopterus ruber* and *P. minor*).

Mammals: The results of a survey conducted from 1998 to 1999 indicate that there are 54 species of terrestrial mammals in Djibouti. These include gazelles (*Gazella dorcas pelzini* and *G. soemmeringi)*, and antelopes such as *Oreatragus oreatragus* and beira. Beira is found only in the southern parts of Djibouti, in northern Somalia and, possibly, in eastern Ethiopia (Künzel and Künzel 1998). Other mammals are the lynx (*Caracal caracal*) and monkeys, including *Papio hamadryas* and the green monkey, *Cercopithecus aethiops*. The Eritrean warthog (*Phacochoerus africaeliani*) is limited to Djibouti (in the north of the Gulf of Taddjourah) and to Eritrea.

Habitat degradation is a serious threat to wildlife to in Djibouti and some populations are already believed to be extinct. More recently, wildlife populations have also been threatened by hunting. Although, hunting is not a traditional practice and is forbidden by legislation there has been an increase in hunting and capture of animals to satisfy foreign demand for exotic species. Wild animals are captured for sale to foreighners in both formal and informal markets.

Very little has been documented about the marine fauna of Djibouti (Box 3.2). Marine ecosystems have also been affected by habitat degradation from the mainland. Urban wastes in surface runoff, including oil, have compromised the status of fragile ecosystems such as mangroves, coral reefs, and other important habitats for marine species. It is estimated that thousands of fish have died due to the increasing proportion of organic matter being poured into the sea.

Box 3.2: The marine fauna of Djibouti

Group	Number of species
Mammals	12
Reptiles	4
Fishes	454
Molluscs	224
Shellfishes	10
Echinoderms	8
Corals	167

Mammals: The marine fauna of Djibouti includes 11 cetacean species and the dugong (*Dugong dugong*). The most important cetaceans are dolphins, including *Sousa chinensis*, *Grampus griseus* and *Stenella longirostris*. The dugong is rare and threatened by fishing activities. Robineau and Rose (1982) reported sightings of 30 individuals to the southeast of the island of Ouramous during 1980. The latest observation was in 1994 when one specimen was captured in a fishermen's net (Darar 1999).

Fish: Among the 454 species of fish that have been identified, the most important are sharks, trevellies, wrasses, snappers, surgeons, butterfly fish, emperors, tigger fishes and grunters. Sharks are the most threatened because they are targeted to satisfy the demand for shark fins in the Asian market. There is no accurate data on the extent to which fish and other species are threatened within coral reef habitats. Some species, like the Humphead wrasse (*Chielinus undulatus*) may already be extinct.

Reptiles: The most common reptiles are turtles, including the caret (*Erectmochelys imbricata*) and the green turtle (*Chelonia mydas*). These two species are highly threatened by fishermen's nets, hunting (for flesh and shells), the collection of eggs by fishermen, and predation and destruction of eggs by dogs, cats or ravens living near nesting sites.

Coral reefs are important feeding and breeding grounds for numerous marine species as well as recreational activities for tourists. Recent reports indicate that 167 species of coral are represented within reef systems around the Sept Frère Islands, the Trois Plages in the Gulf of Tadjourah, Arta Beach and the islands of Musha and Maskali (Obura, 1999). There are signs of coral destruction, of varying degrees, at all sites that have been studied. The most serious threats to the reefs are associated with maritime navigation, pollution, sedimentation and tourist activities (CNE 1991, Nabil 1997). Degradation of the reefs and the impact on reef fauna, is a particular concern in zones close to the capital, and the Musha and Mascali islands (PERSGA 1996). There have been contradictory reports about the status of the coral predator *Acanthaster planci*, and further investigation is required to determine the role of this species in the dynamics of the reef systems.

Marine resources also include mangrove forests. Four species of mangroves (*Avicennia marina*, *Bruguiera gymnorrhiza*, *Ceriops tagal*, *Rhizophora mucronata)* have been identified at eight sites within the country, as described in Table 3.2. Mangrove habitats in Djibouti have been adversely affected by changes in water quality that are attributed to pollution, inappropriate waste disposal systems, overgrazing and other causes of soil erosion on the mainland. In the Ambouli-Doralé area, the remaining *A. marina* stands are seriously threatened. Fishermen report that this area was once an important habitat for fish, crab and shrimp populations that are absent today. It is estimated that 60% of the marine species exploited in Djibouti depend on mangroves ecosystems for reproduction and breeding.

Table 3.2: Distribution of mangrove species within the Republic of Djibouti

Location	Mangrove composition
Godoria forest	*Ceriops tagal, Avicennia marina, Rhizophora mucronata*
Khor Angar	*A. marina, R. mucronata, C. tagal*
Ras Syan	*A. marina*
Musha Island	*A. marina, R. mucronata*
Maskali Island	*A. marina, R. mucronata*
Oued Ambouli-Doralé	*A. marina*
Presidency / Saline	*A. marina*

3.2.1 Fishery resources

Currently, the fisheries sector employs 2,000 people, including approximately 300 fishermen (World Bank 1997). The sector generates approximately US$ 1.6 million per annum (Table 3.3). Approximately 8% of the annual turnover is received directly by fishermen. Since independence, fisheries production has risen from 250 tons to 800 tons per annum. However, current production levels are far below the potential, because local traditions do not promote harvesting or consumption of fish. However, cultural norms are changing and local consumption of fish has increased gradually during the nineties. Consumers favour five species: grouper (23%), thazard (14%), mackerel (13%), bream (12%), bonitos (5%) and travallies (14%) (MHUET 2000a).

The impacts of fishing on biodiversity in Djibouti are relatively mild, mainly because of the low-impact practices and techniques that are used. The majority of fishermen use small boats and traditional techniques such as lines or small nets, with limited capacity to capture large harvests (Künzel *et al.* 1996). The presence of coral reefs discourages the use of other, more modern techniques.

Table 3.3: Economic value of fisheries at current production levels

Description	Value (US$ thousand)
Total harvest 600 tons per annum 75% sold in retail 25 % home consumption	
Gross value of catches	1,620
• Value of harvest handled by retailers	977
• Value of harvest handled fishermen	642
• Value to fishing-related employment	6,334
Total fisheries related value	**7,953**

Source: (MHUEAT 2000a)

The most recent and detailed calculations give a maximum sustainable yield of some 8,200 tons of fish (Funzel *et al.* 1996). These calculations suggest that, with appropriate management, the direct value of fishing activities could increase by a factor of more than 20, and the fisheries sector could generate a gross income of approximately US$ 49 million per annum (Table 3.4).

Table 3.4: Potential economic value of fisheries value

	Catch (tons per year)	Average price (US$ per ton)	Total value (US$ '000 per yr)
Demersal fish	5, 000	3,845	19,225
Pelagic fish	3,200	4,975	15,920
Crustaceans	65	18,095	1,176
Gross value of catch			**36,321**
Value handled by retailers			21,797
Value handled by fishermen			14,531
Value in allied activities			12,667
Total fisheries-related value			**48,995**

Source: (Emerton 1998)

3.2.2 Livestock and crop production

Pastoralism is the primary occupation of the rural population. Approximately 135,000 members of 24,000 households in Djibouti have adopted the traditional, nomadic lifestyle required to ensure access to water and pasture for livestock. Although the climate in the northern parts of the country is more favourable for cattle rearing, most livestock is concentrated in the south where the terrain is more suitable for livestock caravans. Camel production thrives in all the arid regions of the country. The majority of livestock are goats and sheep. In 1998, the entire livestock population was estimated at 1,213,000 with a total standing weight of approximately 320,000 TLU (Table 3.5).

Table 3.5: 1998 livestock production estimates

	Calculated by growth rate	Calculated by herd size	Number of animals	TLUs*
Cattle	68,817	65,013	67,000	67,000
Camels	64,102	71,386	68,000	95,000
Sheep	495,172	52,251	509,000	76,000
Goats	500,000	637,379	569,000	85,000
Total	**1,128,091**	**1,296,429**	**1,213,000**	**323,000**

Source: (Emerton 1998)

* 1 TLU represents 250 Kg standing weight, where a cow = 1 TLU,

Camel = 1.4 TLU and goat = 0.15 TLU

In many parts of the country, poor pastoral practices such as overgrazing, have caused habitat degradation and desertification. The effects of desertification and long periods of drought have forced many pastoralists to adopt a sedentary lifestyle, and manage their livestock in settlements situated close to urban centres, and other sites with permanent water supplies (PSSA 1999). Unfortunately, the increased density of livestock at such permanent sites has led to habitat degradation. The limited supply of forage and fodder at such sites has resulted in lower herd productivity. More intensive livestock production systems are common around urban areas such as Djibouti, Tadjourah and Obock where the private sector aims to satisfy the high demand for fresh milk.

The difficult climatic conditions, lack of water and low soil fertility in Djibouti do not favour crop production. Local communities have almost no experience with crop husbandry before Yemeni immigrants introduced the practice during the early twentieth century. Even with irrigation, it is estimated that less than 6,000 ha of land, or 10% of the country's total area, can be managed for agricultural production (ISERST 1997, PSSA 1999). The areas most favoured for crop farming are adjacent to water points such as seasonal streams and rivers, oases, or in the peri-urban 'garden belt' around the city of Djibouti. Most of Djibouti's farmers cultivate small plots of approximately 0.5 hectares, with a variety of vegetables and fruits, such as tomato, onion, chillies, guava, mango, papaya, date palms and citrus.

Between 1981 and 1989, agricultural production increased due to the gradual expansion of the land area under cultivation. During that period, average horticultural yields were estimated at 3.9 tonnes per hectare, supporting the livelihoods of approximately 1,200 farming families, and 2,300 farm labourers (DINAS 1990). More recently, it has been estimated that the gross returns to agriculture are between US$ 7,000 and $ 11,000 per hectare per annum in rural areas and up to US$ 20,000 per hectare per annum in the peri-urban zone near the city of Djibouti (Emerton, 1998a, Habib 1998). From these estimates, it is inferred that total agricultural production may have a market value of almost US$ 8 million. However, the total yields from domestic agriculture can only cater for 10% of the demand for fresh fruits and vegetables in Djibouti city (CNE 1991). The bulk of urban demand for fruits and vegetables is met through imports from countries like Ethiopia, France, Yemen and Kenya. All cereals and legumes are imported. Further expansion of the agricultural sector is an important objective in Djibouti's national development strategy. Since 1981, the government has implemented several projects to expand the area under irrigation and promote production of species adapted to desert conditions such as the date palm and jojoba.

3.3 Policies and Legislation that are Relevant to CBNRM

In Djibouti, national policies for NRM are described in various strategies and action plans that aim to control environmental degradation, promote sound use of the nation's limited resource base, and promote collaboration among government agencies and other national and international organisations pursuing key economic and social development goals.

The Ministry of Town Planning, Habitat, and Environment (MHUEAT 2000a, 2000b) published the *Plan d'Action pour l'Environnement*, or National Action Plan for the Environment, and the Biodiversity Action Plan and Strategy (SNAPD) in 2000. These policy documents recognise the protection of the environment and biodiversity as national priorities, and emphasise the importance of collaboration between Government agencies and local communities for effective NRM.

The SNAPD was formulated as Djibouti's response to the International Convention on Biological Diversity, and includes 18 themes that are also cited in Article I of the Convention. These themes emphasise the importance of conservation and sustainable use of biological resources, as well as equity in the sharing of the benefits, and for sustainable development. The SNAPD also states that the involvement of all the stakeholders, including Government institutions, NGOs, communities, and the private sector, is required for the effective implementation of conservation programmes.

In order to support policies that aim to minimise excessive use of natural resources, the Djibouti government has enacted legislation to regulate hunting, control exploitation of fisheries, protect wild fauna and flora, and discourage pollution of marine and terrestrial habitats. But, in most cases, sector-specific policies for NRM are lacking. National policies may be inferred from the strategies pursued by the Government institutions with a mandate for NRM. For example, although there is no specific policy for water, it is known that the Government wants to increase the supply and distribution of water throughout the country, especially to urban developments and arable and livestock agricultural areas.

With respect to wildlife management, some strategic objectives for collaborative management and conservation of, including wild fauna (MHUEAT 2000a, 2000b) are proposed in the NAPE and SNAPD:

- Strengthening of anti-poaching measures;
- Review of current legislation on the environment in order to promote participatory approaches for the management of wildlife resources;
- Increased capacity among local communities to protect and manage wildlife;
- Design and implementation of integrated conservation projects for wild fauna;
- Formulation of a policy to promote community based wildlife conservation initiatives; and
- Increased awareness among local populations and tourists on the necessity to protect wildlife.

The Forestry Policy focuses on the rehabilitation of degraded lands through afforestation with species adapted to local ecological conditions. Government afforestation programmes also aim to increase awareness of the importance of forest conservation among local people. The participation of NGOs and members of local communities, especially women, during the implementation of such programmes is encouraged.

Animal husbandry is recognised as one of the most important sectors of the national economy. Government policy is captured within two strategies implemented by the Ministry of Agriculture, Husbandry and Fisheries. The Ministry's first strategy aims to maintain adequate supplies of pasture, fodder and water for livestock through habitat conservation and afforestation within rangelands and water catchment areas, and the effective management of wells, springs and other water sources. The second strategy is aimed at encouraging the adoption of more sedentary lifestyles among pastoralists, through the establishment of permanent settlements, where residents practise crop cultivation and more intensive forms of animal husbandry.

3.4 Institutional Framework for CBNRM

3.4.1 Government institutions

Government institutions with a national mandate for NRM are listed in Table 3.6. Key ministries are the MHUEAT, and the Ministry of Agriculture, Husbandry and Fisheries. Unfortunately, these institutions lack the capacity to promote CBNRM, either because they are understaffed or they do not have the technological or financial resources required. There is also very little coordination and collaboration among them, leading to duplication of effort. The Ministry of Natural Resources was established in 1999 but is not actively engaged in environmental conservation projects. At present, the ministry's efforts are focused on prospecting for mineral resources in an attempt to develop the country's industrial sector.

Table 3.6: National departments and institutions with a mandate for NRM

Name	Institution	Missions
Department for the Environment (DE)	Ministry of Town Planning, Habitat, and Environment	Coordinate and manage activities related to environmental management
Agriculture and Forests Agency	Ministry of Agriculture, Husbandry and Fisheries	Strengthen agriculture and promote development among rural communities.
Department of Husbandry and Fisheries (DHF)	Ministry of Agriculture, Husbandry and Fisheries	Ensure livestock health and initiate programmes to support pastoralists and fishermen
Department of Maritime Affaires (DMA)	Ministry of Agriculture, Husbandry and Fisheries	Manage maritime traffic
Institute for Studies and Research in Science and Technology (ISERST)	Presidency of the Republic	Propose, design and coordinate scientific research relevant to socio-economic development
National Office of Tourism and Handicraft (ONTA)	Ministry of Youth, Sports and Tourism	Promote activities related to ecotourism and handicraft in respect with the protection of the environment
Research, Information and Production Centre for National Education (CRIPEN)	Ministry of National Education	Undertake research in the area of education and information, and produce relevant training materials

Source: (MHUEAT 2000a)

MHUEAT produced a national action plan for the environment, NAPE, after consultations at national and district levels with various stakeholders to identify and rank priority issues for environmental management (MHUEAT 2000b). Subsequently, regional committees were established to coordinate and implement pilot projects in various districts. MHUEAT has also produced a National Action Plan for Desertification.

Djibouti is a signatory to several international agreements, including the Convention on International Trade in Endangered Species (CITES), the Convention on Biological Diversity (CBD), and the Convention to Combat Desertification (CCD). Therefore, the government has assigned responsibilities for implementing key components of these agreements to specific committees and departments. As already stated, the Department for the Environment was responsible for the development of the NAPD and NAPE. In addition, the Technical Secretariat of the National Bureau for Biological Diversity (TSNBBD) has been charged with the responsibility to propose implementation programmes for consideration by the National Committee for Biological Diversity (NDCBD) for approval. NDCBD is composed of representatives of government agencies, NGOs and other development partners.

The Ministry of Agriculture, Husbandry and Fisheries is responsible for the development of a national action programme to effect the provisions of the international Convention to Combat Desertification (CCD). The Ministry's Department of Agriculture and Forests has drafted an action programme that focuses on ways to achieve more sustainable development within the country, support diverse income-generating activities, and achieve a more decentralised system of authority and resource distribution.

3.4.2 Non-government organisations and voluntary associations

Since 1980, the Ministry of Economy, Finance and Planning has registered more than 200 voluntary associations and NGOs. However, almost 80% of these associations and organisations are based in Djibouti City, and focus on development issues such as health and literacy. A very small number are involved in NRM. Some Government departments collaborate with members of these institutions with the aim of strengthening their capacity in NRM, conservation and development. Local NGOs include NOMAD-AID, BENDER-JEDID, CARITAS, UNFD, AFD, AL BIRE, ADEC, ADEPF. Most of these organisations face constraints like lacks of funds and human resources, and have missions that are badly defined, over-ambitious and, therefore, largely beyond their capacities and means. Voluntary associations face similar problems in mobilising members, financial and other resources (Nabil and Dieng 1998).

3.4.3 Traditional institutions

The legal system established by the Djibouti Government is complemented by the customary land tenure systems of the northern Afar and southern Issa communities (Box 3.3). These traditional systems reflect the values and norms of local communities for the management of natural resources. Access to pasture and water sources is regulated by pastoral codes designed to protect natural resources and the welfare of community members.

Afar and Issas manage their natural resources through a political and social structure based on kinship, and a recognised supreme authority. Sultans lead the Afars, and Okas lead the Issas. Each member of these communities is born into a clan that is divided into sub-clans and smaller groups based on a paternal lineage system (Lilius 1994). In the Afar system, rangeland is divided into pastures owned by sub-groups, which have considerable powers to control access to resources. Each subgroup controls key sites for water and pasture, and a neighbouring

subgroup has to negotiate access with the relevant authority within the subgroup. A wider tribal authority is responsible for matters relating to conflict among subgroups. The Issa territory extends beyond the boundaries of Djibouti. In the Issa system, pastures belong to the entire tribe. Natural resources are managed by a supreme council comprising 44 members appointed by the tribe's elders, and led by a king. This council and the king are based at Dire-Dawa in Ethiopia. The supreme council is not a permanent body but is formed and dissolved in response to specific problems.

Several factors have disrupted these traditional systems and practices. Colonialism and the introduction of central administration systems, as well as the development of modern systems for communication, healthcare and education, have undermined traditional institutions and lifestyles. Recent programmes to improve the living conditions of nomads have increased the number of livestock, promoted the spread of agriculture and encouraged settlement of previously nomadic populations. Wars and other conflicts in the region have led to a massive influx of refugees.

Box 3.3: Traditonal institutions and practices for natural resource management in Djibouti

The Afar customary laws: The Afar population is organized according to the principle of the *fiqma*, or a social structure that has been adopted by several tribes in the region (Dini *et al.* 2000). Each tribe occupies a defined area comprising core settlement and pastoral lands, and satellite sites for transhumance grazing . The territorial divisions also define different clans and lineage groups. Passage between zones occupied by different clans or tribes is based on general agreements among factions or individuals with reciprocal interests. Resource use is subject to rules governing access to pasture and water. For example, there are rules on the establishment of fences and enclosures, and reservation of specific sites for kids and calves. During droughts, access to water and pasture is strictly regulated. The proprietor of a herd cannot feed cattle for two successive days in such enclose areas, and access to waterholes is limited on a daily basis. Severe penalties are enforced for breaches of these traditional and other natural resource management rules, which are highly respected by all members of the community.

The Issa customary laws: Within Issa territory, although some tribal sub-groups are identified with specific areas, pasture belongs to the entire tribe. Therefore, access to pasture and other resources is more flexible than in the Afar territory. All resource users must adhere to principles and regulations prescribed by the supreme council (Guedda and Godet 1984).

3.5 Experiences with CBNRM

No project based CBNRM activities have been initiated within Djibouti. For the most part, members of local communities have only participated in government-sponsored development activities to construct wells or promote specific practices for agriculture and animal husbandry that do not encompass conservation objectives. The few projects that have been driven by local communities (e.g. the establishment of cooperatives in Mouloud) have not been successful. The main reasons why such projects have failed include:

- Lack of funds to sustain project activities;
- Lack of the skills and knowledge required to manage projects after the departure of government staff that assisted community members initiate the projects; and
- Conflicts among community members.

Support to voluntary associations from bilateral funding and United Nations organisations has included funding for projects undertaken jointly with local communities for various development activities (Nabil and Dieng 1998). In recent years, capacity building of these

associations has been a priority for all donors. For example, a project on *Strengthening of Capacities in the Implementation of Reforms* aimed at:

- Promoting the concepts of good governance, partnership and effective participation;
- Raising awareness among citizens that development is a responsibility shared by each individual;
- Assessing the organisational structure of voluntary associations and their capacity to contribute to the development of the country; and
- Strengthening the capacity of voluntary associations and communities through workshops and training sessions in management and implementation of development projects.

The Islamic Bank, has proposed a *Special Program of Food Security (SPFS)* in which experts in irrigation, agriculture, fisheries, and animal husbandry will be based in rural areas and work in collaboration with community members to share relevant knowledge and skills. Likewise, *Capacity 21*, a GEF-funded project, supports effective community initiatives in rural areas in collaboration with regional councils, local committees, NGOs, local communities and representatives of women groups.

The African Development Bank has facilitated the implementation of a *Social Assistance Programme* to mitigate the negative impacts of the structural adjustment programmes on the most vulnerable groups of the population. The *Social Assistance Programme* supports community development projects in collaboration with the Rehabilitation Committee, and other committees formed to facilitate decentralization. In partnership with the UNDP the programme has also implemented a micro-credit scheme that, in future phases, may support CBNRM.

The French Cooperation Mission has supported efforts to combat desertification and rehabilitate degraded rangelands in the north of the country through irrigation and afforestation activities implemented with the participation of local communities. In the southern parts of the country, near the Somali border, the United Nations High Commission for Refugees (UNHCR) and the Higher Institute for Science and Technology Studies and Research (ISERST) have implemented a *Gender and Environment* project. The project was designed to reduce the pressures exerted by approximately 22,000 Somali refugees residing in Hol-Hol and Ali Addé camps. The refugees entered Djibouti in the early nineties, and are heavily dependent on fuel wood collected from the surrounding areas. The main objectives of the project are rehabilitation of degraded woodlands, establishment of home gardens for fruit and vegetable production, and the promotion of improved cooking stoves. The project targets women because they have been most affected by the depletion of local sources of fuelwood. Refugees in the two camps have been organized into groups to raise awareness on environmental issues, plant trees, manage home gardens, and produce and market fuel-efficient clay stoves.

The fisheries sector has also been targeted through support from Regional Organization for the Conservation of the Environment of the Red Sea and Gulf of Aden (PERSGA). An information programme targeting fishing associations will be implemented to raise awareness on sustainable management of marine resources. During the project, fishermen will be educated on marine conservation issues, provided with modern fishing gear and trained to prevent harvesting of juvenile or pregnant female lobsters.

3.6 Opportunities for CBNRM

The government has demonstrated commitment to environmental protection through formulating policies and strategies to strengthen institutions dealing with the management of the natural resources, signing international conventions aimed at protecting and rehabilitating natural resources, and strengthening voluntary associations and community based organisations that aim to develop and protect natural resources. The Government's policy on decentralisation, coupled with the support given to regional councils and committees offers a good opportunity for greater participation of local communities in national development. In addition, the NAPE and the Biodiversity Strategy and Action Plan have emphasised the need to recognise both economic and conservation objectives during national development. The current policy of donors and international organisations (as well as all international conventions related to natural resource conservation) favour the effective involvement of communities in development projects. Therefore, proposed projects for collaborative management are likely to get funding.

The development of tourism is still in its early stages and mainly led by the private sector. Tourism activities that are being promoted include hiking, scuba diving and camping. At present, members of local communities participate mainly as paid employees, but there is a lot of potential for communities to become more involved as partners in the development of attractive sites and activities within their localities. Local knowledge of the landscape and natural resources, as well as traditions and craft skills, are opportunities that could be used to initiate collaborative activities that also lead to more rational use of natural resources.

There has been a gradual increase in the participation of civil society organisations in development activities within the country. The recent democratisation and decentralisation of governance systems, featuring the establishment of wider dialogue among stakeholders, and the participation of all social categories in the political, social and economic processes, are some of the key elements facilitating the emergence of civil society organisations with the capacity to implement viable development projects. Several local NGOs and voluntary associations have strengthened their capacity to effectively implement programmes that focus on social issues such as literacy and health. During the next decade, it is expected that they will also develop their capacity to implement natural resource management projects.

The number of voluntary associations involved in natural resource management activities around the country is increasing steadily. Further, these associations are becoming better organised and more capable of soliciting the participation of communities in a broad range of activities. It is expected that these voluntary associations will have a significant role in promoting CBNRM, particularly in the area of pastoralism, where many of the traditional institutions are being eroded gradually. However, the systems that local pastoralist communities have established to deal with the harsh environmental conditions of the country are based on principles that remain socially respected by communities in both rural and urban areas, and are a real opportunity for CBNRM. Traditional concepts and practices could be adapted for sustainable implementation of CBNRM in the current social and economic context.

3.7 Challenges for CBNRM

CBNRM faces a variety of challenges that could be addressed after consultation among stakeholders, including:

- The lack of policy and legislation in support of CBNRM;
- Inappropriate policies in other sectors concerning natural resource management;
- Limited human, material and financial resources in all relevant management sectors (public, private, NGOs and communities);
- The absence of coordination and collaboration between institutions, leading to duplication of effort;
- Legislative gaps in land tenure and use rights that promote conflicts. For example, conflicts are anticipated from the progressive transformation of rangelands to farmlands and conservation areas;
- The identification of communities and establishment of CBOs that have the capacity to engage in collaborative management of natural resources;
- Equity in the sharing of benefits from natural resource management;
- Maintaining complementarity between the government, and traditional governance and resource management systems; and
- Prioritising the conservation of natural resources among other concerns such as provision of water, sanitation, education and health services by regional councils.

Although pastoral development policies pursued by the government have improved the social welfare of pastoralist communities, they have not helped reduce the pressure on natural resources within rangelands. In many cases, Government initiatives to provide veterinary services, improve water supplies, facilitate resettlement of nomads and introduce settled agriculture, have led to the destabilisation and progressive erosion of traditional management systems that helped conserve natural resources. In addition, the existence of modern, Islamic (*sharia*) and customary legal systems on land tenure and use, have created uncertainty. Within urban areas modern systems may dominate, while customary systems are dominant in rural areas.

Within Government institutions and some NGOs, low levels of motivation exacerbate the lack of qualified personnel, equipment and financial resources. When external agencies provide training or funding for specific activities, for limited time periods, the institutions and local communities are not able to build upon the benefits gained during the project period. In many cases, community members are mere spectators and, therefore, do not have the capacity to sustain the projects after external assistance ends.

Low institutional capacity is most significant within rural communities where illiteracy levels are high and residents are not able to participate effectively in information, communication and consultative programmes. Most members of rural voluntary associations have no experience in formal planning and decision-making processes, or have the skills to develop project proposals or manage externally funded projects.

3.8 Key Issues and Actions for CBNRM

Several issues will have to be addressed to create an environment in which local communities and other stakeholders in natural resource management can collaborate effectively. The manner in which these issues are addressed will have to take into account variations in economic, cultural and environmental conditions across communities and institutions.

A basic requirement for achieving sustainable management of natural resources will be sensitisation and greater awareness among all the stakeholders. National workshops involving policy makers and representatives of governmental, private sector, NGOs and community organisations should be organised to facilitate debate, exchange of experiences and brainstorming to obtain a national consensus on ways to implement effective CBNRM pilot projects. These consultations should be linked to institutional strengthening of government agencies, NGOs, private sector and community based organisations. Stronger institutions may be developed through networking, training and sharing of experiences with representatives of relevant organisations in other countries.

Laws and regulations relating to land tenure and use, with a particular focus on the protection of biodiversity, should be developed. The legal framework should clearly state the roles and responsibilities of various government agencies, at the national and regional levels, to avoid conflicts and duplication of efforts. In this regard, legislation to strengthen decentralization by safeguarding the autonomy of regional and local decision-making organs and establishing appropriate administrative structures is important. Legislation should also include guidelines for the sharing of benefits accruing from collaborative management of natural resources.

There is need to facilitate greater trust, cooperation and partnership among Government agencies, NGOs, the private sector and local communities. This can be achieved by establishing joint planning and management committees. In addition, communities should be given greater responsibility to manage their own resources, with agents from government and non-government agencies adopting less prominent, advisory roles. Potential conflicts among stakeholders can be avoided or resolved by adopting or adapting customary systems or resource tenure, user rights and conflict resolution.

Pilot CBNRM projects should be economically viable so that more communities can view them as being alternative or complementary to natural resource management. For example, the establishment of protected areas and the development of profitable ecotourism ventures by private sector and community organisation at sites such as the Sept Frères Islands, Ras Syan, Obock, the Goda and Mabla mountains, the Allol depression, the Doda region, and other peri-urbans and coastal zones could boost interest and encourage greater investment among community members. Further, through collaboration with neighbouring countries, Djibouti can benefit from the exchange of experiences and skills. Regional collaboration is particularly important with respect to ecosystems shared between countries, such as Lake Abbé that lies between Ethiopia and Djibouti.

The Government of Djibouti has shown commitment to environmental protection and is leading a decentralization and institutional strengthening programme that could provide more opportunities for viable CBNRM. However, the lack of previous experience in collaborative management of natural resources and CBNRM means that it may take several years before local communities are able to initiate, implement, or benefit from CBNRM, and all stakeholders are able to benefit from more sustainable resource management strategies.

CHAPTER 4: COMMUNITY BASED NATURAL RESOURCE MANAGEMENT IN ERITREA

Ekube T. Ghiorgis

Eritrea Summary

Introduction

Eritrea covering an area of 123,324 square kilometers and a coastal line of 1,200 Kms., is bordered by Sudan in the West and North, the Red Sea in the East, Djibouti in the Southeast and Ethiopia in the South. The country is divided into six regions comprising of 56 Sub-regions and 2,685 Villages. The population is estimated at about 3.5 million, and is growing at the rate of 2.9% per annum. The country has nine ethno-linguistic groups whose boundaries overlap to a certain degree with geographic boundaries and modes of livelihood.

80% of the population live in the rural areas and derive their livelihood from agriculture. Some 65% of the population live in the Central Highlands, which is equivalent to 16% of the total area. Hence, the high population density in the Central Highlands has been a cause for environmental degradation and over exploitation of natural resources.

With regards to economic activities, agriculture as the main economic sector is the source of food and raw materials for industry. Based on their economic activities and geographic locations, two major groups of the population can be distinguished in the country. The first group, which resides in the highlands are sedentary and practice crop cultivation as their main activity followed by livestock raising. The second group, in the lowlands, is characterized by their nomadic style with livestock raising as major activity, and with little or no crop production.

The livestock population is currently estimated at 6.75 million, comprising 1.25 million cattle, 0.2 million camels 0.3 million donkeys and about 5.0 million sheep and goats. This indicates a high livestock density in the country. The carrying capacity in Eritrea differs from one area to another, but it is considered low to sustain large livestock population. At present, livestock are more abundant in areas with poor vegetation cover, low rainfall and less agricultural opportunities and where degradation of the environment has reached at alarming level.

Land use is governed by a number of factors related to the farming systems of the rural population, such as the prevalent climatic and edaphic conditions, and land tenure. The farming system is itself determined by the productivity of the ecosystems. The highlands, southern lowlands and riverine are high potential areas for cultivation, while in the eastern and western lowlands, pastoralism has been found to be the most suitable alternative. About 7 - 10% of the country's total land area is used for cultivation. The remaining land is distributed between highland forest (0.74%), riverine forest (1.5%), woodlands (11%), mangroves (0.09%) and bush, wood grasslands, grasslands and barren soils (76 to 77%). The extensive coverage of lowland vegetation from shrubs, grass or just bare soil indicates the harshness of the climatic conditions of the country, and the effects of over grazing. To arrest the process of resources depletion, the people emerged with the traditional concept of resource management relying on a closure

system. The forest and woodland closure is an old traditional practice of the local communities to overcome the growing shortage of grass, fodder and wood. It was employed for the purpose of sustaining resources through a rotational system of utilization.

The Natural Resource base

The forests of the country have been seriously eroded due to unsustainable use. This forest degradation started with the Italian occupation where wood was the main source of energy for domestic and industrial use, including brick and limestone production, heating boilers, and producing charcoal for the then fast growing urban centers. It is reported that at the beginning of the colonial era (1891), about 30% of the total area of the country was covered with forest and was rich in wildlife. By 1952, the forest cover fell to 11%, and by 1960, it declined to 5%. Presently, the forest cover in Eritrea is only about 2-3% of the total area a substantial drop from estimates made about a century ago of 30%.

The lifestyle of the local population has also contributed to the damage of woodland, which resulted in severe land degradation. People had been cutting trees for firewood, construction of houses, farm implements and cultivation. Urban demand for fuel wood has also been disastrous to forests. A household energy consumption survey carried out by the Ministry of Energy and Mines in 1996 indicated that firewood makes up 80% of the total energy consumption of the country, followed by 16.7% from dung and crop residue, which is a direct loss of organic matter to soils.

The clearing of forests destroyed wildlife habitat. Hunting which started during the Italian rule also contributed to this destruction. There are reports depicting that wildlife reserves such Yob, Nakfa and Gash Setit were initiated by the Italians, though never protected by law. The formal declaration of protected areas was done under British colonial rule. However, with the annexation of Eritrea to Ethiopia, these reserves were no longer considered as protected areas, and were neglected during the following 30 years war of liberation. Throughout the war period, wildlife were intensively hunted. After independence, the Government directed its effort towards the conservation of wildlife and as an initial measure totally banned hunting of all terrestrial wildlife.

Quite recently a status assessment survey of the country's terrestrial wildlife was undertaken by the Ministry of Agriculture and confirmed the existence of large mammal wildlife species in small numbers in most areas of the country. The most common animals are hyena, mainly the spotted, fox and baboon. Greater Kudu and Klipspringer are also reported in regions with rocky hill slopes, while warthog are found in Acacia woodland and bush land. Leopards, whose number has been declining, are reported to have had a significant comeback in the forest areas of the highlands. Ostriches are found in the coastal areas and are increasing in number. Soemmerings gazelle is found in small numbers throughout Eritrea, while Dorcas gazelle is found in both the eastern and western low lands.

There are also a number of endangered animals whose protection and management are of priority significance, if the species are to be conserved for future generations. This includes elephants, where a population of about 50 to 100 individuals inhabit the area between the Gas and Setit rivers. The highly endangered Nubian ibex confined in remote northern mountain ranges, whose number were estimated to be about 300 in the 1960's, and the Somali wild ass, whose numbers are estimated at about 100 inhabiting the Buri peninsula.

The coast of Eritrea stretches over 1200km., and there are about 350 islands. Eritrea's water is said support over 1250 fish species, some 20% of which are endemic to the Red Sea, The marine ecosystem of Eritrea was relatively intact during the previous 30 years of war of liberation due to limited pressures from fishing, tourism or coastal and offshore industrial development activities. As a result, the Eritrean Red Sea area remains relatively pristine. Most of the fishing at present is undertaken by artisanal fishermen living in villages on the mainland and the islands. The Ministry of Fisheries is trying to restore the commercial fishing industry of Eritrea. Other marine resources constitute the coral reefs, with about 220 species of coral found in Eritrea's water, many of which are Red Sea endemics. The reefs are used as breeding ground for many fish species, and so the future of the commercial fishing industry depends on conserving core areas of reef. Of the marine wildlife, dugon, which is endangered, is exceptionally important. A number of species of sea turtles, including green leatherback and olive ridley breed on Eritrea's islands. The islands are also important breeding areas for seabirds.

The best rangelands, which account for about 60% of the total area, are also important resources for livestock and wildlife production. The Eritrean rangelands are open savannahs with a botanical composition reflecting both rainfall and the extent of past utilization. Pastures have been subjected to severe deterioration due to drought and a lack of appropriate management programmers. Pastures have been shrinking due to encroachment as a result of cropping especially, horticulture. The underlying cause for this is the absence of demarcated grazing lands conducive for the introduction of appropriate range management and forage conservation practices.

Policies and Legal Environment

The National Constitution of Eritrea was ratified on May 23, 1997. In Article 8 sub-article 3 the constitution gives an explicit mandate to the Government to put efforts on the sustainable development, utilization, management of land, water, air and other material resources in a balanced and sustainable manner, and ensuring participation of the people in safe-guarding the environment. The constitution, therefore, lays a viable foundation for a National Development Policy based on the principles of sustainability and the maintenance of diversity.

The Macro-Policy document adopted in November 1994 outlined the background for Eritrea's national economic growth strategy and pursue the guiding principles of human centered, efficient sustainable and equitable development. The over riding national development objective is the creation of a modern technologically advanced, and internationally competitive economy. This also takes into account the negative impact of some traditional farming practices, which is aggravated by severe and progressive environmental degradation, due to growing fuel wood demands and inadequate soil and water conservation measures. Efforts are currently directed at remedying environmental imbalances and at arresting further degradation.

In 1994, the Government issued a Land Proclamation, which reformed the legal basis of land tenure and instituted a nation-wide system. Under the new proclamation, all land became the property of the state, which would grant usufruct land rights to all Eritrean adult citizens. both male and female, based on their place of residence and main occupation. Farmers would be allocated agricultural land in their home villages, which could be transferred to their children. However, the full set of regulation, and institutional arrangements for land have not yet been worked out and implemented. Thus, land tenure in Eritrea is stalled in a transition phase, where, in large part, traditional system of land tenure continue, and the Government has granted concessions to commercial farmers. The Land Proclamation further states that, with respect to communal pastures and woodlands, villages will continue to use them according to customary

laws, while the government is empowered to issue regulations and directives pertaining to their use. Ensuring security of land ownership and the resources of that land is a basic requirement at the household, community and national levels, including for both short and long-term investment and conservation needs, and finally as a means of ensuring equity.

The National Environmental Management Plan For Eritrea, adopted in 1995, provides the basic policy for action in the environmental sector and lays out a strategy for action on conservation activities. Its guiding principles include the recognition of the strategic importance of conserving natural resources and maintaining environmental quality as a part of national economic growth and development process, and to develop integrated and multiple use of natural resource use strategies at the same time ensuring local involvement and equity in environmental management.

The new Macro Policy document adopted in 1994 assumed that proper decentralization should assist in spurring economic and social development and further facilitate proper protection and preservation of the natural resources. As a result of this, the structure of Local Government had been revised under proclamation No. 86/1996. The Local Government proclamation intends to gradually decentralize powers and encourages regional economic development. These statements confirm clear, explicit and unequivocal support for issue related to the environment and conservation of natural resources. Moreover, this proclamation lays down clear responsibilities for environmental protection at the regional level, and highlights the need to ensure that any policy for biodiversity conservation in sustainable use is implemented properly.

The National Environmental Management plan for Eritrea provides a comprehensive programme to tackle environmental management and recognizes the critical role of water management, soil conservation and forest protection in the national economy. Sustainable development and people's participation in the development and management of the environment is repeatedly mentioned in the NEMP-E as being of paramount importance. In view of this, the MoA in 1996 prepared a draft proclamation on Forest and Wildlife, which empowers the MoA to establish and manage protected areas in Eritrea, including forest reserves, terrestrial and marine national parks and wildlife reserves. The main objectives of the forestry and wildlife sector as stipulated in the draft policy are:

- Production of fuel wood and construction poles promotion of soil conservation through reforestation;
- Restoration of ecosystems through natural regeneration; and the
- Promotion of the development of non-wood forest products and protection of the existing known populations of wildlife, while undertaking a national reconnaissance of remnant habitat and associated communities.

The fishery resource is considered as an important basis of future economic development. Hence, Government policy in the marine sector focuses on realizing the potential of national fisheries for domestic consumption and export, especially by encouraging private investment, developing local processing capacity to maximize value-added and rehabilitation of coastal infrastructure including ports, processing and storage facilities. In addition to expanding fisheries production and processing, economic strategies also accord high priorities to ensuring that developments do not lead to environmental damage. In 1996, the Fisheries Proclamation was fully approved by the Government and was published in the Gazette of Eritrean Laws No. 104/1998. This proclamation provides comprehensive coverage of the Marine Sector in Eritrea and contain a number of articles relevant to biodiversity conservation and sustainable use.

Environmental restoration and protection shape are part of most of sectoral policy documents. The Macro Policy also contains clear consideration of environmental protection including references to biodiversity conservation. Generally, there is a strong recognition of the need to ensure that Eritrea's future economic growth is sustainable with a focus on optimizing rather than maximizing natural resources use. In 1995, the Department of Environment prepared a Draft Proclamation on Environment and Biodiversity. As regards Biodiversity, the strategy pursued by the Department of Environment focus on Optimizing and sustainable use of natural resources. The Department considers collaborative management as one of the main tools to implement the strategy. However, the Department of Environment needs to ensure, through some mechanism that conservation needs and potentials are adequately integrated into the land tenure proclamation, as many conservation issues are by their nature long term. If such conservation work is carried out in collaboration with community on individual lands, then those community members and resource users need to be assured that they will be able to benefit from their long term investment through secured tenure over those lands and resources.

The preparation of the National Biodiversity Strategy and Action Plan (NBSAP) is a continuation of the Governments efforts in biodiversity conservation and sustainable use. The NBSAP indicates Eritrea's overall policy position with respect to biodiversity conservation, and tries to place this policy in the context of the Government's major development objectives. The Ministry of Land, Water and Environment takes responsibility in facilitating, promoting and coordinating the implementation process of biodiversity conservation activities for sustainable use. Moreover, the preparation of the NBSAP proves Eritrea's readiness to implement the provisions of the Convention on Biological Diversity (CBD).

Institutions and CBNRM

The institutions entrusted with natural resources conservation are mostly government organizations among which the main ones are the Ministries of Agriculture, Fisheries, Land, Water and Environment, Local Government, Energy and Mines, and the Ministry of Tourism, Baitos (Village assemblies) and NGOs. The role of the main institutions covers regulation, monitoring and evaluation, research and training, technology transfer, funding, resource allocation and planning.

Opportunities for CBNRM

There are clear opportunities that have significant contributions in enhancing CBNRM in Eritrea, including.

1. Forest areas in the country have a high potential for recovery. Both the vegetation and the wildlife in the closed forest areas are recovering. This coupled with the determination of the Government to protect and develop the environment, reinforces the conviction that forestry and wildlife will have a bright opportunity in the future, as they are also sustained by increased awareness of the population;

2. The MOA is involved in strengthening its institutional framework to improve its planning and implementation capacity through training, and acquiring new technologies for forest and wildlife development. In addition, the tree-planting programme initiated by the government by involving students has become a permanent feature, and afforestation will continue to grow to a large extent;

3. Tourism is one of the sectors the Government of Eritrea wants to develop, and wildlife has been identified as one of the component parts attracting tourists. Particularly, the wildlife

endangered species are expected to become a vital source of tourist attraction. Hence, the Government is willing to allocate the resources to conserve and develop wildlife resources;

4. Local communities in the highlands have already developed their traditional resources management based on the temporary closure approach. This tradition is perhaps responsible for the awareness among the population on the negative effects of the increased and sustained pressure on the resources and the positive results from the rotation programme;

5. The Doum forests along the Gash Barka Rivers are important source of building materials in a region of open plains and shrub land. The production and regulated use of riverine woodland along these rivers will serve the dual purpose of protecting habitat for elephants, and for conserving a resource upon which many communities depend for their construction needs;

6. The Buri Peninsula and the adjacent Hawakil Bay and islands comprise an area of dramatic volcanic, desert and coastal scenery. With the high diversity of plant and animal species, including those regarded as highly endangered, the area has a high potential for conservation and development of tourism;

7. According to local culture along the coastline, it is not acceptable to harm wildlife. Gazelle and ostrich are often found close to human settlements and livestock. As such, the design and management of a protected area should involve the participation of local communities at every stage;

8. The Government of Eritrea has signed the Conventions on Biological Diversity and the International Trade on Endangered Species. Therefore, Eritrea is committed to conserving its endangered species. In view of its concern for the environment, Eritrea is committed to abide by its obligations under the convention;

9. The traditions of Eritrean culture have shaped a society that is extraordinarily cohesive. Since independence, the state of the environment has become an issue of great national concern, from village level to highest levels of Government. The effectiveness of forest closure for the recovery of the vegetation is a case in point, where rural communities have looked after their own forests as a resource for the future; and

10. The greatest potential for resources conservation and management in Eritrea lies within the Ministry of Agriculture, as the Ministry is widely represented throughout the country with extension services in each region and sub-region. At present, the MoA is playing a lead role for assessing and managing the country's natural forest and wildlife resources.

Constraints for CBNRM

Although a number of different efforts have been made to tackle the problem of natural resources degradation within Eritrea, there are still some constraints which need to be addressed. The most important include the following.

1. The most crucial problem relating to the forested areas is the huge demand for fuel woodland construction materials. The present level of fuel wood consumption is too high, and threatens the forests, unless affordable alternative sources of fuel are made available, combined with accelerated, tree planting and afforestation efforts.

2. The lack of clear policy and legislation is a constraint to the conservation and development of natural resources. At present, there is an overlap of responsibilities between different government agencies, and the role in conservation by different stakeholders;

3. Shortage of trained manpower within the MoA limits the implementation capacity of the Ministry, even though significant improvements have been witnessed since independence.

4. The forest cover in the highlands and the lowlands has been badly degraded due to erosion, forest clearing and poor agricultural practice. The flora has become increasingly poor, fragmented and open. The soil has become more exposed to rain and runoff, and erosion has reached alarming proportions;

5. Expansion of cultivated areas and overgrazing especially in the lowlands are the root causes of loss of forest cover and soil fertility. Grazing increasing number of livestock in these areas has limited natural regeneration. In the lowlands, the heaviest pressures on these resources are due to forest clearing for agriculture, collection of wood to meet fuel wood demands, and intensive grazing;

6. Forestry resources have been accessible to the local people. If denied access, this would create tremendous social problems. It would disrupt their life styles, and limit the supply of forestry resources to satisfy their needs; and

7. In the Gash-Barka basins, scattered pastoralist communities are being encouraged to become mere sedentary and settle in villages, in order that essential services such as health and education cab be more easily provided. The establishment of such resettlement villages, especially along the Gash river will pose a challenge for the development of a protected area for elephants.

Major Issues for CBNRM

There are a number of issues, which include:

1. The existing draft forest and wildlife policy or legislation has some shortcomings such as being outdated, not being comprehensive and not lending itself easily to CBNRM;

2. Traditional farmers cultivate part of the Green Belt protected area. There is a need for harmonizing the objectives of the protected area with the needs of the local community:

3. Increased pressure from pastoralist and fishing communities in the Buri Peninsula is threatening both terrestrial and marine environments. There is a need to formulate an integrated management plan for the terrestrial and marine wildlife within the context of a single, but zoned, protected area. Here the Government needs to assign lead responsibility to an appropriate agency;

4. Under the pastoralist system, livestock have caused considerable damage to the forestry resources and the eco-systems. This needs to be resolved with a view to regulating grazing by keeping the livestock carrying capacity within reasonable limits;

5. Woodlands in the Western lowlands are being given to commercial farmers on a concession basis for cultivation. If this continues, the country will face serious consequences due to environmental degradation and shortage of natural resources. It

would also impose changes in the social structure of the local communities currently based on pastoralism. There is a need for action by the Government to define a clear policy in respect to natural resources conservation in the areas where crop and horticultural production activities are practice so as to minimize environmental degradation;

6. Land tenure in Eritrea is stalled in a transition phase where to a large extent traditional systems of land tenure continue to be the *de facto* basis for ownership and the Government has granted concession to commercial farmers. The land tenure uncertainties need to be resolved as soon as possible, as this is a major disincentive to conservation and CBNRM; and

7. Given the strong need for co-ordination between the Ministries of Agriculture and Fisheries in implementing and managing protected areas. There is a need for both Ministries to strengthen the existing co-ordination mechanism aimed at ensuring adequate co-ordination and integration of project activities.

Some Key Activity Areas for CBNRM

In order to ensure that CBNRM principles are taken on board and incorporated into future natural resource conservation planning, there is a need for preparing action plans that would focus on addressing the long term CBNRM related issues and lobbying for additional resources.

Acknowledging traditional or customary institutions or knowledge related to natural resources management. Conservation is not a new phenomenon for those communities who live in, and around forests. There is a lot to learn from them, as cultural traditions and benefits play an important role in natural resources management. For instance, wildlife in the Afar dominated society in the Gelalo area is protected even today. These Afar communities are staunch conservationists and have protected wild animals for centuries because of their culture. However, a better understanding of the cultures and institutions would be required if such cultures are to be used as a sound basis for improved community management of natural resources. Natural resources policy makers and planners would gain more acceptance from local communities if local knowledge, cultures and customs were taken into consideration while formulating community based conservation policies and management plans.

One potential threat to natural resources, particularly to wildlife is local people's attitude to it. In spite of the belief of some people that local communities are antagonistic to wildlife and conservation issues, there is strong indigenous support for conservation in Eritrea. Greater awareness and understanding of local people's attitudes to conservation and biodiversity is needed to support community natural resources management plans.

In order to achieve a well coordinated partnership between the local communities and government agencies, an integrated extension service to the local communities is required so as to conserve natural resources, and to manage them for different purposes. The community should be sensitized about the role natural resources play in the lives of local people and the country.

The prevailing land tenure system is a major constraint, as it does not appear to be conductive for community based natural resources conservation and development measures whose benefits, by and large can only be realized after long gestation period. The distinctive inherent in such land tenure practices does not allow for the adoption and implementation of sustainable community based natural resources conservation and development measures. Therefore, there

is a need for implementing the stalled land policy, as this would provide an enabling environment for natural resources conservation and development programmes. There is a traditional resource management practiced at the community level, however, ownership is not well-recognizes. Therefore, there is a need for defining tenure rights and strengthening communities by creating awareness and development of an appropriate CBNRM enabling policy environment.

The rising rural population and the resultant need for additional domestic animals for farming and food creates further pressures on grazing lands. This is more intense in the over cultivated highlands where shortage of grazing land has become very acute. Intensive livestock raising has not been adopted by the rural communities. Concentration of livestock at a few watering points has been exacerbated in such areas. If livestock numbers are not reduced and practices are changed, it is feared that such situations will be aggravate. There is a need to address this through developing comprehensive grazing and water policies considering livestock feed and water requirements, land degradation settlement and property rights.

In Eritrea, the degradation of the environment can be described in terms of land degradation, losses of bio-diversity, desertification, deforestation, reduced ecosystems, lost resilience due to adverse climatic factors and declining agriculture productivity. Improved and sustainable livelihood are closely related to the restoration of the natural resource base, and therefore, the need to make the most of the synergies between environment and agricultural or fisheries production programmes. The Ministry of Fisheries and UNDP's Global Environment Facility are implementing a project which addresses this linkage, in the conservation of Coastal, Marine and Island's Biodiversity Project. Its activities will help local communities to take responsibility for managing their natural resource base and support best practices that bring environmental and marine livelihood benefits.

It is doubtful that a robust private sector and an active society will help fill the gaps left by reduced role of the Government. Privatization is being pursued by the Eritrean Government. However, it still has to improve the enabling environment for the private sector to play greater role in the conservation and development of natural resources, through stream lining regulations and procedures, improving access to finance and upgrading infrastructure.

Previous experience regarding NGOs, teach us that getting the balance right in terms of regulating NGOs, so as to encourage initiative, but at the same time prevent abuse is a challenge facing the Government of Eritrea. Emphasis must be given to building self-reliant community-based organization especially in remote rural areas, to enable them assume welfare and natural resources management responsibilities.

Cash-for-work programme provide rural communities an income in periods of hardship, and also builds up local physical and social assets. Although this programme is at present quite common in Eritrea, its coverage is limited to form a comprehensive safety net, particularly for those in the marginal and pastoral areas. It is, therefore, vital to establish public-community-NGO partnership for such activities so as to be broaden its coverage.

Despite its weak institutional base, the traditional resource management system is in line with the policy of the Government of Eritrea as it places high priority on conservation of the natural resources. In particular, the local community forest management concepts are the backbone of the government actions towards achieving positive results in natural resources conservation and development. Hence, the Government approach is based on the traditional systems.

In the highlands, local communities have developed their traditional structures, which overview community interests and secure land and resource management. At the village level, the government structure of administration provide the main institutional framework for regulating relations within and between the various communities. The lowest level is the village "baito" whose members are elected by the people. "Baito" members work alongside the traditional village council, who are usually the village elders. A traditional forest guard is appointed by the village council to look over the forest areas within the village.

Similarly, there are traditional village councils in the western lowlands called “Lijinas” in Haicota and “Sub Gomat” in the Sawa areas. These village councils are responsible for managing the natural resources through forest guards called “Abo Gereb” and “Tauray” whose main duties are to protect riverine forests and assess resource conditions and decide livestock movements. Inspired by popular management, the Government has made the closure approach the basis of its conservation policy thus creating a viable ground for the introduction of a collaborative management plans aimed at seeking agreements between local communities or resource users and appropriate Government authorities for negotiated access to natural resources which are presently under the authority of the Ministry of Agriculture.

4.1 Background

Eritrea covers an area of approximately 123,320 square kilometers within the Horn of Africa region and has a coastline of approximately 1,200 km along the Red Sea. The country is bordered by Sudan in the west and north, the Red Sea in the east, Djibouti in the southeast and Ethiopia in the south. For administrative purposes, Eritrea is divided into six regions and 56 sub-regions.

A wide variety of landscapes and ecosystems are represented within Eritrea, including deserts, savanna grasslands and montane forests. A rugged and bisected central plateau that rises to about 3000 metres above sea level dominates the country's landscape. The eastern edge of the plateau descends to the coastal plain that drops below sea level at Dankalia. To the west of the plateau, there is a lowland zone where altitude ranges between 1,000 to 1,500 meters above sea level, and the Barka and Gash rivers drain into Sudan.

Local topography has a strong influence on climatic conditions. Hot and arid conditions are prevalent in the lowlands, particularly in the eastern parts of the country. Maximum temperatures along the coast range from 45ºc to 50ºC. Conditions in the highlands are milder, with maximum temperatures of 26ºC, and minimum temperatures of 0ºC in some parts. Environmental conditions in some agroecological zones of Eritrea are described in Table 4.1.

The main rainy season in the highlands and western lowlands occurs from June to August. The eastern lowlands receive rainfall between November and March each year. Annual precipitation in the highlands varies between 400mm and 700mm, increasing towards the south. In the semi-arid coastal plains, mean annual precipitation is below 200 mm.

The total population is estimated at 3.5 million people, with an annual growth rate of 2.9% (FAO 1997). The urban-rural ratio is 20:80, and 65% of the population resides within the central highlands. Approximately half of the residents of Eritrea are below 18 years of age.

Nine ethno-linguistic groups are represented withIN the country. The Tigre, Saho, Hidareb and Rashaida communities are mainly transhumant agro-pastoralists and occupy the Anseba, Gash-Barka, northern and southern regions. The Bilen, Kunama, Nara and Tigrigna ethnic groups are settled agriculturalists, mainly resident at higher altitudes within the central region.

4.2 The Natural Resource Base

4.2.1 Forest and rangeland resources

As indicated in Table 4.2, natural forests and woodlands cover approximately 1,854,6000 hectares, or 15%, of the total land area (FAO 1997). *Juniperus procera* and *Olea africana* are the dominant species in highland forests. The main species in the woodlands are acacias, such as *Acacia mellifera, A. oefarta, A. tortilis, A. asak, A. Senegal and A. seyal*. Other woodland species are *Adansonia digitata, Boscia angustifolia, B. senegalensis, Delonix elata, Cadaba rotundifolia, Balanites aegyptiaca, Albizia amara and Boswellia popurifera*.

Table 4.1: The Major Agroecological Zones Of Eritrea

Zone	Annual rainfall Mm per annum	Altitude (m. asl)	Evapo-transpiration	Temperature range	Major soils	Major vegetation cover	Major land use activities
Green Belt	700-1100	750-2000	1600-2000 (43-55 R/E_o)	16-17°C	Cambisols, Lithosols, Fluvisols	Disturbed forest to bush/shrublands	Terraced agriculture and transhumant agriculture
Central Highlands	400-700	1500-3000	1600-1800 (31-39 R/E_o)	15-21 °C	Cambisols, Luvisols, Lithosols, Regosols	Scattered wooded bush to scrubland	Mixed agriculture
Southwest Lowlands	500-700	500-750	1800-2000 (28-35 R/E_o)	21-28 °C	Cambisols, Vertisols, Fluvisols, Regosols, Lithosols	Savannah woodland to bushland and scrubland	Agropastoralism to mixed agriculture
West Escarpment	200-500	600-1500	1600-1800 (13-28 R/E_o)	15-21 °C	Lithosols Cambisols, Regosols,	Scattered bush/wood to scrubland	Agropastoralism
Northwest Lowlands	200-500	400-1600	1800-2000 (11-25 R/E_o)	21-29 °C	Erosols, Cambisols, Fluvisols, Lithosols	Shrub/bush to scattered wood	Pastoralism and agropastoralism
Coastal Plains	100-200	100-1355	1800-2100 (6-10 R/E_o)	24-32 °C	Kerosols, Salonchks, Lithosols, Cambisols, Fluvisols	Bushland/woodland to no cover	Pastoralism and limited agriculture under irrigation

Table 4.2: Estimated cover of different vegetation types in Eritrea

Vegetation type	Area (ha)	Percentage of total area
Closed to medium-closed forest	51,520	0.42
Closed forest	40,790	0.33
Closed to medium-closed woodland	452,730	3.68
Open woodland	1,112,760	9.05
Riverine forest	185,480	1.51
Mangrove	11,330	0.09
Bushland and shrubland	5,309,560	43.19
Grassland and wooded grassland	2,326,260	18.93
Bare land	1,879,190	15.28
Arable/cropped land	685,040	5.57
Other and non-classified land	240,320	1.95
Total	12,294,980	

Source: FAO 1997

Riverine forests cover about 195,000 hectares (or about 1.6% of the total land area) and are distributed mainly along the Gash Barka and Anseba rivers in the western lowlands (FAO 1997). The riverine vegetation is one of the most diverse ecosystems in the country, with a large number of species that have considerable social, economic and environmental values. In addition to wood and non-wood products, riverine forests are also useful in flood and erosion control, climate modification. The dominant species in riverine forests are *Hyphaene thebaica* (doum palm), *Balanites aegyptiaca, Ziziphus spina-christi*, and *Acacia spp*. The doum palm provides considerable benefits to local communities, including food, building materials and fodder for livestock. The stands of doum palm along the Gash River are an important source of building materials in a landscape dominated by open plains and shrub land. A survey of riverine forests undertaken by the Ministry of Agriculture (MOA) and SOS Sahel from 1996 to 1998 confirmed that these forests are relatively healthy but subject to varying degrees of degradation.

Forests are also found in waterlogged areas or along the seasonal waterways that drain into the Red Sea. Such communities include populations of woody species such as *Acacia laeta, A mellifera, A. ehrenbergiana, A. tortilis, A. asak, Terminalia brownii, Zizyphus spina-christi, Combretum fragrans, Vangueria madagascarensis, H. thebaica* and *Tamarix aphylla.*

Mangrove vegetation is found around Assab and the nearby islands, and between Tio, Massawa and the associated islands. The dominant mangrove species is *Avicennia marina. Rhizophora mucronata, Bruguiera gymnorrhiza* and *Ceriops tegal* are also present.

The Eritrean rangelands are classified as open savanna. Species distribution within rangelands reflects patterns of rainfall and past utilization. The rangelands provide most of the pasture and forage for the country's livestock; comprising an estimated 1.5 million cattle, 5 million sheep and goats, and 200,000 pack animals.

4.2.2 Wildlife resources

A survey conducted in 1993 confirmed the presence of various terrestrial species in most areas of the country, although large mammals were reported in small numbers. In the highlands, temporary and permanent forest closures are important wildlife habitats. In low-lying areas, wildlife populations are distributed mainly within the rangelands.

The most commonly observed carnivores are the hyena and jackal, found mainly in the highlands. The leopard population is dispersed throughout the country. An increase in the number of reports of livestock losses around the country may be an indication that the leopard population is increasing. Wild herbivores include the greater kudu and klipspringer that inhabit rocky slopes and wooded valleys. Soemmering's gazelle is found in small numbers throughout the country and a dwarf variety occupies the Dahlzk Kebir Islands. Dorcas gazelle is found in the eastern and western lowlands, including the coastal zone, while the red-fronted gazelle is only found in the western lowlands. The area with the greatest density of gazelle is the Buri Peninsula in Gelalo Sub-zone in the north, where many gazelle congregate during the wet months of December and January. Warthog are found in acacia woodland and bushland and riverine forests.

Important primates include the Hamadryas baboon, found in the highlands and in the eastern coastal areas near Irafaile, and the Anubis baboon in the lowlands. Vervet monkeys are also found in significant numbers in the lowlands.

Endangered species include the elephant, where a population of less than 100 individuals inhabits the area between the Gash and Setit rivers. The range of this population is restricted by agricultural expansion in the surrounding areas. Previously, elephants occurred in large numbers throughout the western lowlands, and were also found in the northern highlands. The Somali wild ass is found in the Buri Peninsula of the coastal zone, and about 100 individuals of this critically endangered species remain in this area. The Nubian ibex is confined to remote northern mountain ranges, particularly within the Hager plateau and former Yob Absolute Reserve. During the 1960s, the total population of Nubian ibex was estimated at 300. Populations of rarer species such as Tora hartebeest, Oryx, African buffalo, and Semien fox are now believed to be extinct.

4.2.3 Marine and fishery resources

Off the Eritrean coastline, the continental shelf covers approximately 56,000 square kilometres. The marine habitats within the Red Sea waters and shoreline include coral reefs, sea grass beds, mangroves, salt marshes, salt flats, and deeper waters that are habitats for a wide variety of pelagic, demersal, and benthic fish species. Approximately 1250 species of fish have been recorded, including 171 species that are endemic in the Red Sea (Lundlin 1995). The most economically important fish species are sardines and anchovies.

The dugong, or sea cow, is found in shallow sea grass beds along the coast. The dugong has been hunted extensively for meat, and is considered endangered. Other species with special significance are sea turtles. Local populations include the green leatherback, the olive ridley, the green turtle and the hawksbill turtle which breeds on the Dahlak islands.

Eritrea's marine resources also include 220 species of coral that occur in irregular patches on the shallow seabed. Although the diversity of corals is lower than in other countries, the diversity of coral reef fish is greater than in Egypt, Israel and many other sites.

4.3 Polices and Legislation that are Relevant to CBNRM

In Eritrea, the overarching national development goal is the creation of a modern, technologically advanced and internationally competitive economy within the next two decades. The Government of Eritrea has introduced a number of important policy reforms to stimulate economic growth and the conservation of natural resources.

The National Constitution of Eritrea was ratified on 23 May 1997. Article 8, sub-article 3, of the Constitution explicitly gives the government the mandate for sustainable management of land, water, air and other material resources, and ensuring the participation of the country's people in safeguarding the environment. The government has issued a series of policy documents and proclamations designed to achieve these goals.

4.3.1 Macropolicy Document

The Macropolicy Document was adopted in 1994 with the aim of eliminating many of the restrictive economic practices and controls established under the former, centrally planned Derg regime. The policy document provides a background for the country's national economic growth strategy and states the guiding principles for human-centred, efficient, sustainable and equitable development. An assumption captured in the document is that proper decentralization will promote economic and social development and facilitate proper protection and conservation of the country's natural resources.

The government has developed a broad-based growth strategy that includes programmes for environmental restoration. Recent national development plans have stated a number of objectives related to conservation including:

- Improved agricultural production through the development of irrigated agriculture, and enhancing the productivity of peasant farmers, pastoralists and agro-pastoralists;
- Decentralized and democratic political system; and
- Developed tourism sector and high-grade conference and convention facilities.

The Macropolicy Document states that environmental impact assessments will be conducted to determine the potential environmental consequences of major investment decisions. In addition, the policy document states that financial resources will be allocated to promote the rehabilitation, conservation, development and proper exploitation of natural resources. The policy recognises the negative impacts of some traditional farming practices on crop productivity, as well as progressive environmental degradation attributed to increasing demands for fuel wood, and inadequate soil and water conservation measures.

4.3.2 Local Government Proclamation No. 86/1996

Under successive colonial administrations, community affairs were left largely to community governance, either by design or default. During the war, EPLF intervened more directly in community affairs by establishing elected *baitos*, or village councils, in areas where it had access or control. Election to the *baito* was through local associations and this assisted to ensure proportional representation of women, and the resource poor.

The Local Government Proclamation of 1996 was adopted with the aim of gradually decentralizing power and promoting economic development in each region of the country. The proclamation explicitly states the government's support for issues related to the environment

and conservation of natural resources while recognizing the high degree of dependency on natural resources among the Eritrean people, especially those who reside in the arid and semi-arid areas of the country.

The proclamation lays down clear responsibilities for environmental protection at the regional level, and highlights the need to ensure that any policy for natural resource conservation and sustainable use is implemented adequately. The proclamation is complemented by a Local Administration Framework Policy that is designed to:

- Encourage more effective utilization of the country's natural resources;
- Facilitate the establishment of a lean, but efficient central and local administration system and highly qualified civil service;
- Facilitate the establishment of decentralized and more participatory democratic institutions; and
- Facilitate the proper protection and conservation of the country's resources.

4.3.3 Agriculture Sector Policy

From 1992 to 1997 the average contribution of the agricultural sector to GDP was 26%. The annual contribution varied from year to year depending on climatic conditions, with the livestock sub-sector exceeding the contribution from the crop sub-sector during more than half of that period. Due to the key role of the agriculture sector in advancing food security at both national and household levels, and generating export earnings, it has received a lot of attention and investment from the government despite the relatively low contribution to GDP. Most of the country's GDP is derived from the service and industrial sectors.

The Agriculture Sector Policy aims to promote equal opportunities, market liberalization and support services to the private sector, especially to small holders and small to medium-scale commercial farmers. Specific objectives of the policy are t:o

- Rehabilitate and maintain the natural resource base for agriculture;
- Stimulate private investment in agriculture to boost production;
- Boost employment and income levels in rural areas;
- Realise food security;
- Increase foreign exchange earnings;
- Increase the supply of agricultural products to agro-industries; and
- Promote rational exploitation and proper management of natural resources.

4.3.4 National Environment Plan

The National Environment Plan for Eritrea was adopted in 1995, and is the basis for action in environmental management and conservation. The guiding principles outlined in the plan include the:

- Recognition of the strategic importance of conserving natural resources and maintaining environmental quality as part of the national economic growth and development process; and
- Importance of developing strategies for integrated and multiple uses of natural resources while ensuring local involvement and equity in environmental management.

4.3.5 Land Tenure Proclamation

After independence, the government decided that a thorough reform of land tenure was vital to spur economic development. In particular, the lack of long-term tenure was recognized as a major cause of land erosion, loss of soil fertility, and other forms of environmental degradation.

Under the Land Tenure Proclamation of 1994, all land became the property of the state and the state would grant usufruct land rights to all Eritrean adult citizens (both male and female) depending on their place of residence and main occupation. According to the proclamation, farmers would be allocated agricultural land in their home villages and would enjoy usufruct of the land for life, with the expectation that usufruct would be transferred to their children after their demise.

However, formal regulations and institutional arrangements for the new system have not been established and matters related to land tenure in Eritrea are stalled in a transition phase. In most cases, traditional systems of land tenure continue, with some modifications. In some areas, the government has granted leasehold concessions to commercial farmers.

By attributing ownership of land to the government, the proclamation also assigns unprecedented powers to local government authorities. Although farmers are aware of the proclamation, they do not know when land redistribution will be implemented or how this process of reform will affect small farmers.

4.3.6 Draft Proclamation on Forests and Wildlife

The National Environment Plan for Eritrea (NEMP-E) provides a comprehensive framework for environmental management and recognizes the critical role of water management, soil conservation and forest protection in the national economy. In 1996, the Ministry of Agriculture (MOA) drafted the Proclamation on Forests and Wildlife. The draft proclamation empowers MOA to establish and manage protected areas, including forest reserves, terrestrial and marine national parks, and wildlife reserves. The draft proclamation also states key objectives for the forestry and wildlife sector as the:

- Production of fuelwood and construction poles;
- Promotion of soil conservation through reforestation;
- Restoration of ecosystems through natural regeneration;
- Promotion of effective management of non-wood forest products; and
- Protection of the existing known population of endangered wildlife and national reconnaissance of remnant habitat and associated communities.

In its present form, the declaration is inadequate because, among other issues, it does not stipulate the functions, jurisdictions, powers and duties of MOA in protected area management, the categories of protected areas, or the role and powers of the MOA in regulation of environmental legislation. In addition, the draft proclamation conflicts with other drafts and promulgated legislation submitted to the Ministry of Land, Water and Environment and the Ministry of Fisheries. Substantial development is required before the draft proclamation is enacted.

4.3.7 Environment and Biodiversity Proclamation

The Proclamation on Environment and Biodiversity was drafted by the Department of Environment in 1995. According to the proclamation, the Department has the following functions.

- To conserve, regenerate and regulate the country's biodiversity, especially forest and wildlife resources, in collaboration with other government agencies;
- To administer the national system of protected areas; and
- To supervise environmental impact assessments conducted prior to developments that could affect the environment

4.3.8 The Fisheries Proclamation

The Fisheries Proclamation was approved by the Government in 1996, and published in the Gazette of Eritrean Laws during 1998. This proclamation provides for the establishment of protected areas in any of the Eritrean waters and adjacent coastline by the Ministry of Fisheries (MOF). With respect to biodiversity, the proclamation is quite comprehensive. However, this policy document does not adequately cater for the integration of responsibilities between the MOF and other government agencies for the sustainable management of coastal and marine resources. For example, there is some overlap in responsibilities between MOA and MOF with respect to the management of coastal forests and marine wildlife.

4.3.9 Other Strategies and Plans

The National Biodiversity Strategy and Action Plan states the country's overall policy with respect to the conservation of biodiversity in the context of the government's major development objectives. The strategy and action plan also prepare Eritrea for implementation of the provisions of the international Convention on Biological Diversity. According to this policy, the Ministry of Land, Water and Environment takes full responsibility for facilitation, promotion and coordination of biodiversity conservation for sustainable use.

The National Economic Policy explicitly states the importance of biodiversity conservation and sustainable use of natural resources, and supports restoration, enhancement and preservation of Eritrea's ecological integrity.

4.4 Institutional Framework for CBNRM

The Ministry of Agriculture is responsible for forest and wildlife conservation. Wildlife is defined in the more traditional sense as large mammals and birds. The ministry has issued a decree banning the hunting of wildlife that is respected by people in all parts of the country.

The ministry's Department of Agricultural Research and Human Resource Development undertakes forestry research. The main objectives of the forestry research programme are to provide basic data for effective implementation of forest management programmes, design species adaptation trials, and train staff in planning and implementation of forestry research programmes. The department has undertaken research on agroforestry, silviculture, management of tree nurseries, seed management, and mangrove restoration.

The department has also established collaborative links with regional research organisations such as ASARECA and ICRAF. These linkages have enabled the department identify and adapt relevant technologies and strengthen the research capacity of its staff.

In collaboration with other relevant government agencies, the Ministry of Land, Water and Environment has invested considerable effort in developing a system of environmental impact assessment procedures and guidelines suitable to the circumstances in Eritrea. The ministry's National Environment Assessment Procedures and Guidelines (NEAPG) identify three levels of environmental analysis based on the potential impact of projects under consideration. These include:

- Small-scale projects having minimal impact on the environment;
- Large scale projects with clear potential impact but having cost-effective mitigation measures to minimize these impacts; and
- Large-scale projects having major impacts on the environment. These proposed projects are to be subjected to a complete impact assessment, with the ministry's Department of Environment playing an advisory and coordinating role.

The main task of the Department of Environment is to formulate environmental policy and coordinate activities related to environmental management. However, There is some overlap between these functions and those of MOA that need to be eliminated to avoid duplication of efforts and inefficiency. Specific functions of the department are outlined in the Proclamation on the Environment and Biodiversity, are to.

- In collaboration with line ministries, plan, conserve, regenerate and regulate the country's biodiversity, particularly forest and wildlife resources;
- Administer the national system of protected areas; and
- Supervise environmental impact assessments of development programmes that affect the environment.

The Ministry of Fisheries is responsible for the management of fisheries resources and the conservation of the marine environment. In 1998, the ministry began a programme for integrated coastal zone management with the aim of developing management plans for the Eritrean coast and islands.

The Ministry of Tourism has developed a National Tourism Master plan that emphasizes the importance of wildlife as a tourist attraction. Key wildlife resources that have been identified by the ministry include the coral reefs of the Dahlak islands, among other wildlife habitats. Other sites with potential to attract tourists are historical, religious and archaeological sites.

The Ministry of Energy and Mines is involved in the management of forest resources because fuel wood is a major source of energy. The ministry has undertaken surveys to determine energy consumption patterns in the country, and is actively seeking options for more sustainable use of forest resources. For example, to reduce the pressure on forest habitats, the Ministry is studying alternatives such as fuel briquettes manufactured from cotton stalks, while encouraging greater use of petroleum products and electricity.

The Ministry of Local Government is responsible for the coordination of regional government authorities. The ministry is also the executing agency for the Eritrean Community Development Fund that supports soil and water conservation activities and more sustainable watershed management.

4.4.1 Non-government and community based organizations

Although privatization and decentralization are encouraged in government policies, a vibrant NGO or CBO sector has not yet emerged. Therefore, NRM projects by NGOs and CBOs in Eritrea have not been documented.

4.5 Experiences with CBNRM

4.5.1 Government-sponsored afforestation and soil conservation programmes

Historically, very few natural resource programmes were implemented in Eritrea. Among these were programmes aimed at soil and water conservation in catchment areas, through afforestation and construction of bunds and terraces. During the 1920s, the afforestation projects were supported by only six tree nurseries with a total capacity to produce 1.2 million seedlings. During the 1950s and 1960s, the government succeeded in constructing terraces on the slopes of the Eastern Escarpment with a total length of 6,000km and covered by eucalyptus trees and sisal. Between 1971 and 1978, the government also implemented a project to plant eucalyptus on terraces covering 28,000 hectares within selected catchment areas. These projects were implemented through 'Food for Work' programmes with support from external funding agencies. However, in 1996 the government abandoned this approach in favour of rewarding labour with cash payments.

Government efforts to construct bunds and plant trees on contour terraces continued through the 1990s, incorporating a broader range of trees species, and Eucalypts comprise only about half of all trees planted on hillsides. However, reports indicate that these efforts met with limited success due to low survival rates. In some areas, only stone bunds remain because the seedlings that were planted could not tolerate local conditions and no systematic replanting was undertaken. During the late 1990s, diversification of tree species, improved techniques for site selection and preparation, as well as improved seedling management, generated better results.

In 1997, the government also began a programme to afforest roadsides, beginning with the road between Asmara and Mendefera. Since then, roadside tree-planting has also been undertaken along the Asmara-Keren and Asmara-Dekemhare roads to cover a total of length of 250km. This programme was initiated with financial support from external funding agencies but has since been adopted by regional administrative agencies that finance the projects using local resources. Due to increasing recognition of the value of planting trees along roadside for shade, windbreaks and ornamental purposes, the practice has become popular with regional management agencies throughout the country.

More recently, MOA initiated a programme to promote community forestry through the establishment of woodlots. Through this programme, trees planted on communal land are being allocated to households that can use the trees' products, provided the household members assume responsibility for management and protection of the trees. The aim of this programme is to encourage farmers to plant more trees and protect them while receiving economic benefits.

4.5.2 Integrated Watershed Development

In 1999, MOA initiated the Integrated Watershed Development Project with the aim of promoting community participation in natural resource management within watershed areas while addressing the shortcomings of its previous programmes. A major objective of the project

is to build local capacity in planning, implementation and monitoring of community based initiatives for soil and water conservation.

Considerable progress has been made. Catchments in highly degraded areas to be covered by the project have been identified, after consultations between local communities and MOA staff. Key criteria for the selection of catchments targeted by the project include population density, levels of agricultural production and local food security, fuelwood requirements, extent of land degradation, and conditions of local infrastructure.

Community members have also been consulted during project design, when MOA staff gather information on local topography and other physical features, as well as availability of labour and the community members' attitudes towards watershed development.

4.6 Management of Riverine Forests

Previously, riverine forests were managed under traditional systems that discouraged excessive exploitation. The traditional forest management system was complemented by a government system, introduced during the colonial era. A key feature of the government system was the appointment of forest guards to patrol the forests and arrest illegal loggers.

During the war, when many people were displaced from local villages, these systems broke down. Riverine forests were exposed to excessive felling of trees, overgrazing and encroachment. After independence, the MOA continued to appoint forest guards (known as *forestale*). The ministry also attempted to revive traditional management systems through the establishment of village *lijna* (or elders committee). Among other responsibilities, a village *lijna* would be asked to appoint forest guards known as *abo gereb* (or "father of trees", Box 4.1). When appropriate, *lijna* could also permit or prohibit felling of trees.

Box 4.1: Forest management in the Hashenkit area

The village of Hashenkit is located 10 km away from River Gash at an altitude between 570 and 600 m asl. This is an area dominated by the agropastoralist Tigre. The Hashenkit area is an important dry season camping ground for the pastoralists and their herds. During the 1960s, strong competition for grazing areas within the riverine forest led to conflicts. The Hashenkit community decided to minimize conflicts by developing and enforcing new bylaws for forest management. Several *abo gereb* were appointed to patrol the forests and arrest offenders. In addition, each household in the village 'owned' several trees. This meant that the members of that household were the sole users and protectors of the assigned trees.

According to the village bylaws, felling of live trees was an offence of the same magnitude as murdering a human being. The consequences were social ostracism and payment of a fine. If someone cut a tree within the forest, the household responsible for managing that section of the forest would report the matter to the *abo gereb*. The most common punishment was a fine of the offender's best goat, which would thereafter become the property of the entire village.

The social pressure to avoid felling trees, and the heavy penalties for offenders helped control exploitation of the forest. After the war began in 1980, villagers migrated from the area. The forest was largely unutilized and there was high rate of regeneration. The system of forest management by village households continued, with some modifications, after residents returned to the area during the late 1980s.

Currently, the *abo gereb* are appointed by MOA, but report any offences and other matters to the *lijna*. The *lijna* has the power to impose fines, which are stated and paid in cash. The proceeds of fines are shared between MOA and the *abo gereb*. A strong partnership has developed between MOA, the local administration and the Hashenkit community.

4.6.1 Forest closures

The government has established permanent or temporary closures in forested areas with the aim of enhancing natural regeneration. The closures have proved very successful. Permanent closures have been established at sites considered to be important habitats for wild flora and fauna. By 2000, there were about 78 permanent forest closures in Eritrea, covering an area of about 112,240 hectares.

Temporary closures have been established where the management goal is to permit regeneration during a period of five or more years, after which the communities may use the forest for grazing and other purposes. Temporary closures are situated mainly in the highlands, and along the escarpment. Since independence, 150,000 hectares of degraded hillsides and woodlands have been managed as temporary closures. The closures are usually established after consultation with local communities. Community members are allowed to collect livestock feed from temporary closures but grazing or harvesting of wood is prohibited. Eritrea has built on a tradition of "closures" as a means of community based natural resource management that is proving successful on a national basis (Box 4.2).

Box 4.2: Community Enclosures in Eritrea

Eritrea has initiated a process of closures to restore degraded lands, vegetation and important tree species, particularly in the remoter dry pastoralist areas. Extensive areas have been closed off. Permanent closures are more commonly found at higher altitudes, with temporary closures in the lowlands. So far, over 112,240 ha have been closed in 78 permanent closures, and 14,504 ha in temporary closures. Communities have taken initiatives to close the areas and put restrictions on wood use, and the management of the closures is organized through the Village Council or "Baito". Often a community forest guard is deployed. There seems to be no clear definition of what should and should not be allowed in terms of access, except that live tree cutting and new cultivation has been proscribed.

These closures seem to be working well. They have their foundation in traditional natural resource management, and local norms and rules combined with the need for the products from such closures. At present the ownership of such closures is somewhat ambiguous. The ownership and rights of management of, and responsibilities for these closures need to be clarified. Such closures should become part of village or community land use, and could provide a useful tool for future work in community based natural resource management. Indeed such an approach could contribute to the protected area system of Eritrea, but under community control to meet both community needs, and contribute to conservation objectives.

Source: (Barrow 1998a; Giorgis 2001)

The reason for the success of enclosures in Eritrea is not clear. In other countries similar approaches to conservation of natural resources has failed, for instance in nearby Somaliland (Barrow et al. 2000a). However an analysis of land tenure laws in Eritrea could explain the reason, and demonstrates the importance of clarity of access rights to land and resources. Though land tenure is in transition in Eritrea, the traditional "diesa" tenure system is still common in the highlands where crop land may be re-distributed every five to seven years (Giorgis 2001). This is a perverse incentive to long term land improvements, for example soil conservation, and tree planting and management. This is exacerbated by the fact that these lands are open area grazing lands after the crops have been harvested, which would further contribute to the removal of any trees, and further reduce soil fertility. Villages and communities need trees and their products. As there is a negative incentive to plant and manage on their own lands, they have tried to establish, with Government support, communal enclosures for natural resource management. Such areas are communally owned and managed, and are not subject to re-distribution. Where various forms of closures for forage, browse or grazing do work, they have tended to be based on pastoralist dry season grazing and browse

reserves (Barrow 1996). It is interesting to note that where the "diesa" system is not operating, for example in the Green Belt of Eritrea, and where certain areas of land had been given out for one hundred year leases, trees are a common feature of the agrarian landscape. This security of individual or community rights to trees is similar in Ethiopia, where a long history of insecure land and forest tree rights has resulted in little real community based forest management, though there are some recent attempts with collaborative management (Anders 1999).

4.7 Opportunities for CBNRM

4.7.1 Potential for restoration and sustainable management of natural resources

The rapid recovery of forest remnants within protected hillsides and mountain areas has shown that there is great potential for the restoration of degraded forest and wildlife resources within the country. Further, the government has demonstrated determination to protect and develop natural resources.The mountains of northern Eritrea harbor a population of Nubian ibex that is among the world's most endangered species. These mountains habitats could be of great value as sites for wildlife conservation and the development of ecotourism. The Green Belt that lies on the eastern side of the central highlands, between 600m and 2625 meters above sea level, is another area with great potential for conservation programmes involving local communities (Box 4.3).

Box 4.3: Resource management in the Green Belt

The Green Belt is situated within the Northern Red Sea administrative zone. The annual rainfall in the area increases from north to south within the range of 700 to 1100 mm. Approximately 65% of annual rainfall is between the months of November to January. The second rainy season is from June to September. The area has few permanent residents. It is estimated that 40,000 people live within 23 villages located in the belt. Farmers who reside in the neighboring highlands cultivate a variety of cereals, pulses and tree crops within the belt on a seasonal basis. The permanent and seasonal farmers also rear cattle, sheep and goats.

Within the Green Belt, an estimated 70,000 to 90,000 hectares are of significant value for biodiversity conservation. Stands of *Juniperus procera* and *Olea africana* are found at Mirara and Bizen. MOA has proposed the establishment of national parks at the two sites to protect these valuable remnants. The ministry is considering establishing the national parks with buffer zones where local communities could be involved in management and rehabilitation and, therefore, benefit further from employment in forest-related activities.

Conservation of these forests would be important for biodiversity conservation as well as supply of wood products to local communities, for example an enclosure that covers approximately 70,000 hectares of the Green Belt has already been established. The result has been larger wild animal populations. Populations of greater kudu, duiker, klipspringer, baboon and birds have increased, and leopards are observed more frequently.

4.7.2 Government commitment to natural resource conservation

The government's policies for natural resource conservation and development are being translated into action and capacity of support services is growing rapidly. The MOA is strengthening its institutional framework, investing in training and adopting new technologies in order to become more effective in the management of forest and wildlife resources. The ministry's research and extension services are being improved and seedling production increases every year. The tree-planting programme that involves students has become a permanent feature and is expected to further boost the rate of afforestation.

Other government institutions, such as MOF, MOLG AND MOEM, and some non-government organizations (NGOs) are also investing resources in improved NRM. The government has expressed an interest in developing the tourism sector. In this respect, the importance of wildlife resources, especially endangered species, has been emphasised.

4.7.3 Increasing awareness and support among local communities

The activities of government and non-government organizations are being sustained by increased awareness among local communities of the negative effects of excessive resource use, and growing support for the government's conservation-oriented policies. It is anticipated that the growing demand, and high prices, for fuel wood and timber will encourage more individuals to plant trees, especially after the land proclamation is implemented.

The traditions of Eritrean culture have shaped a society that is extraordinarily cohesive. Since independence, the state of the environment has become an issue of great national concern, from village level to the highest levels of government. Rural communities are highly sensitized to the conservation of the natural resource base, raising the chances of success for conservation projects.

With respect to wild animals, the ban on hunting or capture of terrestrial wildlife is widely respected by local communities, leading to a noticeable increase in the size of wildlife populations. In the coastal areas, destruction of wildlife is not culturally acceptable.

4.7.4 Lessons from past experiences in resource management

Some valuable lessons have been learnt from the management of forest closures that are relevant to CBNRM. If local communities are well sensitized and organized, they can sustainable manage forest resources and improve their livelihood. Social norms and indigenous knowledge are basic foundations for the management of natural resources in a community, and it is possible to develop a modern and sustainable management system based on traditional institutions and practices.

4.8 Challenges for CBNRM

The current lack of clear policy and legislation is the major constraint to the development of the forestry and wildlife sectors. The policies that exist are outdated, not comprehensive and not compatible with CBNRM. At present, there is an overlap of responsibilities between different government agencies, and the roles of different stakeholders (e.g. local government and communities) in conservation activities are not clearly defined. For example, the NEMP-E does not include adequate guidelines for a national system for biodiversity conservation, in which all stakeholders are assigned specific roles and responsibilities. Although NEMP-E specifies that protected areas should be established, it does not specify the procedures to be followed, the responsibilities of the different agencies concerned, and other issues such as the role of local governments and communities in conservation. There is no legal framework to govern the sharing of benefits between government resource management agencies and local communities. Furthermore, the land tenure reform is stalled in a transition phase in which, for the most part, traditional systems of land tenure persist and the government has granted concessions to some commercial farmers.

At present, national policies and the manner in which government funds are allocated appear to favour afforestation over other aspects of NRM, and do not recognize the broad range of values that can be accrued from conservation. For example, riverine forests are managed mainly

to maintain the supply of wood products, but could also be managed to protect wildlife habitats, and for conservation of soil and water resources.

Many forested areas in both the highlands and lowlands of Eritrea are in an advanced state of degradation, with the vegetation cover becoming less diverse and more fragmented. Soil erosion has reached alarming levels in some locations and uncontrolled pastoral activities continue to exert considerable pressure on woodland and rangeland habitats. More specifically, increased pressure from pastoral and fishing communities in the Buri Peninsula threatens both terrestrial and marine ecosystems.

The lack of integrated management plans to guide land use within lowland areas has led to conflicts between various stakeholders and interest groups. For example, some commercial farmers have been granted concessions within woodlands in the western lowlands, leading to loss of tree cover and habitats for wildlife.

Human-wildlife conflicts are also arising due to poorly planned land use. For example, along the Gash River, commercial farmers have to deal with crop damage caused by elephants. The potential for human-wildlife conflicts should be addressed during the establishment of protected areas in places that are valued by local communities for farming and pastoralism, such as the Northern Red Sea Zone and the Green Belt.

The involvement of local communities in NRM is mainly restricted to consultation between government agencies and village councils. Broad representation and participation of local community members during the design and implementation of NRM projects is lacking. This relates to capacity Despite some efforts at capacity building, the Forestry Section of MOA is still understaffed and poorly equipped and, therefore, lacks the capacity to implement forest management programmes effectively.

4.9 Key Issues and Recommendations for CBNRM

If viable CBNRM activities are to be initiated within Eritrea, the government needs to address a variety of issues. There is a need to develop and implement policies and legislation for land tenure and forest and wildlife management that define the mandate and responsibilities of various government agencies. National policies should:

- Clarify all issues related to resource tenure;
- Identify a broad range of activities and benefits related to NRM;
- Provide for the development of management plans that designate areas for different forms of land use;
- Provide for the allocation of government resources to collaborative management;
- Define mechanisms for sharing of benefits during collaborative management projects; and
- Support local mechanisms for conflict resolution.

Until such issues are addressed, farmers and other community members will have few incentives to collaborate in NRM projects effectively.

There is need to foster more effective collaboration at national as well as community levels. For example, at the national level, greater collaboration between the ministries of Agriculture and Fisheries and the National University is required. Greater collaboration among these institutions would enhance people's capacity to the design and implement appropriate CBNRM initiatives.

There is need to identify key sites and activities suitable for collaborative management. This may be achieved through participatory surveys, supported by knowledge of the policies and institutions that govern resource management at different sites. Such action would minimize conflicts and enhance sustainability, while addressing real needs and issues in NRM such as the need to control the rate of degradation, provide access to a broad range of resources, and avoid human-wildlife conflicts.

Despite the apparently strong commitment among local people to cooperate in natural resource conservation and management, no CBNRM projects have been established in Eritrea to date. There is a need for government institutions to adopt more participatory approaches in NRM, and while doing so, acknowledge local institutions and knowledge, and promote some traditional resource management practices.

There is also need to raise awareness of the long-term impacts of resource degradation, strengthen community members' capacity to adopt more effective practices and identify a more diverse range of livelihood options. For example, pastoralists should be encouraged to recognize the optimal carrying capacity of rangeland systems. There is also great potential for the management of non-wood forest products, such as gum arabic obtained from *A. senegal*, if silvicultural, harvesting and marketing systems are improved.

The government should create an enabling environment for the operations of viable private sector, non-government and community based organizations that can strengthen the capacity for CBNRM throughout the country. The attributes of an enabling environment for such organizations would include streamlined regulations and procedures, improved access to funds and infrastructure. For example, MOA should explore the possibility of developing memoranda of understanding (MoUs) with local communities that define collaborators' roles responsibilities, and benefit-sharing procedures for collaborative NRM. Emphasis should be given to building self-reliant organizations, especially in remote rural areas, that can assume welfare and NRM responsibilities formally held by government agencies.

CHAPTER 5: COMMUNITY BASED NATURAL RESOURCE MANAGEMENT IN ETHIOPIA

Shibru Tedla

Ethiopia Summary

Introduction

Ethiopia presents a mosaic of nationalities speaking a multiplicity of languages, with a multitude of beliefs and customs. The historical record of land tenure systems in Ethiopia has been one that bestows neither transferable rights nor tenure security. The military government nationalized all land in 1975, and land still remains a state property.

The population is growing fast, and this has led to unsustainable use of soil, water and forest resources. The ever growing energy demand for domestic fuel has resulted in extensive use of crop residues, and cow-dung. This practice breaches the nutrient cycle. In spite of the fact that forest protection systems were instituted by the State as far back as the 14th century, forest resources are being depleted fast because of high demand for fuel wood and timber. More and more land is being deprived of its plant cover due to the ever increasing demand for cropland. The depletion of the topsoil has meant a reduced water retention capacity, the erosion of plant genetic resources, and a loss of habitat of wildlife.

Natural factors such as the ruggedness of the terrain and the torrential nature of the rains coupled with extensive agricultural production system, the use of obsolete technology and overgrazing by the fast growing livestock population, have exacerbated natural resource degradation.

Key Natural Resources

Based on temperature and moisture regimes, the country may be divided into 18 agro-ecological zones, and 60 sub-zones grouped into seven major categories, namely arid (about 42.3 million hectares, pastoral), semi-arid (2.9 million hectares, pastoral/cultivation), dry sub-humid (19 million hectares, annual crops), moist (24.5 million hectares, annual crops), semi-humid (16.7 million hectares, annual/perennial crops) and afro-alpine (0.7 million hectares, perennial crops/frost). The ecologically diversity has created diverse and conducive environments for the development of a wide variety of fauna and flora. The flora of Ethiopia is very heterogeneous and has a rich endemic element. The highland regions of Ethiopia have a large number of endemic birds, mammals and amphibians compared to the lowlands of Ethiopia, and indeed to lowland tropical Africa.

Ethiopia is rich in water resources and is often called the "Water Tower of North East Africa" because of the major rivers that flow to neighbouring countries. The combined run-off is estimated at 111.1 bm^3. The forest resources at present cover only 2.8% of the land. The country has expansive rangelands, which comprise 56% of the country's surface area, and are inhabited mainly by pastoralists and agropastoralists. Despite the fact that freshwater fish

resources are available in the country, little use is made of this resource. In addition the country has expansive wetlands.

Traditional communal resource management was often practiced for grazing and forest use in the highlands and range management in the lowlands. This is exemplified by guassa (grazing area) protection in the highlands of Shewa and Wello and forest protection in Wello. The central body of rules governing the management of such resources was based on exclusion of non-members of the group, and regulated use of the resources by members. Rules of protection and utilization as well as their enforcement were essential aspects of the traditional management of common natural resources. However, the rules were not static, and changed with time. It is dominantly in the lowlands that management of rangelands have clearly spelt out rules and regulations. It is defined by customary rules as to what animals could be grazed where and when. Specific Acacia species served as fodder for livestock during periods of resource scarcity were also protected.

Relevant Policies and Institutions

Ethiopia has recently adopted a federal system of government. Subsequently, the decentralization and devolution process that Ethiopia has undergone in the last few years has resulted in new political and administrative institutions. The introduction of a federal system has changed the balance of power in favour of the newly created regional states, which have legislative executive and judicial powers within their jurisdictions.

At the federal level the Environmental Protection Authority was established in 1995. The Conservation Strategy of Ethiopia (CSE) has been formulated. Most regional states have formulated their Regional Conservation Strategies (RCS). Line ministries, commissions and authorities, at the federal level, and counterpart line bureaus at the regional levels, will implement those components of the overall CSE and RCS policies, strategies and action plans for which they are already responsible under existing law.

The major federal level institutions for environmental management which have relevance to CBNRM are the Environmental Protection Authority, the Ministry of Agriculture, the Institute of Biodiversity Conservation and Research, the Ethiopian Wildlife Conservation Organization. Ministry of Water Resources, Ministry of Education, Ministry of Economic Development and Cooperation, and Tertiary Education Institutions.

There are registered and other non-registered community organization which may have relevance to CBNRM such as Peasant Associations, for example "*Idir, Iqub, Mahber,* and *Senbete"*. The pastoralists in the lowlands, both the Afar in the northeast, and the Boran in the south, have traditional community-based natural resources management systems.

There are several national policies which have been put in place during the last decade and which have relevance to CBNRM. The new role and policy objectives of government in achieving sustainability of natural resource management is to see its efforts as being assisted and complemented by individuals. Communities, private organizations and NGOs. Its involvement revolves around the following three, but overlapping and complementary dimensions of enabling interventionist, and regulatory roles.

The national economic policy at the macro-level, is known as the Agricultural Development-Led Industrialization (ADLI). Central to this policy is improving the productivity of peasant agriculture. In the implementation of ADLI and the National Conservation Strategy (NCS), the

Government will give priority to (a) rectifying policy failures which have caused or exacerbated market failures resulting in unsustainable management of natural resources as well as environmental damage; and (b) allowing local communities to participate in decision making on natural resources management/utilization.

Sector specific policies which impact on CBNRM include the Disaster Prevention and Management Policy, the Population Policy, Rural Land Use and Administration Policy (draft), Education and Training Policy, Science and Technology Policy, Forestry Policy (draft), Soil and Water Conservation Policy, Water Resources Policy, National Agricultural Research Policy and Strategy, Wildlife Policy (draft), the Industry Sector Strategy, and the Mining Sector Policy.

Legislation of relevance to CBNRM is lacking. The present constitution of Ethiopia is environmentally sensitive, and recognizes the importance of the environment and the need for its proper management. This can serve as a point of departure for developing legislation, not only for natural resources management but also to influence the contents of other macro legislation in the political, social, economic fields so as to make them environmentally friendly. However, there is some legislation, such as for forest management and rural land administration, which have a particular relevance to CBNRM.

Ethiopia is signatory to several international agreements, including the three UNCED conventions i.e. Biodiversity, Climate Change, and the Desertification Convention. The ratification has implications for environmental legislation since there are convention requirements to enact certain laws.

Analysis of Constraints

Following the 1975 Land Reform, land resources were classified as either individually held, or as communal property. Communally owned resources included communal grazing land, communal forest land, wildlife, water resources, and sometimes communal farmland. People appear to have little concern for communal resources, and believe that if they do not exploit the resources, someone else will do so. It has been acknowledged that traditional systems are more geared to maintain equity within the community or group, while external interventions have complicated resource management, and have led to socio-economic differentiation within communities.

External interventions have been particularly disruptive with regard to local resource management institutions. Traditional institutions have often been replaced by state imposed committees, as the state perceived local resource management to be inadequate. State interventions that undermined customary land tenure arrangements seriously increased land tenure uncertainties for local farmers which affected indigenous natural resource management practices.

In terms of policy, the main problem has been the lack of a clear and appropriate framework, together with specific policies. The issue of inappropriate policies reached its climax during the `Derg' government since the policies emanated from political, and ideological outlooks and principles, rather than on the principles of sustainable development.

Absence of popular participation in resource management has resulted in a rejection of government policies formulated and implemented from the center, such as campaigns for re-afforestation and soil conservation and prohibition of tree cutting. There is an enabling policy direction that encourages community participation at the grassroots level. However, this has

been impeded by a lack of an appropriate legal framework for community participation, together with poor coordination of the process at the grassroots level, and a lack of incentive for the active participation of communities in environmental protection.

The absence of land use planning has become the root cause of conflict between government and peasants or pastoral people who traditionally depended on the land prior to such development. The frequent reallocation of land by peasant associations during the past regime brought large areas of communal land under cultivation by individuals.

Natural resource use legislation in Ethiopia is based on the sectoral approach with separate legislative regimes for the management of the various environmental resources, As a result, resource management is uncoordinated and disregards the holistic and interconnected nature of sustainable use of resources. Institutional mandates also tend to relate to sectoral aspects only, with no responsibilities and meaningful power for the coordination of sustainable resource management. Mixing of regulatory and implementational activities as well as conflicting mandates in the existing sectoral institutional mechanisms has been a major problem regarding institutions for sustainable NRM.

Constraints in resource management in the rangelands include a lack of appreciation of the way of life of pastoral people, and their dependence on the rangelands by government officials; bush encroachment; drought and desertification; and encroachment of outsiders on traditional rangelands.

In the forestry sector major constraints include a lack of and/or inadequate policies, objectives and appropriate legislation; lack of renewable natural resources user's incentives; inappropriate land use practices; and paucity of domestic energy sources other than woody biomass. Similar constraints are also applicable to such resources as biodiversity and wildlife.

Analysis of Opportunities

The administrative structure in Ethiopia is being decentralized, and the country is divided into nine regions and two city governments. The states of the federation (regions) have established their own executive organs. The role and economic objectives of the present government are to transform the previous centrally planned and state controlled economy to a market economy through an increasingly enabling role for the government to ensure the existence of the right conditions for development; a reduced interventionist role in direct economic and production activities; and a regulatory role.

The policy area of NRM and environmental protection has received additional review resulting in the formulation of a framework environmental policy and the establishment of an Environmental Protection Authority. The Conservation Strategy of Ethiopia (CSE) and Regional Conservation Strategies (RCS) are expected to provide Ethiopia with an adequate umbrella strategic framework for the effective management of the environment. In the CSE documents there are several guiding principles which show that the CSE encourages community participation in natural resources management.

In the present legal setting the designation of land to varied uses, including communal ones is to be carried out with full participation of the communities concerned. Recent policy and legal reforms have created a better environment for CBNRM. There is now a favourable atmosphere for empowering grassroots communities and for assisting them to take initiatives.

Protocols relevant to management of natural resources, specifically wildlife, have been signed between Ethiopia on one hand, and the Republic of Kenya, the Republic of the Sudan and the Government of the State of Eritrea, respectively, on the other hand. The main areas of transboundary importance in resource use include the carrying out of studies in natural resources development and environmental protection; the carrying out of joint river basin studies and development, and environmental protection; and carrying out of research on the conservation and management of wildlife.

The prevalence of similar ecosystems in Ethiopia, Sudan and Kenya, as they relate to wetlands, provides an opportunity for carrying out joint endeavours. Sudan and Ethiopia share common eco-systems in the wetlands around the Baro and Akobo rivers as well as the Abay (Blue Nile). Kenya and Ethiopia have similar wetland systems bordering Lake Turkana. In addition Kenya and Ethiopia have similar rangelands inhabited by the Borana population of Southern Ethiopia and Northern Kenya. This provides an opportunity to institute and enhance prevailing indigenous natural resources management systems.

The Way Forward

Special effort needs be made to enhance the decentralization process, which should focus on the empowerment of communities, and in the creation of an appropriate environment for the needs of community-based natural resources management requirements. This needs to be reflected in the policies and regulations, as well as the institutions responsible. The implementation of a policy of decentralized natural resources management requires the establishment of decentralized structures, and capacity building interventions at regional, zonal, district and community levels.

The need for formulating and enactment of umbrella legislation on natural resources management that would help translate the policy into action is mandatory if participatory natural resources management is to be enhanced. In addition There is an urgent need for the formulation of a clear land resource use policy. This will deter the expansion of cultivated agriculture from the highlands into the traditional and communally managed rangelands of the lowlands. Such a policy would also address problems in grazing areas in the predominantly cultivated areas of the highlands. A strategy aiming at developing the capacity of herders to resolve their own problems must be rigorously pursued. Only after the institutional viability has been established, will the basic structures be able to attack more complex questions requiring interaction with higher institutional levels.

Water points supplying domestic water are communally managed throughout highland Ethiopia. However, there is no apparent and clear institutional arrangement for their management. It is essential to empower communities by developing local capacity for community management and maintenance of water resources, and the prevention of health hazards around water points, and ensure that rural and small-scale urban water supply systems are controlled and managed by local communities.

The present trend of handing over full responsibilities to communities in the management of what are referred to community forests is welcome by all concerned. This should be strengthened to enhance the institutionalization process. The rules in place could further be refined.

The outstanding constraints and issues which need to be addressed fully to redress natural resources degradation and promote sustainable use of resources by rural people include the need to:

- Enhance the social and cultural benefits of forest resources, particularly of increasing food, fodder, fuel, medicine, household supplies, and employment opportunities;
- Improve the policy environment, especially in areas of incentives in renewable natural resources conservation, development and utilization and legalized “user right” to land and assets created on it;
- Promote grassroots peoples’ participation (which is bottom-up and participatory) in resource conservation and development through a mechanism of “negotiated approach” involving benefit sharing; and
- Improve institutional arrangements for effective resource conservation, development and management.

5.1 Introduction

Ethiopia covers an area of about 1.12 million sq. km. comprising diverse landscapes at altitudes ranging between 110 m below sea level at the Kobar Sink and 4620 m above sea level at Ras Dejen. The south-western highlands receive the most rainfall, with mean annual rates exceeding 2700mm. The north-eastern parts of the country receive the least rainfall of less than 100 mm per annum in some parts.

Ethiopia is often referred to as the 'Water Tower of North East Africa' because all its major rivers, except the Awash River, flow into neighbouring countries. The combined annual run-off from these major rivers is estimated at 111.1 billion cubic metres. Boundary and trans-boundary rivers account for 79% of the total run-off. Almost all of the major lakes in the country lie in the Ethiopian Rift Valley and cover an area of over 7,000 sq. km. (Eco-Consult, 1999). Lake Tana is the largest lake and lies in the northwest. The area of the major lakes is estimated to be over 7000 sq. km. Preliminary studies also indicate that Ethiopia has ground water reserves of about 2.9 billion cubic metres.

The population of Ethiopia is estimated at 63 million people from diverse ethnic groups. During the last few years, Ethiopia has been engaged in a decentralisation process, following the introduction of a federal system, and the creation of regional governments to whom the federal government has devolved legislative, executive and judicial powers. The goals of decentralization include increased administrative efficiency, local participation in development planning and management, and the allocation of resources in a way that better reflects the development priorities of local populations. By 2001, Ethiopia had nine regional states and two city governments (Addis Ababa and Dire Dawa).

5.2 Natural Resources

Based on moisture and temperature patterns, the country can be divided into six ecological zones (Table 5.1). The diverse ecological conditions within Ethiopia support a wide variety of fauna and flora including between 6,500 and 7,000 species of higher plants, of which about 12 % are endemic. To date, 240 species of mammals and more than 800 species of birds have been recorded. There are also six species of reptiles and 33 amphibians that are endemic. The highland regions of Ethiopia have a higher species diversity than sites elsewhere in lowland tropical Africa, and are notable habitats for endemic species. In many lowland parts of the country there are populations of wildlife that are also represented in neighbouring countries, including fourteen species of birds that also occur in Eritrea (FDRE 1997).

Table 5.1: Characteristics of the main zones

Zone	Estimated cover Mill. Ha.	Main land use
Arid	42.3	Pastoralism
Semi-arid	2.9	Pastoralism, crop cultivation
Dry sub-humid	19.0	Annual crops
Moist	24.5	Annual crops
Semi-humid	16.7	Annual and perennial crops
Peri-humid	0.7	Perennial crops including frost-resistant varieties

Other important habitats for wildlife are fisheries. Over 100 fish species, including four endemic species, have been recorded. Commercially important species are tilapia, Nile perch,

barbus and catfish. Fishery activities are mostly carried out using traditional techniques except in some of the Rift Valley lakes, which are close to the urban centres, where fishermen are more organized and use relatively better equipment. Such improved fishing practices have made commercial fishing possible, although local markets and consumption are not very well developed. However, water resources and fisheries have been degraded, mainly as a result of pollution. For example, effluent from industries and sewage from domestic sources are commonly discharged without treatment into rivers or other water bodies. Sewerage systems are inadequate in urban centres, and non-existent in rural areas.

Although there are conflicting estimates of the original distribution of forests within Ethiopia, it is clear that the majority have been lost. Currently, closed forests cover only 2.8% of the country's total land area (FDRE, 1997). Rangelands are widespread, comprising some 56 % of the country's land area, and accommodate about 10% of the population. In the arid and semi-arid rangelands, the inhabitants are mainly pastoralists and agro-pastoralists. Sedentary and shifting cultivators occupy moister, malaria and tsetse-infested areas in the southwest and west.

Agriculture is the main economic activity, accounting for 45% of the GDP. The main products are teff, sorghum, barely, field peas, chickpeas, niger seed, linseed, enset, cotton and coffee. Small holder farms account for more than 90% of agricultural production, and 95% of the total area of crops. Within Ethiopia, there is a very high rate of genetic diversity in many important crops, including coffee, wheat, barley, sorghum, peas, linseed, castor and cotton, clovers, oats, teff and finger millet (FDRE, 1997).

Nearly 100% of the total energy consumed in urban and rural Ethiopia come from traditional sources such as fuelwood, cattle dung and crop residues. Rural consumption is estimated at 86.7% of the total net energy consumption of the country (TGE, 1993).

Throughout rural Ethiopia, and some urban centres, domestic water is collected from rivers, springs, wells and ponds. Wetlands are also important sources of water (Table 5.2). There are over 70 sites in the country are classified as wetlands (Abunie, 2000).

Table 5.2: Examples of wetlands within Ethiopia

Wetland systems	Specific sites
Lake Tana and associated wetlands	Lake Tana, Fogera floodplains, Dembia floodplains
The Ashenge and Hayk lakes	
Wetlands of the western highlands	Gojeb, Ghibe, Godere
Wetlands of the Bale Mountains	Alpine lakes including Garba Guracha, swamps and floodplains)
Lakes of Bishoftu	Hora, Bishoftu, Guda, Zukala, Green Lake, Babogaya
Lakes and associated wetlands of the southwest	Lakes Ziwai, Langano, Abijata, Shalla, Awasa, Cheleklaka, Abaya, Chamo, Chew Bahir, Turkana
Lakes and swamps of the Awash River system	Dillu, Aba Samuel, the lake Beda sector, the Gewane Lakes/Swamp complex, Lakes Dubti, Afambo, Gemari and Abe
Lakes of the Afar depression	Asale, Afdera, Dallul
Western river floodplains	Alwero, Baro, Akobo, Gilo, Chomen, Fincha swamps, Dabus swamp, Beles Floodplain
Artificial impoundments and micro-dams	Koka, Fincha, Melka-Wakana), and municipal and other reservoirs like ponds, aquifers and wells

Land and habitat degradation are serious environmental problems. Soil erosion is most severe in the highlands where the landscape is rugged, steep (with gradients of over 15% in many parts), and deeply dissected. Frequent torrential rains in the highlands, the loss of vegetation cover, and the burning of crop residues and dung, have accelerated soil erosion and the loss of soil fertility in Ethiopia. The loss of soil exceeds the rate of soil formation by a factor of 6 on cultivated land, and by a factor of 1.5 to 2 on pasture. The latest land degradation estimates indicate that of 52 million Ha. of land within the highlands, 14 million Ha. are severely degraded, 13 million Ha. are moderately degraded and 2 million Ha. are without the minimum soil cover necessary for crop production (ECO-Consult 1999). The high rates of soil erosion have resulted in siltation and pollution of rivers and lakes.

Habitat degradation, associated with losses in biodiversity and high rates of soil erosion, is attributed to inappropriate agricultural development (including the introduction of narrow-spectrum crop varieties, and the use of obsolete technology) recurring droughts, heavy dependence on biomass energy, armed conflicts, and high rates of population growth among humans and livestock. The growing conflicts between development and conservation objectives are most critical in Ethiopia's rural areas ,where the majority of the people reside and, driven by poverty, attempt to maintain their livelihoods by clearing forested land to raise crops. As land has become scarce, people have established farms on hillsides with slopes of 15 degrees or more, leading to high rates of soil erosion. Farmers and pastoralists have also encroached on forests and protected areas . Deforestation results from conversion of forested lands to farms and pasture, and the high demand for forest products, especially timber and fuelwood (Bekele, 1994). The people are heavily dependent on fuelwood, charcoal and dung for energy. The main environmental problems arising from the use of biomass energy include habitat destruction, loss of biodiversity, air pollution and soil erosion.

5.3 Policies and Legislation that are Relevant to CBNRM

5.3.1 Federal and agricultural policies

The general macro-policy environment in Ethiopia is reflected in a set of key policies and legal documents issued by the government, both during and after the transition to a federal system. These documents include guidelines and provisions for decentralization and the devolution of power to lower organs of government, and community structures. They emphasise the principles of regionalization and participation with a concomitant reduction of the role of the state in economic development. Specific objectives for the new style of government are:

- An increased enabling role for the government to ensure that fundamental conditions exist for markets to function;
- A reduced interventionist role in economic and production activities in all but the most strategic sectors; and
- A regulatory role through the adoption of a relatively minimal and cost-effective monitoring systems.

Steps have been taken to restructure Ethiopia from a unitary, highly centralized state into a federal one. To achieve the objectives for sustainable resource management, the government foresees its efforts being supported and complemented by individuals, communities, private institutions and non-government organisations (NGOs).

The federal government of Ethiopia has formulated a national economic policy known as the Agricultural Development-led Industrialization (ADLI). Central to this policy is the enhancement of the productivity of small-scale farmers by improving existing crop husbandry practices and techniques, developing irrigation, providing fertilizers and agro-chemicals, increasing farm sizes and making cropland more suitable for mechanisation. In the implementation of the ADLI, the government will give priority to:

- Rectifying policy failures which have caused or exacerbated market failures resulting in unsustainable management of natural resources as well as environmental damage; and
- Allowing local communities to participate in decision making on natural resources management/utilization.

5.3.2 Environmental and Conservation Policies

The federal Environmental Policy, which was approved in 1997, comprises overarching sectoral and cross-sectoral policy guidelines for the management of Ethiopia's natural, human-made and cultural resources. The detailed strategies, action plans, and the institutional arrangements required for the implementation of the policy are found in Conservation Strategy of Ethiopia (CSE) Documents, particularly Volumes II, III and IV. The following guiding principles of the CSE explicitly support community participation in natural resources management:

- To recognize and protect wherever possible the customary rights of access to, and use of land and natural resources which are constitutionally acceptable, socially equitable and are preferred by local communities;
- Where constitutionally acceptable and socially equitable traditional community institutions for resources management exist and are preferred by local communities, then these shall be legally empowered to regulate the use and management of natural resources of their areas;
- Any proposed alienation of legally held individual or communal rights by the state shall be subject to judicial review;
- The formulation of policies for sustainable development of rangelands and pastoral areas should fully reflect the needs and views of their communities;
- Any programme for improved rangeland management and pastoral development should be based on existing traditional system of resources use, and management and should be undertaken with the empowerment and under the control of the existing rangeland users;
- Forestry development by individual farmers, communities and private entrepreneurs shall be encouraged through research and extension, the provision of infrastructure, appropriate pricing policies, and an increased sense of security of land and tree tenure; and
- The state shall not undertake the execution of forestry projects and programmes when either communities or entrepreneurs can do so, but it should create an enabling environment for their participation.

The National Conservation Strategy (NCS) deals with 11 sectoral and 11 cross-sectoral issues (FDRE, 1997). The sectoral issues of relevance to CBNRM are:

- Improved soil, crop and animal husbandry for sustainable agricultural development;
- Rangelands management and pastoral development;
- Forest, woodland and tree resource management;
- Genetic, species and ecosystems biodiversity conservation and management;
- Water resources development for irrigation, hydroelectricity and water supplies;

- Energy resources development and management; and
- Mineral resources development and the management of mining operations.

The cross-sectoral issues of relevance to CBNRM are:

- Population growth and distribution, and its impact on natural resources;
- Peoples' participation in the sustainable development and management of natural, human-made and cultural resources and the environment;
- Rural land and natural resources tenure and access rights;
- A national land resources use policy and strategic policy in land use planning;
- Environmental economics, macro-economic policy and economic development;
- Environmental research for sustainable development;
- Science and technology for sustainable development;
- Environmental impact assessment of policies, programmes and projects; and
- Environmental education and awareness and human resource development.

The government recognises the degree of natural resource degradation within the country, and that socio-economic development is dependent on the status of natural resources and the environment. Therefore, priority is given to the integration of the development process with environmental protection. During implementation of NCS, priority will be given to the conservation of forests, soil and water and strategies for more effective land use and public participation.

Each state of the federation has also formulated, or is in the process of formulating, a Regional Conservation Strategy (RCS). The principles, guidelines and strategies set out in these documents are expected to provide Ethiopia with an adequate framework for sustainable management of natural resources.

5.3.3 Draft Rural Land Use and Administration Policy

A policy for rural land use and administration in Ethiopia has been drafted with the following key objectives:

- The sustainable utilization of land which balances with its productive capacity;
- The elimination of the negative impacts of land redistribution;
- Ensuring that there shall be no insecurity and inequity in land tenure;
- Minimising the negative impacts of farming on non-agricultural lands; and
- Ensuring appropriate land utilization and administration.

Specific provisions of the draft policy have been formulated to facilitate more effective management of soil and water resources, including:

- The rights to transfer, lease, and give as inheritance land;
- The provision of official documents as evidence of tenure to specific land in order to give land users a feeling of security;
- Encourage contiguity of farm lands for reasonable uninterrupted soil conservation measures;
- Fixing the minimum and maximum sizes of land allowed for peasant farmers;
- Promotion of land use plans so that land will be used according to such plans; and
- Provision of incentives which will promote land conservation.

5.3.4 Natural Resource Sector and Other Policies

Ethiopia's forestry policy is at a draft stage. Specific objectives of the draft policy include protecting and conserving natural systems (including genetic and wildlife resources), and reducing soil erosion and protecting soil fertility thereby increasing agricultural production. The policy emphasises the importance of community participation in the conservation and sustainable utilization of biological resources, together with the need to maintain access to, and the flow of benefits from, biodiversity. The policy envisages greater participation of local communities in forest management and protection.

The objectives of the Soil and Water Conservation Policy will be attained through measures that enhance the security of tenure to land, and place the land users under obligation to protect the land and soil by abstaining from activities that induce or exacerbate soil erosion. The objectives of the policy include:

- Ensuring that land users are aware of their obligations and rights, and that they pass over properly conserved land to future generations;
- Finding legal solutions to activities which induce and exacerbate soil erosion;
- Ensuring that a feeling of ownership is created in society so that voluntary initiatives will be undertaken to protect and conserve natural resources;
- Providing a solution to land erosion emanating from excessive livestock populations and their movement; and
- Creating methods and technologies suitable to various agro-ecological conditions and the state of productivity.

The Water Resources Management Policy emphasises measures that facilitate the development of water resources to meet the needs of households, farmers, pastoralists and the development of agro-industries. The policy has five main objectives, including the conservation, protection and enhancement of water resources and the efficient utilization of water to sustain new development initiatives. Although the policy is aimed at sustainable management of all aquatic systems in Ethiopia, little emphasis is given to wetland resources.

The overall goal of the draft wildlife policy is "the preservation, development, management and sustainable utilization of Ethiopia's wildlife resources for social and economic development and for the integrity of the biosphere". The draft policy also states the need for participation of communities in the management of wildlife and protected areas, and encourages collaboration, including the sharing of revenue, between local authorities and members of local communities.

Other sectoral policies and strategies that influence NRM in Ethiopia are summarised in Box 5.1.

Box 5.1: Additional policies and strategies that influence NRM in different sectors

The Disaster Prevention and Management Policy: The objectives of the Disaster Prevention and Management Policy go beyond prevention and management of disasters by aiming to promote sustainable development based on the best use of the natural resources in affected areas.

The Population Policy: Some of the specific objectives of the Population Policy that are relevant to sustainable utilization of natural resources are ensuring a spatially balanced population distribution pattern with a view to maintaining environmental security, and information and education programmes addressing issues pertaining to small family size and its relationship with human welfare and environmental security.

Education and Training Policy: The specific objectives of the Education and Training Policy that are relevant to the creation of awareness regarding natural resource utilization issues include the provision of education that can produce citizens who possess national and international outlook on the environment, and protect and sustainably use the natural resources of the country.

The Science and Technology Policy gives priority to research and the introduction of technology for agriculture, natural resources development, environmental protection, water resources and energy.

The Industry Sector Strategy has a number of objectives that are related to sustainable natural resource utilization. An important objective of the strategy is to promote regionally balanced industrial development which in turn will have a considerable impact on alleviating poverty and reducing pressure on natural resources.

The National Agricultural Research Policy and Strategy states that research shall direct itself to issues and problems in agriculture focusing on environmental protection and development, and be designed to get sustainable agricultural productivity in terms of quantity, quality and variety in the peasant agricultural sector.

The Water Allocation and Apportionment Policy states that the basic minimum requirement should be recognized as the reserve (basic human and livestock needs as well as environment reserve), and has the highest priority in any water allocation plan. This statement is very significant when considering the environmental minimum requirement of wetlands in some of the Ethiopian rivers and streams.

5.3.5 Legislation

The enactment of legislation relevant to sustainable utilization of natural resources and environmental management is a priority action area, apparent in ongoing initiatives to equip the country with a comprehensive body of environmental legislation. The present Constitution of Ethiopia contains provisions that recognize the importance of the environment, and the need for its proper management. These provisions serve as points of reference for legislation that affect natural resources management and other social, political and economic aspects of national development (TGE, 1994).

The federal government is in the process of drafting a framework that will serve as the basis for state and sectoral legislation on the environment. Meanwhile, existing legislation on forestry, water resources utilization and mining have been updated. Draft legislation on wildlife management has been presented to the Council of Ministers, and includes wildlife conservation management and utilization proclamations and regulations.

Several government proclamations have been released during the past 50 years with the aim of strengthening management of Ethiopia's forests. Proclamation No 94/1994 is a law issued to provide for the conservation, development and utilization of forest resources that addresses the central problems of forest development and includes provisions for the ownership and

utilization of private forests. This proclamation appreciates the fact that sustainable utilization of the country's forest resources is only possible through the participation of the people, and sharing of benefits with local communities.

The Federal Rural Land Administration Proclamation (Proclamation No. 89/1997) states that regional councils shall enact a law on land administration, and describes the basic principles and guidelines that the Regional States should follow when enacting regional laws for the administration of land. The proclamation also provides that farmers and pastoralists, both men and women, should have the right to get free land, sufficient for their subsistence, and that they should not be evicted or displaced from such lands for any reason other than for total or partial redistribution of holdings which are effected by the decision of the Regional State Councils.

5.3.6 International agreements

Ethiopia has ratified and signed several international agreements (Box 5.2). The ratification of these conventions has implications for environmental legislation in Ethiopia, since they impose requirements to enact certain laws. For example, under the Biodiversity Convention, enactment of legislation regarding access to genetic resources and bio-safety are important activities.

Box 5.2: International, environmental agreements adopted by Ethiopia

The 1951	International Plant Protection Convention, Rome
The 1967	Phyto-sanitary Convention for Africa, Kinshasa
The 1972	Convention Concerning the Protection of the World Cultural and Natural Heritage, Paris
The 1973	Convention on International Trade in Endangered Species of Wild Fauna and Flora, Washington
The 1973	Convention on Establishing a Permanent Inter-state Drought Control Committee for Sahel, Ougadogu
The 1992	Convention on Biological Diversity
The 1992	Framework Convention for Climate Change

5.4 Institutional Framework for CBNRM

5.4.1 Government Institutions

Ethiopia is predominantly inhabited by peasant farmers who depend on natural resources for subsistence and, therefore, a great deal of attention is being paid to the appropriate management of natural resources. Several sectoral and cross-sectoral government ministries and agencies have roles to play in natural resource management, including CBNRM. The Constitution of Ethiopia and Proclamation No. 7/1992 provide for overall political authority over the internal affairs of the regions to reside in elected regional councils. Within each region, governance structures include the *woreda*, comprising democratically elected representatives of local communities, and the *Kebele* Administration, the lowest formal level of government. Each *Kebele* Administration covers around 1,000 households. Lower level village committees, known as *Mengestawi Buden*, are also directly answerable to the government. These state institutions are evolving to ensure that members of local communities participate in decision making, and the implementation of measures taken to address their political, social, economic and environmental concerns.

Line ministries, commissions and authorities at the federal level, and sectoral bureaux at the regional level, implement the components of policies, strategies and action plans for which they are responsible under existing laws. According to Proclamation No. 41/1993, each bureau head shall, as regards the execution of activities, programmes and laws pertaining to the bureau to which he/she is assigned, be accountable to the Executive Committee of their region. Each bureau head shall also submit draft laws required for the proper execution of the bureau's activities to the Executive Committee, and effect expenditure on the basis of an approved budget.

The Environmental Protection Authority (EPA) is a federal agency that was established in 1995 with a broad mandate for coordinating and regulating activities that affect the country's environment. The authority's aim is to ensure that all matters pertaining to the country's social and economic development activities are carried out in a manner that will protect the welfare of human beings as well as sustainably protect, develop and utilize the resource base on which they depend for survival. EPA is also responsible for the implementation of the CSE at the federal level, and is implementing a project in Ankober (North Shewa) to put the CSE into practice on a pilot basis.

The Ministry of Agriculture (MoA) has a mandate to oversee matters related to land tenure, crop and animal husbandry, rangelands and pastoral development, land and water resources management, land use policy and genetic resources. The ministry coordinates its activities with the EPA, the Ministry of Water Resources (MoWR) and the Ministry of Education (MoE). Several departments and divisions within MoA have direct relevance to CBNRM, as follows:

- The Animal and Fisheries Resources Development and Regulatory Department;
- The Natural Resources Management and Regulatory Department, which houses the Forest and Wildlife Management and Regulatory Team, the Soil and Water Conservation Management Team and the Landuse and Regulatory Team. Socio-economic surveys in many parts of the country, including crop-environment assessments, have been conducted by this department;
- The Ethiopia Wildlife Conservation Organization (EWCO), which has principle responsibility for the management of wildlife and protected areas, including controlled hunting areas and wildlife reserves;
- The Institute of Biodiversity Conservation and Research (IBCR), formerly known as the Plant Genetic Resources Centre, which was established to carry out research on biodiversity and promote *in-situ* and *ex-situ* conservation of germplasm within different ecological zones (Box 5.3); and
- The Department of Forestry and Wildlife Conservation, which is involved in the collection, storage and distribution of tree seed, as well as agroforestry trials.

Box 5.3: The Institute of Biodiversity Conservation and Research

IBCR is co-ordinating a recent World Bank-funded project entitled *Biodiversity Conservation and Sustainable Utilization of Medicinal Plants in Formal Health Care in Ethiopia.* Proposed activities of the project include the establishment of *in-situ* conservation sites for the sustainable utilization of medicinal plant resources.

In 1995, IBCR initiated a UNDP-supported project in Tigray known as *A dynamic Farm-based Approach to the Conservation of Ethiopian Plant Genetic Resources.* Given the long-standing precedent of informal genetic resources management, the project formally integrates farmers into the international plant genetic resource conservation community through conservation of land races on peasant farms and farming communities. Community gene banks provide seed store facilities for local farmers, where farmer-conservators store samples of community landraces. IBCR periodically visits the community gene banks to gather sub-samples and supports networking among community gene banks (CGBs) located in different agro-ecological zones.

Between 1975 and 1991, the Ministry of Agriculture established hundreds of community forestry nurseries and plantations. The ministry's main objectives were to meet local demand for forest products while improving the environment through:

- Meeting existing demand for wood products, such as construction poles and timber, fuelwood, and other forest-based products;
- Reducing environmental degradation and rehabilitate degraded land;
- Supporting and sustaining agriculture production on cultivated land;
- Contribute to improved grazing conditions and increased animal production on grassland;
- Reducing the use of cow dung as fuel by making fuelwood more easily and widely available, which will secure energy supplies and ensuring that cow dung is used on cultivated land to improve soil conditions and contribute to increase agriculture production;
- Strengthening soil conservation efforts by growing trees and shrubs on soil conservation structures, along gullies, etc.;
- Improving people's standard of living by making certain forest products more easily available; and
- Providing shelter around homesteads and public places.

Unfortunately, during the period of *Derg* government, trees planted in the community forests, and even trees planted on individual plots, were confiscated by the Peasant Association on government orders. Communities living around these plantations did not have much access to the forest products and, therefore, lost any sense of ownership. This loss of ownership among community members resulted in the destruction of community forests in most parts of Ethiopia, after the fall of the *Derg* government.

This Ministry of Water Resources (MoWR) is responsible for the formulation of policies and standards for the management of water resources. MoWR houses the National Meteorological Services Agency, which is responsible for meteorological assessments and works with the EPA and MoA to forecast and create awareness about the impact of changes in weather.

This Ministry of Education (MoE) is responsible for environmental education and, therefore, it is expected to collaborate with EPA, MoA and the Ministry of Information and Culture (MoIC). Environmental education in both formal and non-formal systems is supported by the Education and Training Policy (MoE, 1995). The establishment of the Environmental Protection Authority (EPA) and release of policies on population and women have also enhanced the development and integration of environmental education into existing education

curricula. Attempts have been made to integrate environmental education into individual subjects through the multidisciplinary approach. The universities of Alemaya and Addis Ababa have a long tradition of engagement in development related research activities. The Institute of Development Research (IDR) at the Addis Ababa University has contributed a lot to social science research. The research in Alemaya is closely related to the work of the Institute of Agricultural Research (IAR), now renamed as Ethiopian Agricultural Research Organization (EARO), for the last several decades.

The mandates of the Ministry of Economic Development and Cooperation (MEDaC) include monitoring the overall implementation of development policies as well as reviewing programmes and projects, and land use policy and strategic land use planning, environmental economics, macro-economic policy and national economic development. It carries out its mandate in cooperation with all line ministries, including EPA, MoA, MoME, and MoIC.

5.4.2 Community Based Organizations

There are a variety of institutions operating at local levels. Recognized organizations include the Peasant Association, the Peasant Women's Association, the Peasant Youth Association, the Service Cooperatives and the Producers Cooperatives. Some of these have been dormant since the fall of the Derg Government in 1991.

The Peasant Associations (PAs) are the smallest administrative units in rural areas, comprising all households living within designated areas of approximately 800 to 1000 hectares. Each household is represented in a PA by the household head. PAs were first established in 1976 to implement the land reform proclamation of the Derg Government, and PA committees were responsible for the allocation of land, tax collection, coordination of labour for communal farms and recruitment for the military. Today, PAs are still responsible for ensuring that laws and proclamations issued by the government and its various ministries are carried out. The PAs also collect taxes on behalf of higher authorities, and are responsible for local security issues. In some areas, PAs oversee the management of communal property (Box 5.4).

Box 5.4: Beyegiche Peasant Association

In Beyegiche PA, within Kersa and Malima District of Oromiya Region, use of communal grazing areas requires official permission from PA officials, who are able to levy fines on offenders. In this PA, about half of the local households with livestock depend on communal grazing areas during the rainy seasons. During the dry season, crop residues are the main source of animal feed.

In spite of the community's dependence on communal grazing resources, there is no common agreement and very little coordination to facilitate systematic use of the pastoral resources. This is a common source of conflict among community members. In this PA, members have unrestricted rights to fell trees growing on communal land, for domestic or commercial purposes. Community members tend to avoid sites with religious or ritual significance, such as those used by *ayana* (spirits). As a result, there are five small groves of mature trees present within Beyegiche PA which are considered sacred.

Source: (Terefe Degefa, 1995)

A number of voluntary organizations, such as *Idir, Mahber, Senbete* and *Iqub,* have been established by community members to promote cohesion and solidarity, or for religious purposes (Teferi Abate, 1994). Usually, these community organisations are not directly involved in natural resource management, and are most active when community members face a major crisis. The CBOs serve as forums for farmers to express their problems, exchange ideas, conclude important socio-economic agreements, and gain access to credit. Recently, Water Users Associations have been established in many parts of the country to manage communal water resources.

5.4.3 Non-Government Organisations

The current decentralised system of governance has facilitated the activities of many local and international NGOs. These include the Christian Relief and Development Association (CRDA), which is a large alliance of international and local NGOs working within Ethiopia, and similar umbrella organisation for indigenous NGOs. Prominent local NGOs include the Ethiopian Wildlife and Natural History Society (EWNHS) and LEM-Ethiopia, which are active in natural resources management, particularly in public awareness and advocacy.

Canadian Physicians for Aid and Relief (CPAR) began intervention in Jarso area, 185-km northwest of Addis Ababa in August 1991 (CPAR, 1998, 1995; ECO-Consult, 2000). The goal of the project was to enable defined communities in Jarso Woreda (Were-Jarso) to utilize local resources in a sustainable manner. The main project activities included:

- Reafforestation through the encouragement and assistance in the establishment of group nurseries, community woodlots;
- Soil and water conservation through biological as well as physical means. Physical conservation structures included checkdams, waterway reshaping, cut-off drains and conventional stone bunds. Biological conservation measures included establishment of forage legumes and grasses (under bunds), sisal planting for gulley control, and inter-cropping forage legumes with sorghum;
- Community level small-scale irrigation schemes, through the identification and improvement of traditional irrigation sites; and
- Community conservation of seed varieties comprising collection and multiplication of different cultivars of sorghum, *tef* and *nug*.

World Vision Ethiopia (WVE), in partnership with the communities in Antsokia (about 350 km north of Addis Ababa), launched several developmental ventures, with the objective of sustainable resource utilisation and management by the communities concerned (World Vision, 1991; ECO-Consult, 2000). The ventures recognized the inherent natural potential of the area and sought complementarity between people's needs, and ecosystem stability. This joint endeavour of WVE and the communities around Antsokia has resulted in the improvement in the diversity of forest resources, and the rehabilitation and/or enhancement of people's knowledge and culture.

ActionAid in Ethiopia, in collaboration with the Dalocha Woreda communities, is implementing a development project in Dalocha Woreda about 180 km southwest of Addis Ababa (Action-Aid, 1999; ECO-Consult, 2000). The project activities include soil and water conservation and afforestation, and the formation of community institutions for natural resource management. Conservation committees are organized at village and PA levels. Community based institutions established include the village conservation committee and Dalocha Women Water Development Association. This women's association has collaborated with Action Aid to set up a domestic water supply system.

CONCERN-Ethiopia was involved in a project in Kalu (Wollo) that encouraged tree planting and other conservation measures on both private and communally owned land (CSE, 1998). Farmers in local villages formed groups, which established a village woodlot where every member had equal rights for resource utilization. Each group of farmers also formulated and enforced rules relevant to the management of the communally owned forest resources.

Menschen fur Menschen Foundation (MfM) was involved in an integrated rural development project at Merhabete, about 185 km north of Addis Ababa. The overall aims of the project were to rehabilitate severely denuded areas and to contain further deterioration of land resources through the participation of local communities (MfM, 1996; ECO-Consult, 2000; Taye, 1997). The participation of communities in project implementation evolved from being a passive receiver to taking full responsibility. As there was no land use policy in place, the project's attempts at community forestry did not yield the expected results.

FARM-Africa initiated the *Community Forest and Wildlife Conservation Project* (CFWCO) in 1991. The main purpose of the project was to conserve the remaining natural forest and wildlife through the cooperation and involvement of the people, rather than restricting their access (CSE, 1998; FARM-Africa, 1995). The initiative was not successful. In 1994, FARM-Africa began the Tigray Community Oriented Rural Development Project (CORDEP), which had a major resource conservation component, and got quite promising results.

CARE-Ethiopia, in collaboration with the Ethiopian Wildlife and Conservation Organization (EWCO), is implementing the *Awash Conservation and Development Project* to address the problem of encroachment within Awash National Park. The problem arose because pastoralist communities had been denied access to traditional grazing lands, dry season refuges and water resources due to agricultural encroachment. Therefore, they resorted to using more than 70% of the park for grazing, cultivating maize and settlement (CARE-Ethiopia, 2000; Futterknecht, 1995). The goal of the project is to improve the management of natural resources in, and around Awash National Park, with the full participation of local communities and other stakeholders. It is believed that multiple land use and participatory management offers the greatest potential for sustaining and conserving natural resources and wildlife.

5.4.4 Traditional institutions

CBNRM is closely related to the land tenure system within a community. The most ancient system is the communal land tenure system, in which the rights of an individual member do not count as much as those of the family, the clan and other lineage group to which members belong.

Rules for protection and utilization, as well as their enforcement, were essential aspects of the traditional management of communal natural resources. These rules for the management of communal resources were integral components of the overall social, economic, administrative and political systems within local communities.

The predominantly pastoralist communities of the Afar in the northeast and Boran in the south regions have maintained their clan organisations, and have well-developed traditional CBNRM systems (Annex 3.10 and 3.11). Likewise, the inhabitants of the lowlands of Western Ethiopia are organized in clans and confederation of clans, which constantly move, in relatively small groups, with each group enjoying communal right to the land it happens to be occupying at the time. Pastoralism is the dominant land use in the low-lying rangelands. Management of rangelands is based on unwritten, but clearly spelt out rules and regulations for CBNRM practised by, among others, the Afar and Boran communities (Boxes 5.5 and 5.6).

Communities in the highlands, who practise settled agriculture, have retained some traditional natural resource management systems despite changes in land tenure systems, including the emergence of the *rest*, *gult* and *resta-gult* systems of tenure. *Rest* can be inherited, *gult* is given in recognition of service to dignitaries and cannot be inherited, while *rest-gult* is given when *gult* becomes inheritable by default.

Box 5.5: Rangeland management in the Afar Region of north-eastern Ethiopa

The rangelands in the Afar consist of natural and semi-natural vegetation, managed by the seasonal movement of the pastoralists who keep mixed herds of cattle, camels, sheep, goats and donkeys. Even though livestock are the property of individual households, a community maintains residual rights regarding livestock management. Therefore, an Afar household cannot sell cattle and camels, without the consent of other community members, though the decision to sell male stock can be made at the household level.

Several Afar communities also have strict rules and regulations concerning the cutting of trees. In particular, Acacia species may not be cut without the permission of clan elders, because they are important sources of fodder during dry seasons and drought periods. Anyone who violates such rules, especially when other sources of fodder and browse are available, is punished by clan elders who usually impose a fine of one head of cattle for every tree cut. This is an important strategy for the conservation of useful tree fodder reserves.

The Afar keep both home herds (*homa*) and satellite herds (*magida*). The *homa* herds include milking stock, mainly of sheep and goats, and are kept around camps near watering points. The *magida* herds are those which move long distances to grazing and browsing grounds and comprise cattle, camels and a few smaller animals. Splitting livestock herds into *homa* and *magida* is a traditional practice by which the Afar pastoralists manage their rangelands for sustainable browsing and grazing. The Afar believe that this system of range management helps to provide a continuous supply of milk, better growth of calves and protects the productivity of pastures.

Source: ECO-Consult, 1995; Kassa, 1997; Mariam, 1991, Singh and Kalala, 1996

Natural resources, such as forests, pasture, and water, are the principal means of livelihood security for the Boran people. There have been traditional mechanisms for equitable use of resources with a minimum of internal strife or conflict (Box 5.4). For example, forests are valued as dry season grazing reserves for herders, a source of wood and non-timber products for home consumption for agro-pastoralists, and a source of livelihood to wood-cutters and settlers from urban areas. All such multiple users and multiple rights are governed by local institutions and managed under traditional rules. Rights of access vary across different groups of people, and are governed by a range of social factors including kinship, ethnicity, status and residence that have been established historically as a results of alliances, collaboration, and competition between groups. Notions of flexibility, mobility and reciprocity are embedded in the Borana customs.

Box 5.6: Community level decision making among the Boran of the Oromiya Region in southern Ethiopia

At the community level, the Boran are an egalitarian and democratic society. Decision-making and action among the Boran can occur at different levels including the individual, household and community and also on the basis of kinship affiliation and territorial divisions. Community level decisions are made through group discussion and consensus.

The institutional authority for property rights of land, water and forests in Borana highlands is vested on the *Raba gada* who enact rules and regulations for access and use by different groups. Different uses of land, such as wet and dry season grazing reserves, community forests, and farming areas, are governed by different rules and regulations. Rules mutually agreed upon provide efficient means of conflict resolution. New rules that help cope with changing ecological, socio-economic and political circumstances are passed by a supreme decision-making body, the *Gumu Gayo*, which meets every eight years.

For practical purposes, the Boran divide sources of water into four, based on the availability of underground and surface water:

- *Tulla:* deep traditional water wells. Normally twelve people are needed to make a chain in order to lift water from the *Tullas* using traditionally made buckets locally known as *ocole*.
- *Ella*: shallow wells. Normally four people are required to lift the water.
- *Lola*: flood water.
- *Haro*: pond water. The ponds are mostly constructed by hand.

The digging and maintenance of wells require coordinated efforts by large groups of people. To this effect wells are often managed by well councils known as *Abba Hiregha* or the *Konfi*. Ponds are supplementary to the permanent water sources (wells), and are constructed by each village. The most important advantage of ponds over deep wells is that there is no need for coordinated labour effort to lift water. Their disadvantage is that they dry up if rainfall is insufficient. However, this alternative source of water helps pastoralists to distribute their herd, and thereby reduce grazing pressure near permanent watering points, which in turn helps to reduce soil erosion.

Boran pastoralists rely on deep well complexes for water during the dry season and access to dry season water must be negotiated and re-negotiated among different social groups. These wells are recognized as belonging to a particular clan or group of families. They need extensive maintenance, and no one can use the wells without the consent of the person who initiated the digging of a pond or excavation of a well, known as the *konfi*. The *konfi* manages the well, and fellow clan members have the priority for access during dry seasons. Non-members of the *konfi's clan* have secondary access rights. A *konfi* will rarely deny access to a fellow pastoralist because, in future, members of his clan may also need water from wells managed by another clan. However, he will usually instruct the fellow pastoralist when he can water his animals, and whether or not the entire herd will be watered.

The Boran pastoralists have adopted strategies that are passed on from generation to generation to solve problems related to watering and grazing by dividing their livestock herds into *worra* (milking herd) and *forra* (dry or non-milking herd) groups, based on the frequency of watering, and the availability of good grazing and browsing grounds. The *worra* herds spend much of their grazing not far from villages *(ollas*) and water wells, while the *fora* herds travel much further to graze a much larger area. Greater herd dispersal for grazing and increased concentration of the herd for watering are major adaptive strategies of the Boran pastoralists which enhance the efficient utilization of limited resources. Most villages also reserve enclosed grazing areas (*kallo*) for calves.

Source: (Coppock, 1994; Eyasu and Trench, 2001; Garse, 1999; ECO-Consult 1997, Kassa, 1998; Helland, 1997)

Traditional institutions also oversee the management of forest resources (Box 5.7). In Wayu, currently within the North Shewa Administrative Zone, people used to observe cultural rules for utilizing and managing communal forests (Annex 3.7). It was considered unacceptably cruel for a man to cut down young trees. The consensus in the community was that "like a calf or an infant goat which cannot be slaughtered unless it reaches a certain age, a young tree is not

meant for immediate use". In the same way, it was considered immoral to fell large trees that were believed to be dwelling places of holy spirits. Local neighbourhood groups, such as *mahbe*r and *sanbete*, reprimanded and even punished transgressors. Similar management systems, based on rules governing access and resource use by community members and 'outsiders' were applied in the uplands, in areas known as *guassa* (Boxes 5.8 and 5.9).

Box 5.7: Degagogot Communal Forest

Traditionally, communal forests within Degagogot were managed through a collective accord among residents of each *ager* (a geographically defined area). *Guda* or *Ture* is an oath of bond partnership ("I will not cut trees or fail to report when I see anyone cutting trees.") made by all members of an *ager* irrespective of age, status and sex to protect against unlawful cutting of trees in these forests. An *ager* insures the strict adherence to such an oath through its traditional authority known as *Yewedabo* or *Sinbita*. Trees can only be cut for specific purposes such as to construct churches, finance church officials when the community is short of money, and to construct individual houses when they have been destroyed by fire. When there is a dire need for homestead land due to population pressure, the community was sometimes pressured to clear a certain area of forest.

In the past, in Degagogot, forests were revered to the extent that every time a tree was cut, it had its own associated ritual. The rationale behind the ritual was that a forest secured by oath had to be sanctified. A black sheep was slaughtered and blessed before cutting any trees. In addition, certain species of shade trees, such zigba (*Podocarpus gracilior*) were preserved as meeting and resting sites for those passing through the *ager*.

Source: Molla, 1995

Box 5.8: Grass and Shrub Resource Management

Communities in Qalam, in Dessie Zuria (Wello), share in the utilization of Qalam common pasture. Qalam Meda was water logged and unfit for crop production. Yadi, in Manz, and Laimush and Andit-Tid in Tagulat border two alpine-like *guassa* areas. The *guassa* lands in Tagulat and Manz were uplands with an altitude above 3500 meters. Neither trees nor crops could grow within the actual *guassa* area, and there was no human settlement either. Qalam Meda and the two *guassa* areas, Manz and Laimush, play important roles in the economic strategies of the members of the communities living nearby. They served as pasture or sources of fodder, thatching material, fuel, and cash income. Therefore, the beneficiaries had vested interests in safeguarding these resources.

Non-members of the group, defined territorially as in Qalam, Laimush and Andit-Tid, or through lineage in Manz, were excluded from using common resources at certain times. In Qalam, the rules of exclusion operated during the rainy season (July to October) certain season of the year, when outsiders were excluded from grazing their animals. But everybody including passing caravan traders, was allowed to graze animals during the dry season.

At the end of the rainy season, when the grass is harvested for hay, only those who have hereditary rights were allowed to participate. Cultivators, having non-hereditary usufructuary rights to land, were excluded, but they could bring their animals into the area after the had had been harvested. On the other hand, there was no restriction on the number of animals that a household was permitted to bring into the common grazing area once it was opened after the harvesting the hay. In addition to the exclusion of outsiders, in Manz, the *guassa* was periodically closed to animals and humans for two to four years at a stretch. On regular basis (yearly), the *guassa* was closed on the fifth day of Hamle (the day of double feasts for St Abbo, and Saints Peter and Paul), thus clearly marking the closure date, as it allowed people to be cognizant of it and thus refrain from breaking the rules unintentionally. During the period of respite the vegetation, mainly *guassa* grass and bush like `*asta*', would grow. When the land is opened, people will first harvest the *guassa* and bring in their animals afterwards. The situation lasted until the agrarian reform in 1975.

In Tagulat, the *guassa* area was a crown estate. The *guassa* would be first harvested (with the labour of the farmers living in the area) for the benefit of the royal stables at a nearby site; and then the farmers, who provided labour, were allowed to harvest the remaining *guassa* grass for their own benefit. The practice described above lasted until the Italian occupation in 1936.

Source: Admassie, 1995

In Manz, communal resources were managed with the help of simple rules by which outsiders were excluded, and community members' access regulated (Box 5.9). These rules were then enforced by the members of the community acting individually and in groups. All of the common property resources were re-enforced with the prestige, power and authority of other local level institutions such as the church. However, the rules and regulations were not static.

Box 5.9: Management of *guassa* resources in Manz

The Manz community, have conserved local *guassa* by applying various traditional rules and regulations for many generations. In the past, the rules stated that anybody found grazing cattle, collecting fodder or firewood were penalised in ways that were very difficult, if not impossible, to achieve. For example, an offender could be asked to produce 100 sacks of cabbage seeds, a silver pestle, a *kechemo* mortar, a fresh lion skin, or a slave with a single testicle. Such rules served effectively for many years, but became redundant and ineffective through lack of enforcement. The community devised new rules so that anybody found grazing cattle in the guassa during the closed season would be punished through confiscation of their cattle and grain store. The revised rules were effective for the protection of the *guassa* area up to the 1960s.

Currently, management of *guassa* is the responsibility of a committee established at the *woreda* level. The committee decides when the *guassa* should be grazed and the plants harvested. The g*uassa* committee is made up of members nominated from the farmers associations who have traditional access rights to the area.

Other management systems have evolved within for the conservation of *guassa* areas in Manz. The *oiero* system originated in order to protect and administer the *guassa* resource from groups that do not have direct descent from the pioneer fathers (*agigni*). The *oiero* system works by choosing a head man (*Aba Qiero*) in each locality of Asbo and Gera. Both localities have their senior *Aba Qiero*. The *Aba Qieros* have absolute mandate in controlling and using the *guassa* resource. The *Aba Qiero's* main function is to mobilize the *oiero* for the protection of the *guassa* resource and to enact by-laws for resource management.

As time went by the enforcement of the laws became difficult ,and it was found necessary to take some punitive action on the violators of the system of protection of the *guassa* resource. The step taken was to form *guassa* guards that are directly answerable to the *Aba Qiero*. Whenever the *Aba Qiero* received information on illegal users i.e. cutting of *guassa* or grazing or farming, the senior *Aba Qiero* would pass a message or order to their respective *guassa* guards and mobilize all of the users and acts on the illegal users. The action usually taken was to slaughter on site of the cattle found grazing in the *guassa* during the closed season. In serious cases, grain stores of the culprit was burnt.

This controlling measure of the *guassa* by the *oiero* system continued to operate until the Agrarian Reform of 1975. After the Agrarian Reform it has been practiced only on two occasions. The more significant one was when the people living on the eastern part of the *guassa*, and who do not have traditional access rights to use the *guassa* resource, started farming the edges of the *guassa* area. In 1978 the *oiero* went and burnt the crop on the field, and this created a serious fight between the people, which was later settled with the involvement of the Woreda Administration.

The *oiero* system has helped the community by providing much needed natural resources for grazing (fodder), thatching material, household materials, medicinal plants, firewood, etc. The community regulated the use of the *Guassa* area from over-exploitation and degradation of the resource. Apart from sustainably managing the natural resource, the *oiero* system has helped the conservation of a variety wild fauna and flora of the area. The communal land management system in *guassa* is also important for wildlife conservation. In contrast to other areas in North Shoa, local populations of the Ethiopian wolf and its rodent prey have been conserved. Another important species found in *guassa* is the endemic Gelada baboon, *Theropithecus gelada* (Zelealem Tefera, 1995). The *guassa* avifauna is relatively diverse, with a high density of birds of prey associated with the high density of rodents. Seven endemic bird species have been recorded in *guassa* habitats.

Source: (Tefera and Tenagashaw 1999)

5.5 Experiences with CBNRM

Most of the CBNRM projects initiated within Ethiopia have developed from traditional management institutions. For example, the current management of wetlands in Illubabor by local formers is based on the traditional *Abba Laga* system (Box 5.10, Tefera and Tenagashaw 1999).

Box 5.10: Wetland Resource Management

When the Oromo expanded into the Illubabor region during the 18th Century, they introduced the *Gadda* system of local administration. Within the four-person administrative team was an *Abba Laga* who was charged with overseeing the management of the land and natural resources in an area. The *Abba Laga* was also responsible for managing what went on in wetlands, although this was probably only reed gathering, water collection and grazing at that time.

One current example of the *Abba Laga* system has been found in an area with wetland drainage in Illubabor. There, the *Abba Laga* currently coordinates the development of drainage of the channels and the cultivation of the wetland plots. The *Abba Laga* also has the responsibility to recognize the different needs within the community and to resolve any conflicts. This is especially important when there is competition for wetland resources, e.g. reeds versus grazing, reeds versus agriculture and the overriding need for water.

In one location in Illubabor, farmers have recognized the need for some formal coordination in wetland management and have developed a Wetland Agriculture Coordinating Committee. This is responsible for organizing the drainage of the wetlands, which involves communal drain digging, and also for coordinating crop guarding which also needs cooperation. The committee also sets the dates for ploughing and sowing. They have also been involved in developing by-laws with respect to wetlands in response to conflict.

Source: IUCN, 2000

In 1993, the household heads of Wayu Peasant Association in North Shewa prepared a local Forest Conservation Strategy (Abate, 1994). The strategy explicitly stated the rules and regulations as well as the procedures to be applied in implementing these regulations, and the actions required so that all members of the community have a clear understanding of the rules devised for better management of communal forest resources. The strategy emphasized the need to immediately stop illegal cutting of trees, the promotion of efficient and economical use of tree species, as well as the promotion of a culture of tree planting. The General Assembly of farmers mandated the PA leadership to implement the rules and regulations put in place.

Local churches have also played a significant role in the establishment and implementation of CBNRM initiatives. Religious leaders teach that one should not cut trees around churches, secluded mountain tops and gorges, since such secluded areas are proclaimed to be holy places. Such basic teachings of the Church have contributed to the existence of large trees at a few sites. Unfortunately, there are only a few trees left around, for example the Church of Gadam Takla-Haymanot. Previously, this church owned a monastery and parish land covering hundreds of hectares. Most of the area was covered with church-protected forest. After the parish land was nationalized in 1975, the *Derg* government tried to reafforest adjacent areas. Thereafter, local residents could not distinguish the boundaries between the church-managed forest and more recent plantations. With fewer assets, the church grew poorer, could no longer provide services to the surrounding communities, and became a less respected authority. The entire forest area was subjected to tree felling and cultivation. Community members lost respect for the sanctity of the forest and started to fell trees within the boundaries of the church sanctuary.

The Wuraf forest in Yaju-Wollo, which is situated on a steep hillside, is not suitable for conversion to agriculture and, therefore, was protected to provide timber for the manufacturing of farm implements such a yokes and ploughs. Forest management was based on a simple set of rules that excluded non-members, and regulated members' use of forest resources including dead wood and minor forest products such as twigs and leaves. Members were drawn from three parishes, and were allowed to cut down live trees, if they received consent of the church. Members of the community, acting individually and in groups enforced these forest management rules. The rules were also enforced with the authority of the Church. The local population of Wuraf watched over the forest and reported anyone who did not abide by the rules of protection and utilisation. In the face of external threats, the population rallied in defence of the commonly owned forest resources in solidarity with their parish church, which was a symbol of their community.

The Omotic Ari people of Southern Ethiopia conserve biodiversity of one of the most important food plants *enset* (*Enset ventricosum*), through traditionally instituted beliefs (Annex 3.9). Many recent projects have strong components of community participation and collaboration between government and non-government agencies. These include projects that are being led by EWCO, Action Aid, Concern-Ethiopia, and CARE-Ethiopia, described in Section 5.4.3.

5.6 Opportunities for CBNRM

Recent policy and legal reforms have created a better environment for CBNRM. Many of the major policies and legislation facilitate the devolution of authority to local government and community structures and recognise sustainable natural resource management as a priority for national development.

For example, the Agriculture Development Led Industrialisation policy (ADLI), which aims to facilitate the transition to a market-oriented economy explicitly encourages regional states to establish appropriate institutions for natural resource management. Further, the National Conservation Strategy (CSE) includes statements that promote the recognition of traditional institutions and resource management systems, and emphasise the importance of consultation and collaboration with local communities in forest and rangeland management. The involvement of the private sector is also encouraged by the CSE.

Recently developed policies are also expected to address environmental problems more effectively. For example, the National Energy Population Policies, are expected to facilitate a reduction in the rate of population growth, and a more rational use of sources of renewable energy, thereby reducing the pressure on biomass resources.

The current constitution and other legislation of Ethiopia facilitate greater involvement of local communities during allocation of land for settlement, social services, forest development, livestock management and other communal uses. The constitution also ensures that the user of a piece of land has the right to secure and uninterrupted access to the land, and any renewable natural resources on it, such as trees, water, wildlife and grazing areas. In other national and regional legislation, the enactment of more appropriate rules and regulations provide an opportunity for better resource management.

The distribution of ecosystems, such as wetlands and rangelands, across Ethiopia's national boundaries provide opportunities for collaboration with neighbouring countries. For example, Kenya and Ethiopia share wetland systems around Lake Turkana, as well as rangelands occupied by Boran pastoralists. Protocols relevant to the management of natural resources,

specifically wildlife, have already been signed with Eritrea, Kenya and Sudan. Further, some of the international agreements and conventions signed by Ethiopia may also provide opportunities for sub-regional collaboration in natural resources management. The main areas of sub-regional collaboration that have been proposed include:

- Research and management in natural resources development and environmental protection;
- Joint integrated river basin studies and development;
- Research on the conservation and management of wildlife;
- Exchanging experience and information regarding wildlife migration, poaching, and illegal trafficking of wildlife products; and
- Enhancing prevailing indigenous natural resources management systems.

Since the fall of the *Derg* government and the official end of conflict in 1991, the Government of Ethiopia has worked to rebuild relationships with international donors. An important focus has been the natural resources sector. Both government and international funding agencies recognise land degradation, population pressure and chronic food insecurity as priority areas.

There has been a gradual increase in confidence between government institutions and communities during the past few years. Some of the community forests are now under the sole management of the adjacent communities who have effected rules and regulations for the sustainable utilisation of natural resources (e.g. the *oiero* system in Manz, Box 5.9). Such efforts have met with a level of success that can be increased by strengthening community institutions, as the relevance of indigenous (local) institutions in CBNRM cannot be discounted. They have the potential to be rehabilitated even if weakened in the past. They are not static and are able to change. For example, the Boran indigenous institutions that were disrupted for over 70 years during the 16th Century have been reinstated. There is no apparent reason why similar institutions cannot be revived and strengthened further.

5.7 Challenges for CBNRM

The degradation of natural resources such as soils, forests and wildlife habitats, is a major environmental problem, particularly in the highlands. The prevailing circumstances may undermine community efforts and relevant agencies to initiate collaborative management of natural resources by reducing options and exacerbating conflicts. Currently, there is limited capacity to check resource degradation. State institutions with the mandate for natural resource management have not been able to prevent the loss of forests and other habitats or install measures to effectively control soil erosion, water pollution or the loss of biodiversity (Mengistu, 1994).

Innappropriate policies for natural resource management: A more appropriate policy framework for natural resource management is required. Past policies emanated from political ideological outlooks and principles, rather than the principles of sustainable development. The most negative impacts on natural resource use may be attributed to policy and regulatory interventions that increasingly and cumulatively eroded the rights of individuals and communities to use and manage their own resources. Although peasant, pastoral, and range associations were created in 1976, from 1977 the central government assumed control of resources in many areas. Management policies and regulations were formulated and

implemented by the central government. These policies included collectivization, villagization, resettlement, central grain marketing and quotas. The government also organized campaigns for re-afforestation and soil conservation, and restricted logging and movement of charcoal. During this period, land was frequently reallocated, usually to politically correct individuals. As a result, members of rural communities became increasingly alienated from crop and grazing lands, and their produce, including any trees planted on them. As a result, soil conservation structures were not developed, and those that were constructed by coercion were not maintained.

In Ethiopia, land use planning and development has been uncoordinated, resulting in conflicts among Government agencies. The lack of a central system for land use planning has also caused conflicts between Government agencies and communities. Conflict-ridden development includes, for example the extraction of soda from Lake Abijata (a protected area), and the development of a state coffee farm in Bebeka (a priority state forest area).

With respect to water resources, the policy on disasters, emergencies and public safety states that protection of water bodies and water systems from pollution and depletion should be ensured. The water supply and sanitation policy states that water bodies should be protected from pollution by wastewater and other wastes indiscriminately discharged by industries and other institutions. However, there is no apparent reference to community management of water resources in these policy statements.

Inappropriate legislation: Natural resource use legislation in Ethiopia has been, and is still based on the sectoral approach with separate legislative regimes for the management of the various environmental resources. As a result, resource management is uncoordinated and disregards the holistic and interconnected nature of sustainable use of resources. Much of the earlier legislation was management-oriented, focusing on management plans and other protective measures, and lacked detailed and adequate enforceable norms. Some legislation does include specific penalties but even in such cases the penalties have been found inadequate. Implementation and enforcement has been affected by lack of institutional stability. In some areas, earlier legislation was outmoded and, besides being use-oriented (mining), lacked a comprehensive content. Gaps in legislation identified in major areas of natural resource use include land use and fisheries legislation. However, draft legislation for these areas exist. Without framework legislation, natural resource use legislation in Ethiopia will remain, at best, resource-oriented with no possibility for reaching the advanced and desirable "ecosystem oriented" stage.

Natural Resource Tenure and Access Rights: In Ethiopia the 1972-73 famine enabled the military to overthrow the Imperial Government and the State gained control over land and natural resources management (Admassie, 2001). This state of affairs resulted in the Ministry of Agriculture involvement in the management of natural resources through the Food for Work Programmes, and campaign labour. The highly centralized government used rural institutions as tools of state control, and natural resources management become “top-down”. The government frequently redistributed land which was, and still is, under its control, and this affected security of tenure and natural resource management measures.

In natural resource management, coercion became an important tool. The MoA forced ordinary farmers to make NRM contributions by giving up farm and grazing land for hillside plantations and area closures, accepting responsibility for protecting on-farm and off-farm conservation structures, and contributing labour to ongoing campaign work. The threat of force was further employed to block communities’ access to plantations and closed hillsides.

One outcome of state land ownership was recurrent land redistribution. The proclamation obliged the state to provide all farmers with equitable access to land. In attempts to reach this elusive objective, the Government had to periodically redistribute land. No sooner was one redistribution over, then its achievements were undone by demographic pressure, thereby necessitating yet another redistribution. Land redistribution and a reduced sense of ownership resulting from limited usufructuary rights, contributed to insecurity of tenure. Even when re-distribution was apparently stopped, large areas of communal land were brought under cultivation by individuals who were either landless ,or took advantage of the situation, and moved to acquire more land. Five years ago, land was once more redistributed in the Amhara Region, eroding the meagre confidence built during the preceding five years.

Legacy of previous policies and management programmes: New development interventions are not introduced into a vacuum. Lingering memories of previous, inappropriate intervention and political change have generated apathy towards communal management of natural resources. For example, after the 1975 Land Reform programme, natural resources were classified as either individually held 'share allocations' or as communal property. Communally owned resources included grazing land, forests, wildlife, water resources and, occasionally, farmland. Today, many members of local communities demonstrate little concern for communal resources, and believe that if they do not exploit these resources, someone else will do so. Therefore, community members tend to exploit local resources without due consideration for their sustainable utilization.

Indeed, with the announcement of a 'mixed economy' in l990, many Government-initiated projects, including wood lots and afforested hillsides were rapidly destroyed. In the short period between the fall of the Military Government, and the consolidation of power by the Transitional Government, the pent-up feelings of resentment among people were released, resulting in much forest and wildlife destruction. Protected areas in the drylands suffered greatly as trees were cut, and areas were set on fire. People perceived that they had no secured land and tree tenure, and the state was not able to enforce its own regulations of forest protection and sustainable use of natural resources.

Another example is the resettlement programme that was initiated in the mid-1980s with the aim of reducing population pressure on natural resources. During the programme, people were relocated from forests, hillside plantations and other areas allocated for development. However, the resettlement programme had little impact on alleviating pressure on renewable natural resources in areas from which settlers were taken, and instead created greater pressure on renewable natural resources in the resettlement areas, resulting in conflict with local populations (Pankhurst, 2001). The majority of returning settlers found that the land they had occupied previously had been redistributed. Conflicts often ensued with those who remained. In order to eke out a livelihood, returnees without land often settled on areas reserved for forest or pasture, and became involved in cutting trees, and harvesting fuel wood and producing charcoal, thus exacerbating pressure on natural resources.

Lack of participation in policy formulation: Participation of community members may create a more appropriate environment for the promotion of CBNRM. Although the content of ratified policies are clearly characterized by empowerment and participation, the process of policy formulation is less so. Policy formulation has been largely a top-down process, driven by central government. Physical limitations have necessitated a process characterized by less than full participation (Singh and Kalala, 1996). Absence of popular participation in resource management has resulted in the rejection of Government policies formulated and implemented by central Government. In addition, the state sector land developments have little, if any,

consideration of the traditional users of the land. Examples include delineation of national parks in areas traditionally used by pastoralists and agro-pastoralists, development of large fuelwood plantations in areas of mixed small-holder agriculture; large irrigation schemes in dry season grazing areas of pastoral people's livestock, and the development of state farms in areas of small-holder agriculture.

Economic valuation of natural resources: Communities do not have access to adequate information to generate interest, and encourage the investment of effort and resources in natural resource management, about, for example marketing options for non wood forest products. Calculations of the country's Gross Domestic Product (GDP) do not account for the depletion of natural national assets such as soil, forests, water and minerals. In the economic appraisal of development projects, the costs of environmental and natural resource benefits forgone as a result of implemented activities are rarely calculated. For example, the Government has not formally recognised the opportunity costs associated with the loss of biodiversity at Lake Abijata, where soda extraction takes place, and the livestock production forgone as a result of irrigation in the Awash Valley.

Capacity for collaboration: CBNRM can only be put into practice and owned at the grassroots level. A number of conditions need to be in place in order to see the benefits of decentralized natural resources management, such as the creation of appropriate institutional arrangements, and the building of management capacity. Appropriate decentralised organisational structure and better management operations are non-existent at the zonal, district and local levels (Minale *et al*., 2000), and it is clear that the policy of decentralised natural resources management is operational only to the regional level.

The absence of effective institutional and sectoral linkages, inadequate data bases, poor planning, monitoring and evaluation capability, and the absence of a farmer demand driven integrated and motivated extension system, are some of major institutional constraints. The issue of the low level of participation by farmers and pastoralists in resource conservation and development is also a major constraint.

Local communities are often the primary stewards of forest resources, since most forest resources exist outside protected areas (Feyissa 2001). However, the absence of secure land tenure and resource use rights combined with a lack of proper land use planning are major factors that undermine traditional management of forest resources. Lack of understanding of the ways of life of local communities and other forest dependent rural groups, failure to recognize and respect the rights of local communities to land and forest resources, the increasing problem of landlessness who are denied access to land outside forest areas, and inequitable resource ownership also exacerbate the degradation of natural resources.

Erosion of traditional institutions and resource management practices: State interventions, that undermined the customary land tenure arrangements, seriously increased land tenure uncertainties for local farmers which has negative effects on indigenous natural resource management practices. State-imposed committees that often do not have the power and status to be effective have replaced most traditional institutions. For example, the Boran indigenous organizations have been partly replaced by Peasant Associations, which implement activities that often contradict local traditions. Further, even in cases where traditional leaders have regained official recognition, there has been a tendency to focus on personal empowerment rather than effective natural resource management.

The structure of Government institutions: The mixing of regulatory and implementation functions, as well as conflicting mandates, among existing sectoral institutions is a major problem in Ethiopia. Effective CBNRM can be promoted if more institutions have meaningful responsibilities and powers for the coordination of sustainable resource management that are cross sectoral. The inadequate devolution of power for resource utilization at regional and community levels has also the hampered effectiveness in the management of natural resources. The Fragmentation of mandates has negatively affected implementation and enforcement of policies by creating 'grey areas' where institutions are unsure of what is expected of them and other institutions whose activities pertain to the same sector. At the grassroots level, the development agent may be constrained by dual allegiance (Annex 3.8).

Conflicts among development agencies: Representatives of local communities, government agencies and NGOs may have conflicting views on the development process, which can undermine innovation and collaboration. For example, government and donor agencies often disagree about which institutions they see as the most appropriate vehicle for development at the local level. For representatives of the Government, K*ebele*, and *Mengestawi Buden* are seen as the most appropriate representatives of farmers in rural areas (Harrison, 2001). But, donor supported projects may prefer to work with CBOs such as *kires*, which are informally organized burial associations. Clearly a balance is needed which respects local mechanisms, but at the same time is able to work with the appropriate Government bodies.

Conflicts among development agencies arise when they work in the same or adjacent areas, but give very different signals to the local population. For example, SOS-Sahel and WFP are both active in North Wello, supporting participatory soil and water conservation activities, and working through local government structures to implement their activities. However, their approaches are very different. SOS-Sahel has attempted to encourage user rights by issuing user-rights certificates, and to integrate this within its Participatory Land Use Planning and Implementation (PLUPI) methodology. The World Food Programme (WFP) focused on food-for-work as both an incentive for management and a way of getting food to the poorest.

5.8 The Way Ahead - Key Issues and Actions for CBNRM

Special efforts need be made to enhance the decentralization process. The decentralization process should focus on the empowerment of communities and the creation of an appropriate environment for CBNRM, and should be reflected in the policies and regulations that need to be enacted. The implementation of a policy of decentralized natural resources management requires the establishment of decentralized structures and capacity building at regional, zonal, district and community levels. Overarching legislation on natural resources management that would help translate the policy into action is necessary if participatory natural resources management is to be enhanced. For example, the current goal of handing over responsibilities to communities from the management of designated as community forests is very welcome. The process should be institutionalised and the rules in place refined further.

There is an urgent need for the formulation of a clear land resource use policy, and security of land tenure and land use rights are fundamental. This will deter crop cultivation on steep hillsides within the highlands and the communally managed rangelands of the lowlands. Such a policy would also address conflicts in pasture management within the predominantly cultivated areas of the highlands where most grazing areas are managed communally.

A sustainable management programme and administrative framework for wildlife protected areas, with participation of local pastoral communities, is required so as to ensure the sharing of

grazing and water resources and revenue generated by the protected areas from tourism or from controlled hunting. In this way communities and the protected areas may develop mutually supportive roles. The new trend of managing protected areas with the full participation of communities residing in adjacent areas should be supported by policy and institutionalised. In this respect, policy formulators and protected area managers can draw from experiences from elsewhere in eastern and southern Africa, in which wildlife management is being promoted as an economically viable and ecological sustainable land use option for rural communities living in marginal ecosystems.

It is essential to empower communities by developing local capacity for community management and maintenance of water resources, and the prevention of health hazards around water points. It is also important to ensure that rural and small-scale urban water supply systems are controlled and managed by local communities. Modalities for equitable use of water resources such as the Nile Water should also be formulated.

The creation of relevant and representative institutions is a prerequisite for the implementation of any technical programme. However, technical programmes can only be effective if they are devised in consultation with, and implemented by, local groups. In this respect, For conservation to be sustainable and successful, it has to pay for those resource users who are most affected by conservation activities, and bear the costs of local production, lost access and damage. This means that conservation, together with the economic returns from other compatible forms of land use, must exceed returns from alternative forms of land use. If conservation does not pay at this level, then the long-term sustainable basis for conservation is at risk.

Partnerships, related to mutual responsibilities, are crucial to long-term success in community conservation. Relationships between conservation authorities and communities depend increasingly on their direct or indirect involvement in conservation management decisions. Involvement of communities in natural resource management has been found to be successful elsewhere in eastern and southern Africa. Such experience has generated important lessons that should also be recognised during the promotion of CBNRM in Ethiopia, including:

- Effective management of natural resources is best achieved by giving the resource a focused value for those who bear the cost of management;
- Differential inputs must result in differential benefits. Those communities bearing the costs of resource management should receive higher benefits than those who do not bear such costs;
- There must be a positive correlation between the quality of management, and the magnitude of derived benefit. An incentive for good management must reward greater investment with greater benefits;
- The unit of proprietorship (i.e. the decision-making unit) should be the same as the unit of production, management and benefit. The group which manages the resource should also form the local management institution; and
- The unit of proprietorship should be as small as practicable, within ecological and socio-political constraints. Smaller social groups are better at managing themselves and the resource than large anonymous institutions.

Ethiopia is a very poor country with 85% of the population earning its livelihood from subsistence agriculture. Per capita income is one of the lowest in the world, and 60% of the

population live in absolute poverty. The population is growing fast, and this has led to the unsustainable use of soil, water and forest resources. Soil erosion is a major environmental concern affecting 82% of the country. The depletion of topsoil has meant reduced water retention capacity of land, erosion of plant genetic resources and loss of habitat. The high demand for domestic fuel has resulted in extensive use of crop residues and cow-dung. Forest resources are also being depleted fast because of high demand for fuel wood and timber. More and more land is being deprived of its plant cover due to ever increasing demand for cropland.

Any plan for the sustainable use of the ever dwindling natural resources will require commitment on the part of the primary users of the resources, and needs to be formulated with the full appreciation of what is in place in terms of CBNRM. Here, traditional and new CBNRM practices be analysed in order to identify and promote the most effective and appropriate practices.

Other countries in the sub-region sharing common borders often have similar problems with respect to natural resource management. Ethiopia has common borders with Djibouti, Eritrea, Kenya, Somalia and Sudan and shares similar wildlife and fire management problems. In addition Ethiopia, Kenya and Sudan, as part of the Nile basin countries, have similar watershed and wetland management issues to attend to. Ethiopia, Kenya, Eritrea and Sudan have signed protocols relevant to wildlife/biodiversity management, while Ethiopia and Kenya have similar rangeland resource management problems in the Borana area. Thus appropriate cross-border initiatives addressing management of wildlife, biodiversity, watershed, wetlands, rangelands and fire could be formulated and implemented by two or more countries in the sub-region.

CHAPTER 6: COMMUNITY BASED NATURAL RESOURCE MANAGEMENT IN KENYA

Violet Matiru

Kenya Summary

Introduction

Kenya has an area of 582,646 km^2 with altitudes ranging from sea level to 5,200 meters at Mt. Kenya. The country is characterised by a wide diversity of ecosystems, flora and fauna. One of the most significant geological features is the Great Rift Valley, which runs the length of the country, from Lake Turkana in the north, to Lake Magadi near the Tanzanian border. The Kenyan highlands are divided into two parts by the Rift Valley, forming the Western and Eastern Highlands. The Western Highlands slope towards Lake Victoria forming the Lake Basin. The Lake Basin varies in altitude and contains several volcanic hills as well as a low-lying swampy area. The Nyika plateau occupies northern Kenya and lies between the coastal region and the Western highlands. Within the plateau are some volcanic hills such as Mount Marsabit. The coastal region is marked by mountains and hills such as Taita Hills and Chyulu range. The variability in altitudes within Kenya influences changes in climate, natural vegetation and wildlife.

Kenya's population, estimated at approximately 28 million, comprises more than 40 different ethnic groups. Within the different ecosystems, local communities had defined a wide range of rules and procedures for access, utilisation and control of natural resources based on the communities' cultural norms and values. The rules and regulation on resource use were enforced by traditional institutions.

The authority of many of these traditional institutions for resource management was eroded following the introduction of central government institutions for natural resource management. Changes in populations and land use practices also contributed to the undermining of traditional systems for resources management. While previously, communities were relatively homogenous, the movement of people within the country has resulted in greater diversity of local communities, and a reduced respect for traditional norms and values for natural resource management. The establishment of protected areas, including national parks and reserves further alienated local communities from the management of natural resources.

It is now acknowledged, both nationally and internationally, that there is need to involve local communities in the management of natural resources. The failure of protectionist approaches to safeguard natural resources from degradation and to address poverty has resulted in efforts at more inclusive approaches to resource management. In the past, most of the efforts to address the loss of biodiversity have been made by conservation and environmental agencies. However, these efforts have been unable to tackle the immediate problems of the poor and in some cases, they have resulted in increased hardship for poor people.

In Kenya, there has been increased involvement of local communities in the management of natural resources especially around protected areas, for example through KWS community wildlife service and specific projects implemented by NGOs and government agencies in different areas and involving different resources. Community based natural resource management (CBNRM) is still relatively new in Kenya. Therefore, the policy, legislative and institutional frameworks are yet to be developed that would support genuine CBNRM. There is also need to re-orient existing institutions towards greater inclusion of a diverse range of stakeholders in natural resource management.

Policies And Legislation That Impact On CBNRM

The government frequently makes statements on its intentions and strategies for addressing the development needs of the country in various policy documents. These policy documents include the National Development Plan and more recently, the National Poverty Eradication Plan, 1999-2015. In addition to these broad policies, the government develops policies addressing specific resources and the objectives for which they will be managed. These policies include the water, wildlife, forest and agriculture policies.

The policy and legal framework plays a key role in determining the extent to which CBNRM can be promoted in the country. The government's policies and laws have both direct and indirect impacts on NRM. Many of these policies and laws are under review, in a bid to make them more responsive to the current realities of Kenyan society and new knowledge and information on the management of natural resources. The need to harmonise the different policies and laws on natural resources has emerged as an important prerequisite for their effective implementation, especially if sustainable natural resource management is to be realised.

In and of itself, the existence of policies and laws is inadequate to address issues of natural resource management. There is need for demonstrated will and commitment by all stakeholders for their effective implementation. Commitment towards the implementation of policies and laws is demonstrated in diverse ways, such as through the allocation of adequate resources, including financial and personnel, for their implementation. Respect for these policies and laws has to also be demonstrated by the policy makers and implementers themselves.

In addition to policies and laws on specific resources, the country's land tenure laws have both a direct and indirect impact on community based natural resources management. These statutes make provisions for the conferring and vesting of interests in land. The Commission of Inquiry into Land Issues was established in November 1999 and is charged with the review of existing land allocation practices and in producing a policy framework based on an overall review of land issues in Kenya.

Currently, there are numerous statutes that specifically deal with rights of ownership and control of land. These include Government Lands Act (Cap. 280); Registration of Titles Act (Cap. 281), Land Titles Act (Cap. 282), Land Consolidation Act (Cap. 283), Land Adjudication Act (Cap. 284), Land (Perpetual Succession) Act (Cap. 286), Land (Group Representatives) Act (Cap. 287), Trust Land Act (Cap. 288), Mazrui Lands Trust Act (Cap. 289), Trusts of Land Act (Cap. 290), Land Acquisition Act (Cap. 295), Registered Land Act (Cap. 300) Land Control Act (Cap. 302) and the Land Planning Act (Cap. 303). Presently, land in Kenya falls under the three tenure categories of Government, Trust and private lands (Table 6.1).

Table 6.1: Land Categories in Kenya

Land Classification	area in km²*	approx. % of Total Area
Trust Land	457,449 km²	78.5%
Government Land	116,088 km²	20.0%
Private Land	8,731 km²	1.5%
Total area	582,646 km²	100.0%

Source: Central Bureau of Statistics, 1999:

* These figures are as at December, 1994

A diverse range of government, non-government and community-based institutions play a direct and indirect role in the management of natural resources. In some cases, the mandates and jurisdictions of these institutions overlap resulting in conflicts. There is a wide range of national, regional and international NGOs and CBOs involved in community based natural resource management activities.

Opportunities For CBNRM

Specific government policy statements have identified the need for the greater involvement of communities in the management of natural resources. Further, policy statements have acknowledged the linkage between poverty alleviation and environmental conservation with the need to address the socio-economic status of communities through the sustainable management of natural resources. These policies include the National Development Plan, the National Environment Action Plan and the Poverty Eradication Action Plan.

The on-going review of sectoral policies and legislation provides opportunities for the inclusion of community participation principles into policies. There is also greater awareness and involvement of diverse stakeholders in the formulation of these policies and legislation, as opposed to the past when policies and laws were formulated with limited involvement of concerned stakeholders. For example, in the review of the Forest Act, community stakeholder workshops were held in collaboration with the Forest Department, the Forest Action Network, the Kenya Forests Working Group and diverse NGOs to discuss earlier drafts of the Bill and the implications for community participation in the management of forests. The Wildlife Act is also being reviewed in consultation with landowners and existing wildlife conservation groups.

The Environmental Management and Coordination Act, 1999 acknowledges the need to involve local communities in the management of natural resources by recognising their traditional and cultural interests and through their representation in the District and Provincial Environment Committees. These committees will have representatives of farmers, pastoralists, business people, NGOs, women and youth drawn from the local communities, and will be responsible for the proper management of the environment within their respective districts and provinces. There is need for all stakeholders to take advantage of these opportunities offered by the Act and ensure they actively participate in planning and implementing natural resource management programmes in the different locations.

The institutional capacities of government, non-government and community based organisations for CBNRM has developed over the years. There is increased formal and informal collaboration between institutions involved in CBNRM initiatives. Examples include the Kenya Forests Working Group, which is a consortium of NGOs, government agencies, CBOs, funding agencies and individuals involved in the management of forests.

One of the opportunities for CBNRM is the recognition by bilateral and multi-lateral funding agencies, NGOs and the international community of the need to involve communities in the management of resources. International Conventions and Protocols, many of which Kenya is a signatory of, also encourage greater community involvement in the sustainable utilisation of natural resources. Greater collaboration and information sharing among funding agencies involved in natural resource management in Kenya has been enhanced by the formation of a Donor Environment Coordination Committee that meets quarterly.

There is a growing number of community based organisations with a focus on the conservation of natural resources. As the institutional capacities of these CBOs develop, this provides an opportunity for enhancing CBNRM in the country.

Challenges To CBNRM

Due to the relatively recent acknowledgement of the need to involve local communities in the management of natural resources, there are still challenges to the implementation of sustainable CBNRM in the country. There are two major challenges to successful CBNRM in Kenya, namely (1) the policy and institutional framework for NRM, which is based on policies and laws that were formulated before, and soon after independence, and (2) the limited institutional capacity of government, NGOs and CBOs to engage in CBNRM. In addition A strong international preservationist lobby tends to limit the extent to which policies that promote the sustainable utilisation of natural resources are supported at the national level.

Kenya is yet to put in place a policy and legislative framework that would support genuine CBNRM. The slow pace of policy review is one of the constraints to CBNRM, since old policies continue to define the rules and regulations on access, use and control of natural resources with limited ownership and authority for natural resource management being vested in local communities. Lack of political will and commitment towards sustainable natural resource management and towards the involvement of communities in decision-making processes are key constraints that result in government rhetoric in support for CBNRM from becoming reality.

Kenya's land tenure and land-use policies continue to play a major, and often negative, role in CBNRM. The limited security of tenure of most local communities limits the extent to which they feel able to participate in CBNRM initiatives. The on-going review of land laws by the Njonjo Commission of Inquiry is revealing the extent to which past irregularities in the allocation of land has resulted in mis-trust of government intentions. In addition, the use of land and natural resources for political patronage continues to be a challenge for the country.

The sectoral approach to natural resource management resulted a diverse range of government institutions mandated with the management of different resources. There is often limited consultation and collaboration among government and non-government institutions in the implementation of natural resource management programmes. Conflicts between conservation and other forms of land-use, especially farming continues to be an area of conflict. The

relationship between local communities and government institutions, especially around protected areas, is often characterised by suspicion, fear and mis-trust due to historical factors.

There is often limited duration of financial support to CBNRM initiatives due to the policies of funding agencies. Lack of long-term commitments to CBNRM projects results in unsustainable projects, which often collapse once the external support, is withdrawn.

The difficulties of defining a "community" due to the diversity and heterogeneity of Kenyan society makes it challenging to initiate and sustain CBNRM programmes. Additionally, sometimes community groups lack the necessary institutional systems to manage CBNRM projects. Due to a lack of tangible economic benefits from conservation, communities may be un-willing to participate in CBNRM, especially if they do not address their livelihood needs. Insecurity of land tenure continues to impact negatively on CBNRM with people sometimes being unwilling to commit resources to the improvement of their environment due to fears of losing or being evicted from the land they occupy.

Key Issues And Actions For CBNRM

One underlying issue is the need to develop a broader perspective of natural resources that covers the entire spectrum of resources and the interaction of communities with these resources. Such a broad perspective should go beyond protected areas, wildlife populations and specific landscape features and instead address the entire spectrum of resources that occur from the household to landscape scales. Land tenure and land use policies and laws should be based on this broad and holistic understanding of natural resources and people's interactions with them.

Although there is widespread acknowledgement of the need to involve communities in the management of natural resources, there is still some debate on whether community involvement can be justified, and whether it will result in more sustainable use of natural resources. One of the key reasons why they should be officially recognised and involved in natural resource management is that communities already use a wide variety of natural resources routinely and to meet contingency needs, such as during drought. In some cases, communities are using resources unsustainably and inefficiently. Examples of inefficient and unsustainable use include charcoal production, collection of medicinal plants, fishing, sand harvesting, timber and wood carving production. Conversely, there are other communities who presently use resources in a sustainable manner, such as some pastoralist communities in their use of pasture and water resources. However, there is limited knowledge and understanding within government and non-government agencies on the extent and mode of use of natural resources. Such knowledge should be used to enhance sustainable resource use regimes and reduce and discourage unsustainable use. More appropriate natural resource management systems could be developed through increased knowledge of the value of resources to meet the livelihood needs of communities and contribute to the national economy.

Natural resources are important sources of livelihood security for communities in Kenya. However, the distribution of the benefits from these resources is inequitable, and some communities that bear the greatest costs of current natural resource management practices reap the least benefits. For example, communities living around protected areas may face human-wildlife conflicts that contribute to poverty while accruing limited benefits from revenue generated by the protected areas. With respect to water, the relationship between costs and benefits are extremely "fluid". For example, hydroelectric power generation firms benefit a lot

from farmers' efforts to conserve soil within catchment areas. Lack of immediate, direct and short-term benefits result in apathy towards conservation especially among poor communities.

The limited understanding and appreciation of the value, both economic and non-economic, of natural resources has contributed to the unsustainable utilisation of these resources. Undervaluation of natural resources within the government has resulted in inadequate resource being allocated, e.g. in the national budgeting process, for their management and conservation. Low budgetary allocations to institutions mandated with the management of natural resources often results in limited capacities of these institutions in the management of natural resources. In recognition of the lack of adequate information of the value of natural resources, the Ministry of Environment and Natural Resources is in the process of conducting a study that would establish the economic and non-economic of natural resources within its jurisdiction. Such information will enhance the Ministry's ability to negotiate for increased resources for the management of these resources.

It was acknowledged that presently there is limited capacity for sustainable CBNRM among the diverse range of stakeholders. At the policymakers' level, there is still limited acceptance of the need to involve local communities in the management of natural resources. Further, lack of skills in participatory methodologies during the policy formulation and implementation processes limit the extent to which policy makers and implementers can involve communities in natural resource management. Community participation is often not seen as a priority among government officials and limited attention is paid to CBNRM. Lack of political will, corruption and self-interest contribute to the lack of capacity among policy makers for CBNRM. Instead, mechanisms for addressing these issues should be promoted, such as the removal of corrupt and incompetent officials and/or providing them with incentives and disincentives to improve their performance.

Due to a wide range of factors, communities lack or have lost their capability to engage in sustainable natural resource management. The increased diversity of communities, population increases, the depletion of natural resources and lack of skills are factors that result in the low capability of communities in CBNRM. This, in turn, increases poverty, and limits options that communities have for meeting their livelihood needs, and so contributes to increased resource degradation. Further, cultural factors may limit the extent to which communities can engage in equitable natural resource management. Often communities have limited knowledge of the policies and laws governing natural resource management. High illiteracy levels limit the extent to which members of local communities can access relevant information on natural resource management.

Government and non-government institutions engaged in natural resource interventions sometimes lack the requisite knowledge and understanding of local contexts within which they are working. Approaches to CBNRM have remained largely project based due to the limited capacity of development agencies in information dissemination and advocacy skills that would enhance the extent to which knowledge and lessons learned at the project level could be translated into policies and strategies that promote CBNRM at the national and regional levels.

Scarcity of natural resources, population pressure, current systems of land tenure and use, and the introduction of new resource management technologies and approaches have resulted in numerous conflicts. Other factors that have resulted in conflicts include the lack of community mechanisms for sharing resources, lack of clarity on ownership of natural resources and user rights and the low capacity of stakeholder to address and resolve conflicts.

Conclusion And Way Forward

In order to increase the capacity in CBNRM of the diverse range of stakeholders, there is need to improve information flows among them. Greater efforts should be made by Government and Non-Government Organisations to enhance the understanding of local communities on existing laws and policies. There is need for greater involvement of local communities in the policy formulation processes. One such example is the community workshops that were organised by NGOs in collaboration with the Forest Department to explain to local communities around the country the contents of the Forest Bill and seek their input.

There is need to make better use of existing forums, such as District Development Committees, the District Environment Committees, *barazas* (or public meetings), workshops and seminars to enhance information flows among government, non-government and community based organisations. The capacity of government institutions to engage in CBNRM could be enhanced by the establishment of inter-agency task forces.

There is a strong need to explicitly address the lack of information and knowledge on CBNRM. Such information should include examples and case studies of what works, how and where. The need for more efforts at the valuation of natural resources could enhance CBNRM efforts and contribute to the greater investment of resources in CBNRM.

At the regional level, there is need for concerted efforts in the management of resources and ecosystems that occur across national boundaries. Such ecosystems include Lake Victoria, Serengeti-Mara, Kilimanjaro-Amboseli, Mt. Elgon, Mkomazi-Jipe-Tsavo, Loita-Magadi, Lake Turkana, Uaso Nyiro, and marine and coastal ecosystems.

Important issues that should be addressed at a regional level include changes in land use, information dissemination, capacity building for communities, government and non-government agencies and the creation of intersectoral linkages. There is need for greater harmonization of policies and laws on CBNRM. Poverty and the development of strategies for addressing its impact on sustainable resource management are other issues that should be addressed regionally. Assessments and studies should be conducted on the value of natural resources, nationally and regionally, and the impact of the depletion and/or conservation of these resources on the livelihoods and well being of communities in the region. Strategies for incorporating positive cultural practices that promote sustainable and equitable resource management should be developed.

6.1 Background

Kenya covers an area of 582,646 km^2 with altitudes ranging from sea level to 5,200 meters at the tallest peak in the country, Mount Kenya. The country is characterised by a wide diversity of ecosystems, flora and fauna. One of the most significant geological features is the Great Rift Valley, which runs the length of the country, from Lake Turkana to the north, to Lake Magadi on the southern border with Tanzanian. The Kenyan highlands are divided into two parts by the Rift Valley. The eastern highlands comprise Mount Kenya, the Aberdares, Nyambene Ranges and Machakos Hills. The western highlands comprise the Cherangani Hills, Mau ranges, Mount Elgon and Kisii Highlands, among others. The western highlands slope towards the Lake Victoria Basin. The Nyika Plateau occupies northern Kenya and lies between the coastal region and the Western highlands. Within the plateau are several volcanic hills, including Mount Marsabit. The variation in altitudes within Kenya influences local climate, and the distribution of natural vegetation and wildlife (Ogola *et. al.* 1997).

Kenya's population, estimated at approximately 28 million, represents more than 40 different ethnic groups that originate from different parts of the country. Within these different regions and ecosystems, local communities have defined a wide range of rules, regulations and procedures for access, utilisation and control of natural resources based on the communities' cultural norms and values. Before the establishment of a central government and a national legislative framework, traditional institutions enforced the rules and regulations on resource use. The authority of many of these traditional institutions for resource management was eroded following the introduction of central government institutions. Changes in populations and land use practices also contributed to the undermining of traditional systems for resources management. While previously, communities were relatively homogenous, the movement of people within the country has resulted in greater diversity of local communities, and reduced the respect for traditional norms and values for NRM. The establishment of protected areas, including national parks and reserves further alienated local communities from the management of natural resources.

In recent years, many communities in Kenya have become directly engaged with government and non-government agencies in the management of natural resources, especially around protected areas. There are several examples of specific projects implemented by NGOs and government agencies in different areas and involving different resources. As a modern practice, community based natural resource management (CBNRM) is still relatively new in Kenya. Therefore, the policy, legislative and institutional frameworks are yet to be developed that would support genuine CBNRM. There is also need to re-orient existing institutions towards greater inclusion of a diverse range of stakeholders in natural resource management.

6.2. Policy and Legislation that have an Impact on CBNRM

The Government frequently makes statements on its intentions and strategies for addressing the development needs of the country in various policy documents. These policy documents include the National Development Plan and, more recently, the National Poverty Eradication Plan, 1999-2015. In addition to these broad policies, the government develops policies addressing specific resources and the objectives for which they will be managed. These policies include the water, wildlife, forest and agriculture policies. There are a wide variety of policies that impact on CBNRM in one way or another (Box 6.1.)

Laws passed by Parliament lay down specific rules and procedures for the implementation of government policies. Recently the National Environment Management Authority was established by the Environmental Management and Co-ordination Act, 1999. There are also regional development authorities, such as the Tana and Athi River Development Authority and the Lake Basin Development Authority. The policy and legal framework plays a key role in determining the extent to which CBNRM can be promoted in the country. The government's policies and laws have both direct and indirect impacts on NRM. Many of these policies and laws are under review, in a bid to make them more responsive to the current realities of the Kenyan society and new knowledge and information on the management of natural resources.

Box 6.1: A List Of Policies And Legislation That Impact On CBNRM In Kenya

The Agriculture Act, Chapter 318, Revised Edition 1986 (1980).
The Antiquities & Monuments Act, Cap. 215 of 1984
The Coast Development Authority (Cap. 449).
The Constitution of Kenya
The Ewaso Ng'iro North River Basin Development Authority (448);
The Ewaso Ng'iro South River Basin Development Authority (Cap. 447);
The Fisheries Act, Cap. 378 of 1989
The Forest Policy (1994)
The Forests Act, Chapter 385 (revised 1982)
The Government Lands Act, Cap. 280, (revised 1984)
The Kerio Valley Development Authority (Cap. 441)
The Lake Basin Development Authority (Cap. 442)
The Land (Group Representatives) Act (Cap. 287) of 1968 (revised 1970)
The Land Adjudication Act Cap. 284 of 1968 (revised 1977),
The Land Planning Act, Cap. 303
The Local Government Act, Cap. 265 (revised 1986)
The Mining Act, Cap. 306 of 1940 (revised 1987)
The Physical Planning Act
The Registered Land Act, Cap. 300 of 1985 (revised 1989)
The Tana Athi Rivers Development Authority (Cap. 443);
The Timber Act, Cap. 386 of 1972
The Trust land Act (Cap. 288) of 1962 (revised 1970),
The Water Act, Cap. 372 of 1951 (revised 1972)
The Water Policy, 1999
The Wildlife (Conservation and Management) Act, Chapter 376, Revised Edition 1985 (1977).
The Draft Forest Bill, 2000
The Environmental Management and Co-ordination Act, 1999
The Land Adjudication (Amendment Bill), 1999

6.2.1 Policies and legislation on land tenure

Currently, there are numerous statutes that specifically deal with rights of ownership and control of land. These include the Government Lands Act (Cap. 280), the Registration of Titles Act (Cap. 281), the Land Titles Act (Cap. 282), the Land Consolidation Act (Cap. 283), the Land Adjudication Act (Cap. 284), the Land (Perpetual Succession) Act (Cap. 286), Land (Group Representatives) Act (Cap. 287), the Trust Land Act (Cap. 288), the Mazrui Lands Trust Act (Cap. 289), the Trusts of Land Act (Cap. 290), the Land Acquisition Act (Cap. 295), the Registered Land Act (Cap. 300), the Land Control Act (Cap. 302) and the Land Planning Act

(Cap. 303). These statutes make provisions for the conferring and vesting of interests in land. Presently, land in Kenya falls under the three tenure categories of Government, Trust, and Private Land (Table 6.2.).

Government Land includes both alienated and unalienated land. Alienated land has been set aside for a specific purpose and unalienated land is legally owned by the Government but has not been set aside for a specific purpose. The Government Lands Act Cap. 280, (revised 1984), deals with forest reserves, other government reserves, townships, alienated and unalienated government land and national parks. Alienated government land includes the national parks and forest reserves that are part of the country's protected area system.

The Trust Land Act Cap. 288 of 1962 (revised 1970) provides for rights in Trust Land and controls the occupation of these areas. The Act sets out the procedures for the setting aside of land for a variety of purposes likely to benefit the persons ordinarily resident in that area or for transfer to the Government. The Government may, by written notice to a council, state that a parcel of land is required to be set apart, for which compensation will be paid. The Act makes provisions for general conservation, protection and controlled utilisation of trees and other forest products on land, other than gazetted reserves. At independence, all land that was not in private or government ownership became Trust Land, under the control of County Councils to be used for the benefit of local residents (MENR, 1994a).

Table 6.2: Land classification and tenure in Kenya

Land Classification	**area in km^{2*}**	**approx. % of Total Area**
Trust Land	457,449 km^2	78.5 %
Government Land		
• Forest Reserves	9,116km^2	
• Other GoK reserves	1,970km^2	
• Township	2,831km^2	
• alienated	38,546km^2	
• unalienated	28,598km^2	
• National parks	24,067km^2	
• Open water	10,960km^2	
Total Government Land	116,088 km^2	20.0%
Private Land	8,731 km^2	1.5%
Total area	**582,646 km^2**	**100%**

Source: Central Bureau of Statistics, 1999;
* These figures are correct as at December, 1994

The Land Adjudication Act Cap. 284 of 1968 (revised 1977) provides for the ascertainment and recording of rights and interests in Trust Land. Land that is adjudicated under this Act is then registered under the Registered Lands Act or the Land (Group Representatives) Act. The Department of Land Adjudication and Settlement of the Ministry of Lands and Settlements is responsible for implementing this Act. This Act has potential implications in the management of natural resources in that the adjudication officer, in declaring specific sections for adjudication, is empowered to exclude areas of ecological importance, such as watershed areas and hilltops from being converted into private ownership. The Land (Group Representatives)

Act (Cap. 287) of 1968 (revised 1970) provides for the registration of communal rights and interests in land. Lands registered under this Act are referred to as group ranches. The purpose of the Land Consolidation Act, Cap. 283 of 1968 is to lay down the rules and procedures for consolidation and promote practices that prevent fragmentation and sub-division of land.

The Land Adjudication (Amendment) Bill was published in May 1999. The main object of the Bill is to amend the Land Adjudication Act in order to cancel certain title to land that was irregularly registered in the Mosiro and Iloodo Ariak Land Adjudication Sections in Narok and Kajiado Districts, respectively (Annex 3.5). The Bill gives a definition of customary law as "the law or custom relating to the tenure or user of land observed by the indigenous inhabitants ordinarily resident in the area where the land is situated, and, of which the person or group of persons concerned form a part". This Bill makes an attempt to recognise customary law and give it legal recognition. This recognition could have implications for the management of natural resources in that customary knowledge and institutions could potentially play a greater role in their management within land held under customary law.

Land that is adjudicated or set apart under section 117 and 118 of the Constitution is registered under the Registered Lands Act Cap. 300 of 1963 (revised 1989). This Act confers freehold title to land, and protects land that is registered. The Land Planning Act Cap. 303 and the Physical Planning Act are intended to ensure co-ordinated economic land-use for development projects and provide a broad framework for accommodating competing land-use demands. The acts also vest the relevant agencies with adequate powers to cover land-use planning and zoning for the whole country. However, in practice the relevant agencies focus on planning of urban centres and the development of physical facilities such as roads and buildings, and the location of factories.

The Commission of Inquiry into Land Issues is also known as The Njonjo Commission and was established in November 1999. The Commission is charged with the review of existing land allocation practices and producing a policy framework based on an overall review of land issues in Kenya. According to the Daily Nation newspaper (November, 2000) the Commission's work has revealed the need to review at least 32 laws that govern land tenure and land use.

6.2.2 The Environmental Management and Co-ordination Act, 1999

The aim of the Environmental Management Co-ordination Act is to provide a framework for integrating environmental considerations into the country's overall economic and social development. The Act aims at harmonising the various sector-specific legislation touching on the environment in a manner designed to ensure greater protection of the environment, both physical and social, in line with the goals enunciated in Agenda 21 of the Earth Summit held at Rio De Janeiro in 1992. The Act entitles people in Kenya to a clean and healthy environment and confers on them the duty to safeguard and enhance the environment. Provisions of the Act grant *loci standi* to the public in environmental matters. *Locus standi* is the capacity to bring legal action against a person or other entity if their activities are causing, or are likely to cause, the degradation of the environment. According to the Act, an individual is granted *loci standi* whether or not they have directly suffered personal loss or injury from the actions or omissions of an entity alleged to be promoting environmental degradation.

The implementation of the Act is guided by the principle of public participation in the development of policies, plans and processes for the management of the environment. The Act also recognises the cultural and social principles traditionally applied by communities in Kenya for the management of natural resources. Members of local communities are represented in District and Provincial Environment Committees, which are responsible for environmental

management. Specific sections of the Act that make direct reference to community involvement include the following.

- The Minister may declare the traditional interests of local communities customarily resident within or around a lake shore, wetland, coastal zone or river bank or forest to be protected interests (S. 43);
- Each District Environment Committee shall notify the Director-General of the hilly and mountainous area it has identified as being at risk from environmental degradation. (S. 45 (3); and
- Each District Environment Committee shall take measures, through encouraging voluntary self-help activities in their respective local community, to plant trees or other vegetation in any hilly and mountainous areas at risk from environmental degradation (S. 46 (2). The holder of leasehold or any other interest, including customary tenure, shall be required to implement measures prescribed by the DEC (S. 46(3).

Part VI (S. 58) of the Act makes it mandatory for environmental impact assessments (EIA) to be conducted before the commencement of projects involving urban development (including the establishment of recreational townships in mountain areas, national parks and game reserves), water bodies, transportation, mining, agriculture and forestry-related activities.

6.2.3 The Wildlife Policy and Wildlife (Management and Conservation) Act, Cap. 376

Kenya's wildlife policy is embodied in the Statement on Future Wildlife Management Policy in Kenya (Sessional Paper No. 3 of 1975) and the Policy Framework and Development Programme 1991-1996 that was produced by the Kenya Wildlife Service (KWS) in 1990 (Barnett, 1997). The management of all wildlife in Kenya, both within and outside protected areas, is vested in the Kenya Wildlife Service. In most respects, Kenya's wildlife policy and legislation provides for very little consumptive utilisation of wildlife. A national ban on hunting was imposed in 1977, through publication of Legal Notice No. 120, 1977. The sale of wildlife trophies and curios was banned in 1978 (Legal Notice No. 5, 1978). Following these bans, the killing of wild animals is only permitted for the control of 'problem' animals. KWS also undertakes some culling within national parks. Since 1991, the Director's Special Licence (Wildlife (Conservation and Management Act), Cap.376, S.26) has been used to introduce wildlife cropping schemes for specific, organised community groups (Box 6.2).

Box 6.2: Director's Special Licence: S. 26 of the Wildlife (Conservation and Management) Act, Cap. 376

26 (1) Where the Director is satisfied that it is desirable so to do for scientific purposes, or by reason of any circumstances of an unusual or emergency nature, he may, with the prior approval of the Minister in each case, issue a special authorisation to hunt any animal in any specified area other than a National Park.

(2) An authorisation issued under this section:

shall be subject to such conditions as the Director may deem it necessary or desirable to impose thereon;

shall, except as may be expressly provided by any such condition, be deemed to be a game licence for all the purposes of this Act; and

shall be subject to the payment of such fee as the Minister may, on granting his approval thereof direct.

For example, authorisation for wildlife cropping has been granted to members of the Machakos Wildlife Forum subject to compliance with the following conditions:

- The landowner must have carried out a game count satisfactory to KWS;
- A management plan for the ranch concerned must be approved by KWS; and
- A farm map should accompany the initial application.

6.2.4 The Forest Policy and Forest Act, Cap. 385

The current Forest Policy provides guidelines to Kenyans on sustainable management of forests and potential forest land. It takes into cognisance existing policies relating to land-use, wildlife, environment, agriculture, energy, industry, regional development and other sectors of the national development programme. The need to conserve soil, water and biodiversity and other forest resources on gazetted forests, other protected forest lands, on farms and in arid and semi-arid lands, is also discussed in the policy. The objectives of the Forest Policy are to:

- Increase the forest and tree cover of the country to ensure an increasing supply of forest products and services for meeting the basic needs of present and future generations and for enhancing the role of forestry in socio-economic development;
- Conserve the remaining natural habitats and the wildlife therein, rehabilitate them and conserve their biodiversity;
- Contribute to sustainable agriculture by conserving the soil and water resources by tree planting and appropriate forest management;
- Support the Government policy of alleviating poverty and promoting rural development, by income based on forest and tree resources, by providing employment, and by promoting equity and participation by local communities;
- Fulfil the agreed national obligations under international environmental and other forest-related conventions and principles;
- Manage the forest resource assigned for productive use efficiently for the maximum sustainable benefit, taking into account all direct and indirect economic and environmental

impacts; also review the ways in which forests and trees are valued, in order to facilitate management decisions; and

- Recognise and maximise the benefits of a viable and efficient forest industry for the national economy and development.

The current Forest Act, Cap. 385 of 1962 (revised 1982 and 1992) vests the management of gazetted forest reserves in the Forest Department. Both consumptive and non-consumptive utilisation of forest resources in forest reserves is allowed by licence. In addition to licenses for commercial timber extraction, local communities are allowed to harvest forest products for subsistence purposes through the Forest (General) Order Rules, last updated in July, 1998. Under these rules, community utilisation of forests for subsistence is accommodated under "Miscellaneous Forest Products" to include activities such as collection of fuelwood and medicinal plants, and grazing. Individuals can utilise these resources by acquiring a receipt from the local forester on payment of a minimal fee. The Forest Act is being reviewed and it is believed that the new Forest Bill will include several provisions that make forest legislation more supportive of community involvement in forest management (Box 6.3).

Box 6.3: The Draft Forest Bill, 2000

The Draft Forest Bill 2000, recognises the need for community participation in forest management. Section 45 of the Bill provides for the registration of community forest associations which can apply to the Chief Conservator of Forests for permission to participate in the joint management of forests.

Section 18 establishes a Forest Management and Conservation Fund to be used for the development of forests, the maintenance and conservation of indigenous forests, the rehabilitation of provincial forests, the provision of extension services, the promotion of community-based projects, education and research activities, the establishment of arboreta and botanical gardens, the maintenance of sacred groves and other areas of cultural, ethnobotanical or scientific significance, the undertaking of surveys and establishment of databases, the management and conservation of forests for the promotion of biodiversity, the establishment of nurseries and production of seedlings and silvicultural practices and tree improvement.

6.2.5 Other Policies and Acts of Relevance to CBNRM

Kenya's first national Water Policy was passed by Parliament in April 1999. The main objectives of this water policy are the supply and distribution of water resources throughout the country in a sustainable, rational and economical way. The Policy acknowledges that the water sector has a large number of community based entities who have contributed positively to the sector's development, including self-help groups, organised communities and NGOs. The Water Act, Cap. 372, includes provisions for the conservation, control, allocation and use of water in Kenya. The Act vests all the water resources in the Government. Recently, commercialisation of water resources has been allowed in Kericho, Eldoret and Nyeri. Commercialisation, including the formation of water management companies and signing of contracts, has been effected under the provisions of the Local Government Act (UNCHS, 1998). The policy recommends the review of the Water Act so that it can be in harmony with other legislation that cover water resource management issues. According to the policy, the government plans to support private sector participation and community management of water through institutional capacity building and training.

The Fisheries Act provides the legal framework for the development, management, exploitation, utilisation and conservation of fisheries. With regard to local communities, the Act specifies that the Director of Fisheries shall promote the development of traditional and

industrial fisheries, fish culture and related industries, in collaboration with other appropriate agencies and departments of Government.

Under the Antiquities and Monuments Act (Cap 215, 1984), an area of land of cultural significance may be set aside as a protected area. This provides for the gazettement of national monuments. Monuments gazetted under this Act fall under the management of the National Museums of Kenya. Several of these monuments include forests with cultural and biodiversity significance. Examples of are the Gede Ruins, *kaya* Sacred Forests at the Coast Province, and the *Njuri Njeke* and *Mukurwe-Wa-Nyagathanga* sacred forests in Meru and Muranga districts, respectively.

The Agriculture Act is designed to promote and sustain agricultural production, provide for the conservation of the soil and its fertility, and stimulate the development of agricultural land in accordance with the accepted practices of good land management and good husbandry. Authorised officers are empowered to prohibit the clearing of vegetation and the grazing of livestock and to require the planting of trees to protect the soil from erosion and impose penalties under the Act.

6.3 The Institutional Framework for CBNRM

6.3.1 The Kenya Wildlife Service

The Kenya Wildlife Service (KWS) was established in 1990 to succeed the Department of Wildlife Conservation and Management. KWS is charged with the management of all wildlife, both within and outside protected areas. Through its Community Wildlife Service and Partnerships Programme, KWS has initiated the formation of a wide range of CBOs to engage in CBNRM activities. The main focus of these initiatives has been to enhance the economic benefits of communities living in wildlife areas while enhancing the conservation of wildlife. In order to attain its objectives, KWS acknowledges that:

- The future of wildlife and protected areas in Kenya is critically linked to the fate of communities near protected areas. Increasing human pressure along the borders of parks and in marginal areas result in direct competition between people, livestock and wildlife;
- Long-term protection and sustainable conservation must address the social and economic needs of the people living near parks;
- KWS must integrate people and communities as partners in its efforts to protect Kenya's biological resources; and

The approaches used by KWS have to generate social and economic benefits for people participating in the protection of wildlife (Lusiola, 1992).

KWS established the Community Wildlife Programme in order to guide the management of wildlife outside parks and reserves, and to involve local communities. Efforts to enhance the economic and social benefits to local communities are affected by several policy positions of KWS, especially with regard to consumptive and non-consumptive utilisation of wildlife resources inside and outside parks. For example, in 1991, KWS introduced the wildlife cropping scheme for specific, organised community groups.

Several factors adversely affect the extent to which KWS can promote community participation in wildlife management. One of the key factors is human-wildlife conflict. In the early 1990s, the government withdrew the compensation scheme for damage caused by wildlife, except in cases of loss of life, where the compensation is set at a maximum of about US $375. Other

factors include the lack of access by community members to resources within protected areas, especially for water and grazing, while wildlife continues to use the resources on land adjacent to protected areas. Communities living adjacent to protected areas receive minimal direct benefits from gate fees and other revenue generated by the parks and reserves.

The Wildlife Policy and Act are presently under review. According to a former Director of KWS, "A review of Kenya's wildlife policy has been pending for some time. But the country isn't ready - yet - to give full ownership of wildlife to private landowners when so many animals wander between protected areas and private land. In South Africa, with its fenced-in farms, the situation is quite different. Our landowners will continue to be entitled to some user rights. Animals may be leased subject to certain conditions - such as an approved management strategy for cropping" (Swara Magazine, 2000).

6.3.2 The National Environment Management Authority (NEMA)

The National Environment Management Authority (NEMA) is a corporate body that shall exercise general supervision and co-ordination over all matters relating to the environment, and be the principal instrument of Government in the implementation of all policies relating to the environment. In addition to NEMA, the Act establishes the National Environment Council, which is to be responsible for policy formulation, the setting of national goals and objectives, determining policies and priorities for the protection of the environment and promoting co-operation among public departments, local authorities, private sector, NGOs and other organisations engaged in environmental protection programmes. Several committees are established under NEMA including the National Environment Action Plan Committee. This committee shall prepare a national environment action plan for consideration and adoption by the National Assembly. Other institutions established under the Act include the National Environment Trust Fund, provincial and district environment committees, the National Environment Restoration Fund, and the Public Complaints Committee. The National Environmental Tribunal has been established to investigate environmental matters presented to it by NEMA.

6.3.3 Other Government Institutions

The Forest Department lies within the Ministry of Environment and Natural Resources. The Department has the mandate for the management of forest reserves, which are areas gazetted under the Forest Act and located on Government and Trust land. In the management of Forest Reserves within Trust land, the Department collaborates with the respective local authorities. Forest reserves include both plantation and indigenous forests.

Local authorities include district, county, city and municipal councils. According to the Statistical Abstract (1996), approximately 78.5% of the total land area of Kenya is classified as Trust Land and vested in local authorities for the benefit of the local residents. Currently, there are 32 national reserves within Trust Lands. These gazetted reserves are managed according to the provisions of the Wildlife (Management and Conservation) Act and occupy approximately 2.7% of the total land area of Kenya. Approximately 20% of the country's gazetted forest reserves are also found within Trust Land.

The Fisheries Department lies within the Ministry of Environment and Natural Resources, and is vested with the management of fisheries resources, including the following.

- Providing extension and training services;
- Conducting research and surveys;
- Promoting co-operation among fishermen;
- Promoting arrangement for the orderly marketing of fish;
- Providing infrastructure facilities; and
- Stocking waters with fish and supplying fish for stocking.

6.3.4 National and international non-government organisations

A wide range of national, regional and international non-governmental organisations are involved in and support community based natural resource management activities. These range from those whose main focus is conservation, with elements of community development to those that have more integrated conservation and development components. Most of the activities of NGOs are project based, with a defined duration, working in specific localities and supported by external funding agencies. These NGOs have developed a wide range of methodologies and community-based conservation approaches such as the:

- Landscape approach to conservation adopted by the African Wildlife Fund (AWF) which focuses on an ecosystem, as opposed to a specific protected area;
- Site conservation approach of AWF;
- Sustainable livelihoods approach of the KENGO Uhai Forums; and
- Catchment approach adopted by the World Wildlife Fund (WWF).

Many of the NGOs that are involved in natural resource management focus on specific aspects related to local capacity development. For example, the Forest Action Network (FAN) supports networking, information sharing and community organisations, while the Kenya Forest Working Group (KFWG) focuses on lobbying and advocacy. Likewise, Friends of Conservation supports habitat rehabilitation, while AWF supports enterprise development around protected areas and other wildlife dispersal zones, as described in the following sections.

The Semi-Arid Lands Training and Livestock Improvement Centres of Kenya (SALTLICK) is a registered NGO started in 1982, with its headquarters in Isiolo. The board comprises of members of the pastoralist communities in ASAL areas. One of its objectives is the creation of alternative sources of income and employment through the sustainable use of arid lands natural resources such as non-wood forest products, especially gums, resins, honey and beeswax through community based approaches. SALTLICK implements the Arid Lands Resources Project (ALRP) facilitates the collection, grading and marketing of gum arabic for pastoralist communities in and around Isiolo town. Gum Arabic and Resins Association (GARA) is a non-profit making organisation with a membership of four organisations. Its objective is to promote and develop the gum arabic and plant resin (myrrh and frankincense) trade for the local and export markets. Its membership includes farmers, collectors, traders, wholesalers, government agencies, NGOs, exporters and importers.

The African Wildlife Fund (AWF) is a regional NGO focusing on wildlife conservation through community development. It works through partners, including community based organisations. AWF uses the Landscape Approach to Conservation, which entails addressing the conservation issues of ecosystems, as opposed to specific protected areas. AWF is one of the grantees of USAID funding to implement the Conservation of Resources through Enterprise (CORE) programme. For the CORE programme, AWF has formed a coalition of partners which includes the Small and Micro Enterprise Development (SAMED), African Conservation Centre

(ACC) and Price-Waterhouse Coopers. This Coalition has signed an MoU with PACT, the co-grantee of the USAID funds for CORE.

IUCN-The World Conservation Union, have taken on a more ecosystem approach to conservation around Mt. Elgon (Annex 3.2). This includes working with conservation authorities to improve and secure the integrity if the reserved areas, and with community groups and District authorities to integrate conservation and its benefits with the livelihoods of people who live close to the reserved areas.

PACT provides institutional capacity building for community institutions in governance and accountability. It is developing the capacity of the National Landowners Wildlife Forum and its constituent members in lobbying for more supportive policy and legislative frameworks for biodiversity. Through its Organisational Capacity Assessment Process Programme, PACT develops the capacity of regional NGOs to plan effectively and transparently. Some of the aspects monitored in the programme include the effectiveness of CBOs to operate and communicate with their members and within their networks, and the perceived responsiveness of organisations towards supporting their constituents and their ability to communicate and collect information.

The World Wide Fund for Nature (WWF) is an international organisation with an East Africa Regional Programme (EARPO) since 1986. EARPO focuses on four critical biomes: forests, marine and coastal ecosystems, freshwater and saline ecosystems and savannah woodlands. WWF has the objective of stimulating community participation in conservation through local conservation groups, extension programmes, education and raising awareness. WWF approach includes conservation within and around protected areas, sustainable development of local communities, species of special concern, consumption and pollution, treaties and legislation and environmental education and capacity building. Specific community conservation projects implemented by WWF include the Kenya Crane and Wetlands Project at Saiwa Swamp National Park, (1986-1994), the Lake Nakuru Community Conservation Project (Annex 3.6), and various activities related to the management of Lake Bogoria National Reserve (implemented from 1986).

Founded in 1998, the Kenya Association of Forest Users (KAFU) is a membership organisation that addresses issues related to the quality, pricing and marketing of non-timber forest products (NTFPs), organic and conservation products. KAFU's objective is to play a co-ordination role for stakeholders in NTFPs, organic products and other products of conservation. The KAFU secretariat is hosted by the Forest Action Network (FAN).

The Friends of Conservation (FOC) has the institutional goal of enterprise development and environmental conservation. It has implemented community development projects in the Masai Mara wildlife dispersal zone since 1982. FOC's three main projects include Forestry Project - Training Unit to raise seedlings, community extension project to promote the use of improved cookstoves, and an education programme - with primary schools and involves the pupils, the teachers and the parents.

The Save the Elephant Foundation conducts educational programmes in wildlife areas of Samburu, Isiolo and in Kajiado by providing internships to young members of local communities, providing bursaries and using video for wildlife education based on local knowledge. Save the Elephant Foundation has advanced GPS tracking equipment and expertise for elephant surveys. It has conducted ground breaking research on elephant behaviour including their decision-making processes, established corridors and crop raiding patterns

Nature Kenya is the Kenyan Chapter of the East African Natural History Society, which was founded in 1909. It is Africa's oldest nature-related NGO. The initial objective of EANHS was to promote interest in and knowledge of the remarkable flora and fauna in Eastern Africa. The Society's programmes now have a strong focus on biodiversity conservation action with special emphasis on educating and involving young people living around key conservation areas. Nature Kenya is providing technical back-stopping to the UNDP-GEF funded community based conservation project on Kakamega forest. The project is being implemented by the Kakamega Biodiversity Conservation and Tour Operators Association (KABICOTOA) and the Kakamega Environmental Education Programme (KEEP).

6.3.5 Community-based organisations

Diverse community-based organisations have been formed to address specific natural resources management issues. The formation of these CBOs has largely been initiated and facilitated by government agencies and NGOs working with specific communities.

Members of the communities living around Lake Naivasha have formed the Lake Naivasha Riparian Association (LNRA - Annex 3.1). Most of the association's members own land on sites at the lake shore. LNRA co-ordinated the collaborative development of a management plan for the lake. The association also facilitates and collates research conducted on the lake, and is implementing the management plan through committees that represent diverse stakeholder groups.

The Association of Malindi Boat Owners was formed in 1993 by boat owners around the Malindi Marine Park as a welfare association to cater for their interests and lobby to the government. Through the Association, the boat owners aimed at enhancing their bargaining power, especially with regard to boats owned by foreigners operating in the Park. The members of the Association engage in fishing activities and ferrying of tourists to the Park for ocean sports such as goggling.

The formation of the Burget Youth for Conservation was initiated by the Association of Mt Kenya Operators (AMKO) in response to the wide spread deforestation of the Mt Kenya forest. The Association of Mt Kenya Operators is a community support NGO that was formed in 1993. The UNDP-GEF has provided financial support for the planning phase of the CBOs activities.

The Eselenkei Group Ranch borders the Amboseli National Park. The Group Ranch Committee, with support from KWS, has set aside a part of the ranch as a conservation area and leased it to a tourist developer. Revenue from the lease are used for community projects, such as the construction and renovation of schools, and in the provision of school bursaries. While in Garrisa District, The Harroru Community Conservation Group was formed by communities residing. The CBO monitors the hirola in its natural range, mobilises the community for conservation activities and provides social services such as water, health care, and education. The CBO has received financial support from the UNDP-GEF programme and Mikono International.

Laikipia Wildlife Forum began as an informal group in 1991, and was registered in 1995. It has 64 members including approximately 20-25 large-scale ranchers, 20 community self-help groups, 6 - 7 tour operators and the rest are individuals with an interest in Laikipia's wildlife. Its objective is to conserve wildlife in Laikipia District through the management and utilisation of wildlife. The forum monitors socio-economic aspects of wildlife utilisation by local community groups. Community groups have used the revenue generated from wildlife-related activities to finance educational bursaries, the construction of dams, and the purchase of communication equipment (radios). The Machakos Wildlife Forum was setup in a similar manner (Annex 3.4).

6.3.6 Traditional institutions

Among the Kamba communities, traditional land tenure and user right systems were classified into the seven categories of *thome, ng'undu, lanzo, kitheka, kisesi, weu and kyengo.* Thome was land where homesteads and cattle bomas were located. Tree cutting from *thome* was restricted. *Kisesi* were enclosures set aside next to *thome* either for cultivation or grazing areas for young calves. *Commiphora spp.* were planted to demarcate this area. *Kitheka* was land reserved for pasture, which could be owned individually, while *weu* was common grazing land, usually located far from the homesteads. *Kyengo* were communal enclosures within the communal grazing land that were protected and specially conserved to be used during drought periods. Sacred sacrificial sites (*mathembo)* that exist today are characterised by large trees, especially *Ficus spp.* and *Combretum spp.* Trees, and these places were believed to harbour spirits (FAN, 1996).

Among the Miji Kenda communities, *Kaya* forests were centres for ritual ceremonies, prayers and celebration. Access was restricted by the *Kaya* elders (FAN, 1996). While the *Mukurwe wa Nyagathanga,* located in Muranga District, is the original settlement of the Kikuyu tribe and is recognised as a sacred grove. By tradition, exploitation of trees and other resources within this grove was prohibited (FAN, 1996). Traditional systems were also applied to regulate the use of the fisheries of Lake Victoria (Box 6.4).

Box 6.4: Traditional Rules, Regulations and Institutions by Fishing Communities

Until the mid 1970s, small-scale fishermen were the sole users of the fisheries of Lake Victoria. There was limited interference in the Lake Victoria fisheries by the Government. Although in principle there has been an open access to fish in the Lake, the local communities around the lake had developed rules to regulate use of the fisheries. These rules stipulated who may fish, during which season, in what area, what type of gear was acceptable and what type or size of fish could be caught. Local rules had also been developed concerning the role of the fishmongers and their relationship to the fishermen. Institutions had been developed in the local communities to enforce these regulations.

Source: Jansen *et. al.* (1999)

Annex 3.3 describes the Traditional Medicine Practitioners project which aims to stimulate national awareness about the importance of traditional and herbal medicines in Kenya. It is estimated that in the East and Southern Africa region approximately 80% of the people rely on traditional medicines for their health needs. Increases in the costs of conventional medicines, the inaccessibility of modern health facilities, and local people's preferences have contributed to the continued use of traditional medicines. Approximately 90% of traditional medicines are derived from plants, with animals, insects and salts constituting the base for the remaining 10%. The availability of traditional medicines is being threatened by habitat loss, unsustainable harvesting of these medicines and changes in land use. In Kenya a list of 27 species of plants were documented as being extensively/commonly used for medicinal purposes. In addition, 37 species were found to be either threatened or endangered.

6.4 Experiences with CBNRM

6.4.1 CBNRM for wildlife

Most of the documented CBNRM experiences are related to the wildlife sector. Several factors contribute to the number and visibility of CBNRM projects in the wildlife sector, for example the prevalence of wildlife-human conflicts which resulted in official KWS policy to address the relationship between communities and wildlife so as to reduce the impacts of such conflicts. In addition, as wildlife attracts tourists and generates significant revenue, this has allowed community groups to develop or enter into partnership for wildlife-based tourist activities.

The Community Wildlife Programme was by KWS to enhance conservation efforts through an increase in the economic and other benefits from wildlife, especially in areas supporting large wildlife populations to rural people. In the early 1990s, KWS was offering 25% of gate revenues to communities neighbouring parks (Bensted-Smith 1992, 1993). It soon became clear that KWS could not deal with all the demands, nor could it sustain this level of revenue sharing.

Between 1992 and 1998, the Conservation of Biodiverse Resource Areas (COBRA) project was implemented under the Community Wildlife Programme with financial support from USAID. The COBRA project attempted to reduce the costs that individuals and communities bear as a consequence of the continued presence of wildlife on their land, and increase the socio-economic benefits they derive from the wildlife. The project was also meant to enhance revenue sharing between KWS and local communities.

Under the COBRA project, various community conservation projects were initiated, especially around national parks and reserves. Some communities set aside portions of their land as conservancy areas and developed tourism infrastructure. For example, the Eselenkei Group Ranch that borders Amboseli National Park, set aside a conservancy area, which was leased to a developer. The Ilnguesi Group Ranch in Mokogodo Division of Laikipia District, also set aside a conservancy area, and developed tourist attractions such as camel safaris and a cultural centre.

The Ndotto/Nyiro, Leroghi/Kirisia and Waso/Wamba conservancies in Samburu Districts were also established with assistance from KWS. The Mwalunganje Community Wildlife Sanctuary in Kwale District was initiated by KWS due to the severity of elephant-human conflicts. In late 1999, the Conservation of Resources through Enterprise (CORE) project was started to carry on the activities of the COBRA project. The CORE project is being implemented by a consortium of NGOs, private sector organisations, and KWS.

6.4.2 CBNRM and forestry

The Kenya Indigenous Forest Conservation Project (KIFCON), supported by the British Overseas Development Administration between 1991 and 1994 was in the process of establishing several community based forest management initiatives on a pilot basis before it closed. One of KIFCON's key pilot projects was at the Kakamega Forest in Western Kenya. During the project, a management system based on the identification of forest zones protection, utilisation and plantation zones was proposed (Wass, 1995). Several community groups formed, when KIFCON was being implemented, are still engaged in forest resource management activities. One notable example is Ikuywa Village Conservation Group that has initiated income-generating activities so as to reduce the pressure on forest resources. The group is also promoting activities such as zero-grazing for livestock, beekeeping, organic farming and poultry farming (Mutharia, 1998).

More recently, the Kenya Forest Working Group (KFWG) has assisted the development of a management plans for Eburu and Rumuruti Forests. A management committee for the forest has been established and includes representatives of the Forest Department, the local administration and the local community. The Kakamega Biodiversity Conservation and Tour Operators Association (KABICOTOA) and the Kakamega Environmental Education Programme (KEEP) have also initiated a community conservation project. Nature Kenya is providing technical support for the project, which has received funding from the UNDP-GEF programme to create awareness about the importance of Kakemega Forest.

The Coastal Forest Conservation Unit of the National Museums of Kenya (NMK) initiated activities to conserve the *kaya* sacred forests in Coast Province. To date, about 20 *kaya* forests, covering a total of 2,125 hectares have been gazetted as national monuments under the Antiquities and Monuments Act. The *Mukurwe wa Nyagathanga* and *Njuri Ncheke* sacred forests in central Kenya have also been gazetted as national monuments (Kenya Gazette, 1994-1999). Another important site that has been protected under this act, is the City Park, located in Parklands, Nairobi. Local communities and NMK are collaborating to manage these forests.

The Kipepeo Project that operates within and around the Arabuko Sokoke Forest, Kilifi District is another example of a community based forest resource management project. Participating communities are located along a 45 km stretch along the eastern margin of the forest (Maina, 2000). Members of these communities participate in the rearing of butterfly larvae for export. The project is implemented by Nature Kenya, in partnership with the National Museums of Kenya , with financial support from the UNDP-GEF programme.

6.4.3 CBNRM, Fisheries and Wetlands

Fishing communities around lakes and along rivers usually organised themselves along clan lines and used traditional institutions to regulate their members fishing activities and thereby conserved fishery resources. More recently, these communities formed co-operatives to facilitate their fishing and marketing activities.

The Otiwa Fisheries and Wetlands Management Project is located at Otiwa Bay of Lake Victoria, which is a fish breeding and spawning bay. The project is being implemented in collaboration with IUCN, and relevant government departments (Maina, 2000). This has since led into the development of Beach Management Units with certain communities along the shores of Lake Victoria. There are several community based initiatives around wetlands of local, national and international importance, including Lake Naivasha and Lake Nakuru (Annex 3.6). At Lake Naivasha, with support from LNRA, local fishers have formed a co-operative society and drawn up a list of rules and regulations for fisheries management (LNRA Management Plan, 1999). The WWF has been implementing a community based conservation project on Lake Nakuru since the early 1990s. This project involves capacity building for local community groups to engage in conservation, development and awareness-raising activities.

The Kipsania Wetland Conservation Group is a consortium of youth groups who have united to conserve the area around the Saiwa National Park, in Trans Nzoia District. Saiwa National Park was established in 1974 and is the home of the endangered Sitatunga antelope. The Group encourages the local community to control forest destruction, and the use of poisonous chemicals for horticulture because these activities harm wild animals. The Group has also planted elephant grass along local riverbanks as a soil conservation measure, and a source of livestock feed during the dry season. They have started a tree nursery and distributed seedlings to farmers with the aim of alleviating shortages of fuel wood and medicinal plants, and reducing pressure on the park's resources. With support from WWF, the youth groups have also obtained some building materials and fingerlings to stock fishponds (Maina, 2000).

Along the coast of Kenya, there are a number of examples of community based projects for the conservation and utilisation of marine resources, both within and outside protected areas. The main focus of these community projects is income generation through fishing and recreational activities for tourists. Other activities are oyster farming (Box 6.5), or related to the conservation of mangroves and turtles.

Box 6.5: Oyster Farming in Kwale District

The KMFRI Oyster Farm is located in Gazi village, Kwale District. It is implemented in collaboration with the Shaza (Oyster) Women's Group, and was initiated by KMFRI due to the wide spread destruction of mangroves, which are used for construction. Oysters attach themselves to mangrove roots, and oyster harvesters would cut off the roots of the mangroves, because they preferred removing the oysters from the comfort of their homes. KEMFRI has designed bricks hung from wood, to mimic mangrove roots, thereby reducing the damage to mangroves from oyster harvesters. The women's group is growing oysters using this technique, for the local market. Additionally, the community has planted 250,000 mangroves over an area of 15 ha.

Source: Maina, 2000

The Mombasa Boat Owners Association was formed in 1992 to conserve and protect the environment, form a unit that is identifiable by the KWS security agents, and which can participate in tourism so as to improve their business. The KWS has assisted the Association with equipment, such as life saving equipment, masks for goggling, plates for their boats and identity cards (Maina, 2000). The Mombasa Fishermen's Co-operative was formed in 1994. It is composed of fishermen who use the resources of the Mombasa Marine Reserve. KWS has provided them with buoys and nets (Maina, 2000).

The Malindi Fishermen Committee is a CBO with over 1,000 members from the community living around the Malindi National Park (Maina, 2000). The Watamu Turtle Watch was formed in 1997 by a group of residents who were concerned about the poaching of turtles and their eggs within the Watamu Marine Park. The group's activities include education and awareness raising, nest protection, tagging and releasing turtles caught in fishing nets, and compensating fishermen who agree to release captured turtles (Maina, 2000).

6.4.5 CBNRM in rangelands

Most of the documented cases of CBNRM located in the rangelands of Kenya are related to the wildlife sector. Key among these are wildlife-based tourism activities initiated and managed by members of group ranches. Several CBNRM projects in rangelands have been initiated around protected areas, often facilitated by the KWS. In addition, several group ranches have initiated CBNRM projects within their holdings, usually by establishing wildlife conservancies and sanctuaries and developing the tourism infrastructure. Such projects are generating income for the local communities and enhancing their direct benefits from natural resources.

The Kerio Environmental Conservation Association, in Baringo and Koibatek districts, was initiated by the Kenya Resources Centre for Indigenous Knowledge of the National Museums of Kenya. The association is organised into committees and engages in income-generating activities, establishment of tree nurseries, and the rehabilitation of eroded areas. The association's members have also initiated water projects for household consumption and irrigation. Another activity is the collection and sale of medicinal plants, especially by communities around the Kamnarok National Reserve (Maina, 2000).

Several NGOs are promoting the production and marketing of non-wood forest products, such as gum arabic, resins, honey and beeswax. These NGOs include the Gum Arabic and Resin Association (GARA) and SALTLICK, through its Arid Lands Resources Project (Kareko *et. al.*, undated).

6.5 Opportunities for CBNRM

There are many opportunities for enhancing CBNRM in Kenya. Past experiences with CBNRM, both within and outside the country, provide lessons on ways in which policy, legal and institutional frameworks may be enhanced to promote CBNRM. The capacity of government agencies, NGOs and community groups for collaborative management of natural resources is also growing stronger.

The on-going review of sectoral policies and legislation provides opportunities for the inclusion of community participation principles into existing policies. There is greater awareness and involvement of diverse stakeholders in the formulation of these policies and legislation, as opposed to the past when policies and laws were formulated with limited involvement of concerned stakeholders. For example, in the review of the Forest Act, community stakeholder workshops were held in collaboration with the Forest Department, the FAN, KFWG and diverse NGOs to discuss earlier drafts of the Bill and the implications for community participation in the management of forests (FAN, 2000). The Wildlife Act is also being reviewed in consultation with landowners and existing wildlife conservation groups.

The Environmental Management and Co-ordination Act, 1999 acknowledges the need to involve local communities in the management of natural resources by recognising their traditional and cultural interests, and through their representation in the District and Provincial Environment Committees. These environmental committees will have representatives of farmers, pastoralists, business people, NGOs, women and youth drawn from the local communities, and are responsible for the proper management of the environment within their respective districts and provinces.

The institutional capacities of government, non-government and community based organisations for CBNRM has developed over the years. The widespread use of participatory methodologies for planning, implementing, monitoring and evaluating community based project has enhanced the capability of institutions to implement CBNRM initiatives. Officers within government and non-government institutions have been trained in participatory methodologies. The capacity for conflict management and resolution has been developed within natural resource management institutions.

One of the major opportunities for CBNRM is the recognition by bilateral and multi-lateral funding agencies, NGOs, and the international community of the need to involve communities in the management of resources. This shift has occurred due to the broad failure of protectionist approaches to conservation, especially with regard to the sustainable management of these resources, and in addressing issues of equity and poverty alleviation.

The recognition of the need to adopt more participatory and inclusive approaches to the management of natural resources has resulted in resources being committed to the development and implementation of CBNRM initiatives. This has resulted in a diverse range of projects and initiatives that have enhanced the pool of available literature and experiences on CBNRM. Such initiatives include the Joint Forest Management in India and Nepal, CAMPFIRE programme of Zimbabwe, and a diverse range of community wildlife utilisation schemes in Mozambique, Tanzania, Botswana, Malawi and South Africa (Barnett, 1997). Efforts in Kenya to develop CBNRM have been able to learn from and inform international expertise and experiences.

There is increased collaboration and information sharing among NGOs, CBOs and funding agencies engaged in CBNRM activities. Examples include the Kenya Forests Working Group,

which is a consortium of NGOs, Government agencies, CBOs, funding agencies and individuals involved in the management of forests, and the Donor Round table on Natural Resources which meets regularly to discuss environmental and natural resource issues.

At the international level, a diverse range of conventions and protocols have been developed that make direct reference to the need for greater involvement of communities in natural resources management. Kenya is a signatory to various conventions, treaties and protocols with relevance to CBNRM including the Convention on Biodiversity, the Ramsar Convention and the Convention on Climate Change. These conventions and protocols can assist in guiding policy formulation at the national level. This has helped create a demand, and many CBOs have been formed with a focus on the conservation of natural resources. Many groups that were originally established for welfare have also included natural resource management within their mandates. The presence of organised CBNRM groups at the community level enhances the ability of intermediary organisations to promote CBNRM.

There has been an increase in the number of CBOs with clear legal status, administrative rules and regulations, and transparent financial systems. The institutional capacity of CBOs to manage CBNRM initiatives has been developed through training, exchange visits and from experience. Additionally, several intermediary organisations, such as PACT and AWF, are focusing on the institutional capacity development of CBOs engaged in CBNRM. This need to develop the institutional capacities of CBOs is an opportunity that can increase the sustainability of CBNRM, and ensure that the benefits from conservation efforts are shared equitably.

There has also been an increase in the number of funding agencies providing financial support directly to CBOs. Such direct support to CBOs, in addition to support through intermediary NGOs, has enhanced their internal management capacity. Agencies providing direct support to CBOs include the Community Development Trust Fund (CDTF), the UNDP-GEF Small Grants Programme, Africa-2000, and KWS. In addition, most funding agencies are now requiring that CBOs and NGOs develop strategies to ensure the sustainability of projects after external funding ceases.

6.6 Challenges for CBNRM

6.6.1 The national policy framework

Kenya is yet to put in place a policy and legislative framework that would allow genuine CBNRM. Presently, most CBNRM activities, whether initiated by government agencies, NGOs or the communities themselves are pilot activities implemented on a project basis. There is great variation in the extent to which individual projects attempt to influence policies to create a more enabling environment for CBNRM. Some projects focus on specific activities, with little or no focus on the relevant policies and laws, while others are committed to lobbying for a more enabling policy and legislative environment for CBNRM.

Although some policies advocate for increased community participation in natural resource management, this is not adequately supported by the devolution of authority and ownership of resources to local communities. The ownership and management authority of resources remains with central government agencies, even when these institutions lack the capacity to manage the resources sustainably. Even in the relatively new Forest Policy, the role of communities remains peripheral, at the discretion of the relevant government officials. In the forestry sector, there has been widespread criticism, both among the public and in official circles, of the manner in

which forests are degazetted. However, the Minister continues to use the powers vested in him by the existing Forest Act (Section 4), which allows the Minister to degazette forests by giving 28 days notice.

In the Environmental Management and Co-ordination Act, the role of the relevant minister remains central to the implementation of the Act, and in the appointment of representatives to the different institutions established in the Act, at all levels. There is a danger of undue political influence resulting in the ineffective implementation of the Act.

Due to the unclear definition of the roles and responsibilities of communities in the management of natural resources, their involvement is often dependent on individual government officers who may encourage or discourage greater community participation. Depending on personal biases, government officers may invoke official policy and legislation to reduce the extent to which communities can participate in management. Such a situation arose in the case of fisheries management in Otiwa Bay (Box 6.6).

Box 6.6: The Selective Application of Provisions in the Fisheries Act

The Otiwa Co-Management Project was started in 1997 at the Otiwa Bay of Lake Victoria, which is a fish breeding and spawning bay. The local community formed vigilante groups to patrol the bay and enforce community by-laws. Initially the community patrolling was successful. However, after the fisheries officers realised that their authority had been reduced, they invoked the Fisheries Act to stop the community patrols.

The community reported that the Fisheries officer informed them that according to the Act, unless an area is gazetted as a fish breeding and spawning ground, it is deemed not to warrant increased protection. Also, before an area is gazetted, the Fisheries Department is supposed to have carried out a stock assessment, which had not been done for Otiwa. The local community therefore feel that the Fisheries Department Officials used the Fisheries Act to reduce their involvement in the management and conservation of the Otiwa Bay.

Source Maina, 2000

Many key policies and laws on natural resources management have been under review for several years, including those for wildlife, water, forests, agriculture and fisheries. However, the pace of review of these policies and laws has been slow which has served to undermine existing CBNRM activities. For example, consumptive utilisation of wildlife resources has occurred since 1991, through the cropping scheme. The legal provision for cropping by local communities is through a provision of the Wildlife Act referred to as the Director's Special Licence. The failure to have a clear legal basis for consumptive utilisation of wildlife resources has resulted in a general reluctance by communities to invest in infrastructure for wildlife utilisation, such as abattoirs and leather processing facilities. Uncertainties abound with regard to the commitment of the Government to consumptive wildlife utilisation, and there are fears that the special licence may be revoked at any time.

Kenya's land tenure policies and laws continue to play a big, and often negative, role in promoting sustainable natural resources management, primarily because communities only have limited security of tenure. A large percentage of land in Kenya continues to be held as Trust Land, with limited security of tenure for local communities resident on such land. Projects working with diverse community groups have often found it challenging to promote CBNRM among community groups considered "squatters" on the land they occupy, or among people without title to the land. Such people have few incentives to engage in sustainable natural resource management initiatives due to the uncertainty about when they will be evicted. Past

irregularities in the allocation of land in Kenya means that resolving the land tenure issues in the country is challenging and long term, but is vital to long term security of rights and responsibilities.

The failure by the government to put in place land use policies that take into consideration the diverse ecological zones within the country has resulted in community members engaging in activities with limited guidance on appropriate land use practices. The current land tenure and land use policies sometimes encourage the use of land for speculative purposes, and as collateral. The prevalence of absentee landlords, results in the occupation of these lands by squatters who have few incentives for conservation.

The need for a land use commission has been repeated in the 1989-1993, 1994-1996 and 1997-2001 national development plans. Such a commission is yet to be established, despite official acknowledgement of the need for a coordinating body to harmonise the activities of development and conservation agencies. For example, at the Chyulu Hills, there is a water reservoir for the Mombasa catchment administered by the National Water Conservation and Pipeline Corporation, a settlement scheme administered by the Ministry of Lands and Settlement, water conservation measures executed by the Ministry of Land Reclamation, Regional and Water Development, protection of wildlife and tourism administered by the Kenya Wildlife Service, and environment protection measures supported by the Ministry of Environment and Natural Resources (Republic of Kenya 1994). With a land use policy and commission in place, the objectives and strategies for such programmes could be developed in a more effective, co-ordinated and mutually beneficial manner.

Policies and practice for protected areas, especially national parks, continue to exclude local communities in the management of the resources. Coupled with this exclusion, communities continue to experience conflicts with wildlife. The lack of compensation for property destroyed by wildlife results in hostility towards wild animals, and the protected areas and forests that are important wildlife habitats. Inefficient control of problem animals by KWS compounds the problem. In cases where the official KWS policy allows for compensation for loss of life and injury, there are often delays in receiving such compensation. For example, in Voi and Taveta Districts, 36 people were killed by wildlife between 1989 and 1994. By 1995, none of the affected families had received any compensation for their loss, and even if they were compensated they only received about $375 for each loss of life (Barnett, 1997). Efforts to promote CBNRM in areas adjacent to protected areas, especially in areas that are not suitable for tourism, will remain a challenge until there are more options for compensating communities for losses incurred due to destruction by wildlife.

Lack of commitment and capacity in law enforcement has led to increased opportunistic utilisation of natural resources, which undermines initiatives aimed at promoting genuine CBNRM. Poor enforcement of the legislation governing the management of Forest Reserves has enabled some members of local communities harvest timber, produce charcoal and encroach into indigenous and plantation forests. In the wildlife sector, there has been an increase in the illegal hunting of wild animals, and KWS has been building its institutional capacity for enforcement through training and re-deployment of staff. Although KWS has a department dealing with the illegal bush-meat trade, it has not yet determined the quantity of wildlife meat entering the illegal market (Swara, 2000).

6.6.2 The institutional framework for natural resource management

The sectoral approach to natural resource management has resulted in a diverse range of government institutions with mandates for the management of different resources. Due to the interdependencies among the various sectors, there are extensive areas of overlap, and, in some cases, conflicts among the different sectoral institutions. The various requirements of the different institutions often confuse communities and undermine CBNRM efforts. For example, community activities within marine reserves, are supposed to be sanctioned by the local authority, the Fisheries Department and the KWS. The Forest Department also requires that the communities consult them due to the existence of mangrove forests in marine reserves.

In an effort to reduce these conflicts, several government institutions have signed memoranda of understanding (MoUs). These include the MoU between the KWS, the Forest Department and the National Museums of Kenya for the management of specified indigenous forests. However, the MoUs between government agencies have been criticised for being too general and lacking a legal basis, through which MoU collaboration could be enforced by law. Therefore, the implementation of activities under the MoUs have tended to be based on individual officers' commitment, and have not been institutionalised adequately. Weak collaboration between government agencies undermines their capability to form collaborative linkages with community based groups in the management of natural resources.

Each government institution mandated with the management of specific natural resources is allowed to raise funds for specific activities, either through revenue collection or from external funding agencies. The relative autonomy of the different institutions in their fund-raising activities results in different levels of resources among the different institutions. Institutions with limited resources often have low staff morale and incidences of corruption and the unsustainable utilisation of resources are common.

Partly due to the need to compete for limited resources, often from the same sources, Government and non-government agencies have tended to work in isolation, with limited consultation with other agencies working in the same geographical areas, or engaging in similar activities. Within each district, the District Development Office, under the District Focus for Rural Development structure in collaboration with the District Development Committee, are supposed to ensure that projects within a specific area are co-ordinated. However, there is a tendency for DDCs to focus on Government projects, and pay little attention to projects implemented by NGOs. Further, there is no clear legal requirement for NGOs to report to the district development officers.

The large number of government and non-government institutions involved in natural resource management has confused local communities. Further, these agencies have different mandates, often overlapping and using different modes of operation. Some agencies give communities handouts, while others require the community to purchase goods and services for conservation.

Historically, the government agencies with the mandate for natural resource management adopted a policing role and so became alienated from local communities. Very often, members of local communities did not understand the rationale for the policies and laws the agencies were enforcing, and regarded the management agencies with fear and suspicion. Although the agencies have attempted to communicate and work more effectively with local communities, the historical fear and suspicion lingers.

Conversely, and especially during the implementation of community conservation projects by KWS, the communities have believed that government conservation agencies have large amounts of money. The ways in which some community projects have been implemented have tended to promote such dependency. Often there is poor communication between government and NGO agencies seeking to promote CBNRM. The local communities have limited understanding of the mode of operation of these agencies, their sources of financial resources and their short and long-term objectives. This poor communication among conservation agencies and local communities results in unrealistic expectations and conflicts.

In areas where national parks and reserves were established on land already inhabited, promises were made by the government to compensate communities for the loss of land. This compensation included resettlement, monetary compensation and continued access to park resources. However, often communities feel that the government did not honour its promises, especially in cases where the communities were to be compensated monetarily or have continued access to park resources (Mutharia, 1998). Failure of the government to compensate communities has resulted in mistrust, and any new initiatives that the agencies have tried to introduce.

6.6.3 The role of external agencies and donors

Most CBNRM initiatives are project based, which are limited due to the policies of funding agencies that restrict the amount of funding, and the timeframe during which they can provide financial support to a project. The limited duration of funding to projects results in unsustainable CBNRM initiatives that often collapse once the funding is withdrawn. In addition, when the concept of CBNRM is seen as being externally driven, there is sometimes limited commitment from project staff both within the government and in NGOs, that could help communities sustain CBNRM after external funding ceases.

The shifting priorities and requirements of funding agencies tend to confuse NGOs and CBOs. Some funding agencies prefer to work through intermediary NGOs instead of directly with CBOs. The rationale for this is often the limited institutional capacity of CBOs to independently implement CBNRM projects. However, the benefits of the project funding may end up accruing more to NGOs and their staff members, as opposed to reaching local communities. In some cases funding agencies provide little administrative support to NGOs and CBOs implementing CBNRM projects. The lack of resources to meet administrative and institutional overheads often undermines effective implementation of the CBNRM activities. Additionally, there are sometimes limited resources committed to the institutional capacity development of CBOs, through skills training, for example.

There is often limited analysis of the impact that certain interventions have on the capacity of local communities to engage in genuine CBNRM. The use of monetary and infrastructural incentives to encourage communities to conserve natural resources may undermine their willingness to engage in CBNRM once the incentives are withdrawn. For example members of the local community in Kwale District are paid US $6.25 for reporting the sighting of a turtle nest, and US $0.06 for an egg. They get US $6.25 for taking care of an egg (Mutharia (1998). Questions have arisen about how long such monetary incentives can be sustained, and the consequences of their withdrawal on the sustainable management of the turtles and their habitat.

Unrealistic expectations are also promoted among communities participating in economic enterprises based on conservation practices. In some cases, unrealistic business plans and profit projections are developed by conservation agencies that have not undertaken full market surveys. Thereafter, limited efforts are made to develop the capacity of the local community to manage such business enterprises. This often results in disappointment among members of local communities, and promotes conflict within the community and with the implementing agency. For example, the low revenue generated by ostrich farming and wildlife cropping projects initiated by conservation agencies has disappointed communities in Namanga and Machakos districts. Such situations led one KWS officer to comment: "It seems that community conservation is only possible where the benefits are being seen from a resource that is in turn linked to a donor. Therefore, when the donor goes, the project is no longer sustainable" (Mutharia, 1998).

Poor monitoring and evaluation of CBNRM projects undermines these initiatives and reduces the capacity of communities and external agencies to learn from past experiences. Also, very little learning occurs among projects, communities, and development and conservation agencies because the findings of monitoring and evaluation exercises conducted by NGOs have limited circulation. Written reports are often restricted to the project staff and a few key stakeholders.

Strong preservationist lobby groups, both nationally and internationally, continue to limit the extent to which CBNRM initiatives, that advocate for more consumptive utilisation of natural resources can be promoted. For example, the wildlife sector has been affected by preservationist lobby groups that regard hunting and cropping as unsustainable ways of managing wildlife.

6.6.4 Community issues

Communities in Kenya are heterogeneous, tend to be hierarchical, and are based on such factors as income levels, education, and gender. Community based organisations and institutional structures are not usually accessible to all members of a community. For example, although the Mwaluganje Wildlife Sanctuary in Kwale was started in 1993, its management committee is entirely composed of men. When asked about this, the Chairman of the Committee is reported to have said: "Because only the men were chosen. Women were not involved in the process at all. The initial meeting was called on the basis of land ownership. Only men's names appear on the title deed, and that is why only men ended up attending the meeting and selecting men to represent them. We had not thought of involving the women before. Also the culture among the *Miji Kenda* is that a woman cannot talk before men, hence the women do not talk despite their attendance in meetings" (Mutharia, 1998).

In addition to the inherent heterogeneity of communities, there are often some members of the local community who are transient, and move in and out of communities in search of better livelihood options. One of the challenges of CBNRM initiatives is how to identify the criteria to use when defining a community to be involved in specific project activities. Inadequate efforts to define specific communities, the interests of the diverse members, their influence and power relations can undermine CBNRM initiatives.

Most CBOs were focused on the provision of welfare goods and services to their members, who were often relatives or close neighbours. Such CBOs usually had rudimentary institutional rules and procedures for managing their resources and for communal activities. Due to the complexity of community conservation and management activities, there is a need to build the institutional capacity of local communities to engage in sustainable CBNRM activities. Poor accountability and governance structures within community based organisations engaged in

CBNRM can undermine their efforts. The corruption and lack of transparency seen in national institutions is often reflected in community based organisations. There is also a need to promote good governance and transparency within CBOs. Some intermediary organisations are already leading such activities.

Government institutions have made only limited efforts to incorporate the rules and regulations that were used by local communities in traditional management systems. This has undermined the confidence and capacity of local communities to engage in effective natural resource management. The migration of community members away from the original settlements into different regions of the country further weakens existing customary modes of regulation and management of natural resources.

The benefits that accrue from conservation areas are not all obvious nor are they divided equitably among the different stakeholders. Local communities often feel that they pay a high price for wildlife conservation, especially when there is destruction of property and loss of lives, and that they do not accrue tangible benefits from conservation. Communities based in areas adjacent to forest reserves have often had limited access, mainly restricted to forest products for subsistence. This has occurred while other entities, often external to the community, have been able to generate substantial revenue from these reserves, especially by securing licenses for timber extraction. The case of Mwaluganje Community Elephant Sanctuary (Box 6.7), is one example.

Box 6.7: Limited Benefits from the Mwaluganje Community Elephant Sanctuary

The Mwaluganje Community Elephant Sanctuary was established in 1993 with communities giving up their land for the establishment of the Sanctuary. Although yearly dividends were meant to be paid to members, to date dividends have only been paid twice. In 1997, a dividend of US$ 13 per acre was paid, while three years later, in 2000, a dividend of just slightly less than US$ 20 per acre was paid. The dividends received are equivalent to a return of US$ 6.50 per acre, per year. Members of the local community feel that these returns are too low compared to what they sacrificed by forfeiting their land.

Source: Chairman, MCES (Pers. Comm. 2000)

The limited accrual of tangible benefits from natural resources has resulted in negative attitudes to natural resources among affected community members, as well as illegal exploitation of these resources through poaching and illegal extraction of timber and charcoal production. There is need to address the negative perceptions of communities towards natural resource conservation before sustainable CBNRM initiatives can be promoted.

Members of local communities are reluctant to engage in CBNRM activities when their security of tenure is limited. This is the case with communities who are either squatters on government land, occupants of Trust Land without title deeds, and those with title deeds who fear losing the titles to the land they occupy for various reasons. For example, in the case of a community conservancy to be established within Samburu District, fears of losing title deeds by their group ranch membership has made it almost impossible to construct any tourism infrastructure on their land. The members of the local community were opposed to the construction of tourist bandas on their land because they feared "land grabbing" (Mutharia, 1998).

At Rumuruti Forest in Laikipia District, it was once rumoured that the gazetted forest had been allocated to an individual. Members of the local community reacted by exploiting the forest resources before its supposed change of ownership. The result was accelerated destruction of the forest reserve, particularly through charcoal production and harvesting of cedar posts. Since

then, members of the community willing to participate in the development of a management plan have been pitted against those who are using the forest unsustainably (KFWG, 2000).

Even where communal land management has been prevalent, there is a growing tendency to privatise. For example, in some parts of the country, community members are advocating strongly for the sub-division of group ranches. Subdivision has already taken place in some areas, mainly in Narok and Kajiado districts (Republic of Kenya, 1994). One of the reasons for the pressure for sub-division is that individual community members usually receive few tangible benefits from the communally managed resources within a ranch. Unfortunately, the conversion of land from group to individual title often results in changes in land use, that lead to the degradation of rangeland habitats, and a decline in wildlife and forest resources. CBNRM initiatives in these areas should first aim to strengthen recognition among group ranch members that viable projects could yield greater benefits, including the sustainable conservation of natural resources.

Due to the prevalence of latent and manifest conflicts within local communities, there is need for effective conflict management mechanisms as part of CBNRM initiatives. Sometimes the limited recognition of the positive and negative roles of conflicts results in limited efforts by government and NGOs to establish effective conflict management mechanisms. Conflicts between conservation and other forms of land-use, especially farming continues to be an area of conflict. In one example in Samburu District, the agriculture department is promoting agriculture, through the provision of free tractors and farm inputs, in an area that has been established as a community conservancy (Mutharia, 1998).

The continued poverty of local communities living in areas endowed with diverse and rich natural resources needs to be addressed simultaneously with the promotion of CBNRM. Several members of local communities have admitted to engaging in unsustainable exploitation of natural resources due to their poverty and the limited options they have to address their livelihood needs. Greater collaboration between agencies engaged in conservation and development initiatives provides an opportunity for addressing poverty and CBNRM issues simultaneously.

6.7 Key Issues and Recommendations for CBNRM

Community based natural resource management is still a relatively new concept in Kenya. Although there are examples of CBNRM projects that have been implemented, the lessons learned from these projects remain localised. The policy and legal environment for NRM needs urgent review in order to stem the current degradation of resources and poverty among local communities. Greater collaboration and communication between government agencies will enhance the harmonisation of such interventions. The capacity of local communities to participate in CBNRM is still limited. Conversely, the institutional capacity of government and non-government organisations for participatory natural resource management needs to be developed further. The following actions are recommended for development of CBNRM in Kenya. There is need:

- For greater information sharing among government and non-government agencies involved in CBNRM, existing networks and forums should be strengthened;
- To address the land tenure and land use policies and laws in order to enhance the sustainable management of natural resources. These laws and policies should take into consideration the different ecological zones of the country and the land use practices of the

different local communities and seek to enhance those that are appropriate for specific zones, while discouraging those that result in the degradation of the environment;

- To clearly define the rules and procedures for community involvement in the management of natural resources within policy and law;
- For institutional capacity development of government, non-government and community based organisations in CBNRM; and
- For more in-depth analysis of existing CBNRM initiatives and the extent to which they are promoting the sustainable and equitable management of natural resources.

CHAPTER 7: COMMUNITY BASED NATURAL RESOURCE MANAGEMENT IN SUDAN

Elnour Elsiddig

Sudan Summary

Introduction

Sudan is predominantly an agricultural and pastoral country, with diverse ecological zones and a variety of natural resources upon which the people of Sudan depend. The majority of people live in rural areas (70%) deriving their livelihood from agriculture, livestock and forestry. The Sudan lies in the dry region with almost 50% of its area as desert & semi desert. The Savannah region comprises about 38% of the country, and contains the major agricultural, range and forest lands.

The current status of natural resources in Sudan is one of continuous land degradation associated with a disintegration of the social fabric. This situation is the result of clearance of natural vegetation for traditional and mechanized cropping, overgrazing, woodcutting, bush fires and draught. Natural forests and range lands resources are shrinking at high annual rate due to land clearance for cropping which had rendered vast areas becoming treeless in central and northern Sudan, and where soil degradation became a serious problem. The long-term effect of soil degradation and desertification is manifested in the decline of its crops productivity, as well as range and forest regeneration.

Sudan rangelands cover about 50% of the country, and produce 80% of the animal feed requirements. Such vast area, coupled with the large animal wealth of almost 121 million head of livestock, makes a great potential for producing enough animal protein to meet local requirements with a substantial surplus for export. Livestock rearing ranks after crop production as a main economic activity; and the two together form the backbone of Sudan's economy which can well be integrated in agro-pastoral management systems. Livestock production is largely under traditional system.

Protected Wildlife Areas include eight National Parks, and fifteen game reserves and three sanctuaries in Sudan. The Sudd Swamps, along the White Nile, are some of the most extensive wetlands in Africa. The swamps contain five game reserves.

Forestry is very important in satisfying basic needs of societies at all stages of development. Forest products in the form of woodfuel, charcoal, construction poles, timber, gums, leaves, native and processed medicines are still in demand at varying levels. Historical data of the resource assessments in Sudan indicates declining trend in the forest area. This was attributed to expansion of agriculture, grazing, building and fuelwood consumption and mismanagement. The total demand for forest products was estimated at 16.0 million cubic meters. It is estimated that about 455,000ha of forestland is being cleared annually for agriculture and other purposes.

CBNRM in the Sudan

Prior to 1970, resource management in Sudan was largely carried out informally through Local Community Leaders (Nazir, Shiks, Omdas and Shartai). These resource management systems were sustainable in the sense that they were time-tested and had survived for long period while maintaining the natural resources. Post 1970, control of resource use, which was previously largely the domain of the traditional leadership, was progressively alienated to government. Many natural resources were put under the hands of public administrations and excluded local communities. Unregistered lands (natural forests or range) are also brought under government control. Land allocation and land tenure changed to individual ownership, and often at the expense of community use rights.

Later on, the ability of governments to enforce sustainable use of resources began to erode as a result of constraints of capacity, local people pressure on resources and the changes in the concept of rural development towards basic needs of local communities and their involvement. The revision of the few existing forest management plans indicated the need to involve the local people to successfully manage the forest reserves and non-reserved in sustainable way. This confirms the need for clear definition of stakeholders' rights and responsibilities in resource management planning.

Nowadays there is a growing understanding among government officials that the management of natural resources (forest, range and wildlife habitats) needs to complement the strategies of natural resource development, based on national interests with new strategies focusing on basic needs, equity and popular participation, hence a change in policy statement is necessary to clearly accommodate local communities in its management.

Institutional and Policy Framework for CBNRM

Various stakeholder groups with interests in the utilization and management of natural resources could be distinguished in Sudan. These include government, non-government and community based institutions. With regard to CBNRM many of these institutions could be considered as stakeholders with distinct interests, rights and responsibility

The government institutions concerned with CBNRM have different interests and mandates. Coordination is almost lacking and cooperation is limited even among the departments and units of the same ministry. Also government institutions are subjected to frequent changes in affiliation through the creation of new administrations and ministries. This instability reflects lack of vision and ad hoc decision and does not allow sufficient time for these institutions to draw long term strategies and develop policies to promote conservation and sound management of natural resources. Many government institutions at the federal and the states level are concerned with natural resources utilization and management and hence, related to the issue of CBNRM in Sudan, particularly in the field of forestry, wildlife and rangeland where urgent needs and real opportunities exists.

In 1995 Sudan adopted a federal system to devolve power and to bring the administration close to people and resources so as to provide for effective participation. The local Government Act 1998 has set the general framework of local governments and defined localities This Act devolved power to the localities, which included powers related to the environment, land, forests and animal wealth.

Traditional Administrations (Leadership) are very old systems originated from indigenous tribes' organization of local affairs and livelihood. Different governments also tried to develop similar systems (e.g. native administrations) related to government organs at the local levels. During colonial administration traditional systems was incorporated into the general administrative structure as found to be more efficient and cheap. A number of legislations (e.g. Forest Ordinance 1932) were issued to institutionalize these systems and put them in a legal order within the framework of the judicial and administrative systems.

The structure of the traditional leadership normally begins with Nazir or Amir at the top of the system, followed by Shertais, Omdas and Sheikhs at the bottom. Each represents a different level of responsibility in terms of power and authorities and area of jurisdiction, and each level oversee all other levels below it in the hierarchy. During the enactment of the (1971) Local Government Act, the traditional administration was accused of being oppressive and backward, and was abolished, to give way to the modern institutions at the grass-root level, such as the nomadic camp and village councils. The change from the tribal system to local government system created a gap and lost the link with the grassroots used to be performed by the tribal institutions, in spite of continued existence of the traditional leadership within the local communities.

However, the current federal system in Sudan recognized the traditional administration systems. The native administration mentioned above is an attempt to reinstate these systems at the village level where a number of village councils (popular committees) are established under each locality.

Local leaders are always integrated into administration and development activities taking place in their territories. Development projects particularly in the area of natural resources management has always benefited from the involvement of traditional leaders and institutions.

Traditional forms of collective works have deep roots in the Sudanese culture, e.g. Nafir, Fazaa. Nafir is most common and widely known in Sudan. It is based on labour contribution made by some or all members of the society to help someone in agricultural activities (e.g. weeding, harvesting or building a house, or in cases of public events e.g. fire fighting, digging and fencing of water ponds, building of schools and dispensaries. Normally, the labour contribution is made free, but in most cases the organizer or the beneficiary provides foods and drinks. Nafir is usually organized by somebody e.g. *Ageed*[1], Sheikh, local institution, individual. Generally participation in public or private Nafirs is socially obligatory and culturally acknowledged. Now Nafir has became a culturally recognized institution. However, help of traditional leaders (native administration), CBOs and NGOs are highly needed in the organization and implementation of these communal works as they have the means and tools of public mobilizations. Organized forms of NGOs become well known in Sudan after 1980 (Mohamed, 1999). Nowadays there are many registered and active NGOs in different fields of the environment and rural development. There are also some networks for coordination between NGOs e.g. the National Coordination Committee on Desertification (NCCD). The most relevant and active NGOs in the field of natural resources are the Sudanese Environmental Conservation Society (SECS) and the Sudanese Social Forestry Society (SSFS). Generally NGOs in Sudan suffer from poor capacities lack of training, financial resources and recognition.

[1] Ageed in western Sudan is the one responsible for organizing people for village defense purposes and for all communal works. Ageed must be respected and obeyed by all (Hamid, 1990).

Policy and Legal Environment for CBNRM

The Land Settlement and Registration Act, issued in 1925 provides for rights and interests over land such as cultivation, pasture, wood-cutting, occupation, passage, water resources. In 1970 this position was affected by the issuance of the Unregistered Land Act that gave the government the ownership over any wasteland, forest or unregistered land. The introduction of the Islamic principle of manfaa[2] (usufruct), by the provision of the Civil Transaction Act (1984), diluted the harsh effect of the Unregistered Land Act (1970) on unregistered rights based on the traditional land tenure systems.

Although government had the formal ownership of the unregistered land, it has not been able to exercise effective control over land allocation and utilization. At the same time the land allocation and judicial powers were taken from the native administration and vested in the local government officers and later in the state government. Neither level of government has the knowledge of the traditional uses nor the means for planning and control of land use. This created an administration vacuum (FOSA 2000). This vacuum negatively affected the natural resources.

Sudan is lacking the comprehensive environmental and natural resources policies and legislation. While land in Sudan is generally for agriculture, grazing and forestry, there is no legislation that specifically deals with land use. Legislation relating to land use could be found in the Town Village Planning Act (1961), Unregistered Land Act (1970). Mechanized Farming Public Corporation Regulations (1975); Absence of land use plan is considered as one of the main causes for conflicts over the use of natural resources. Formulation of such plan will certainly provide the framework within which policies and legislation could be developed.

The current policy objectives that guide agricultural development and natural resource management in Sudan are those stated in the Comprehensive National Strategy (1992-2002). The main goals include, the conservation and development of the large natural resources wealth of Sudan through direction of more investment in the sector, awareness raising and involvement of local people, enforcement of legislation and prevention of irrational use of natural resources.

Specific objectives include: food security through the expansion of the irrigated and rainfed sectors and by increasing the productivity per unit area. Regional balance, social equity and wealth distribution through supporting and strengthening the role of small producers, especially in the marginalised areas; Rehabilitation and maintenance of natural range of Sudan; Adoption of suitable grazing systems; Protection of rangeland against fires; Conservation of wildlife habitat, adoption of attractive economic policy; Enhancement of regional cooperation and; improvement of the traditional livestock sector that host more than 80% of the animal population.

[2] Manfaa principle (Usufruct) has been defined as the right of using and enjoying land, the bare ownership of which belongs to another person (El Mahdi, 1981). Examples include (i) Right to cultivate; (ii) Right of pasture; (iii) Right of forest produces (woodcutting).

The current forest policy (1986) is updated from the Forest Policy 1932. The prime objective is the reservation, establishment and development of forest resources for the purpose of environmental protection, and meeting the needs of the population for forest products. The 1986 forest policy recognized and encouraged the establishment of community, private and institutional forests.

Since the beginning of the past century (1901) about 150 acts orders and regulations were established in Sudan, some of these are concerned with the environment and natural resources issues. However these legislations and regulations remained fragmented, uncoordinated and lacking a unified legislative framework which expresses the general principle governing environmental conservation and natural resources management in Sudan. Some of the important weaknesses of the legislation are that the legislation:

- Emphasized the duties and responsibilities of the citizens, and ignored their rights;
- Basically made at the centre and by central bodies, that made them focused on national interests rather the interests of the local stakeholders;
- Weakly implemented due to lack of adequate implementation capacity or some time because they were subjected to political interference; and
- Some important resources do not have legislation (e.g. rangeland) that protect them and control their utilization and management.

The relevant provisions of the Forest Act (1989) are that individuals, communities or institutions planting trees on their own land will have the freedom to utilize them, as they deem fit, and also it provides for establishment of community forests, as well as the reservation of private and community forests. The Forest National Corporation Act (1989) assigns the management of community forestry to committees designated by the community for this purpose, however the committee organization is subject to directives to be issued by FNC.

The most important aspect of the Wildlife and National Park Act (1987), concerns the mechanisms for possible inclusion in this law of the participation of people living inside or around national parks. Assigning rights and responsibilities for local communities dependant on national park will enable them to utilized of its resources in a sustainable way.

However, the entire environmental and natural resources management structure of the country suffers from lack of definitive policy framework within which programmes and actions can be designed and implemented. Security of land tenure and land use rights is considered the most important challenge to sustainable resource use. There are widespread ambiguities and uncertainties in laws governing land tenure and use. This situation has led to conflict between land uses and land users. The conflicting interests of traditional rainfed farmers, pastoralists, mechanized farmers and the state as owner of all unregistered land, discourages proper forms of land management. In many cases the right of the subsistence farmer (traditional agriculture) and pastoralists were not respected and encroached upon in favour of mechanized farmers or state owned and private corporations. On the other hand, the instability and uncertainties of land use discourage investment in land and encourage unplanned agricultural expansion.

Opportunities

The CNS encourages the private sector to invest in the natural resources conservation; supports public awareness involving local communities in conservation matters; puts emphasis on the establishment of additional protected areas for forest reserves, rangeland and wildlife purposes. It emphasizes the reservation of 25% of Sudan area for this purpose; Cooperation with

neighboring countries in the field of wildlife conservation is highlighted in the strategy, and this supports the development of a regional CBNRM programme.

The introduction of the principle of usufruct "Manfaa" by the provision of the Civil Transaction Act 1982, through which, benefits to communities in land are recognized and secured, is an opportunity for CBNRM. Examples of manfaa include right to cultivate, right of pasture, right to forest products and right of occupation.

Development in the marketing of forestry products could contribute to more investment by communities particularly in non-timber trade, which can have positive impacts on poverty reduction and directly improve natural resource management on community basis

The Government attitude has started to change in terms of the acceptance of local people participation in management of the natural resources. This is probably based on the understanding by Government that the management of protected areas like natural forest reserves, game reserves and wildlife parks would not be sustainable without the communities' support. Changing government attitude in favour of community involvement in natural resource rehabilitation, conservation and management increases the chances for changes of policy statements to accommodate community participation.

In rural Sudan, landuse followed institutional and tribal-based management system, within which, rights of use are well organized and communally managed, and applied to sedentary and mobile pastoral communities. The system of native administration, before and during the colonial period, and up to 1969, was based on this traditional system of territorial rights and management. The system enabled sustainable practices of landuse, based on community involvement. The traditional systems are well recognized and understood at the village and regional levels and are a good opportunity for CBNRM. The system of traditional management was supported by equity of use right, and social customs governing common property resources.

The current institutional organization of FNC combined with collaborative management system could enable better communication with the local communities, through forest guards, forest overseers and forest officers at individual forest and individual village level and provides good opportunities for involvement of the local communities in the development and management of the natural forests.

Experiences with donor funded projects and their strategies, that adopt community participation approaches in rehabilitation and management of natural resources, are accepted and adopted by government institutions in protected areas like Elrawashda forest reserve, Elodaya Range Rehabilitation through in the Dinder National Park Project adopted a community based approach.

In spite of the historical resistance of government authorities to local people's involvement in natural resource management, the projects practices and activities have produced a wide range of experiences that are resulting in changes of government workers attitudes towards accepting local people's involvement in natural resource management.

The traditional rainfed cropping system, using long bush fallow periods to facilitate the renewal of natural resources and the restoration of soil fertility with vegetative cover is an example of traditional management of natural resources, based on indigenous knowledge indicating adaptation and coping systems with the socio-economic and environmental constraint. The

Gum Arabic twenty years bush fallow rotation followed by a five-year cropping cycle is a valid example of a system long been used in land management at village and regional level throughout the gum belt in Sudan.

Constraints

The impact of marketing and pricing systems in Sudan on Natural Resources development and management is a constraint. Gum Arabic marketing on the one hand is discouraging to farmers to sustain gum gardens management, and has led to an increase of cash crops cultivation in place of gum trees. The recent decline in Gum Arabic prices has made gum gardens unattractive option for long term investment while other cash crop prices have encouraged farmers to clear gum gardens and invest more in cultivation.

There is great variety of non-timber forest products, but there is no marketing policy focused on their trade development, even though some of the non-timber products are widely used. The contribution of non-timber forest products in income generation receives limited assessment. Many rural people are involved in the production, processing and marketing of non-timber products. However there is little concern for non-timber production objectives, even with regard to gum-arabic. This area needs policy changes to accommodate community rights of use with regard to non-wood forest products.

Unclear land ownership constitutes major constraint to long-term resource use patterns. Land reservation and registration in Government or individual ownership results in reduced rights of accessibility and of resource use unless tenure is secured. Access to forest reserves and wildlife protected areas is prohibited by law except for very limited rights such as the collection of dead wood or grazing on permit. Then, illegal use results in deterioration of protected areas.

The entire environmental and natural resources management structure of the country suffers from lack of definitive policy framework within which programmes and actions can be designed and implemented. There are widespread ambiguities and uncertainties in laws governing land tenure and use. This situation led to conflicts between land uses and land users

Limitation in capacity for technological developments concerning an increase in per unit area grain production has been one of the driving forces for expansion in cultivated land. This cause a decline in grain production per hectare from almost 1000kg/ha in 1950-1960 to around 500 - 300kg/ha at present. This in turn encourages land clearing and encroachment of agriculture on forests and rangelands as well as on game reserves. In fact the lack of appropriate technology for the sustainable development of dryland regions is a major constraint for CBNRM.

Lack of adequate coordination and cooperation between the institutes relevant to CBNRM, particularly among the government institutions, creates duplications of efforts, contradiction and conflicts over natural resources. Lack of effective coordination mechanisms between the stakeholders involved in natural resource management is also a constraint.

Government institutions are subject to frequent changes in affiliation through the creation of new ministries, administrations and policies changes. Lack of training, capacity building and adequate financial resources, particularly for NGOs and CBOs, which also lack recognition. There is also an institutional lack of awareness among the affected local communities and by the political interference.

Unfortunately, the use of inappropriate systems in dryland agriculture in Sudan is a constraint to natural resource management at the on community level. The introduction of rainfed mechanized farming system has had negative impacts on the drylands ecosystem in Sudan. The fallow cycle system, which used to be a community-based approach, has been abandoned, and replaced by agricultural systems that are focused on intensive cropping and exploitation of the land which has led to bare and degraded soil with low fertility. This is typical in vast areas in Central and Eastern Sudan.

The transformation of communal lands, which were used as common property resources, into large holdings or individually owned land, leads to breakdown of the social arrangements and village-based land tenure security systems, which used to work in Sudan. Land allocation is now government based and often results in the inequitable distribution of the land.

Major Issues

Indigenous knowledge is a valuable resource for development. Under certain circumstances it can be equal, or even superior to, the know-how introduced by outsiders. Development efforts should therefore consider Indigenous knowledge and use it to best advantage. Although more and more development professionals have come to realize the potential of indigenous knowledge, it remains a neglected resource. A key reason for this is the lack of guidelines for recording and applying Indigenous knowledge. In recent years greater attention was directed towards the development and documentation of local knowledge in Sudan. The CNS (1992-2002) called for granting due consideration to local knowledge, customs and traditions.

Special consideration was given to local knowledge on adaptation mechanisms related to drought and desertification problems in Sudan as necessary measures to be considered when planning for national food security, all of which are key issues for CBNRM. Studies indicated that the consideration of indigenous knowledge would:

- Provide good and realistic indicators to planners and decision-makers on issues related to biodiversity and sustainable management of natural resources;
- Enable local communities' participation in the development plans and ensure the integration of their local knowledge with the scientific and applied researches; and
- Ensure the adoption (by the government) of a balanced management approaches that cater for the immediate local community needs without compromising the needs of the future generations.

Women and men are linked to the resources differently. Bringing in the perspectives of both woman and man provides a holistic understanding on the value of resource base to the community, Women and men have cultivated ecologically sound and effective techniques in resource management, individually and/or jointly. In Africa, a growing recognition of the dominant role of women in the use of natural resources has focused attention on the need to involve them more fully in all natural resources development activities and particularly on the need to ensure that they are able to derive a fair share of the benefits from these activities.

CBNRM depends on the active participation of all members of the community: Women must not be excluded from processes of consultation and consensus building. Alternative NRM approaches will need to draw from the visions, ideas and aspirations of social groups that have been marginalised by dominant approaches/paradigms e.g. Poor groups of women and men comprise these marginalised groups.

In Sudan rural women are responsible for finding and transporting fuel, gather wild fruits, herbs and seeds, and fetch fodder for their domestic livestock, as well as taking care of the farms. This is the basic reason why women need special attention in any project aiming at conservation and management of natural resources. To address women's needs properly, women should be represented in development activities and bodies (e.g. committees), should have access to means of production (land, credits), and should have access to training and education.

Conclusions and Way Forward

There is a need to develop clearly defined and agreed upon land-use policy and legislation, to be developed through the participation and involvement of all relevant stakeholders. Security of tenure encourages investment and rational utilization of natural resources. Hence, there is a need to revise policies and legislation dealing with land ownership in order to clear current ambiguity and to provide for tenure and use right security. To avoid conflict and contradiction of interest between various users, this should provide the federal and state governments with guidelines and a policy framework for their activities and programme and for the development of natural resources management.

The enforcement of laws and legislation in the natural resources conservation and management need to pay special attention to local communities and their traditional and long established usufruct rights and consideration of their interests. Implementation of policies, and the enforcement of laws and regulations required the strengthening of the HCENR to play its coordination, supervision and monitoring role. It also requires capacity building of the relevant institutions and awareness raising among the local communities.

There is a need for defining general principles or guidelines to unify and direct the activities of the different government units involved in natural resources management. This is to avoid current sectoral approaches, duplication of efforts, wasting of resources and to avoid conflicts between sectoral interests.

Lack of coordination between institutions (government, NGOs, CBOs, etc.) with natural resource management responsibilities is the major challenge for conservation and sustainable management of natural resources in Sudan. There is an urgent need to promote and enhance effective cooperation and coordination between all stakeholders in natural resources management. In this respect there is a need to strengthen the coordinating role of the HCENR to ensure cross-sectoral coordination in implementing sectoral policies and the development of National Plans. This will help define the clear rights and responsibilities for all stakeholders involved in the utilization, conservation and management of natural resources. This requires capacity building and training of Government staff, CBOs and local communities in conservation, and the sustainable management of natural resources.

There is a need to enforce and empower traditional institutions and leadership as they have proved to be effective and capable of playing the coordination role between government and the gross-roots, as well as mobilizing communities and resolving conflicts over natural resources.

Natural Resource surveys and mapping is needed in order to provide information for land classification, natural resources conditions and distribution, ecological regions boundaries and maps. This information is also needed to promote the better conservation of critical ecosystems and habitats through legislation, strategic plan and improved land-use policies.

Development of policies to improve livelihood systems and eradicate poverty will require suitable marketing policies to enhance the better marketing of non-wood forest products. This will help make the links between natural resource management and income generation. There is a good potential for income generation, specially by women from the collection, and processing of forest products. This needs to be considered in designing training programmes with the aim of developing and improving the local knowledge and skills.

Gender assessment is important in order to gain insight into the crucial economic role played by women in all development activities generally and particularly in natural resource sector. Hence, a focus on gender relations is essential if the position of rural Sudanese women is to be adequately addressed. Such a gender oriented approach will result in better and more realistic insight into the way relations between women and men are shaped in a particular society, and into the impact of project interventions on the position of women as compared to men.

7.1 Introduction

Sudan is the largest country in Africa and covers an area of approximately 2.4 million square kilometres. The country lies in a dry region, with 50% of the land classified as desert or semi-desert. Savannah rangelands cover 50% of the land, which is mostly flat. There are a few mountainous areas, including Jebel Marra, Imatong and the Red Sea Hills. The population of Sudan is estimated at 30 million people with a growth rate of 2.7% per annum. Seventy percent of the people live in rural areas, deriving their livelihood from agriculture, livestock and forestry.

The current and projected area under different types of land use (Table 7.1.). The figures project a decline in the area covered by forests and rangelands, and an increase in agricultural land. This is a reflection of the continuing trend of severe land degradation within Sudan. Land degradation is the result of clearance of natural vegetation for traditional and mechanized cropping, overgrazing, woodcutting, bush fires and drought. For example, natural forest resources are shrinking at a high rate, estimated at 455,000 hectares per year. Vast areas in central and northern Sudan are almost treeless, and soil erosion has become a serious problem.

Table 7.1: Land area under different land use categories in Sudan (million ha)

Land use category	Year-2000	Year -2005	Year-2010
Forest land>20% crown cover	3.069	2.939	2.81
Forest land 10-20% crown cover	4.486	4.283	4.079
Scattered trees and shrubs rangeland	42.751	40.81	38.87
Grass range land	20.11	20.11	20.11
Wildlife protected land	11.78	11.78	11.78
Waste land	15.88	15.065	16.249
Irrigated agriculture	1.86	1.86	1.86
Mechanized rainfed agriculture	7.6	8.85	10.3
Traditional agriculture	8.56	9.31	9.95

The long-term effects of soil erosion are manifested in declining crop productivity, and the degeneration of rangelands and forests. Rangelands occupy approximately 50% of the country's area across desert, semi-desert, and savannah ecosystems. These vast rangelands produce about 80% of the food for the country's livestock, estimated at almost 100 million animals.

7.2 The Natural Resource Base

7.2.1 Water Resources

The Nile Valley traverses Sudan and is the country's most distinguishing feature. The Blue and White Niles (and their tributaries) join near the capital city, Khartoum, and flow north to the Mediterranean Sea. The Nile Valley is a major support system for the livelihoods of the Sudanese people. Agriculture, forestry, fishery and range resources from the valley provide food, construction materials, energy and various means of income generation for a substantial proportion of the population.

According to the Nile Water Agreement of 1959 Sudan's annual abstraction from the river should not exceed 18.5 billion cubic metres (bm^3). At present, the average amount of water extracted from the River Nile annually is between 14 and 15 bm^3. About 95% of this water is used for irrigation purposes, 5 % for domestic water supply and less than 1% for industrial & other purposes.

There are approximately 300 seasonal streams and *wadis* that yield an additional 2 to 3 bm^3 of water per year. Since these sources are unreliable, their use for irrigation purposes is very limited (Mohammed, 1998). Water-bearing geological formations are common and include the Nubian Sandstone and Umrwaba Formation. Information on the extent of ground water is sketchy but some studies estimate total reserves at 4 bm^3. Groundwater is sometimes tapped for domestic use, and rarely used for irrigation because reservoirs in most parts of the country occur at very great depths (up to 100 metres).

It is estimated that Sudan receives 1000 bm^3 of rainfall every year. A decrease in annual rainfall was detected during the 1990s, and cited as one factor leading to high sediment deposits in irrigation canals and reservoirs, estimated at more than 25 million cubic metres. Along the Blue Nile and Atbera rivers, reservoirs have lost more than half their original storage capacity.

7.2.2 Forest resources

Forests and woodlands cover approximately 25% of the total area of the country and yield 16 million m^3 of wood and timber for fuel, construction and various industrial purposes. Specific forest products include fuelwood, charcoal, construction poles, timber, gums, leaves, and herbal and processed medicines. There is great demand for these products and their exploitation is associated with many detrimental effects on the environment.

Forests in Sudan are classified as either natural or plantation. At present, about 8.86 million hectares of natural forests are reserved by the government. Other wooded land is classified as either forest fallow (comprising secondary, woody vegetation resulting from the clearing of natural forests) or shrub land (Abdelnour 1998).

The rate of deforestation in Sudan is high and exceeds the rate of restoration by up to 30 times (Harrison & Jackson, 1958; FAO 1984, 1990; and FNC 1998). Elsidigg (1999) estimates that 455,000 hectares of forests are cleared annually. The high rate of deforestation is attributed to a high demand for farmland, pasture, building materials and fuelwood. It is also estimated that long term shifting cultivation has resulted in the loss of 70% of the original woodland cover.

The annual increment in forest stock has been estimated at 11.0 million cubic meters (FNC 1998), whereas the total demand for forest products is approximately 16.0 million cubic meters (FNC 1994). Approximately 87.6% of the country's wood is harvested to meet the demand for

firewood and charcoal. Seventy percent of the total energy consumed in Sudan is derived from fuelwood. In rural areas, where fuelwood is the main source of energy, non-wood forest products such as fodder, fruits, fibres, oils, gums and medicinal extracts are also important because they support informal, small-scale industries. Gum Arabic is among the most valuable non-timber forest products harvested by rural communities.

7.2.3 Wildlife and fisheries

The diversity of ecological zones within Sudan is reflected in a wide variety of wildlife species. Out of the thirteen mammalian orders occurring in Africa, twelve occur in the Sudan, and the country's fauna includes 91 genera and 224 species and sub-species of mammals, other than bats (Setzer, 1956). A report published in 1995 reported 871 species of birds (Cave & Macdonald, 1955), and a later study recorded 931 species recorded (Nichalous, 1987).

In 2000, national parks, game reserves and sanctuaries covered a total area of 11.78 million hectares (Table 7.2). These protected areas include three national parks (Boma, Southern and Nimule National Parks) and fourteen game reserves in Southern Sudan, as well as three national parks (Dinder, Radom and Sanganeb Marine national parks), three game reserves and three sanctuaries in Northern Sudan. There are also five game reserves within the extensive Sudd Swamps, along and around the White Nile. Unfortunately, the protected areas system does not extend to the desert and sahelian zones that cover almost half of the country. Other areas that merit conservation include the Red Sea Hills in eastern Sudan and Jebel Marra and Wadi Howar in western Sudan.

Further, the existing protected areas system is not managed properly, due to inadequate staff and funding. Many habitats in protected areas have been degraded due to encroachment for settlement, cultivation and grazing and their present status is considered critical. No serious attempts have been made to encourage the participation of local communities in the management of protected areas.

The country's fisheries comprise another wildlife resource that is not managed to realise the full potential. Sudan is endowed with inland and marine fisheries that are habitats for diverse flora and fauna but very few species are harvested. Also, most fishing activities are on a small scale and utilised mainly at the subsistence level.

Table 7.2: Protected areas in Sudan

National parks	**Area (ha)**
1. Dinder National Park	890,790
2. Radom National Park	1.250,000
3. Southern National Park	2,300,000
4. Shambe National Park	62,000
5. Boma National Park	2,280,000
6. Bandigilo National Park	1,650,000
7. Nimule National Park	41,000
8. Sanganeb National Park	26.000
	8,499,790
Game reserves	
1. Tokar Game Reserve	630,000
2. Sabaloga Game Reserve	116,000
3. Rahad Game Reserve	350,000
4. Ashana Game Reserve	90,000
5. Chalkou Game Reserve	550,000
6. Zeraf Game Reserve.	970,000
7. Fanyikang Game Reserve	1,000
8. Numatina Game Reserve	48,000
9. Bangangai Game Reserve	210,000
10. Bire kpatous Game Reserve	17,000
11. Mbarizinga Game Reserve	50,000
12. Juba Game Reserve	1,000
13. Mongalla Game Reserve	20,000
14. Badingera Game Reserve	7.000
15. Kidepo Game Reserve	120,000
	3,180,000
Sanctuaries	
1. Sinkat Game Sanctuary	12,000
2. Arkawit Game Sancuaty	82,000
3. Khartoum Sunt Forest Bird Sanctuary	1,500
	95,500
	11,775,290

7.2.4 Agriculture and livestock production

Agriculture is the most important sector of the Sudanese economy. The sector accounts for almost 40% of GDP and supports approximately 80% of the population. Almost 97% of exports from Sudan comprise primary agricultural commodities (SNBAP 2000). There are three distinct sub-sectors of agriculture in Sudan, namely modern irrigated farming, mechanised rainfed farming and traditional rainfed farming. During the colonial period, the promotion of cotton as an export crop was a priority. Therefore, development activities were concentrated along the Nile, and other parts of Sudan where cotton was grown. Post-independence policies have continued to favour irrigated and mechanized agriculture. Traditional agriculture and livestock production systems are relatively neglected.

Productivity in the agricultural sector is declining. The decline in productivity is attributed to land degradation due to inappropriate agricultural expansion, inappropriate policies and planning, and overgrazing, or the continuous removal of vegetation cover.

Livestock rearing ranks second to crop cultivation as a key economic activity in Sudan. The country possesses diverse livestock herds that contribute approximately 20-22 % of GDP and 53-56% of the agriculture sector. Sudan is self sufficient in livestock products. Most livestock is reared using traditional, open-grazing practices and attempts have been made to adopt modern ranching techniques that exert less pressure on rangelands systems, and which could also reduce the current fodder gap, estimated at 10 million tons per year. For example, the government has supported ranching schemes within Abufas Reserved Range, Geraih El Sarha Settlement Scheme, Babanusa Ranch, Gazala Gawazat Experimental Ranch and Elodaya Communal Improved Range, with varied success (Hassan, 1998). Poultry is also raised using both traditional and modern systems. Between 1985 and 1995, the production of meat and eggs from this sub-sector rose by approximately 50%.

7.3 Policies and Legislation that are Relevant to CBNRM

7.3.1 National Policies

In 1991, the Government of Sudan adopted a federal system to devolve responsibilities and redistribute power and revenues among 26 states that were established to assume responsibilities for local administration. Each state is divided into provinces and localities. The localities are administered by village councils that represent six to eight villages.

The government's Fourth Constitutional Decree outlined the distribution of responsibilities for environmental and natural resource management under the new federal system. Proposals presented during 1994 and 1995 included principles and criteria for the distribution of revenue from forests resources between the federal Forest National Corporation (FNC) and state authorities.

In the Six-year Development Plan (1977-1983), conservation of the country's natural resources was identified as a key objective for attaining development goals (Tolentino, 1994). Likewise, the Four-year Salvation and Recovery Development Programme (1988-1992) included policy proposals on natural resources conservation, ecological balance, desertification control and environmental planning, as recommended by the National Economic Conference in 1986. Based on the Salvation and Recovery Development Programme, policies relating to environmental protection are joint or concurrent responsibilities of federal and state governments, and detailed regulations on environmental protection are the responsibility of individual states, subject to federal planning and coordination. However, the federal

government has exclusive jurisdiction to legislate on matters relating to natural resources, mineral resources and subterranean wealth. In cases of conflict, federal jurisdiction over environment and natural resources prevails (Tolentino 1994).

The Comprehensive National Strategy (CNS, 1992-2002) includes the most recent policy objectives that guide resource development in Sudan. One of the main goals of CNS is the conservation and development of the natural resource wealth of Sudan through direction of more investment in the sector, awareness raising and involvement of local people, enforcement of legislation, and prevention of irrational use of natural resources. Specific objectives of the strategy include:

- Food security through the expansion of the irrigated and rainfed sectors and by increasing the productivity per unit area;
- Increased contribution of agriculture to export earnings and to gross domestic product (GDP);
- Efficient resource utilisation; and
- Regional balance, social equity and wealth distribution through supporting and strengthening the role of small producers, especially in the marginalised areas.

The CNS calls for the reservation of 25% of the country's area for forestry, rangeland and wildlife. The strategy recommends the integration of forestry into agriculture, with 10% of the area of rainfed schemes and 5% of the total irrigated area being allocated for the establishment of shelterbelts and woodlots.

With respect to range and pasture, the CNS calls for rehabilitation and maintenance through recognition of rational carrying capacities, improvement of pasture, adoption of appropriate specialized and rotational grazing systems, and fire control. For wildlife, the strategy focuses on habitat conservation, the adoption of attractive economic policies, the enhancement of regional cooperation, the establishment of more game reserves and national parks, and more research on wildlife.

For the livestock sub-sector, the CNS focuses on the greater adoption of modern practices and better management of the traditional systems that account for more than 80% of the country's livestock. Specific recommendations include changes in the livestock breeding and production systems, encouragement of private sector investments, intensification of production and integration of agriculture and animal production.

Sudan's Forestry Department was first established in 1902, but the first forest policy was not published until 1932. The policy emphasized distinctions in authority for the management of forest resources between the central government, represented by the Forest Department, and the local government authorities, operating at provincial levels. The Forest Department was made responsible for the national supply of wood products while the local government agencies were only responsible for the provision of wood at the provincial and district levels.

According to the Forest Policy of 1932, local demand for forest products was to be satisfied solely through harvesting of resources from forest reserves, where regeneration was guaranteed. Farmers and other members of rural communities were to be encouraged to introduce forestry crops on their land. Implementation of the policy was facilitated by central and provincial forest ordinances that obliged local communities to confine utilization of forest resources to reserves and allowed forest authorities to impose levies on forest products.

A new Forest Policy was published in 1986, which recognises the role of different actors in the development, conservation and management of forest resources. Specific objectives of the policy include:

- Emphasising the role of forests in environmental protection;
- Recognising and encouraging the establishment of community, private and institutional forests;
- Permitting the felling of trees in areas outside forest reserves, subject to approval by the Director of Central Forests Administration (CFA), provided that such areas are reserved immediately thereafter to facilitate regeneration;
- Prohibiting the burning of trees on sites being converted to farmland and obliging farmers to utilise existing trees effectively, and conserve trees on a specified percentage of land inside and around agricultural investment schemes by establishing shelter-belts and windbreaks;
- Promoting the participation of local communities in afforestation and forest conservation activities;
- Increasing the extent of forest reserves from 15 to 20% of the country's total land area;
- Meeting local demand for forest products;
- Emphasising the role of forest extension services;
- Encouraging multiple use of forests;
- Dividing responsibilities for forest administration between the central and regional government authorities; and
- Making the Director of CFA the official counsellor on forestry matters to regional authorities and institutions.

7.3.2 Legislation

Since 1901, approximately 150 acts, orders and regulations have been passed to deal with matters related to environmental protection and natural resource use in Sudan. However, the country does not have comprehensive legislation to implement policy on environment and natural resources issues.

There is no specific legislation that deals with land use (Tolentino, 1994). Legislation relating to tenure and land use is scattered among the Land Settlement and Registration Act (1925), the Unregistered Land Act (1970), the Town Village Planning Act (1961), the Acquisition Act (1930), the Civil Transaction Act (1984), the Constructive Planning and Land Disposition Act (1994), and the Mechanized Farming Public Corporation Regulations (1975).

The Land Settlement and Registration Act of 1925 provides for registration of ownership, rights and interests over land such as occupation, passage, cultivation, grazing of livestock, and harvesting of tree and water resources. After the Unregistered Land Act was passed in 1970, the government assumed ownership of all forest, undeveloped or unregistered land. Unfortunately, the act did not make provisions for the Islamic principle of *manfaa* (usufruct) that, under long-established systems gave people the right to use and benefit from land that they did not own (El Mahdi 1981, Magzoub (1999). The harsh effects of the 1970 legislation was diluted by the provisions of the Civil Transaction Act (1984) that recognised usufruct rights and stated general principles and guidelines for use of agricultural land, including:

- Protection of the integrity of areas, villages, suburbs, natural resources, the environment and animal wealth; and
- Recognition of agriculture as a priority over other land use practices when its produce is beneficial to the general public.

Private ownership of land in Sudan is limited to tenure rights registered before the enactment of the Unregistered Land Act in April 1970. The Constructive Planning and Land Disposition Act (1994) provides for a council to deal with planning and policy related to land use and land tenure legislation. At the state level, the act also provides for the establishment of two inter-ministerial committees for land disposition. One of the inter-ministerial committees deals with land for residential and urban development purposes. The other committee deals with tenure in agricultural lands, and normally comprises representatives of all natural resources institutions within a state, as well as relevant survey and land registration departments (Magzoub 1999).

The Forest Act of 1989 was issued to meet the provisions of the revised Forest Policy (1989). The act requires local communities to confine utilization activities to the forest reserves where managers can guarantee conservation, regeneration and sustainable management. To reduce felling of trees and collection of wood outside forest reserves, the act allows local authorities to collect taxes and royalties on forest products harvested outside reserves.

The Forest Act (1989) encourages forest authorities to involve local communities in the management of forest reserves. The act also requires individuals who have leased farmland from government or parastatal agencies to establish trees on 10% of rainfed lands and 5% on irrigated lands. The Act provides for reservation of local forests as community forest reserves. Community forests may be established as long as local leaders, local authorities, the commissioner and the state minister of agriculture confirm and establish rights of the community to the site where the forest will be established. The federal Minister of Agriculture makes the final reservation order and publishes it in the official gazette of laws after receiving the recommendations of the General Manager of the Forest National Corporation (FNC, Magzoub 1999).

The Forest National Corporation Act was passed in 1989 to facilitate the establishment of the FNC to succeed the Forest Department. The act assigns the management of community forests to committees chosen by community members. Each committee is the management body responsible for planning, protection and investment of forest resources. Specific responsibilities include tree management, forest patrols and protection. The Forests National Corporation also makes provisions for capacity building through extension and training activities, assistance in the organisation and management of local committees, and the formulation of appropriate rules and rights, developed in consultation with members of local communities

The Wildlife and National Park Act was passed in 1987 with the aim of:

- Conserving wildlife, national parks and game areas in Sudan;
- Promoting wise use and development of wildlife resources;
- Implementing Sudan's commitment to the Convention on International Trade in Endangered Species of Wildlife Fauna and Flora (CITES); and
- Providing information on wildlife resources and promoting scientific research.

The law also describes the procedure for establishing natural parks. Specific provisions of the law focus on the conservation of wild animals. For example, the act includes a list of protected animal species, specifies closed seasons for hunting, prohibits some methods of hunting, and describes the system for issuance of hunting licences and permits. The law gives less recognition to management and conservation of wild plants.

7.4 The Institutional Framework for CBNRM

7.4.1 Background to NRM institutions in Sudan

Prior to the British colonial era, resource management in Sudan was controlled by traditional community leaders such as Nazir, Shiks, Omdas and Shartai. In traditional societies, equitable user right systems and strong social institutions facilitated rational use of natural resources, particularly within the savannah region. The government progressively acquired control of resource use. After the government began to establish reserves in the early 1900s, the management of common property resources within rangelands and forests outside the reserved areas continued to be based on traditional regulatory systems that were supported by social and religious customs and beliefs, and controlled by traditional leaders and tribal institutions. The linkages between agriculture, animal husbandry, water and forests continued through shifting cultivation and integrated land use practices. Traditional techniques and social methods to prevent resource degradation were applied and leaders organized villagers' participation in clearing of fire lines and other resource protection activities.

Local communities continued to control common property resources in most rural areas, including extensive grazing lands and forests. Forest reservation was not obstructed by local communities as long as key rights and benefits, such as grazing and collection of dead wood, were secure. But the traditional land management systems broke down after enactment of the Unregistered Land Act in1970. Large areas of rangelands under communal use that were no longer covered by either traditional or formal (legal) land tenure systems were converted to farmland. Similarly, when legal access by rural communities to forest reserves was restricted by the government during the 1980s, people gained access through illegal means. By the 1990s, the government lacked the capacity and resources to enforce the sustainable use of natural resources. The central government chose to progressively withdraw from control of resource use and delegate more authority to state governments.

Today, various stakeholder groups with distinct interests in the utilization and management of natural resources can be distinguished in Sudan. These include government, non-government and community based institutions.

7.4.2 Government Institutions

The FNC is one of several institutions within the Ministry of Agriculture and Forestry (MAF) and was preceded by the Forest Department. The Forest Department was established in 1902 and was one of the oldest government institutions. The FNC has a mandate to realize the productive and protective roles of forestry resources in the Sudan. In this respect, FNC has the following functions:

- Formulating policies for the management and development of forest resources, and the rules and procedures that promote wise utilization of forest stocks and achieve full protection of the environment;
- Proposing laws that promote the implementation of the approved policies for the management and conservation of forests;

- Implementing forest policies through technical supervision of all forests, at the national level;
- Raising awareness on appropriate management of forests and trees among responsible persons, citizens and investors;
- Conducting surveys, and formulating appropriate plans, for forest inventory and development, at the national level;
- Increasing the area of reserved forests up to a minimum of 20% of the total area of the country, from the current 3.2% coverage;
- Intensifying afforestation efforts, for the purposes of environmental protection and forest resource production, while promoting popular participation in such efforts;
- Encouraging the establishment of forests, and striving to provide sufficient seedlings, and technical advice; and
- Developing the production of gums, especially Gum Arabic, and other non-wood forest products.

FNC is also expected to co-ordinate the activities of various bodies with the aim of implementing policies for forest management and to combat desertification, undertaking research, and levying fees on forest produce in accordance with the existing legislation or as approved by the relevant minister. FNC is governed by a Board of Directors (BOD) comprising representatives of all relevant sectors. A General Manager (GM) conducts the daily operations of FNC and is assisted by a Deputy General Manager, the heads of seven administrative units, and 26 directors of state forests. The corporation's strategies and programmes are influenced by developments in the science and practice of forestry, and other related disciplines, through partnership and collaboration with many regional and international organizations.

The Range and Pasture Administration (RPA) was established during the early 1950s within the Ministry of Animal Wealth to carry out activities related to range conservation and management. The original functions of RPA included proper distribution of water resources to allow balanced utilization of grazing resources, and production of fodder crops under irrigation. In 1973, RPA was transferred to the Ministry of Co-operation and Rural Development, and later, in 1975, it was transferred to the Ministry of Agriculture (MAF). At this time, RPA had three main divisions; rangeland, irrigated pasture and pastoral studies (Zaroug *et al.*, 1997) and regional offices established to manage tasks such as range improvement, at local levels.

After the adoption of the federal system, RPA fell under the General Administration of Natural Resources and Production within MAF. The number of regional RPA offices was increased in all 16 states, particularly within North Sudan. Today, the main responsibility of RPA is the protection and management of pasture and animal feed. In the discharge of its mandate, RPA has to deal with many problems such as overgrazing, seasonal fires and coordination among local communities (Tolentino, 1994). RPA also has to manage conflicts between different land-use systems, such as crop production and livestock rearing, that are common in Sudan and lead to problems of overstocking and overgrazing.

The Wildlife Conservation General Administration (WCGA) is responsible for the administration of national parks, game reserves and sanctuaries, and has the mandate to uphold law and order within all protected areas. WCGA is attached to the Ministry of Interior and the Ministry of Environment and Tourism.

The Higher Council for Environment and Natural Resources (HCENR) was established 1991 under the chairmanship and supervision of the Prime Minister, in order to formulate effective policies, laws, plans and institutions to combat problems of natural resource depletion and degradation within Sudan. In 1995, HCENR was assimilated into the newly created Ministry of Environment and Tourism. HCENR is primarily a coordinating and advisory body. According to the HCENR Act (1991) its functions include the following.

- Laying down general policies and long-term plans for environmental protection and sustainable development of natural resources;
- Co-ordination of efforts in environmental and natural resources management among concerned governmental agencies, and between federal and state governments;
- Periodic review of relevant legislation and recommendations to make laws more effective instruments for sustainable development;
- Encouraging and supporting research on the environment and natural resources; and
- Promotion of environmental awareness and education.

According to Resolution No. 735 (1992), the members of HCENR include individuals with knowledge and expertise on environment and natural resources, as well as the ministers of; Agriculture, Animal Wealth, Irrigation and Water Resources, Energy and Mining, Trade and Commerce, Higher Education and Scientific Research, Justice, and the Attorney General's Chambers. Many state branches of HCENR have been established under the chairmanship of the State Governors (*Wali*). The functions of these branches are to:

- Implement the general policies laid down by HCENR;
- Monitor implementation of development programmes relating to natural resources; and
- Collect data and gather information on negative or adverse changes in the environment.

HCENR and its state branches are authorized to constitute specialized technical committees to assist in the performance of their tasks. The commission is also Sudan's focal point for most of the global conventions on the environment and responsible for ensuring the country's compliance with its obligations under these conventions. For this reason, HCENR is implementing a number of capacity building projects to enable the country respond to the requirements of the conventions.

7.4.3 Local Government Institutions

In states where traditional leadership systems still prevail, the Local Administration Act provides for the establishment of native administration systems within the general framework set out in the Act (Magzoub, 1999). The administrative structure of local institutions in North Kordofan State is described in Box 7.1.

Box 7.1: Local institutions in North Kordofan State

North Kordofan State covers an area of about 185, 300 km^2, with a total population estimated at 1.3 million . The state is divided into four administrative provinces and each province is sub-divided into localities (formally known as local councils). Each province of North Kordofan has a different number of localities depending on the area and other considerations. For example, Shikan Province is made up of five localities: Kasgail (44,000 km^2), Khur Taggat (50,000 km^2), Rural Elobied (48,000 km^2), and East and West Elobied which cover a combined area of about 229,000 km^2.

Each locality consists of a number of popular committees known as village committees. Each village committee represents a village or number of villages in the rural localities, or suburbs within urban areas. Each locality has a council composed of elected members, 75% of them from geographical constituencies and 25% representatives of professionals and women. The councils meet each month and usually appoint committees to manage affairs between each monthly meeting (Ali 1991). Each council has an administrative system consisting of specialized committees (e.g. agricultural, services), executive officers and other assisting staff.

The Local Government Act 1998 provides the general framework of local governments where localities defined by warrants of establishments made by a state government are awarded legal entity and empowered to exercise devolved powers determined by the said warrant (Magzoub 1999). The local authorities' powers are limited to matters within the state list, and include powers on matters related to the environment, land, forests and animal wealth.

7.4.4 Non-Governmental Institutions

Since 1980, many NGOs have been registered and become active in different fields of environmental management and rural development (Mohamed 1999). In addition, networks such as the National Coordination Committee on Desertification (NCCD) have been established to coordinate activities among NGOs.

The Sudanese Environmental Conservation Society (SECS) is considered to be the most active NGO working to promote environmental awareness and better environmental policies and action in the country. The main objectives of SECS include:

- Conservation of the environment and mitigation of any action that may lead to environmental degradation;
- Greater environmental awareness;
- Cupertino with the government in law enforcement for environmental conservation;
- Stronger links among local, national, regional and international institutions endeavouring to conserve the environment; and
- Scientific research and studies aiming at the conservation of the environment, including more publications on the natural history of the Sudan.

SECS has established more than 80 branches distributed all over Sudan (with more than 6000 members) and collaborates with government and non-government organizations to achieve its objectives. The society initiates and supports small projects with grassroots involvement designed to improve living conditions and well being (Mohamed, 1999). These projects include afforestation, waste management and awareness-raising activities. For example, SECS is promoting environmental awareness in the areas around Dinder National Park by talking to community leaders, and producing slide shows, documentaries, guidebooks and brochures about the park. SECS has also undertaken a research project to assess wildlife habitats, in collaboration with the Wildlife Research Centre (WRC) and the National Remote Sensing Centre.

The Sudanese Social Forestry Society (SSFS) is a charitable NGO whose members are dedicated to enhancing social and multiple benefits of forest resources. The main objectives of SSFS are to:

- Promote the concept and practices of social forestry, through networking and linkages between social forestry and extension units in Sudan;
- Enhance the standards of awareness of community participation in social forestry;
- Encourage scientific research, and the application of research results in social forestry;
- Assist in the fund raising and appropriate allocation of funds for social forestry projects;
- Facilitate technical consultancies in the field of social forestry projects;
- Cooperate with concerned agencies for the development of social forestry;
- Collect, authenticate and publish information regarding social forestry activities;
- Establish advanced relationships with international and national networks; and
- Preserve natural forests as a national heritage.

The society strives to achieve these objectives through cooperation with FNC on the technical aspects of social forestry and conducting appropriate studies and research in collaboration with local experts. SSFS also works in close collaboration with other government institutions, particularly the NCCD. The society has enhanced awareness and involvement among members of various communities through the use of audiovisual and print media, and by initiating projects for the establishment of shelterbelts and woodlots in areas prone to desertification. SSFS has also conducted workshops and training for forest extension workers and local community leaders.

In most rural areas of Sudan, the native administration persisted until 1969, and was based on traditional systems of territorial rights. The native administration was built on the tribal organizational system where each tribe was headed by a chief known as a *nazir*. The tribal territories, known as *dar*, were divided into sub-units headed by *omda*. Each sub-unit was further divided into smaller units headed by *shikhs/shieks*. This system applied to both sedentary and mobile communities, and these are the basis for CBO's.

Residents of each *dar* had specific rights to certain areas. People from outside a *dar* had to obtain permission from traditional authorities to be granted user rights. The administration system of the tribal nazirs, omdas and shieks also used to deal with local judicial matters, tax collection, enforcement of laws and ordinances, protection of natural resources, reporting of security matters to local government, and supervision of grassroots execution of development activities.

The local government system, in which government officers were appointed by the central government evolved from the early 1970s, after the native administration system was abandoned in 1969. The change to the local government system created a gap in administration. The link between the government and communities at the grassroots level, which, used to be performed by the tribal institutional structure was lost. This was in spite of the fact that the traditional systems continued to exist within local communities. Attempts have been made to design the local government system in a manner that replicates the native administration system at the village level. For example, range rehabilitation and management projects are being implemented at the level of localities (local councils), with village committees recognised as project sub-units.

7.5 Experiences with CBNRM

7.5.1 Management of natural forest reserves

Since the early 1980s, several attempts have been made to promote the participation of local communities in the management of natural forest reserves. Many lessons have been gained from projects implemented within forest reserves in central Sudan, involving organizations such as FAO, UNSO and SOS (Table 7.3).

Table 7.3: Some of the projects implemented with assistance from external funding agencies

Name of the project	Assisted by	Dates	States
Forest rehabilitation social forestry	Irish Aid	1992-95	Gezira Sennar
Forestry development in the Sudan	Netherlands Government	1992-96	Red Sea, Kasha, Gedarif, Gezira, Sennar, HO
Restocking of the gum belt for desertification control	UNSO	1990-94	Northern Kordofan
Restocking of gum belt	Norway& Gulf land		Northern Darfur, South Darfur
Afforestation and reforestation in Northern State	DANIDA	1989-95	Northern River Nile
Management of Jebel Marra forests	Government of Germany, GTZ	1989-97	South Darfur
Village extension section	SOS Sahel International, UK Netherlands	Phase 11 1990-93	River Nile Shendi
Natural forest management project El Ain	SOS Sahel International, UK	1989-93	Northern Kordofan El Ain Reserve
El Giteina Green Belt Project	SOS Sahel	1992-95	Wite Nile
Northern Province SOS Sahel Community Forestry Project	SOS Sahel	1989-93	Northern state El Deba

A participatory programme for forest management was initiated in Elrwashda Natural Forest Reserve in East Sudan during 1980. FAO sponsored the project with the aim of rehabilitating the reserve with the involvement of local communities through the *taungya* system. Local farmers cultivated crops while planting and protecting trees within the reserve.

In 1994, ADES - an NGO, and FNC began a project at the same site, with similar aims and guided by a contract between the project managers and local villagers. The contract clearly defined acceptable criteria and responsibilities for crop cultivation and renewal of the forest crop by the local people. Each farmer was granted a piece of land inside the reserve and contracted to use 75% of the land for crop cultivation, and 25% to raise forest crops. The area of land allocated to a farmer remained the same each year, for management under the same terms.

By 2000, agricultural productivity within Elrwashda Natural Forest Reserve exceeded productivity on other open lands by three times. Currently, the local community and FNC are discussing the options for the future management of the forest, including the sharing of benefits from forest products. It is expected that future projects in this area will address other issues that were not covered adequately during the previous projects. These include procedures for protecting the rehabilitated forest block after the crop cultivation period, and expansion of rehabilitation activities to other forest reserves and degraded sites. Another successful participatory forest management project has been implemented at Elain Natural Forest Reserve in Kordofan State (Box 7.2).

Comparisons between the current status of Elain and Habile forests provide evidence that community based natural forest reserve management constitutes the basis for conservation and sustainable development of natural forest resources. The impact of extension and awareness-raising activities is clearly noticeable at Elain Natural Forest Reserve. Unfortunately, the experiences gained through this project are hampered by limited institutional commitment to participatory approaches within the FNC. In addition, members of local communities lack many of the technical and managerial skills that would enhance their participation in resource management.

Box 7.2: Participatory management of Elain Natural Forest Reserve

Elain Natural Forest Reserve is located in Kordofan State, Western Sudan. Between 1990 and 1998, SOS and FNC engaged local people in efforts to conserve the forest. Key objectives of the project were to control illegal felling while ensuring that local people still had access to certain forest resources.

Local leaders and members of village forest societies and other committees collaborated with the FNC/SOS project managers to mobilize community participation in extension activities, fire protection and controlling access to forest resources. These leaders and representatives of local communitis bore most of the responsibility for forest conservation and management. The role of the FNC was to provide extension services and technical supervision

By the end of the project, the stocking density at Elain Natural Forest Reserve was 800 trees per hectare. The success of this project can be illustrated through comparison with the status of Habile Natural Forest Reserve.

At Habile, the FNC has maintained traditional management practices based on guarding and patrolling by forest guards and officers to prevent access by local people to the forest. The stocking density is 120 trees per hectare. During a recent survy in surrounding villages, respondents displayed a lack of inerest and ignorance about forest conservation and management.

When a similar survey was conducted in Elain, only 22% of respondents stated that FNC is responsible for conservation and management the forest reserve. Sixty percent of respondents stated that local leaders are responsible for forest management. The rest of the respondents stated that village forest societies were responsible for forest conservation and management

7.5.2 Community forestry

Increasing awareness on forest issues during the 1980s, resulting from intensive information and extension campaigns by government and non-government agencies, as well as increasing scarcity of fuelwood, encouraged many communities to claim ownership of natural forests and raise plantations on communally owned land. Many communities have become involved in reservation, ownership and management of forests, and derive an income from the products of communally owned forests. Community forests may be established to manage plantations or to develop natural forests. The area covered by community forests in different states during 2000 is shown in Table 7.4.

Table 7.4: The number of community forests in Sudan during 2000

State	Number of forests	Area (ha)
River Nile	1	44
North Kordofan	17	2470
Sennar	1	21

The case of Elkhalil Communal Forest (Box 7.3) shows that people can develop their own regulatory system to conserve resources in the most sustainable manner, for the well being of a community. This is evident in the way the community forestry has contributed to village development and protection of the watercourse. The management system developed for Elkhalil Communal Forest provides valuable lessons for neighbouring villages. However, the fact that the community's forest management authority is subject to FNC directives is a constraint to this type of CBNRM. The community's initiative is further hampered by limited capacity to deal with management and technical issues, as well as problems with marketing and local infrastructure.

Box 7.3: The case of a community based forest management system in Singa Forest Area

Khalil Elkobra is a natural forest that covers a riverine strip of 21 hectares, sloping gently towards the Blue Nile. The forest has a high diversity of indigenous species, including both young and mature trees. *Acacia nilotica* is the dominant tree species.

The forest is owned by ElKhalil Village. The villagers have developed rules to regulate utilisation of forest resources. Harvesting of dry firewood is permitted. Grazing is prohibited. Harvesting of live forest products is regulated and confined to felling of old trees, at a fee determined by the village committee. All the adult residents of the village participate in patrolling and protection of the forest. Returns from the sale of forest products is used for village development projects. These projects include the establishment of a small clinic, maintenance of the school and development of a piped water system.

All forest management activities overseen by a village committee, with FNC providing technical assistance. Periodically, FNC organises training for the local people on methodology for protection, selection, felling and sale of trees. Reports compiled by FNC and the village committee indcate an annual increase in the area under forest and the income generated from timber sales.

7.6 Opportunities for CBNRM

The NCS document devotes considerable attention to biodiversity conservation and encourages the involvement of local communities in NRM. More explicitly, the revised policies of the FNC recognise community participation as a means to sustainable development of forest resources. These policy statements are supported by the provisions of the Civil Transactions Act and the

Forest Act, which recognise and secure usufructary rights that enable communities to gain access to, and benefit from government-owned land. The Forest Act also seeks to promote fair and equitable sharing of benefits among all stakeholders. In addition, Sudan's national policies in support of collaborative management are backed by international conventions, and the policies of international funding agencies that could be important partners in CBNRM.

The progressive change in policies and attitudes within government and non-government agencies involved in NRM is reflected in efforts to facilitate greater involvement of local communities. For example, the current structure of FNC and other forest management authorities enable them to communicate and collaborate more effectively with representatives of local communities. Following the extension programmes ran by FNC, the capacity for participatory development of forest resources among government staff and community groups has been enhanced. It is expected that this capacity will be strengthened further and harnessed to initiate CBNRM for forestry and other land-use activities.

Lessons learned from past and on-going participatory projects for management of forests, rangelands and wildlife conservation could be applied to promote CBNRM. Specifically, the experience gained during projects in Elrwashda National Forest Reserve, Elodia Range, and the Jebel Mara and Dinder national parks, indicate the potential for rehabilitating degraded resources to increase benefits and equity in resource management and conservation. Key achievements of these projects are the stronger capacity within community based institutions to develop systems for regulating resource use; the enhanced capacity for collaborative management among government, non-government and community based organisations; and the improved ecological status and productivity of natural habitats within the project areas.

Traditional systems for NRM, based on indigenous knowledge and institutions, are still recognised and well understood. In rural communities, the indigenous knowledge and institutions rural communities are applicable to a wide range subjects and are valuable resources for development. The current framework for rural development, that fosters collaboration between government and traditional authorities, facilitates mobilisation of communities' capacity for NRM and makes it easier for community members to initiate CBNRM activities.

7.7 Challenges for CBNRM

In the absence of explicitly stated national goals for resource management and sustainability, sectoral policies remain ambiguous and address related issues in a fragmented manner. Issues such as land tenure and collaborative management cannot be addressed adequately unless explicit policy statements that recognise cross-sectoral factors are formulated and implemented. There are numerous ambiguities in laws governing land tenure and land-use rights. The uncertainty over land rights discourages investment in sustainable management and, to some extent, encourages inappropriate practices. The progressive transformation of common property resources, such as communal grazing areas, into private property has weakened the social and economic systems that support communal management of natural resources.

Current policies still favour intensive forms of land use at the expense of the subsistence farmers, pastoralists and entrepreneurs in cottage industries who could initiate CBNRM activities. For example, land is sometimes allocated to large-scale commercial farmers in areas previously utilised by pastoralists. Further, there is no policy for marketing of non-timber forest products. The production and marketing of Gum Arabic has been adversely affected by unfavourable pricing policies.

There is no comprehensive framework for legislation relevant to NRM. Most laws and regulations only cover sectoral interests, or focus on national interests rather than the interests of stakeholders at state and community levels. In addition, there are no specific laws for some sectors of NRM, such as rangelands and wild flora. Collaborative management and CBNRM are further constrained by the fact that most of the existing legislation does not recognise conservation-oriented management principles.

Communities that would like to initiate CBRNM activities are discouraged by the complicated process for the reservation of community forests stipulated in the Forest National Corporation Act. In a similar way, the Wildlife and National Parks Act does not facilitate CBNRM because it does not provide for zoning of protected areas or collaborative management with communities surrounding national parks.

Despite policy statements in favour of more effective management and participation of communities in NRM, most government institutions lack the capacity to implement the policies. During the past decade, government institutions have been subjected to frequent reorganisation after the creation of new ministries, and changes in institutional mandates and affiliations. Therefore, many institutions have not had sufficient time to develop long-term strategies, formulate appropriate policies, or establish effective collaborative linkages with other agencies. The lack of coordination among institutions makes it difficult for the respective authorities to implement their plans effectively.

The process of federalisation and decentralisation has diminished the revenue base of national institutions. For example, after decentralisation FNC lost 40% of its original revenue to state authorities. FNC has not yet identified alternative sources of funds to sustain its activities. Low staff numbers, lack of expertise, and lack of equipment within agencies such as FNC, RPA and WCGA also hamper implementation of collaborative management projects with local communities. Specifically, the lack of competence and appropriate technology for sustainable resource management in arid areas is a major constraint for CBNRM.

At this stage, it is not clear how successful pilot projects for community participation in NRM can be replicated in other parts of Sudan. It is also not clear how the experiences of such projects may lead to NRM programmes initiated and implemented by local communities. Serious efforts by policy formulators and management and development agencies will be required before communities develop the confidence and technical capacity to initiate CBNRM projects.

The current rate and extent of environmental degradation within Sudan makes it relatively difficult for communities to develop viable CBNRM initiatives. The main challenge is how to deal with human activities that promote degradation (such as the expansion in agriculture, intensive grazing and harvesting of wood) in an equitable manner that does not further alienate resource-poor members of rural communities.

Other factors that have led to unfavourable social and economic conditions for CBNRM are recurrent drought and famines, conflicts, internal displacement and poverty. Examples are the civil strife that has been ongoing in southern Sudan since the 1950s and the tribal wars in western Sudan that began in the early 1980s. Political and social instability in these areas has resulted in the migration of millions of internal and external refugees. Within Sudan, populations of displaced people have increased the pressure on natural resources in urban and other relatively safe areas. Internal displacement has significantly contributed to population growth in urban centres, where the total population grew from 20.5 million in 1983 to 30 million in 1998 (Statistical Bureau, 1999).

Poverty affects about 80% of the population. The average per capita income fell from $500 per annum in the 1970s to slightly less than $300 in the 1990s (UNDP, 1997). Poverty in Sudan is associated with several other problems such as food shortages, rural-urban migration and disintegration of the social fabric of local communities.

Arid areas cover the greatest part of the Sudan. The biological potential of these drylands is low and there is great variability in climatic conditions. The natural factors that limit the options for CBNRM are exacerbated by recurrent droughts and outbreaks of diseases that affect livestock and humans.

Although the CNS document recommends special consideration for indigenous knowledge, its use remains relatively neglected. This is probably because of the lack of guidelines for recording and applying this type of knowledge. Greater recognition of indigenous knowledge may strengthen capacity and collaboration for NRM among government agencies, indigenous institutions and members of local communities.

Communities are not homogeneous. The elderly, middle-aged men and women, the youth and children all possess varied knowledge of local conditions and play different roles in society and the economy. Successful CBNRM projects will be those where these different gender and equity groups participate in the design, implementation and sharing of benefits. Currently, the extent to which women, for example, participate in community based development programmes varies across Sudan.

7.8 Key Issues and Recommendations for CBNRM

If the following issues are addressed, members of federal and state governments, non-government organisations and communities will be better able to promote, initiate, facilitate and coordinate CBNRM activities in Sudan.

1. All relevant stakeholders should participate in a review of policy and legislation related to land use so that these statements may be more appropriate and clearly defined. Specifically, there is a need to revise policies and legislation dealing with land ownership in order to enhance security of tenure and user rights.

2. The federal governemnt should publish a policy statement that clearly defines the rights and responsibilities for all stakeholders (including federal and state governments, NGOs, CBOs and individuals) involved in the utilization, conservation and management of natural resources.

3. General principles or guidelines to unify and direct the activities of the different government units involved in natural resources management should be drafted. The capacity of HCENR should be strengthened so that it can draft these guidelines and assume greater responsibilty for coordinating and monitoring policies and planning by different institutions and sectors of resource management.

4. The development of long-term strategies and development of policies to promote conservation and sustainable management of natural resources should be enhanced through greater stability within government institutions.

5. The capacity of government officials and members of non-government and community based organisations to initiate and facilitate CBNRM should be strengthened through training.

6. Traditional institutions and leaders should be empowered to promote greater collaboration between government agencies and communities, and lead efforts in conflict resolution.

7. Natural resource surveys are needed to provide up-to-date information for mapping and land classification, that can be used to identify and manage zones that are suitable for CBNRM.

8. The links between natural resource management and income generation should be strengthened. This can be done through the development of marketing policies that boost the marketing of non-wood forest products and cottage industries.

9. Gender assessment is required to provide information about the impact of alternative interventions and intitiatives on the status of different stakeholder groups.

CHAPTER 8: COMMUNITY BASED NATURAL RESOURCE MANAGEMENT IN UGANDA

Cornelius Kazoora

Uganda Summary

Introduction

Uganda is a country well endowed with natural resources, including soils, fisheries, wildlife, wetlands, lakes, forests and rangelands. Despite that, 35% of its population still lives below the poverty line. Even then, the situation is worse in rural areas where the population's livelihood is closely linked with natural resource use. Such a state of affairs throws into doubt the absolute necessity of natural resources for poverty alleviation and sustainable development in general. This paradox was highlighted in the State of Environment Report 1994 where it is reported:

"Experience has shown that whether a resource-rich endowment promotes economic growth depends not so much on the natural themselves, but on how they are being valued, used and managed, which in turn depends principally on economic policies and institutions. In fact a rich resource base may promote over reliance on resource extraction which may lead to inefficient use, degradation of resources and stagnation"

The Natural Resource Base

As a starting point, the future and the potential of CBNRM in Uganda lies in its rich natural resource base. The country boasts of abundant wildlife both in the protected area system and outside. There are 10 national parks (11,180 km^2), 10 wildlife reserves (8,764 km^2), 7 wildlife sanctuaries (850 km^2) and 13 community wildlife management areas (27,600 km^2). From the economic perspective, these resources assured the economy of a consistent growth pattern in foreign exchange earnings, from merely $26.7 m in 1990 to over $200 m in 2000.

Uganda has 4,931,951 hectares of forests or 20.4% of land area. However, Uganda's forest cover is dominated by woodland (80.6%), followed by Tropical High Forest (THF) (18.7%) and plantations (0.7%). Of this forest estate, 15% is under the management jurisdiction of Forest Department recently transformed into the National Forestry Authority (NFA) by the National Forestry and Tree Planting Act (2003), and another 15% under Uganda Wildlife Authority. The remaining 70% is managed under private land. The sector is responsible for employing over 700,000 people. Subsistence farmers generate about $63 million to GDP from the sector, while tourism generates $13 million. Charcoal makers generate $37 million, and non-wood products generate $35 million, among others. This excludes other benefits like biodiversity values, and hydrological functions which are not easily monetised. It is clear that forest based resources are very important

By virtue of its many fresh water lakes and rivers, Uganda has a lot of fisheries resources. The entire aquatic system covers 20% of the country's surface area, comprising of five major lakes (Victoria, Albert, Kyoga, Edward and George) and about 160 minor lakes in addition to rivers and wetlands. This sector constitutes one of the major bio-diversity ecosystems. Uganda is

estimated to have the capacity to produce about 300,000 metric tonnes of fish annually on a sustainable basic. The maximum catch ever recorded were 245,000 metric tonnes in 1990. Fish is still the cheapest source of high quality animal protein and provides over 50% of animal protein consumption. In 1990, the sector became integrated in the global market, and the earnings from external trade only have risen from a mere $1.3 million in 1990 to over $50 million in 2000.

Furthermore, Uganda boasts of wetlands resource, covering 13% of the country's area and found almost in all parts of the country. With respect to the entire African continent, eastern Africa is estimated to have about a third of all the wetland areas. Within Eastern Africa, Uganda commands 10%, Sudan takes 77%, and 13% goes for other Eastern Africa states. It is thus an important resource in the IGAD region with both direct use values and indirect or ecological values.

Finally, on the list of the natural resource base under this study, Uganda has rangelands. They occupy 43% of the total land area, stretching diagonally from north east to south western part, in both cases extending beyond the national boundaries. This is called the "cattle corridor". Pastoralists raise over 90% of the livestock in range systems, compared to only 10% raised by small-holders in mixed farming. This sector contributes greatly to national food security nutritional balance and also contributes 7.3% to GDP.

Despite the economic importance of the natural resource base, there are issues that undermine their long term potential to sustainable development. Poaching and encroachment in protected areas have resulted in declining numbers of wildlife at a time when tourism was starting to pick up. Forests, particularly those on private land have dwindled due to unsustainable farming methods, urbanisation and demand for charcoal and fuelwood. Fisheries resources are over fished, and since the peak catch of 245,000 metric tonnes in 1990, catches from all the lakes have been declining. Wetlands have been reclaimed in south western Uganda due to population pressure, and rangelands are declining in quantity and quality of pastures, inadequate water infrastructure and competing land uses.

Defining The Concept Of Community-Based Natural Resource Management

The concept of CBNRM which we need to relate to has been defined in this study as a process by which a well defined community organises itself to strengthen, and apply, its own means and capacity for the care of local natural resources while simultaneously satisfying some of its needs from those resources.

In Uganda, the interpretation and meaning of CBNRM must be placed in a historical perspective. Before independence, the units of natural resource use and units of social life tended to coincide. Local knowledge and skills were important elements. The colonial government disempowered some communities through the take over of some natural resources and their management. Local knowledge and skills were displaced by western ideology and instruments. However, as this study has shown, there is now growing realisation, especially in wildlife, forest, and fisheries sectors of the value of involving communities in co-management approaches.

Policy, legal and institutional framework for CBNRM

The central question this study addressed was to what extent is the policy, legal and institutional framework supportive of CBNRM? Overall, the finding is that over the last ten years, Uganda has increasingly advocated for community involvement in natural resource management. This

has been dictated by three factors, namely; (i) dwindling financial and human resources; (ii) a history of failure to manage natural resources using the command and control instruments; and (iii) a global paradigm shift from purely state-controlled and managed natural resource culture to one involving multiple stakeholders according to their comparative advantage.

The Constitution of Uganda is clear on those natural resources it holds in trust for its citizens. These are: wetlands, game reserves, national parks, forest reserves, lakes and rivers. But the constitution also provides that the above responsibility can be delegated to local government through legislation.

The National Environmental Statute 1995 which strengthens the implementation of the National Environment Management Policy, established structures at districts and parishes for environmental management. They are expected to mobilise communities for natural resource management. The statute also introduced the use of economic instruments (incentives and disincentives) in natural resource management after realisation that regulatory approaches alone were not sufficient. The National Environment Management Authority (NEMA) which was established under the same statute, has responsibility to make guidelines for the selection and management of buffer zones near protected areas, to declare wetlands as local, national and global, and to make guidelines for sustainable use of rangelands.

The Land Act 1998, followed the Constitution of 1995 to emphasise four land tenure systems (mailo, freehold, lease and customary). It also provides that a group of persons can form a communal land association. The Uganda Wildlife Statute 1996 allows the Executive Director of Uganda Wildlife Authority to enter into collaborative arrangements with any person for the management of a protected area or a portion of it. It also established six classes of wildlife user rights (hunting, farming, ranching, trading, education and general extraction). Most importantly, it also states that 20% of the park entrance fees from a wildlife protected area shall go to the local government adjacent to that area.

The National Forestry and Tree Planting Act (2003) and the Fisheries Policy (2000) emphasise aspects of community involvement and co- management in addition to incentives for natural resource management. The Local Government Act 1997 decentralised animal and fisheries husbandry extension service vermin control, and wetlands and management of local forest reserves.

The institutional framework for CBNRM is composed of government ministries, semi-autonomous institutions, local governments, NGOs and community-based organisations. Overall, the post constitutional restructuring of the ministries left them with mandates for policy formulation, standards settings and enforcement and providing technical guidance to local governments. The fisheries and rangelands fall under the Ministry of Agriculture, Animal Industry and Fisheries while forests and wetlands fall under the Ministry of Water, Lands and Environment. Wildlife falls under the Ministry of Trade, Tourism and Industry.

The Government has formed the National Forest Authority to take over the forest management responsibilities from Forest Department. The Department has formed a small unit for collaborative forest management. The Fisheries Department has responsibilities for enforcement and regulation and the fisheries extension service was decentralised to local governments. The management of wetlands have also been decentralised to local governments. The responsibility for the management of wildlife is placed under Uganda Wildlife Authority, while that for vermin control has been decentralised to local governments. For purposes of overall co-ordination, monitoring and supervision of all matters related to environmental

management in Uganda, the government formed the National Environment Management Authority in 1995 under the National Environment Statute 1995.

Many international and local NGOs and institutions have complemented government efforts in promoting CBRNM. They have mobilised communities, acted as facilitators, trained them and sometimes channelled financial resources in support of CBNRM. Key among these have been the African Wildlife Foundation (Lake Mburo National Park), CARE (Bwindi and Mgahinga National Parks and in Queen Elizabeth Protected Area), COVOL (northern Uganda), World Lutheran Federation (Karamoja) and IUCN around Mt.Elgon, Kibale and Semliki National Parks. Among local NGOs, Environmental Alert has trained resource users in Eastern Uganda to make management plans for wetlands. There are many community based organisations active in CBNRM.

Experience of CBNRM in Uganda

The experience of CBNRM in Uganda is based on several case studies that were reviewed for wildlife, forests, fisheries, wetlands and rangelands. There are both general and specific lessons learnt to date. On the general side, the concept of genuine CBNRM, whereby communities own and manage natural resources collectively in a predictable manner is very rare. The management of the *Akiriket* (forest patches in Karamoja) as shrines by the Karamojong is perhaps the best example. Intrusion by non clan members can result in their being killed. They have been managed under traditional or clan rulers and they have not been the focus of external support. While such cases are rare, the cases of various forms of co-management are increasing across all the resources. But, institutions (both national, sub-national and local communities) understand the concept differently and generally they apply it for their own convenience.

Secondly, some government institutions particularly UWA and Forest Department ventured into co-management arrangement without assessing fully the human and financial implications. Through trial and error, they have confirmed that the process can be lengthy and expensive. The challenge is for these institutions to perfect their approaches, and to share their experiences with other sectors which are pioneering co-management, particularly the Fisheries Department.

There was agreement at the national IGAD-CBNRM stakeholder workshop that despite peculiarities to each resource, certain principles are cross cutting. They include defining the 4 "R"s in co-management, namely the rights, roles, responsibilities and returns. Secondly, before getting involved in co-management, the legal and policy environment must be supportive to avoid potential conflicts. A case cited was the peri-urban project where woodfarmers almost missed their compensation when Namanve Forest Reserve, where they planted trees was degazetted in 1997 to provide land for an industrial park. The forest rules which had constituted part of the permits by which they accessed land in the reserve were old, and in conflict with rights to compensation under the Constitution.

Thirdly, it was accepted that co-management can be initiated from either party, the government or the community. Around Bwindi and Mgahinga national parks, the government was the initiator. Around L.Mburo National Park (for wildlife management) it was the African Wildlife Foundation. Around Lake Mburo National Park (for fisheries) it was the park authorities. At Bigodi (for wetlands and wildlife) it was the communities.

Formal protocols are also increasingly popular as instruments for co-management arrangements. For example, a memorandum of understanding exists between L.Mburo National Park and fishermen. Likewise, Collaborative Forest Management Agreements exist between the Forest Department and Bumusili Village for the management of Namatale Forest Reserve in Mbale, and with communities around Tororo Forest Reserve. Although these agreements were developed recently, the experience gained so far is that they have given confidence to the local communities. The Forest Department is in the process of finalising other similar agreements for other villages around Namatale Forest Reserve.

The other lesson is that effective agreements include in-built mechanisms to evaluate the effectiveness of the agreement after 5 years. Further there are management plans, which the communities and the appropriate authority have committed themselves to implement. Management structures, rights and responsibilities, communication procedures, roles between Forest Department and the village and conflict resolution mechanisms are included in the agreement. These cases illustrates that even if communities do not necessarily own the natural resource they can have access and user rights under certain mutually agreed conditions. In these two cases, the agreements cover 49 year period with the first five years being the trial period.

CBNRM is more pronounced where the natural resources have minimal critical value to attract attention of the community or the resource is integrated in the market system such that everybody wants to benefit from the revenue flows. The participation of communities for multiple use in Mgahinga, Bwindi and Elgon National Parks is due to the fact that the dependency (and hence value) for community livelihoods is great. On the other hand, the integration of Bigodi Wetlands in ecotourism market in Kabarole with a local CBO, KAFRED, and shea butter products from northern Uganda in the global market can explain the good participation in CBNRM.

The case of KAFRED is unique, as the proceeds from ecotourism have been invested in projects that benefit the entire community i.e. schools, health centre and a social centre. A similar model had been demonstrated by Rwenzori Mountaineering Services, an NGOs at the foot of Mt.Rwenzori which, through a concession in the early 1990s, guided tourists to the mountain and raised money, part of which it invested in a nearby local secondary school and health centre.

Another big consideration in the design of some co-management approaches is the sustainability of the resources. For example, the number of fishermen allowed to fish in Lake Mburo was agreed upon following a fish stock assessment exercise. Likewise, multiple use agreements for forest reserves and parks were guided by resource assessment involving community participation. The projects for using rangelands in Karamoja and Buruli as common property resources are trying to emphasize the concept of carrying capacity to the pastoralists. These examples demonstrate the need for establishing the ecological viability of a resource before deeply involving communities. However, the full feasibility must also evaluate the legal, institutional, cultural and political setting.

The case studies also highlight some drawbacks and challenges for CBNRM. For example, the individualisation of rangelands in Busongora for crop production, and wetlands in Igogero, Iganga District undermine communal approaches. Secondly, sometimes communities are mobilised to manage part of a natural resource, while the other part is left to be used by the other members of society. As long as a community which is mobilised does not command exclusive rights over the resource, the chances for long term sustainable use are minimised. For example, only a small part of the community in Masaka is organised to harvest wetlands

resources, make craft and market them through an Association at Kyojja. The larger part of the community does not belong to the Association but it also equally harvest the wetlands resources. The critical criteria for exclusivity is missing.

Despite some challenges, it is gratifying to see that these experiences are influencing institutional processes. For example, UWA has recognised the need to train many of their staff in community conservation. In recognition of the popularity of CBNRM, some university departments (e.g. Faculty of Forestry) have designed a course in community forestry. Unfortunately, due to the ban on recruitment by the government, the graduates have not been absorbed in the sector to influence the culture for forest management.

Gaps, constraints and issues for CBNRM

Neither the communities nor the government can withdraw from developing CBRNM further. The remaining gaps and constraints must be addressed. National institutions still have a "slack" way of negotiating with communities and vice versa. National institutions involved at different stages of CBNRM are not co-ordinated for sharing experiences and improving policy framework for CBNRM. Resource users are also a source of problems particularly because of their competing needs. The Government has yet to trust communities. Human and financial resources have to be marshalled to make CBNRM a reality. Policies have to be streamlined too, as, for example, it is inconceivable that all the wetlands are held in trust by the government for the people as per the Constitution. Before it, some people had obtained land titles to wetlands, and there is no policy dialogue on how these cases will be treated.

Proposed way forward

The national stakeholder workshop identified the natural resource base which could be important for an IGAD regional project. These include the rangelands of Karamoja and Turkana; fisheries resources of Lake Victoria, the forest resources of Mt.Elgon, the Nile and wetland resources of Uganda, Sudan and Ethiopia. In addition the following issues could be addressed by a regional programme in support of CBNRM: (i) capacity building (ii) information sharing, exchange and networking (iii) harmonsation of policies and their enforcement, (iv) financial resource mobilisation and (v) conflict management.

8.1 Background

Uganda is a landlocked country that lies across the equator between latitudes 4^0N and 1^0S and longitudes 29^0W to 35^0W. The country covers an area of approximately 241,500 km^2. Uganda's neighbours are Kenya in the east, Tanzania and Rwanda in the south, the Democratic Republic of Congo in the west, and Sudan in the north.

The main topographic features of Uganda are rangelands (covering 43% of the total area), forests (20% of the total area), and open water (15% of the total area). Seasonal wetlands cover 9% of the total area and permanent wetlands cover 3%. The Rift Valley runs near the western border of Uganda, with two troughs occupied by lakes Albert, Edward and George. The glaciated peaks of the Ruwenzori Range lie between these troughs and rise to 5,100 metres above sea level (asl). A number of volcanic centres are associated with the Rift Valley, including the three quiescent Bufumbira volcanoes of Muhavura (4,130 m asl), Mgahinga (3,470 m asl) and Sabinio (3,630 m asl).

Most of the central part of the country lies in the Lake Victoria Basin. The basin is drained by the River Nile, which flows through Lake Kyoga in northern Uganda to the Mediterranean Sea. Much of the rest of Uganda lies on a plateau at altitudes ranging between 900m and 1500m asl. This deeply incised plateau reaches its greatest elevation at over 2,000m asl in the south-western Kabale District. In this area, broken-hill country encircling lowland embayments forms the transition to the plateau. In the south, the landscape is dominated by flat-topped, mesa-like hills that frequently contain swamps.

Towards the north the landscape consists of gently rolling open plains interrupted by occasional hills and mountains. The main topographical features in northern Uganda are found towards the eastern and north-eastern borders and include four large Miocene volcanoes: Elgon (4320 m asl), Moroto (3890m asl), Kadam (3070 m asl) and Napak (2540 m asl). There are also several hills and mountains composed of basement rocks, such as the Agoro–Agu (2850 m asl), Morongole (2750 m asl) and Rom (2320 m asl). Many of these volcanoes and mountains have been extensively scoured by erosion.

Uganda experiences a lot of climatic variation related to elevation and landform. Over most of the country, mean annual maximum temperature ranges between 18^0C and 35^0C., and the corresponding minimum range is 8^0C to 23^0C. Relative humidity is often high, ranging between 70-100%. Mean monthly evaporation rates are between 125 mm and 200 mm. Much of the country receives between 1,000 mm and 1,500 mm of rain each year, increasing with altitude. The southern part of the country experiences two rainy seasons (April to May and October to November) while the north experiences one long wet season between June and October. In general, rainfall becomes less reliable towards the north.

8.2 The Natural Resource Base

8.2.1 Wildlife resources

In Uganda, wildlife is abundant both within and outside protected areas. However, there has been a tendency to focus wildlife policy and investment towards the management of protected areas. There are 10 national parks (covering 11,180 km^2), 10 wildlife reserves (covering 8,764 km^2), seven wildlife sanctuaries (covering 850 km^2) and 13 community wildlife management areas (covering 27, 600 km^2 – Table 8.1).

Table 8.1: Wildlife conservation areas in Uganda

Community wildlife areas	District(s)	Area (km^2)	Year of gazettment
Napak	Moroto	225	-
East Teso	Soroti	504	-
North Karamoja	Kotido/Moroto	10.793	1963
South Karamoja	Moroto	7988	1963
Sebei	Kapchorwa	1323	1963
West Madi	Moyo	821	1963
East Madi	Moyo	1752	1963
Lipan	Kitgum	900	1963
Karum Falls	Masindi	241	1963
Kaiso	Hoima	227	1963
Buhuka	Kibale / Hoima	18	1963
Semliki falls	Bundibugyo	504	1963
Katonga	Kabalore	2299	1963
All community wildlife areas		**27,605**	

Source : UWA (1996) Draft organisation and policy outline.

Wildlife resources are important for foreign exchange earnings, which have grown consistently from $26.7 million in 1990 to over $200 million in 2000, mainly as a result of the increasing numbers and expenditure of tourists. Since 1990, average annual earnings from tourism have ranged between 1.5% and 1.8% of GDP (Table 8.2). Communities in different parts of the country have benefited from tourism by engaging in various activities, including the management of tourist attractions and wildlife-related enterprises, and the sale of crafts.

Table 8.2: Tourist arrivals and expenditure in Uganda during the 1990s

Year	Tourist arrivals	Expenditure (US$)
1990	54,672	26,789,280
1991	66,750	32,707,500
1992	92,736	45,440,640
1993	111,393	54,582,570
1994	147,308	72,180,920
1995	193,000	94,570,000
1996	200,000	98,000,000
1997	220,000	107,800,000

Wildlife resources in some protected areas have been adversely affected by poaching and human settlement. Therefore, many of the potential benefits of wildlife to the livelihood of rural communities have not been realised. There is a threat that this trend may make Uganda less competitive in the regional tourism market, and further reduce the opportunities for communities to generate income from wildlife resources. Although abundant, the wildlife that is found outside the protected area system in Uganda has not been studied adequately and receives very little attention from the government. Private initiatives in wildlife management are limited to crocodile farming.

8.2.2 Forest resources

In Uganda, forests cover 4.9 million ha., or approximately 20.4%, of the country's land area. Forest cover is dominated by woodlands (80.6%), and also includes tropical high forests (18.7%) and plantations (0.7%), as described in Table 8.3. Seventy percent of these forests occur on private land. The Forest Department has jurisdiction over 15% of the country's forests and the Uganda Wildlife Authority manages the remaining 15%. A very small proportion (0.03%) of forests are situated within local forest reserves that are under the jurisdiction of local government authorities.

Table 8.3: Distribution of forests by type and management in hectares

	UWA	Forest Department	Private	Total
THF	267,913	305,634	350,936	923,483
Plantation	2,300	19,450	11,265	33,015
Woodland	461,680	400,021	3,102,119	3,963,820
Total	**730,893**	**725,105**	**3,464,320**	**4,920,318**

Source: Forest Department

The forestry sector supports direct and indirect employment for over 700,000 people in Uganda, and makes an important contribution to gross domestic product (GDP). Subsistence farmers generate US$68 million annually from the sector. Annually, tourists generate US$15 million and charcoal producers generate US$40 million. An additional US$ 38 million is generated annually from the use and marketing of various non-wood products. Other significant benefits from forests, such as biodiversity values and hydrological functions, are not easily expressed in monetary terms.

Currently, the main issues related to the management of forest resources in Uganda are deforestation and encroachment. Population growth, together with increasing rates of urbanisation and industrialisation, have led to increased demand for forest products and, in some areas, conversion of forested land to other uses. Forest cover, particularly within private land, has dwindled due to unsustainable farming methods, urbanisation and the high demand for charcoal and fuelwood.

8.2.3 Wetland and water resources

Uganda has a lot of fisheries, by virtue of numerous fresh water lakes and rivers. These aquatic systems cover approximately 20% of the country's surface area, and include rivers, wetlands, five major lakes (Victoria, Albert, Kyoga, Edward and George) and about 160 minor lakes. All the country's lakes have been overexploited, irrespective of the systems put in place to control access. Approximately one third of wetland areas in Africa are found in eastern Africa and close to 10% of the wetlands found in eastern Africa occur in Uganda. Wetlands cover 13% of the country's area and are found in almost all parts of the country. The wetland ecosystems fall into two broad categories, namely natural lake and lacustrine swamps, and riverine and flood plain swamps. In south-western Uganda, as population pressure has increased, a significant proportion of wetlands have been reclaimed.

The annual harvest of Nile perch (*Lates nilotica*) and tilapia (*Oreochromis spp*.) represent 51% and 39% of the total catch respectively. Previously, 250 of the 750 existing species were harvested. Harvests have progressively become less diverse and currently only 10 major species are harvested.

During the last ten years, annual revenues from fish exports have risen from US$ 1 million to more than US$ 50 million, as local fisheries have become integrated with global markets. There is potential to double the value of fish exports if proper fisheries and environmental management regimes are used. For example, it is estimated that Uganda has the capacity to produce about 300,000 metric tonnes of fish annually on a sustainable basis. The highest annual catch of 245,000 metric tonnes was recorded in 1990. Since then, annual catches from all lakes have declined and was 220,000 metric tonnes in 1999.

Fish is the cheapest source of high quality animal protein in Uganda. Average annual per capita consumption is estimated at 10 kg., and fish accounts for more than 50% of the animal protein consumed by the average Ugandan each year. Therefore, as the importance of fish for the export market increases, there is a need to strike a balance with domestic demand.

8.2.4 Rangeland resources

Rangelands occupy about 43% of the total land area, stretching from the north east to the southwest and extending beyond the national boundaries. This rangeland system is commonly referred to as the 'Cattle Corridor'. Over 90% of the livestock in Uganda is raised by pastoralists within rangelands, compared to less than 10% that is raised by smallholders in mixed-farming systems. The livestock production sub-sector makes an important contribution to national food security and the nutritional status of the people, although consumption is below the recommended FAO standards. The sub-sector also contributes 7.3% to the country's GDP.

The most important rangeland management issues are land use conflicts (between pastoralists, crop farmers and members of different tribes), land degradation, declining quantity and quality of pastures, poor quality of livestock, inadequate water supply, and poor marketing facilities for livestock products (UNDP 1994, 1996, 1998).

8.3 Policy and Legislation that are Relevant to CBNRM

8.3.1 The Constitution of Uganda 1995

The 1995 Constitution is the supreme law of the country and provides the framework for the policies and legislation related to NRM in Uganda. Specific provisions of the Constitution have a bearing on CBNRM and, gradually, are being incorporated in sectoral laws and guidelines. According to the Constitution, the sustainable utilisation and development of natural resources are obligatory for all individuals. The Constitution emphasises the role of the people in formulation and implementation of development plans and programmes that will affect them, and enjoins the state to encourage private initiative and self–reliance in all aspects of development. To achieve these goals, the state is under an obligation to adopt an integrated and co-ordinated approach in the protection of the country's natural resources. The state is also given the mandate to hold in trust, for the common good of Uganda's citizens, wetlands, game reserves, national parks, forest reserves, lakes and rivers, and any land with ecological and aesthetic values. The Constitution also includes provisions for the central government to delegate the responsibility for management of these resources to a local government institution, as determined by law. Previously, the central government, through its line ministries, shouldered this responsibility.

The Constitution prescribes four land tenure systems, namely mailo, lease, freehold and customary systems. In certain locations, tenure is guaranteed to tenants who occupied land consistently, in certain locations, 12 years before the promulgation of the Constitution. This provision is important because it confers property rights over land, and has the potential to stimulate investment by the private owner.

The supremacy of the Constitution was demonstrated in the case of Namanve Central Forest Reserve, when it was applied to resolve a management conflict between the Uganda Investment Authority and wood farmers that could not be addressed by the existing Forest Act 1964 (Box 8.1).

Box 8.1: Conflict resolution in Namanve Central Forest Reserve

During 1989, a peri-urban afforestation project was initiated at Namanve Central Forest Reserve in Kampala. Based on the provisions of the Forestry Act (1964) local farmers obtained permits to grow eucalyptus trees within the reserve. The permits were valid for a period of five years. Each permit was renewable provided that the holder adhered to the conditions of the original permit.

In 1996, the government degazetted 1,006 hectares of the reserve to be allocated to the Uganda Investment Authority, and leased to industrial investors. The farmers permitted to grow trees in the reserve contested the decision, arguing that they were entitled to full compensation in accordance with Article 26(2) of the Constitution. Consultations to resolve the conflict between the farmers and the Uganda Investment Authority failed and the matter ended up in a court of law.

In 1998, the Uganda Investment Authority commissioned the Chief Government Valuer to determine the economic value of the farmers' interest in the reserve. The valuer stated that the economic life of the farmers' trees would normally be beyond the initial period of five years and, up to the time of degazzetement, none of the farmers had breached any of the conditions of their permits. Therefore, based on the assumption that farmers had expected to manage the trees in four rotations during 16-year period, their interest amounted to approximately US$1,175. The legal counsel for the Authority contested the valuation on the basis that the Chief Government Valuer overlooked a provision of the Forest Rules which provided that "on expiration or determination of a permit, unless there is an agreement to the contrary, the holder shall not be entitled to compensation for any improvements made by him to any land to which the permit relates or for any crops planted by him in any such land and all fixtures on any such land shall become the property of the Government" The counsel argued that since there was no written agreement to the contrary, the permit holders were entitled to compensation equivalent to the value that would survive the 5 year permits and that no factor of 16 years was tenable. However, the judge ruled as follows.

- Degazettement of the forest reserve was not an ordinary termination of the farmers' permits under Rule 14(3) of the Forestry Rules. In other words, the order to degazette by the Minister expropriated their permits and the value of the investment of the permit holders, by removing the legal basis on which it was founded;

- Denial of compensation was contrary to the provisions of the Constitution of Uganda 1995, Article 26(2), which emphasises paying compensation prior to compulsory acquisition of property; and

- The farmers were entitled to the requested compensation of US$1,175.

One lesson from this case is that the Forest Rules, particularly Rule 14(3), was not fair to the permit holders. If the ruling had favoured the Uganda Investment Authority, in future, individuals and communities would be reluctant to collaborate with the Forest Department for management of reserves. A second lesson is the importance of referring to more that one piece of legislation during conflict resolution. In this case, the provisions of the Constitution of Uganda 1995 were supreme, and more pertinent than those of Forest Act 1964. The case also illustrates the significance of property rights in natural resource management, and the need to ensure that rules for forest management are revised to facilitate community participation.

8.3.2 The National Environment Management Policy, the National Environment Action Plan and the National Environment Statute 1995

The involvement of local communities in the effective management of natural resources and the environment is cited as one principle of the National Management Policy, and a strategy for the National Environment Action Plan. The National Environment Statute 1995 was enacted to strengthen the implementation of the policy and plan. The Statute supports greater participation of community members at parish and district levels by providing for the establishment of Local

Environmental Committees (LECs) as well as District Environment Committees (DECs). In this way, the Statute assures a 'bottom-up' approach from the lowest level of the Local Council System during decision-making and implementation of strategies for environmental management.

To complement regulatory approaches, the Statute also prescribes the use of economic instruments (incentives and disincentives) with the aim of influencing behaviour in favour of more sustainable environmental management. The National Environment Management Authority (NEMA) was established to enforce the Statute. According to the Statute, NEMA has authority to issue guidelines for the management of wetlands, wildlife and rangelands, and the selection and management of buffer zones near protected areas.

8.3.3 Land Act 1998

The Land Act 1998 describes the mailo, freehold, lease and customary land tenure systems that are recognised by the Constitution. The Act defines procedures for the acquisition of certificates of ownership, including the tenure granted to tenants who occupied land for 12 consecutive years before the promulgation of the Constitution. The Land Act also provides for a group of persons to form a communal land association for any purpose connected with communal ownership and management of land, whether under customary or other laws. According to the Act, a portion of the land an association is holding may be set aside for common uses such as hunting, grazing and watering of livestock, and gathering of firewood, building materials, honey and plants for medicinal purposes. This provision of the Act is particularly relevant in northern Uganda, where communal land use is prevalent.

8.3.4 The Local Government Act 1997

Uganda used to be a protectorate of the British Government, and this was reflected in the original legislation for local government. For administrative and planning purposes, the country has been divided into 56 districts, that are made up of sub-counties. The political structure is also decentralised through a hierarchical system of Local Councils (LCs). These councils operate at village (LC1) through to parish (LC2), sub-county (LC3), county (LC4) and district (LC5) levels. The Local Government Act 1997 decentralised livestock and fisheries husbandry, extension services, vermin control, wetlands management, and the management of local forest reserves to the district and sub-district levels.

8.3.5 Uganda Wildlife Policy and Wildlife Statute 1996

The Uganda Wildlife Policy was the basis for the Wildlife Statute 1996, which includes many innovations that advocate, and provide for, community participation in wildlife management. The Uganda Wildlife Authority (UWA) was established to enforce the Statute.The Wildlife Statute 1996 defines wildlife very broadly to include every wild plant or wild animal species native to Uganda. This definition includes wild animals that migrate through Uganda, and wild plants and animals that occur within and outside protected areas. The Statute defines a community as "an assemblage of human beings living in a defined geographical area and identified by common history, common culture or common residence in such an area". Under the Statute, the Minister may declare community wildlife areas, which are defined as "areas in which individuals who have property rights in land may carry out activities for the sustainable management and utilisation of wildlife if the activities do not adversely affect wildlife and in which area the state may prescribe land use measures". In addition, the statute allows a community (through an individual or lead agency) to apply to UWA for wildlife use rights. Hunting, farming, ranching, trading, education and general extraction are the six classes of wildlife user rights recognised by the Statute.

The categories of conservation areas, and the scope for community participation, are described in Table 8.4. There are four categories of wildlife conservation areas, managed under different approaches. These include Wildlife Protected Areas (national parks and wildlife reserves), and Wildlife Management Areas (wildlife sanctuaries and community wildlife areas).

The Statute states that the Board of UWA shall pay 20% of the entry fees collected from any protected area to the local government with jurisdiction over the surrounding area. The Statute also states that a local government council may, under specified terms and conditions, appoint a local government wildlife committee to advise UWA on the management and utilisation of wildlife within its jurisdiction. Such a committee would have the responsibility of presenting annual reports on its activities to UWA.

In addition, the Executive Director of UWA is allowed to enter into collaborative arrangements with any person for the management of a protected area or portion of it; management of a species or class of species; or provision of services and infrastructure in a protected area. A person engaging in this type of collaboration must develop and submit a management plan.

Finally, the statute states that UWA may declare any animal or class of animals to be vermin. Where the vermin animals are of commercial value, UWA may advise local communities of the value of the animals and recommend appropriate methods to capture them.

Table 8.4: Activities that are permitted within protected areas

	Wildlife protected areas		**Wildlife management areas (not government land)**	
Activity	***National parks***	***Wildlife reserves***	***Wildlife sanctuaries***	***Community wildlife areas***
Hunting	Illegal	Possible under a 'Class A' Wildlife Use Right	Illegal	Permitted under 'Class A' Wildlife Use Right
Settlement	Illegal	Illegal	No restriction	No restriction
Livestock use	Illegal	Illegal	Partial restriction	Partial restriction
Cultivation	Illegal	Illegal	Partial restriction	Partial restriction
Charcoal, firewood, timber harvesting	Illegal	Illegal	Partial restriction	Partial restriction
Traditional, ceremonial use, extraction of medical plants	Under permit only	Under permit only (except Karamoja reserves	Partial restriction	No restriction
Wildlife farming, ranching, Sustainable use	Illegal	Subject to review by UWA	Illegal	Encouraged

Source: UWA

8.3.6 The Forest Policy and Forest Act

The Uganda Cabinet approved a new Forest Policy in March 2001. The Forest Policy introduces new concepts for forest management, including the establishment of community forest reserves, and collaborative management of forests by government agencies and local communities (Box 8.2). The new policy has guided revision of the Forest Act 1964. The National Forestry and Tree Planting Act (2003) has provisions to strengthen the legislation related to the management of forests outside protected areas, the permit system and community involvement in forest resource management. The Act strongly supports community forestry and the use of incentives in forestry management, thereby providing an improved environment for CBNRM. Forest management is also addressed by the National Environment statute, which states that traditional uses of forests, which are indispensable to the local communities and are compatible with the principle of sustainable development, shall be protected.

Box 8.2: Uganda Forest Policy Statements on Collaborative Forest Management

"The government will promote innovative approaches to community participation in forest management on both government and private forest lands. This will address the disincentives associated with a protectionist approach to forest management, and the destructive practices associated with open access to forest resources.

The development of collaborative forest management will define the rights, roles and responsibilities of partners and the basis for sharing benefits from improved forest management. There will be a specific focus on wide stakeholder participation, collective responsibility and equity, and on improving the livelihoods of forest dependent communities.

Strategies for the implement of this policy statement will include:

- Harmonise approaches and legislation relating to collaborative forest management between lead government agencies, and with NGOs or CBOs;
- Develop a supportive legal basis for devolving decision-making, enforcing regulations, arbitration, and accountability;
- Develop a supportive legal basis for tree tenure, access rights and sharing of benefits from wood and non-wood forest products;
- Develop security of land tenure for collaborative management of private forests;
- Develop both the capacity and attitude changes in government and non-government agencies to create genuine partnerships for collaboration with local community groups;
- Develop robust community institutions to ensure transparent decision-making, the adequate representation and participation of women, men and vulnerable groups and the equitable sharing of forest benefits and responsibilities;
- Strengthen the role of NGOs and CBOs in mobilising communities and building capacity for implementing collaborative forest management; and
- Ensure resolution of conflicts relating to problem animals."

8.3.7 Policies and legislation for the management of fisheries and wetland Resources

The Cabinet endorsed the National Policy on Wetlands in 1995. The Policy provides for traditional uses of wetlands, and emphasises sustainable use. Sustainable use of a wetland is defined as utilisation that ensures that the products or services derived from the wetland are available at the same level for the foreseeable future. The Policy also states that any decision to

use wetlands must consider the requirements of all other users in the local community. According to the policy, communal tenure and use of wetlands shall be permitted only if strategies that promote environmental conservation and sustainable use are adhered to.

According to the National Environment Statute statute, no person shall reclaim or drain any wetland unless with written approval from NEMA. NEMA is also given authority to identify wetlands of local, national and international importance, and declare a wetland a protected area.

A national fisheries policy was also formulated in 2000. "The policy supports public participation in the management of the fisheries resources and ensures equitable sharing of benefits. This will ensure respect for traditional cultures and knowledge, access to resources, and due regard to gender and equity". The Fish Act 1964 is also being revised. It is expected that the new legislation will cater for aspects of community involvement and collaborative management of fisheries resources.

8.3.8 Policy and legislation for rangeland management

There is no specific policy to address tenure and management of rangeland resources. However, legislation related to the management of rangelands is included in the National Environment Statute. According to the Statute, NEMA has a mandate to issue guidelines and prescribe measures for sustainable management and utilization of rangelands. In issuing guidelines for rangeland management, NEMA is to be guided by:

- The carrying capacity of the land;
- The conservation of the soil;
- The risk to desertification faced by any rangeland; and
- Any other factors that the Authority considers appropriate.

In addition, the Cattle Grazing Act of 1964 provides for a maximum number of cattle that may graze within a particular area of land.

8.4 The Institutional Framework for CBNRM

8.4.1 Government institutions

The Uganda Wildlife Authority is the designated implementing agency for wildlife management in the country. The Authority has a mandate to conserve wildlife, and to protect and maintain the protected area network and critical ecosystems. In the context of CBNRM, UWA is expected to:

- Develop, implement and monitor collaborative arrangements for the management of wildlife;
- Establish management plans for wildlife conservation areas and for wildlife management outside wildlife conservation areas; and
- Encourage public participation in wildlife management.

The Wildlife Statute provides for the vertical linkage of UWA and district-level administrative units through local government wildlife committees. The wildlife committees are appointed by the district councils, and are required to submit annual reports to the UWA Board on their activities and other matters relating to wildlife management. In addition, and of great

significance, UWA has established the Community Conservation Division to oversee community conservation projects.

The Forest Department has the authority to protect and manage forest reserves, control the harvesting of trees on customary land, and advise on sound management of private forests. The Department also manages forestry extension services and collaborates with local communities. District Forest Officers, and other departmental staff responsible for field activities are responsible for:

- Co-ordinating the implementation of government policies and programmes on forestry at district level;
- Providing guidance to local government on forestry matters;
- Managing and protecting natural and plantation forests; and
- Providing extension services to communities.

The establishment of a Collaborative Forest Management (CFM) Unit within the Forest Department in 1998 marked the start of a systematic programme for the development and institutionalisation of CFM approaches within Uganda's forest reserves. The Unit defines CFM as "a process whereby interested parties are genuinely involved in management of the forest resource through a negotiated process in which all share rights, roles, responsibilities and returns for the sustainable management of such forest resources". The CFM Unit facilitates official participation in management, and sharing of benefits, by communities adjacent to gazetted forest reserves.

In relation to CBNRM, the Forest Department is pursuing the development of a range of partnerships with different stakeholders interested in covering forest reserves. It is expected that the National Forest Authority (NFA), that replaced the Forest Department in 2003, will maintain the functions aimed at promoting community forestry and collaborative management.

The Fisheries Department lies within the Ministry of Agriculture, Animal Industry and Fisheries, and has a national mandate for fisheries management but, like many other central government departments, its role has been curtailed as a result of decentralisation. Previously, the department was responsible for all aspects of fisheries management through a national network of regional and local offices. After decentralisation, the primary responsibility for fisheries management was passed on to local government authorities. The Fisheries Department's main functions are to:

- Co-ordinate fisheries management activities;
- Provide technical guidance to local government agencies and the fishing community;
- Undertake enforcement and regular inspection to ensure adherence to standards; and
- Disseminate policy and regulations related to fisheries resources.

With support from the Lake Victoria Environment Management Project, the Fisheries Department is testing various methods for co-management of the country's fisheries.

The Wetlands Inspection Division of the Ministry of Water, Lands and Environment oversees the management of wetlands in Uganda. However, the division is not a management agency, as the 1995 Constitution assigns responsibility for the management of wetlands to district authorities. The Division's responsibilities, at national level include:

- Formulating national policies, standards, legislation and plans for wetland management;
- Mobilising support and resources for wetlands management nationally;
- Co-ordinating and supervising national projects of wetlands management;
- Inspecting, monitoring and co-ordinating the activities of local government in wetlands management; and
- Providing technical advice, support, supervision and training to the local government wetlands personnel, as required.

Following several evaluations, it has been recognised that the Division, with a staff of five people, and low placement in the hierarchy of the Ministry, does not have the capacity to promote effective management of wetlands nationwide. Discussions on the formation of a national agency for wetlands management are ongoing.

As the country's apex institution on environmental matters, NEMA has a mandate to monitor, supervise and co-ordinate all matters of environmental management. Some of the Authority's functions are to:

- Issue guidelines for different aspects of environmental management (including the management of wetlands, wildlife, rangelands and buffer zones around protected areas);
- Liaise with NGOs, government agencies and the private sector on issues relating to the environment;
- Prescribe incentives and disincentives (economic instruments) for environmental management; and
- Raise funds for the same purposes.

Under the National Environment Statute, NEMA also has an obligation to develop a land use plan. However, NEMA is not an implementing agency of CBNRM

Decentralisation has resulted in responsibilities for many natural resource management services and functions being passed on to local government authorities. These responsibilities include extension services for crop, livestock and fisheries husbandry, vermin control, and management of wetlands and local forest reserves. Within the provisions of the decentralisation policy, local councils are allowed to retain 35% of the revenue they collect for use in development, including conservation projects. Therefore, local authorities have a major role in the promotion of CBNRM activities.

8.4.2 National and international NGOs

The Government has undertaken a number of deliberate measures to address the problems of environmental degradation in the country through policies, legislations and intervention programmes under relevant ministries and agencies. However, due to insufficient resources among other factors, it has become increasingly difficult for the government to undertake all necessary environmental management activities alone.

In response to these limitations, a number of NGOs have evolved to complement government efforts to ensure sustainable utilization and management of natural resources as well as accelerate socio-economic development. NGOs play the following roles in natural resources management:

- Organising and mobilising members of a community to agree on common goals, objectives and targets for solving their own environmental problems;
- Conducting training for a community and helping community members acquire skills to solve existing environmental problems;
- Liaising with extension officers and other change agents and inviting them to assist in training of community members;
- Setting up demonstration centres for practical training;
- Organising and holding competitions among households to promote desirable environmental management practices; and
- Advocacy for sound environmental practices.

Most CBNRM-related activities in Uganda have been initiated by NGOs, which have worked systematically to engage government departments in programmes that support CBNRM. NGOs have been instrumental in pioneering community conservation in national parks. For example, the African Wildlife Foundation (AWF) started a community conservation project in Lake Mburo National Park in 1989. COVOL has provided assistance to communities in Lira District to conserve the Shea Butter tree, and to manage the resource sustainably to support the communities' economic welfare.

CARE has helped communities living around Bwindi Impenetrable and Mgahinga National Parks to negotiate resource use agreements with the park managers. These two parks were managed as forest reserves until 1991. The change in management restricted community members' access to resources in the protected areas, which led to a lot of resistance and conflict. To help manage the conflicts, CARE implemented a project through which communities living around Bwindi Impenetrable National Park were compensated for the benefits foregone through access to alternative sources of forest products. During a second phase of the Development through Conservation project, implemented from 1992-1997, CARE and its partners aimed at reviving and negotiating user rights and benefit sharing programmes for local communities. Zones for multiple use were established within the National Park, and a revenue-sharing scheme was launched. With some assistance from CARE, members of local communities have become organised, and now have access to multiple resources from the parks. Since 1999, CARE has been facilitating capacity building within UWA and local organisations for more effective natural resource management and conflict resolution. CARE is also trying to facilitate community involvement in fisheries management around lakes George and Kyoga through the Integrated Lake Management Project.

Likewise, IUCN has been involved in providing technical guidance to UWA on eco-tourism development, particularly around Mt Elgon National Park. IUCN has also been involved in the development of collaborative management protocols between UWA and communities living near Kibale and Mt. Elgon national parks.

The Uganda Women Tree Planting Movement has been helping women participate in reforestation and afforestation activities. Other NGOs that are active in the forestry sector are the Integrated Rural Development Initiative (IRDI) and Joint Energy and Environment Project (JEEP). Environmental Alert is a local NGO that has been helping CBOs in Eastern Uganda develop management plans for the conservation and use of wetlands. IUCN has helped the Wetlands Inspection Division establish pilot demonstration projects aimed at involving communities in wise use of wetlands around the country. The Lutheran World Federation is actively engaging communities in Karamoja to manage common property resources, particularly within rangelands

8.4.3 Cultural and traditional institutions

Through rules and regulations, traditional institutions in Uganda promote conservation strategies within their communities that enhance the goals of CBNRM. For example, in areas such as riverbanks, cutting of trees is prohibited. In addition, felling of some tree species (especially *Ficus spp* and *Tamarindus spp*) is not permitted.

Through the traditional *akiriket* system (Box 8.3), the Karamajong have developed conservation-friendly practices for rangeland resource management. However, the potential to promote such practices more widely is limited by the Karamajong elders' reluctance to establish any more *akiriket*. The elders have also resisted proposals to plant trees within open spaces inside these shrines.

In Buganda, the *Kabaka* institution for traditional leadership enjoys considerable support from local communities. At the local level, the traditional leaders of the *Omubaka*, *Bantogole* and *Muruka* hierarchies, can be strategically involved in the management of natural resources. Previously, they have been involved in community mobilization drives for development programmes, such as *Bulungi Bwensi*.

Box 8.3: The conservation of akiriket in Karamoja

Elders of Karamajong communities located in the semi-arid areas of northern Uganda meet to discuss community affairs within remnant woodlands know as *akiriket*. Each group of elders has a designated *akiriket* that covers one to two hectares. The *akiriket* are conserved as traditional shrines. The elders restrict access to the woodlands according to rules that serve communal interests. Felling of trees in *akiriket* is prohibited. Firewood is collected only to roast the meat of bulls slaughtered by the elders during special ceremonies. Trespassers and individuals who cut trees within the shrine must sacrifice bulls or face other severe punishments.

Over time, *akiriket* have become important sites for the conservation of species such as *Acacia nilotica, A. senegal, A. seyal, A. tortilis, Balanites aegyptiaca* and *Ziziphus abyssinica*. Although there is a tendency to focus on the significance of *akiriket* for matters related to security, local government authorities and other management and development agencies are paying greater attention to the conservation value of the sites and the traditional systems for their management.

8.5 Experiences with CBNRM

The sustainability of natural resources will depend on the participation of CBOs and communities whose members derive benefits from such resources. Government and non-government organisations can only play a limited role, for a limited time. Within Uganda, there are many CBOs involved in the management of natural resources. CBOs are involved in the management of protected wildlife habitats, fisheries, forests, wetlands and rangelands. The degree of collaboration between community groups and government agencies varies greatly, and is usually supported by concessions, licences or permits secured from government management agencies. Examples of these collaborative initiatives are presented in the next section.

8.5.1 CBOs and the management of protected areas

During the early 1990s, Rwenzori Mountaineering Services, a local organisation in Kasese District, secured a 30-year concession to operate eco-tourism activities within Ruwenzori National Park. Unfortunately, the operation of the concession has been frustrated by insurgency in the mountains, and the organisation's weak institutional capacity. When the concession was fully operational, members of the community benefited in several ways. Part of the revenue from the tourist activities was used to support a community clinic and a secondary school. Individual community members also earned money by serving as tour guides, on a rotational basis.

In 2000, the residents of Nyangole B Village in Tororo District secured permits from the Forest Department that allowed them to manage Tororo Central Forest Reserve. According to a collaborative management agreement with the Department (Box 8.4), Nyangole B Village community will have access and user rights in the reserve for 49 years, including a 5-year trial period. The duration of the agreement gives the community some incentive to invest in the reserve, as it is likely to recoup the investment.

Box 8.4: The structure of Collaborative Forest Management Agreements

1. The structure and scope of the Collaborative Forest Management Agreement
2. Specific conditions pertaining to the permit under which the agreement is signed
3. Subscription by the people of the village to the agreement
4. Objectives of the agreement
5. The management structures
6. General collaborative management obligations
7. Special obligations of the Forest Department and the village community
8. Responsibilities of the community structures
9. Rights and benefits of the Forest Department and the community
10. Procedures for communication
11. Record keeping
12. Revision of the agreement

Bumusili Village Community in Mbale has also entered into a similar Collaborative Forest Management Agreement with the Forest Department that gives its members access to some of the resources of Namatale Forest Reserve for a period of 50 years. The Bumisili agreement includes provisions for revision in light of changing experiences. After some discussions, the village community has set high fines for trespassers and other offenders, and designed mechanisms to vary the fines according to the frequency of the offence (Box 8.5).

The Forest Department is aware of the need to discourage people who want to use forest resources free of charge, without contributing or participating in its management. Therefore, the Department plans to enter into similar agreements with all the villages around Namatale Forest Reserve. This will ensure that local communities maintain similar standards for management of the forest resources.

Box 8.5: Regulations for access and use of Namatale Forest Reserve

The collection of firewood and harvesting of poles and crop stakes by community members are some of the resource uses allowed in Namatale Forest Central Reserve under a collaborative forest management agreement with the government. The regulations governing resource use are as follows:

Who is allowed to collect firewood?

- Members of the community who are in genuine need of stakes or poles and who have no alternative sources on private land;
- Those who have applied for and received a permit from the chair of the forest committee;
- Those who have received technical assistance on the development of non-farm alternatives from the forest ranger or other members of the community; and
- People from other communities who apply for permission provided that the possess the above criteria and follow the regulations.

When and where are community members allowed to collect firewood?

- On a day designated by the committee, once permission has been granted, and together with a designated committee member for supervision; and
- The site will not be specified. However, the harvester must ensure that harvesting is not localised. The committee, in collaboration with the ranger, will make decisions regarding the appropriate site. Whenever possible, harvesting of firewood should coincide with pruning or tending requirements.

What species may be harvested for poles and crop stakes?

Poles and stakes can be harvested from *bisobo*, *kamilurusa* (*Vernonia magdalena*), *nasangula*, *kamatagarie*, *kamamuli*. Harvesting of all other species within the forest is forbidden but may be permitted in future if the species become available in sufficient quantities. The community intends to review the regulations for harvesting at five-year intervals and modify the list of forbidden species according to their availability and the level of demand.

How should community members harvest poles and stakes?

- Only plants that are mature enough to coppice can be harvested;
- When harvesting from a multi-stemmed plant, not all stems can be harvested;
- Stems must be cut near the base of the plant for better coppicing;
- The advice of the accompanying committee member must be taken in the harvesting of stems for poles or stakes;
- Whenever instructed by the committee, the cutting of stems must coincide with tending and pruning requirements;
- A maximum of 1,000 stems may be harvested for use as crop stakes; and
- A maximum of 50 stems may be harvested for use as poles, for construction and *matoke*.

What are the fines and penalties?

- The funds raised from fines paid for the following offences are credited to a communal bank account and used to support various community projects.
- Fines for grazing within the reserve: First offenders pay US$12, second offenders pay US$24 and third-time offenders pay approximately US$36;
- Fines of illegal harvesting of timber: First offenders pay US$6, second offenders pay US$12 and third-time offenders are prosecuted; and
- Fines for hunting within the reserve: First offenders pay US$6, second offenders pay US$12 and third-time offenders are prosecuted.

8.5.2 CBOs and management of fisheries and wetlands

Lake Mburo is a small lake that covers 24 square kilometres within a national park. The Fisheries Department has granted fishing licenses to 32 members of the local community. The license holders have formed an association and signed a Memorandum of Understanding with the park authorities, agreeing to follow certain rules. The fishing association exists primarily to facilitate access to the lake, and each member covers his own costs for fishing, and markets his catches independently. This arrangement between the community and the government management agencies is working very well. Unlicensed fishing has been eliminated. The case of Lake Mburo indicates that CBNRM is often successful when the natural resource to be managed is small, with well-defined boundaries where resource users can control access easily.

Lake George is the smallest of the 'big lakes' of Uganda and is threatened by overexploitation. Members of local communities, particularly those who possess fishing licences, have organised themselves into the Lake George Rehabilitation Committee to address illegal activities on the lake. This is not the first time that the fishermen have organised themselves into groups to promote their interests. During the mid-1990s, they raised money with the aim of contributing to enforcement so that the fisheries officers could deal with 'joy riders' or illegal fishermen. Unfortunately, the fisheries officers would take their money and remain indifferent to illegal activities by unlicensed fishers. The fishing community felt unprotected. In reaction, some of the licensed fishermen also started to engage in illegal activities, such as using more vessels than allowed. The high rate of exploitation has resulted in declining catches and threatens the long-term sustainability of the lake. At present, the government is implementing an integrated lake management project, funded by DFID, with the aim of addressing some of the main constraints to effective CBNRM in this area.

In Masaka, the Wetlands Inspection Division has organised members of the communities living around the Kyojja Wetland to form the Kyojja Wetlands Association. Members of the association harvest wetland resources and produce crafts, which are marketed collectively, with the proceeds being transferred to the respective individuals. However, the members of the association represent a very small part of the local communities and the legal framework does not give the association exclusive rights of access to Kyojja Wetland. This means that community members who are not members of the association have equal access to resources from the wetland. At present, the wetland's resources are abundant but if the products become integrated into a wider market, and demand increases, there is a high chance that conflicts will arise between the association and other people.

The case of Kabarole Foundation for Rural Development (KAFRED) is a good example of CBNRM activities that are initiated and managed for collective gain (Box 8.6). The organization is based in Fort Portal and its members decided to invest their earnings from wetlands-based eco-tourism activities in projects such as schools, clinics and a social centre that are beneficial for the entire community. KAFRED's management of Magombe Swamp has been successful, probably because the swamp is small and confined to one parish. The Foundation's achievements provide proof that, with modest technical assistance, local communities can directly benefit from tourism enterprises, while conserving biodiversity and other natural resources.

Box 8.6: Community Participation in Tourism: A Case Study of Kabarole Foundation for Rural Development (KAFRED)

KAFRED is a CBO established to promote the social and economic development of local communities through the wise use of natural resources. The organisation's main activity is eco-tourism around Magombe Swamp. Magombe Swamp lies along the western edge of Kibale National Park. The swamp is a habitat for diverse species, including primates such as the red colobus, the black and white colobus, grey checked mangabeys, red tail, vervet, and blue monkeys, and baboons. About 138 bird species have been recorded at the swamp. The swamp is also the habitat for a variety of plants, including wild palms, polita figs, wild rubber trees and papyrus.

An ecotourism project was initiated at the swamp to attract tourists on their way to, or from Kibale National Park. The annual number of visitors has varied depending on the security situation. Approximately 1100 tourists visited the swamp during the 1994-1995 financial year and generated an income of US$ 6,137, mainly from fees paid to local guides. The revenue from ecotourism has been used to construct a boardwalk that connects Bigodi trading centre to another village across the swamp. The tourists, particularly birdwatchers, use the boardwalk and a raised pavilion to get a better view of the conserved habitat.

The revenue from ecotourism has also been used to support community projects, including a secondary school, a public library and a series of seminars for environmental education. Construction of a visitors centre and community hall is ongoing. Local schools also use the swamp as a site for nature studies. Other visitors to the swamp are community groups from different parts of Uganda who want to learn from the experience of the KAFRED management committee.

KAFRED received financial support from the American Embassy for its start-up activities. The foundation has also benefited from technical support from IUCN, UWA, the National Wetlands Programme of the Ministry of Natural Resources, and Kibale Semliki Conservation Development Project. Through the managers of Kibale National Park, UWA has trained KAFRED tourist guides and publicised Magombe Swamp among tourists visiting the park. This has created confidence and good relations between UWA and the local community.

In Kumi District, Muhongoro Development Association (MUDA) has developed a plan to promote an integrated approach to the management of Oleico Wetland (Box 8.7). The Wetlands Inspection Division is promoting the development of similar management plans for other sites in the country.

Box 8.7: A management plan for integrated use of Oleico Wetland

In the 1950s and 1960s, Oleico Wetland was heavily forested and a habitat for a lot of animals, including antelopes, waterbuck, cane rats, crested crane, ducks and white egret. The wetland was managed by the community as a common property resource, particularly for hunting, grazing and fishing, and as a source of thatch and firewood.

During the 1970s, isolated cases of cultivation in the wetland were noticed, and these intensified in the 1980's. During the late 1980s, most people fled from the area and abandoned their fields due to increased insecurity. When they returned a few years later, people started cultivating rice within the swamp or using the land for grazing livestock. The tenure system changed from a common property resource to assumed individual ownership. Conflicts over the use of wetland resources emerged among rice growers, cattle keepers, fishermen, and those interested in sand collecting. The quality of water for domestic use also declined.

When increasing demand and competition for the wetland resources led to scarcity, local resource users established the Muhongoro Development Association (MUDA). With support from the Wetlands Inspection Division, and facilitated by Environmental Alert (a local NGO), MUDA worked with different user groups to develop an integrated management plan for Oleico Wetland. According to the plan, the wetland has been divided into four zones delineating wetland reserves (a buffer zone), a zone for cultivation, sources of water for domestic use, and grazing areas. Although it is still too early to assess the impact of the plan on the wetland, it is gratifying to realise that increasingly, communities are willing and able to participate in formal resource-use planning processes.

8.6 Opportunities for CBNRM

From an economic and a social perspective, defining property rights in the use of natural resources is critical for sustainability. There are two broad categories of property rights that are of particular importance to CBNRM, namely ownership rights and user or access rights. No individual can claim ownership over resources such as lakes, rivers, wetlands and wildlife, which are held in trust by the State for the country's people. However, individuals or communities can use these natural resources if they obtain access or user rights from agencies with the mandate their overall management. It is in this context that both government agencies and communities are seeking partnerships for CBNRM. International NGOs and donors have also demonstrated their support for community involvement in NRM by investing in several projects efforts proposed by government agencies and community groups.

The Wildlife Policy and Wildlife Statute 1996 both provide for wildlife user rights to be granted to a person, community or organisation for extractive utilisation of wildlife, including activities such as hunting, farming, ranching, trading, education, scientific research and general extraction. The Forest Policy and corresponding legislation also include provisions for the user rights of communities, particularly through short and long-term concessions for a range of extractive and non-extractive activities in forest reserves.

Support for collaborative management of natural resources is stated explicitly in current and proposed national policies for forestry, fisheries and wildlife. UWA and the Fisheries Department have already entered into collaborative arrangements with some community groups for the management of resources within protected areas, e.g. in Lake Mbruo. The separation of forest reserves between central forest reserves and local forest reserves is an opportunity for communities interested in CBNRM to work more closely with forest management agencies to develop collaborative management programmes. The provisions of the Land Act that facilitate the formation of communal land associations also offer opportunities for CBNRM.

Revenue is a significant benefit of effective management of natural resources. According to the Wildlife Statute 1996, the Board of UWA shall pay 20% of the park entry fees collected from a wildlife protected area to the local government of the area surrounding the wildlife protected area from which the fees were collected. Properly used, revenue that communities obtain from the parks under the revenue-sharing scheme could help to promote a good relationship between the protected area managers and local residents, and serve as an incentive for community members to engage in CBNRM activities.

The draft Fisheries Policy states that "The policy supports public participation in the management of the fisheries resources and ensures equitable sharing of benefits". This will help ensure respect for traditional cultures and knowledge, access to resources, and with due regard to gender and equity. This is now being translated into action through the establishment of Beach Management Units on Lake Victoria as the key mechanism for creating increased local responsibility for fishery management.

At the national level, the formation of a Community Conservation Division within UWA and a Collaborative Forest Management Unit in the Forest Department reflects the government's commitment to CBNRM, and to the development of strategic partnerships with local communities for the management of natural resources. The Wetlands Inspection Division is also committed to CBNRM. Through pilot projects in central, western and eastern Uganda, the Division has been able to demonstrate wise use of wetlands, achieved through collaboration with local communities.

There has been some progress in the development of innovative and adaptable tools for CBNRM. Collaborative agreements and management plans have been the main instruments used to date, which includes a set of regulations that defines the resources to be used, as well as when, how often and how much they may be used (Box 8.5). Such a framework of regulations is meant to ensure sustainability of resource use as well as equity among the various community members who benefit from the resource. Incentives are also popular as catalysts for CBNRM. These incentives may be in the form of property rights, subsidised inputs or financial and technical assistance. Several of the case studies mentioned in this chapter have been supported by such incentives.

The number of communities that have started groups to participate in the management of natural resources, and benefit from technical and financial support from external agencies, is increasing. There is a corresponding increase in the capacity for community members to identify, initiate and manage CBNRM activities effectively.

8.7 Challenges Ffr CBNRM

8.7.1 Heterogeneity among resource users

One constraint to successful CBNRM is the heterogeneity within communities, particularly with respect to differences in needs and priorities among people, and groups of people, which make them ascribe different values to available resources. Distinct groups of resource users occur in every society and, there is often conflict between the groups. For example, one group in a community living near a wetland may be interested in fishing, while another may be interested in the extraction of clay for bricks. Likewise, one group may be interested in forest products for medicinal purposes, while another's interest may be for craft making. It is important to recognise these constraints in order to design successful CBNRM projects. The main issues that should be taken into account include:

- Interests or needs may differ in their perceived importance to people's livelihoods and, therefore, in the efforts people will expend to satisfy them. Some needs may be felt continuously, whereas others may be of a seasonal nature. These variations pose the first challenge for the sustainability of a local institution with powers either to regulate the members' access to the resource or monitor them; and

- Differences in interests or values for the resource can be potential areas of conflict among members of the community, making it difficult to design or implement common strategies.

There are also difficulties in defining a community. A community may be defined either on the basis of locality, relationships among people in the same locality, or shared identity. Unless the community using a natural resource is well understood and properly targeted, interventions may be costly and unsustainable. During a national workshop on CBNRM, the participants listed five features of a viable community institution for CBNRM, as follows:

- Cohesion (identity and interests);
- Demarcation (social boundaries and membership);
- Legitimacy (power and authority);
- Ability to accommodate change; and
- Governance structures and management systems.

8.7.2 Transformation of common property resources

Communities are increasingly privatising the management of resources that are otherwise better suited to communal management. For example, communal grazing areas in Busongola have been allocated to individuals and converted for the cultivation of cotton and other crops (Kisamba-Mugwerwa, 1998). Igogero Wetland in Iganga District is among several wetlands that are no longer managed as communal property (Box 8.8.).

Box 8.8: Changing tenure in Igogero Wetland in Iganga District

Igogero is a long stretch of permanent wetland in Eastern Uganda and is part of the network of wetlands that drain through the districts of Iganga, Kamuli and Tororo in the Lake Kyoga basin. In Iganga District, the wetland traverses Buvuma, Buyanga and Nabukalu sub-counties. The portion of the wetland described in this case is three kilometres long and two kilometres side and used by residents of Nakawa and Butaba villages.

Settlement in these two villages began in the 1920s. The local, traditional chiefs allocated land to the early settlers. From the 1950s, the number of immigrants increased, and most of these newcomers were settled at the periphery of the wetland. At that time, the wetland was respected as government property that supported important resources for the community in the form of water, fish and building materials.

During the 1950s and 1960s, cotton was the main cash crop in the area. However, during the early 1970s, the cotton industry collapsed, and was replaced by coffee. By the end of the decade, however, low prices meant that coffee farming was no longer profitable. At the same time, there was rapid population growth in the villages which led to increased demands for land and a decrease in the size of land holdings. As land became scarcer, farmers maintained shorter fallow periods, and this led to a decline in soil fertility.

Community members felt the need to identify high value crops that could yield a reasonable income from small holdings. Rice cultivation seemed promising and had been practised, for subsistence by women at the periphery of the wetland. The Government had also established a rice-growing scheme at Kibaimba Wetland, not far from Igogero. Members of the community began to grow paddy rice for commercial purposes. This was encouraged by high demand for rice in Uganda, at relatively good prices. As a result, changes in the use of the wetland were accompanied by a dramatic increase in the value. and demand for land along the wetland borders. New rules of access to the wetland emerged, and the owners of the land bordering the wetland extended their boundaries into the wetland. In the same way, the boundaries of the two villages were extended up to the stream that flows in the middle of the wetland. As a result, the wetland was transformed from its original status as a common property resource into private property.

Source: Kizito and Nsubuga, 1998

8.7.3 Property Rights

Although the Land Act 1998 defines four land tenure systems under which individuals and other bodies can own and use land, it remains silent on the tenure rights for other resources on privately owned land, such as wildlife and wetlands. In theory, a framework of property rights may not be effective if it does not bear the four features of exclusivity, divisibility, transferability and universality. With respect to resources like land that individuals can demarcate and own, it is possible to maintain effective property rights. However, the situation is very different in the case of resources such as fisheries for which individuals can only gain access and user rights. For example, Uganda's laws and regulations for fisheries and forest management do not allow resource users to transfer their licenses or permits to other individuals.

Furthermore, after the Government grants property rights, it is important to define the property rules under which these property rights are to be used. Some of the rules and regulations are part of the law (e.g. The Fishing Rules and Regulations for L. George and Edward, Fish Act, 1964) while others are defined administratively. As a principle, all these rules should be fair to both contracting parties.

Fines for non-compliance with property rules must be effective deterrents. At Lake George, those who are in violation of fishing regulations pay a fine of Ug. Shs.1,000 (but only represents US$0.60 in 2003), a figure that is specified by the Fish Act 1964. Such a low fine is no longer a deterrent. Some of the fishermen find it profitable to break the rules and pay the fine, rather than adhere to the regulations voluntarily. In the interests of CBNRM, exclusivity may be achieved if the communities become empowered, through legal backing, to fight trespassers. The case of Lake George (Section 8.5.2) emphasises the importance of government support for projects initiated by communities to maintain exclusivity in the management of common resources.

8.7.4 Wildlife policy and legislation

According to the Statute, the Board of UWA shall pay 20% of the park entry fees collected from a wildlife protected area to the local government of the area surrounding the wildlife protected area from which the fees were collected. However, according to the Local Government Act 1997, both district councils and sub-county councils are defined as local government. Conflicts between these two entities may arise unless there is agreement on which one should receive the revenue. This issue is complicated further when the areas neighbouring a park fall under the jurisdiction of more than one council or sub-council.

Also with respect to revenue sharing, the Statute does not state the purpose for which the share of the revenue collected by UWA is to be given to local communities. The policy should have defined the *quid pro quo* for revenue sharing, so that appropriate guidelines could be developed. Such guidelines would be particularly relevant when revenue is to be shared among several communities located around the same national park.

For example, it is known that local communities and farmers bear significant costs as a result of vermin and problem animal damage. Yet, up to now, no framework for compensating affected community members exists. Should part of the revenue shared by UWA and local communities be used to address complaints about vermin and problem animals? Further, some communities still engage in illegal activities like poaching. Should such communities continue to be beneficiaries of a revenue-sharing scheme when they cannot control unsustainable and illegal activities?

It is also becoming apparent that it is not possible to implement the revenue-sharing policy across the entire park system because the country's parks have varying revenue-earning capacity. For example, Queen Elizabeth Protected Area has a large hinterland and low revenue base, whereas Bwindi and Mgahinga national parks generate considerable revenue from park entry fees. It may be more appropriate for the policy to focus on benefit sharing, rather than revenue sharing, since protected areas offer a wide range of benefits, especially for communities that have 'multiple use arrangements'. Not all these benefits are expressed in monetary terms but may be recognised and appreciated equally by local communities. At the moment, communities that receive little or no revenue have begun to question the sincerity of UWA managers with respect to this policy.

Although revenue-sharing schemes are welcome as incentives for community engagement in NRM activities, they have not been analysed in the context of the full range of benefits communities derive. Mobilising community participation on the basis of the benefits they derive, and on a case-by-case basis, could be a better approach than a unilaterally introduced revenue-sharing policy.

8.7.5 Forestry policy

Current policies focus on forests managed by the central government despite the fact that 70% of the forest estate is on private land. The greatest loss of forest cover has occurred on private land, and is particularly serious in watersheds, hilltops and riverine areas. Attempts have been made to control exploitation of trees on private land, for example, by requiring owners to obtain permits before harvesting trees on their land. Such approaches have not been effective and alternative regulatory tools (e.g. economic instruments) have not been prescribed. Community involvement is necessary if appropriate policies and guidelines are to be developed for the management of forest cover outside protected areas. Although this type of collaboration is evolving, it has not been supported explicitly by previous policies.

There are numerous functions and values associated with forests, at local, national and international levels. Therefore, the objectives for their conservation and management must be clearly defined, on a case-by-case basis, as they are unlikely to be similar for different forest ecosystems, sites, species or other priority resources. It is important that these objectives be clarified before involving communities in collaborative management. When this is not done, it becomes difficult to determine the rationale for the management agreement, or for declaring some forests and resources as protected, either under the management of central or local government agencies.

Some of the terms and conditions for resource use permits in forest reserves are not favourable. The case of Namanve Peri-urban Project in which communities and individual farmers participated in the reforestation of Namanve Central Forest Reserve demonstrates the certain biases of the Forest Rules of the Forest Act 1964 (Box 8.1.). If the judge who presided over the case did not rely on the provisions of the Constitution, the communities and individuals would not have secured fair compensation for their trees under the forest rules.

8.7.6 Policy and legislation for wetlands and fisheries

Previously, wetlands were owned under different tenure systems. The 1995 Constitution of Uganda identified wetlands as national assets whose management is vested in the central government. Unless some wetlands are declared part of the protected area system (as is the case with forests and wildlife) it is unlikely that the government will resist the many applications for titles, from scattered sites, by individuals who owned small patches of the wetlands before 1995. By not streamlining property rights and property rules, the government is perpetuating a highly visible form of policy failure.

The current Fisheries Act is outdated. For example, the Act focuses on enforcement of rules and regulations even though there are few staff on the ground to ensure compliance. Unlike resources such as forests, fisheries and wildlife, wetlands are not covered by specific legislation. Instead, the management of wetlands is based on provisions scattered in various statutes, including the Constitution, the Local Government Statute 1997, the Land Act 1998, and the National Environment Statute 1995. All of these laws are inappropriate or inadequate with respect to property and user rights, and the procedures for penalties, appeals and compensation.

The existing laws do not define appropriate standards or the regulations for the use of these standards. Neither do they describe a national institutional framework and linkages among institutions involved in fishery and wetland management. For example, the National Environment Statute 1995 states that NEMA, with the lead agency, shall establish guidelines for the identification and sustainable management of wetlands in Uganda. It is not feasible for NEMA to accomplish this for all wetlands.

8.7.7 Government institutions

Institutions 'fail' whenever they prompt or favour decisions that prevent society from achieving a socially optimal allocation of resources. The also fail when they do not take appropriate action. For example, although NEMA does not have a mandate for implementation, it is nonetheless expected to provide an enabling environment for participation of other institutions, including communities. However, NEMA has contributed little towards community based initiatives.

NEMA is a national institution, whose services are supposed to be extended countrywide. Unfortunately, since it was established in 1995, the Authority has directed its attention to the five districts of Kasese, Kable, Mbarara, Tororo, Mbale and Arua. These districts were identified during the Environmental Management Capacity Building Project (EMCBP), implemented by NEMA and funded by the World Bank. EMCBP was a time-bound project that did not cover many districts and left many of the issues unaddressed. For example, even within the focus districts, NEMA could not adequately cover issues related to CBNRM.

The National Environment Statute 1995 charges NEMA with the responsibility for making guidelines for NRM, but very few of these guidelines have been developed. The guidelines were expected to focus on matters that are instrumental for CBNRM, such as:

- Management of wetlands, lakes and rivers;
- The selection and management of buffer zones near protected areas;
- Land use methods that are compatible with the conservation of biological diversity;
- Traditional uses of forests which are indispensable to the local communities; and
- Sustainable management and utilisation of wetlands.

Lastly, in an attempt to shift from the regulatory approaches for environmental management that communities dislike, the Statute provides that incentives and disincentives (such as fees, user charges and taxes) be prescribed in consultation with the Minister responsible for finance. To date, no economic instruments for the management of natural resources have been proposed by NEMA. This poses a major challenge to CBNRM because a fundamental cause of resource degradation is policy failure, when the range of regulatory instruments, (fiscal, exchange rate, monetary, price, income), and other policies distort the private cost of resource use, so as to make it rational for individuals to damage the environment.

8.7.8 Links and coordination among institutions

The national mandate to manage forests is shared between the Forest Department and UWA. Each institution is responsible for managing 15% of the country's forests, which are used for both extractive and non-extractive purposes. Both of them have piloted out community based national resource management, and efforts have been made to make the two institutions harmonise their approaches, e.g for Collaborative Forest Management.

Problems of poor institutional linkages, co-ordination and sharing of experiences persist because each institution tries to demonstrate independence. When the government converted some forests to national parks and transferred their management to UWA, the potential impact on institutional relationships and the sustainability of forest resources was not assessed. Subsequently, UWA and the Forest Department initiated pilot CBNRM projects utilising different strategies. In 1998, the Forest Department decided to share 40% of the revenue from the sale of forest products with local government authorities. The corresponding practice at UWA is to share only 20% of the park entrance fees with local government. Again, in 1999, the

Forest Department raised royalties for timber harvested from its forests, while UWA did not. This action distorted the market for timber products, and encouraged overexploitation of forests managed by UWA.

8.7.9 Resource attributes and implications for CBNRM

Natural resources have different attributes, including size, composition and availability. Some resources are seasonal while others are readily available throughout the year. Some resources are divisible, while others are not. These attributes are critical in shaping policies and laws for CBNRM. Knowledge of these attributes should also be applied during the development of institutional arrangements for CBNRM, both at national and community levels.

If certain natural resources become scarce and people's livelihoods are threatened, the chances of generating spontaneous support for their conservation increase. For example, in Masindi and Mubende, efforts by the respective district environmental officers to organise community support for sustainable management of forest resources were unsuccessful because the local people believed that the forest biomass was still abundant.

Extensive resources like Lake Victoria and the national parks are a major challenge for CBNRM, particularly because of the difficulties in identifying and initiating collaboration among a wide range of resource users. For this reason, despite heavy external support to conservation in national parks, it has proved particularly difficult to build sustainable partnerships with all the adjacent communities, except through collaborative management agreements.

8.8 Key Issues and Recommendations for CBNRM

Recurring issues in CBNRM projects relate to access and user rights, management roles and responsibilities, capacity and coordination among institutions, the sharing of benefits, conflict management and resource sustainability. CBNRM can be undermined if weaknesses in policy, legislation and institutions are not addressed systematically. Action by the Government, NGOs and communities on the following issues would strengthen local capacity to initiate, facilitate and implement CBNRM:

1. The government should review relevant policies and laws to facilitate CBNRM;

2. Institutions and communities with experience in CBNRM should be facilitated to share information about the opportunities, procedures and challenges;

3. CBNRM in Uganda should also be enhanced by learning about experiences in other countries;

4. The capacity of extension workers and resource managers employed by government agencies should be strengthened through training in participatory approaches, negotiation and other skills to improve their competence as facilitators and partners in CBNRM;

5. Financial resources and technical assistance for CBNRM should be mobilised by the Government, Non-Government and Community Based Organisations. Previous experiences, indicate that effective participation and collaboration requires a lot of time, effort and financial resources;

6. Proper feasibility assessments for proposed CBNRM initiatives should be conducted to ensure that they are sustainable. Key issues that should be examined during feasibility assessments are the status of available resources, institutional frameworks, market conditions, profitability and cultural aspects; and

7. There is need to develop diverse instruments for implementation of CBNRM as well as appropriate guidelines and standards.

Overall, the environment for CBNRM is becoming more favourable. There are numerous challenges to CBNRM in Uganda but there are also many opportunities. These opportunities should be grasped by placing greater emphasis on CBNRM as a strategy for natural resource management, and to allocate appropriate financial, technical and human resources towards this end. In the long term, the successful implementation of CBNRM in Uganda will depend on the strength of strategic, collaborative relationships between community institutions and government institutions.

CHAPTER 9: ANALYSIS AND CONCLUSION[8]

Edmund Barrow

9.1 Opportunities

There are a wide range of opportunities for CBNRM in the region, which have been synthesized from the various national and thematic reports. They form a sound basis for helping to resolve many of the important constraints to successful CBNRM in the seven countries. The biggest single opportunity is the fact that CBNRM is happening all over the region, albeit with different levels of experience. The range and variety of experiences is far greater than contemporary literature would suggest.

Local Knowledge: The importance of building on existing knowledge systems with respect to natural resource management is key. These include the knowledge local people have about their natural resources, the rules and regulations by which they manage the resources, and the encompassing institutional and organizational set up by which this is legitimized at the community level. While it is clear that such knowledge systems are not perfect, they are a most important building block and point of departure for good CBNRM.

Policies and Laws: The national, regional and global pressures to decentralize and for participation have not been adequately integrated into natural resource management. The various processes of decentralization should be seen as a very important opportunity on which to build successful CBNRM, and help show that conservation matters at the local and decentralized levels. Most governments have some form of decentralized policy. To what extent this represents a real decentralization of power, or a deconcentration of centralized power is open to question. Uganda would be an example of the former, while Kenya of the latter. To what extent decentralization has really empowered the lowest levels of administration (village, parish, location, community) is also open to question. However there is a trend towards decentralization, and this is a clear opportunity for CBNRM to build on and advocate for. In some countries, in particular Kenya, there is a move to a more decentralized approach to the management of marine resources through the use collaborative management, for instance in the agreement to "no take reserves" where such areas act as fish breeding grounds for the wider fishing area. Because of structural adjustment programmes, the increased emphasis on decentralization and the need for Poverty Reduction Programmes, many sectoral policies are in the process of revision. This is an important opportunity to share policy instruments (drafts or approved policies) so as to improve the status of CBNRM approaches in evolving policy.

Today the region is poised for progress in community conservation, with significant policies in place. This has been given added impetus and focus by declining government budgets, structural adjustment polices forcing retrenchment. Community arrangements for the management of natural resources are now a necessity not a luxury. Advocacy of CBNRM is driven by the importance of areas outside direct state control for biodiversity conservation; the

[8] The material for this chapter has been synthesised from a. the country chapters in this book, and b. Barrow, E., Gichohi, H. and M. Infield (2000): Rhetoric or Reality - A Review of Community Conservation Policy and Practice in East Africa. Evaluating Eden Series No. 5. IIED, London. 184 p.

impotence of state agencies to manage conservation areas; the potential for cost-effective local management; being able to draw on detailed local knowledge of ecological dynamics; and enhanced motivation within the local communities to conserve natural resources when conservation is of direct economic benefit to them.

The constitutions of a number of countries provide strong support for CBNRM. There are a number of existing regional or multi country protocols or MOU (Memoranda of Unerstanding) which can be used as a basis for furthering CBNRM. For instance, Ethiopia, Kenya and Sudan have a protocol for wildlife, while Ethiopia and Eritrea have a protocol for wildlife management. Kenya and Uganda have a security agreement for Mt. Elgon.

Institutional: There is an increased recognition of the need for integration of local and customary authority structures with those of more formal government. For example, in Sudan range rehabilitation work was carried out in a partnership between the traditional and administrative authorities, together with the technical experts. Traditional institutions are often well understood at the local level, even though they may be ignored or marginalized higher up. This is a clear opportunity for local level institutional strengthening.

The variety and range of NGO institutions is both an opportunity and a constraint. As a result there is a wide array of lessons being learnt on CBNRM issues. Unfortunately, these lessons do not often find expression in policy and government institutional arenas.

Practice and Participation: Though not in IGAD, both Zanzibar and Tanzania, have helped communities establish marine conservation areas, in much the same way as is being done on land, where land is managed for natural resources and wildlife. Lessons from such areas will be important for evolving CBNRM in the IGAD region, and particularly for the extensive marine areas. There are many so-called Integrated Conservation and Development Projects (ICDPs) being implemented in the region, and these projects test CBNRM approaches. The projects are important vehicles for implementing CBNRM and therefore offer opportunities to employ successful trainees. All the ICDPs are financed by donors and most supported by international NGOs (such as CARE, IUCN, WWF) and development agencies. In other words, the international conservation climate is in favour of CBNRM and encourages it as an approach to sustainable natural resources management.

There is civil society pressure on governments in the region to relinquish their monopoly of management of natural resources and to involve and empower communities for effective participation in NRM. This means that that there is the will. There are evolving lessons from partnerships between communities and various levels of state authorities for the management of natural resources, for instance forests in Uganda and Sudan. Uganda has probably gone furthest in collaborative management of natural resources, both from within the Forest Department (collaborative management of forests), and within the Uganda Wildlife Authority (collaborative resource management of resources found in Parks).

There are many customary natural resource management practices in the region, which still survive despite external pressures, including for example the *Kaya* forests of Kenya, the gum arabic gardens of Sudan, and the frankincense woodlands of Somalia. An understanding of why and how these practices survive will inform and improve CBNRM.

Economics: There are great opportunities to better incorporate economic concerns into CBNRM in the IGAD region. The overall macroeconomic framework and plans of all of the countries in the IGAD region are based on the stated goals of equitable and sustainable

economic development, and most natural resource-based policies also aim to ensure that sectoral economic activities are environmentally sustainable. Increasingly, environmental sector policies are being reformed, and most now contain sections dealing with the generation of economic benefits from conservation and their distribution to local communities. The major challenge is to translate these economic goals into practice, and to ensure that sufficient and appropriate economic incentives are actually provided for CBNRM.

There is an emerging capacity within the IGAD region to develop and apply economic tools to CBNRM and a growing body of experiences relating to resource economic aspects of CBNRM. In turn, such information and experiences are leading to a growing recognition, among economic and natural resource policy-makers, planners and managers, of the importance of addressing resource economics issues in CBNRM, and the piloting of methods by which to do this.

9.2 Constraints

Local Knowledge: State directed methods and approaches for natural resource management have often underplayed the ability of some communities to manage their resource. As a result traditional management methods and rules have been eroded. Historically this was often done as a matter of policy - the local people had to be told what to do. Gazettement of conservation areas which has often not been carried out in consultation with, or agreement by local people is one such example, and can considerably weaken local level responsibility. Many of the countries in the region have had some forms of disruption, whether civil conflict, for example Ethiopia/Eritrea and Sudan/Uganda, or changes in government, for example Ethiopia, which has resulted in radical land use changes.

Policies and Laws: While many policies and, more recently, laws are supportive of CBNRM in a general manner, there are still many gaps and much ambiguity as to their implementation. While the policies may be enabling, the legislation has often not been properly put in place. This may be due to a perceived lack of ownership by a host institution of a CBNRM type activity implemented by a project or NGO. For example, UWA in Uganda does not appear to support collaborative resource management, yet collaborative resource management is successful in a number of national parks.

CBNRM, by its nature, requires that it is conservation "By, For, and With" the community. Power is explicitly devolved to community structures. Many natural resource managers and government institutions have found it very difficult to "hand over the stick" to rural people and communities. The reasons for this are many and include a lack of belief that communities can be responsible, and a loss of patronage that such a hand over of power invariably results in.

Clarity in property rights is a key constraint, whether it be actual property rights to land, or to resources or to both. This is equally important on marine, wetland and terrestrial systems. Clarity in property rights, at whatever level, helps to create the sense of real ownership for the land and resources, and a much greater sense of responsibility. Unfortunately in the past natural resource management institutions have not engaged properly with land tenure debates and reform, nor have NGOs and other groups who work with natural resource management. A number of countries have or are under going tenure reform. However, in other countries tenure reform may have been started but has not been fully implemented.

Policies for land use are either lacking, weak, or are simply not implemented. As a result land use planning, by default, becomes the prerogative of the more powerful groups, departments and ministries. In this conservation has lost, as it has not, until very recently, been seen as a component of real land use that contributes to food security. In addition, the conservation values of land use are often not properly fostered and encouraged, by for example agriculture extension agents. The vertically aligned sectoral mandates that govern many of the natural resources has been a great hindrance to integration and CBNRM approaches. In addition there are often contradictory policy statements and practices about the same natural resources in different departments and ministries. These cause ambiguity and confusion, particularly at the community level.

The complexity, scale and scope of the region's biodiversity, the institutions responsible for its management, and the history of direct links that rural people had with their natural resources call for natural resource management that is sensitive and responsive, and requires strong coordination of policy. Coordination has not been adequate as environmental issues are handled by several vertically defined government bodies which show little horizontal integration. Lack of clarity of these mandates has contributed to the reduction of the region's conservation estate, its contents, and the effectiveness of their management. In some countries, such as Kenya and Uganda, contemporary policy has progressed more rapidly than practice. This relates, in part, to the policy rhetoric not being articulated in practice as this requires a sharing or a devolution of authority and power, which many government institutions may not be ready for.

Though community conservation has been promoted as a way to reduce government investment in conservation, it is not clear that this will be achieved in the short term. Community conservation programmes, certainly as developed under donor-funded projects, are expensive, and do not result in immediate returns. The tendency among bureaucrats to adopt low risk strategies and avoid innovation has meant that the development of programmes has been largely donor funded. If external project support reduces, they will have to compete for limited funds with other, perhaps better understood and favoured, practices such as law enforcement. External funding sources will continue to be required to fund conservation in East Africa for some years to come and should continue to promote innovation;

Pricing and marketing policies have often been a severe disincentive to CBNRM, and the marketing of natural products. A good example of this is non-timber forest products. The recent price reductions for gum arabic in Sudan, has made it difficult for farmers to continue with this system, and gum arabic gardens are being replaced, despite their time-tested value stretching back over 4000 years.

While a number of countries have environmental policies, these often lack the power to adequately conserve the environment. For example, Environmental Impact Assessments may be explicit in law, but may not be carried out in practise, or if carried out, are not done in a responsible manner. Having good policies and laws is not enough, there has to be the will, motivation and resources to implement them. Many countries may have policies that enable or promote CBNRM and decentralized approaches. However, policy on its own is not enough without the will and commitment to implement them. It is this will and commitment that is often lacking, not the policies themselves.

Shared river basins and lake basins are not presently managed for water availability to all stakeholders. Such management is required, given the increased levels of erosion and degradation in the catchment areas. This is also linked to an inadequate integration of water uses upstream and downstream resulting in inequitable sharing of water and the reduction in value of downstream ecosystems.

Institutional: Coordination is the key institutional constraint, and has been so stated many times. Where coordination has seemingly succeeded it has been as a result of personal interest not institutional mandates for example the origins of the MOUs between KWS and the Forest and Fisheries departments in Kenya. Many institutions lack the capacity or capability to carry out CBNRM. Staff training for CBNRM is still to be properly integrated in training curricula, and is *ad hoc*. While decentralization has started to remove much of the responsibility to lower levels and to rural people themselves, government departments are still under resourced to do what is left for them. Good governance and transparency is an increasingly important issue, though more relevant to some than other countries. This may be one reason why there is a lack of motivation to devolve power in some instance to local communities.

Practice and Participation: When governments centralized control of natural resources and natural resource management, local level rights were revoked, and participation lost. This trend resulted in a loss of a sense of ownership for the natural resources, and consequently management responsibility. For example, marine resources are often targeted by a variety of user groups, including local communities and fishers, tourist and commercial operators, as the marine environment is often perceived and managed as an open access commons and subject to multiple, sometimes conflicting, use.

CBNRM and good community work does not require large inputs of external funds. What it does require is time, motivation and commitment to the goals of such community approaches. Time to "visit and re-visit" is required to gain the trust and understanding required at the community level. Motivation is required so that communities and external agents believe that communities "can do it". These two attributes are often lacking in good community work, where quantifiable outputs may be more important. Because of this, certain groups within a community may be marginalized or suffer negatively as a result of a "seemingly" agreed to intervention.

In some instances the push for CBNRM is often driven by external agents such as donors and NGOs. If not carried out sensitively, this can alienate some government institutions who have national responsibility for CBNRM. The often *ad hoc* approach to CBNRM is a cause of concern, though it could be indicative of the transition being faced from one of natural resource preservation and exclusion to one of inclusion and community management. There are many examples of CBNRM being allowed "at the discretion of …….", for instance wildlife cropping and wildlife associations in Kenya, and collaborative management in Uganda.

In dryland pastoral systems, as well as marine ecosystems, encroachment by outsiders can be common. This can result in increased pressures, a loss of resources, and a reduced level of food security to the local community. In pastoralist systems, the loss of rich patch dry and drought grazing and browse reserve areas has been a particularly important. Such areas have been lost to irrigation schemes, dryland cultivation, forest reserves and national parks. Such activities have severely compromised the wider pastoralist land use systems and putting them at much greater risk in an already high risk environment.

The term "community" needs to be understood for the range of contexts CBNRM works in. There is no one definition. Annex 2 provides some analysis on this term which may assist understanding.

There is a broad lack of documentation of the wide variety of practical CBNRM experience in the region, or if it is documented it is not easily available to practitioners and policy makers. This wide experience comes from two sources: traditional or customary CBNRM, and CBNRM

of a more recent project driven nature. There is a lack of understanding and information on the extent of use of rivers, lakes and wetlands by local communities for subsistence and survival, and its integration into land use management.

Economics: There exist multiple disincentives and perverse incentives to CBNRM in regional and national economic policies in the IGAD region, especially at the macroeconomic level and in the agricultural, land, water, energy and industrial sectors. There is a need to identify these perverse incentives and disincentives, and to take action to overcome them. Although both macroeconomic and sectoral policies are similar in IGAD countries in terms of their goals, scope and effects, and in some instances are underpinned by common regional agreements, in certain cases there are conflicts or divergence in the ways that these policies are implemented. There is a need to identify cases where the varying implementation of economic policies is affecting CBNRM, especially in cross-border situations, and to take action to overcome and harmonize these conflicts.

Environment and natural resource policy take little account of economic issues, even though these provide a major explanation for natural resource degradation, and present a potentially valuable set of tools for conservation. There is a need to identify, and to pilot, economic instruments, incentives and financing mechanisms for natural resource biodiversity conservation at regional and national policy levels, as well as in cross-border sites.

Information and capacity in natural resource economics aspects of CBNRM is weak. Little is known about economic aspects of CBNRM, at regional, national and cross-border sites. There are also few practical experiences of the use of economics for CBNRM, especially for identifying the policy causes of natural resource degradation or using economic instruments for conservation. This lack of information and capacity acts as a constraint to CBNRM at regional and national levels. There is a need to use economics, at regional, national and local levels, in order to generate information, develop methodologies and provide recommendations that can be used to strengthen CBNRM practice. Although community based approaches are increasingly being applied to natural resource management, most CBNRM initiatives have yet to fully incorporate economic analysis and tools. Many CBNRM activities fail to provide sufficient economic incentives to offset or balance the costs and losses that are incurred by communities by modifying their economic activities to conserve natural resources. This results in a situation where CBNRM is economically unviable to community members.

At the site level, local economic conditions influence natural resource status. There is a need to integrate economic incentives for CBNRM into specific projects and activities dealing with local-level conservation and development.

General: Many CBNRM activities are donor funded. Donors typically have 2-5 year project time horizons, and they will move into, or out of, certain areas based on their own priorities. However, good CBNRM work is time, not funds, consuming. Developing CBNRM practices that are sustainable can require many more years than typical donor cycles. Trust has to be gained, in conditions that may have been hostile. Knowledge about natural resource management has to be understood by all. The social attributes and community institutional arrangements need to be understood, and so on. Good CBNRM will not simply end with a management plan or an agreement, but will require follow up and fine tuning to ensure sustainability.

There are clear limitations with the "project" approach. In reality, CBNRM should become embedded in a programme approach of much longer duration, as for example the SIDA-funded soil conservation activities in Kenya and Ethiopia which have been on going for over two decades. Across most the IGAD countries, where drought is a regular occurrence, there is still the broad non acceptance of the low availability of water by many concerned with land management. As a result, they are reluctant to adapt management to the needs of climate, as pastoralists have done for generations.

9.3 Key Issues and Areas for Regional Collaboration

9.3.1 Introduction

There are a range of activities which could be addressed by a regional programme, some are geographical and ecosystem in focus, while others are more issue based. In 1997-1998 considerable analysis took place concerning the Greater Horn of Africa Region (including the IGAD countries). Many of the key principles and priorities for food and environmental security are also important for CBNRM (Table 9.1 below)

Table 9.1: Principles and Priorities for Food and Environmental Security in the Greater Horn of Africa

Strategic Principles
• Regional cooperation among stakeholders.
• Focus on key transboundary or shared issues, particularly of critical resource areas.
• Confront the roots of the interlinked food and environmental insecurities.
• Participation and empowerment in food/environmental security initiatives.
• Enhancing diversity of economic, ecological and social conditions.
• Mobilize and strengthen initiatives and resources for food-environment security.
• Uphold and build upon international conventions on food security and biodiversity.
Priorities for Regional Action
• Policy reform (market, structural adjustment, trade, participatory approaches).
• Sustainable agriculture methods, stressing diversity and agroecological principles.
• Institutional and governmental changes and capacity building.
• Distributional reform and equitable opportunities.
• Regional conflict resolution and governance reform.
• Demographic changes through support for education and health services.
• Research and information challenges.

9.3.2 Institutional and Legal Basis for CBNRM

The necessary policy and legislative framework for CBNRM is often lacking, or where it exists, it is weak or is not being implemented responsibly, either at the national or decentralized levels. While there are broad policies which actively support decentralization and devolution of power and authority, these are often not properly articulated in practice. In particular, many of the natural resource sectors may have policies that actively foster CBNRM, but such policies may not be implemented to the degree required. CBNRM could provide one important tool for all countries to develop clear land use policies which would give due important to the role of natural resources in food security

The secure foundation for CBNRM is housed in secure tenure, be it group, communal or individual, over the land and the resources. This security is still lacking, or where it exists, it may not be of long enough duration to foster investment in natural resource management. In the past, those working with such community approaches did not adequately address tenure issues. As the foundation for secure natural resource management, those working with environmental and food security have to address and advocate for tenure security.

The lack of coordination at many levels is going to be a continuing problem, but one where the practice of CBNRM may be able to assist. Demonstrating that CBNRM works at the community level, both in terms of food and environmental security, will provide the added impetus, if one was needed, for the necessity of higher level coordination mechanisms at the decentralized and national levels. Linked to this there is a lack of capacity for CBNRM at many different levels to effectively work with the range of skills, both sociological and ecological, which CBNRM calls for. In terms of capacity, one of the major areas will be with the social aspects to ensure equity and security, especially to those who most depend on natural resources, and who are usually the weakest and most likely to be marginalized. In a similar manner, it will be important to develop simple and robust indicators at different levels to demonstrate that CBNRM does contribute to both food and environmental security

While coordination is important, perhaps clarity of the rights and responsibilities of the stakeholders at all levels may be more important. The delinking of rights and responsibilities has been a great disincentive to community based approaches. While they were left with many of the responsibilities to conserve and protect, they were not allowed, or if allowed only based on permits, to fully exercise their rights. Housing CBNRM in strengthened community structures will be the starting point to re-link and secure both the rights and responsibilities. This would also involve the recognition and strengthening of indigenous institutions for CBNRM.

This increased push and emphasis at both national and regional levels for greater community participation will continue to put pressure on some reluctant departments and institutions to responsibly use CBNRM. This seeming disjunct between enabling and participatory policy combined with a seeming reluctance to implement those very policies is a cause of concern. It is clear that a regional programme, as well as supporting CBNRM activities and policy development could assist by demonstrating that CBNRM does work through focused study visits, and policy and practice analysis.

Creating the necessary space, enabling policies and lessons from practice is essential for the future of conservation in the region. One key activity of this process will be to collect and analyze existing policies, laws and practice in the region with a view to learning lessons, identifying best practices and finding the optimal balance between community empowerment and state control. Identifying clear rights and responsibilities for different stakeholder groups will be key to this, as well as the incentives necessary to achieve this. Ultimately, successful

CBNRM is about communities and local resources users having clear rights and responsibilities for their natural resources, supported by an enabling policy and legislative framework where official institutions facilitate and enable this process, while retaining regulatory control of last resort.

At a macro policy level, CBNRM needs to be linked into the major policies including those of decentralization, and Biodiversity Action Plans. CBNRM can be used as an example to demonstrate the real importance of true decentralization. More importantly though, is making the links to the Poverty Reduction Strategies which most countries in the region are undertaking. Achieving this will help ensure that CBNRM and, by inference, conservation, has a meaning and importance in terms of food security while, at the same time, helping achieve environmental security. As well as making the links nationally there is need to develop transboundary land use policies and management plans, based on traditional management systems, of pastoralist land use. This should include mechanisms, through CBNRM for the management of conflict.

There needs to be a mechanism to have regular meetings between various groups, as well as decision makers about CBNRM in the region, in a similar manner to what is happening within the East African countries with respect to the "Directors of Forestry Meetings". This could include appropriate mechanisms, for example similar to the Kenya Pastoralist Forum, to include politicians, pastoralist groups, those working with pastoralism etc. as a means to share information and discuss issues. This also applies to large river and water shed projects, for instance dams so that lobbies can be built to influence political processes to incorporate, social and technical concerns.

9.3.3 Building on the existing local and Indigenous Technical Knowledge base

It is very clear that there is a vast experience across the six countries relating to CBNRM. Much of this has evolved out of customary practice. This is the building block for future success and mainstreaming of CBNRM approaches in the region. However it must be recognized that such customary management systems are not perfect, and may not have been able to evolve fast enough. But they are the starting blocks on which to build and improve. Hitherto the indigenous knowledge base has been much maligned and neglected as development tended to be driven by technically trained experts. Research is showing that such traditional knowledge systems are valid, though not perfect. It is equally important that customary management practises need to be more strategically documented and shared within the region.

One key area of traditional knowledge, given the regional semi arid and arid climates, is the range of coping mechanisms that land users have developed to cope with drought and other contingencies including wet and dry season grazing resources, and natural resources used in time of drought. This knowledge base is key to reducing the risks in such risk prone environments and enhancing the resilience. To help reduce risk and enhance resilience diversification of food security options is needed, by the development or improvement of sustainable alternatives and providing value added for some existing options.

9.3.4 Capacity at Community Level for CBNRM

It is clear that a much greater understanding of intra- and inter- community dynamics is required, so that past inequities can be addressed. The "homogenous community" is not an acceptable notion for any form of CBNRM. Community organizational structures, usually in the form of some committee, have to be able to address the range and depth of equity issues at

the community level. There are a range of potential problems at the community level including domination by elite's and politically powerful, marginalization of women and landless, and poor representation. One key area in this is to ensure that communities and resources recognize and value the importance of their natural resources and environment.

While a regional set of activities may be able to pilot some of these notions, a more important role may be to bring practitioners together to share and discuss how greater equity in decision making can be brought about, through training and study tours for example.

9.3.5 Capacity Building for CBNRM

Many of these community and participatory approaches are relatively "new", at least to many of the more technical and sectoral disciplines such as forestry, wildlife conservation and fisheries. The training institutions are only starting to address such issues in training curricula. So there is a gap between the rhetoric of participation and its implementation. An important area will be to try and influence the various training institutions in the region to more strategically integrate CBNRM issues into more technical courses.

In a similar manner, capacity can be developed through focused study tours, action learning and sharing between different sorts of CBNRM activities. Exchange visits have proved very useful, though can be expensive, for capacity building, for example cross border study visits between Tanzania and Kenya concerning marine issues, a multinational study tour to Nigeria for community participants from Uganda, Mozambique and Nigeria to share lessons, and a three country study tour for community wildlife management for Kenya, Tanzania and Zimbabwe are all illustrative of this

A focused, planned and strategic use of lesson learning and capacity building workshops are another avenue to share, discuss and learn. A regional programme of activities could link such workshops to the actual carrying out of activities with a further meeting planned for follow-up. This could include a range of activities including:

- Carrying out of studies on natural resource management and environmental conservation;
- Carrying out of joint river basin and wetland studies;
- Research on the conservation and management of wildlife;
- Focused study tours and lessons sharing workshops; and
- Awareness raising about CBNRM and the importance of natural resources to food security at a wide range of levels.

Countries in the region both individually and collectively, need to develop training programmes through which they can build expertise in CBNRM. Some of the training could be based on already existing courses. In other cases, new courses need to be developed and conducted. In order to optimize on resources, some institutions could be designated as centres of excellence for specific training modules to serve the whole region.

There is an opportunity for IGAD to elaborate a regional training proposal for CBNRM, seek funding for it, and implement it. The potential for such a programme to influence the course of conservation in the region through CBNRM is enormous. It would be a substantial contribution by IGAD towards the future of natural resources in the region. Whilst there are a few people in the region who have acquired this broad body of knowledge and skills, and that has invariably been “on-the-job” training, we have to accept that these are far too few to manage a programme for CBNRM in the entire IGAD region, and that training to “recruit” more such practitioners is absolutely essential and urgent.

9.3.6 Financing for CBNRM

While many CBNRM activities not require large amounts of financing, for instance with respect to improved subsistence based natural resource management, there are other areas where appropriate financing mechanisms will need to be set up. This is particularly important where CBNRM involves income earning activities. Skills may be required for business planning, and marketing, and seed capital (loans) required to help initiate activities.

In addition some communities may enter into partnerships with private sector business enterprises. In this communities will need a "better business mentality" so as to be able to negotiate with the private sector on a more equal basis.

9.3.7 Key Resource Economics Challenges

The major challenges that exist in the IGAD region, that prevent proper consideration of economic factors in CBNRM, and prevent communities from having sufficient economic incentives to conserve natural resources and use them sustainably, are many and varied.

At an institutional and information level, weak capacity and awareness of natural resource economic issues and their application to CBNRM. Few training or research institutions or organizations concerned with natural resource and economic planning, policy and management deal with natural resource economic aspects of CBNRM. There are also few economic methodologies or information available dealing with economic aspects of CBNRM that have been applied in the IGAD region. At the level of local livelihoods and economic conditions, high levels of economic insecurity and stress, and extremely limited economic opportunities, that mean that communities often have few economic alternatives to degrading or over-exploiting natural resources in order to survive. Examples of this include the limited access to alternative sources of income, employment and subsistence throughout the region, as well as recurrent and widespread drought, internal civil unrest (e.g. in Djibouti, Somalia and Sudan), regional disputes (e.g. Uganda-Sudan, Eritrea-Ethiopia).

Within environment and natural resource sector policies, weak integration of economic concerns, or of explicit economic measures, that identify or overcome the underlying economic causes of natural resource degradation, set disincentives against natural resource degradation or to use positive economic incentives for natural resource conservation. Within macroeconomic and sectoral economic policies (for example those relating to land, agriculture, water, industry, trade, etc), a series of economic policy goals and instruments that encourage activities to take place at levels, and in ways, that run the risk of degrading natural resources, and often protect implicitly these sectors. These perverse incentives and policy conflicts with natural resources conservation are coupled with a lack of economic disincentives or effective penalties against natural resources degradation. For example after a history of heavy economic protection, state intervention and subsidies to particular sectors of the economy (most notably agriculture) there has been a growing trend towards economic liberalization and diversification throughout the region. In many cases these economic policy trends have discriminated against natural resource conservation (for example by promoting agriculture as the most desirable land use, through the short-term welfare and economic shocks arising from structural adjustment measures, or through the heavy promotion of urban and industrial sectors without due consideration of environmental effects).

Despite a similar set of macroeconomic and sectoral economic policy goals and instruments, at there still exist a number of regional-level economic policy conflicts that are mainly manifested through differences in the ways that policies and laws relating to specific resources or activities are set or implemented. For example the differences in natural resource utilization regimes or

the types and levels of community benefit-sharing arrangements employed by wildlife and forest authorities between cross-border communities in Kenya and Uganda, sending confusing signals and contradictory economic incentives relating to community natural resource use and benefits.

A generally weak funding base for natural resource conservation, especially at community levels, including over-reliance on "traditional" revenues sources and poor consideration of innovative financing mechanisms, or financing mechanisms that specifically target communities. For example all of the government agencies mandated with natural resource conservation in the IGAD region suffer from chronic under-funding, and most rely almost entirely on central government subventions, donor funds and extremely limited revenues earned from utilization fees and royalties. Little of these limited funds are available for allocation to CBNRM activities.

Within CBNRM projects themselves, few attempts to understand or address the economic causes of natural resource degradation and loss, or to generate real and tangible economic benefits that can directly offset the local opportunity costs of natural resource conservation. Although community-based approaches to natural resource management have spread over the IGAD region over the last decade, there are few experiences of the use of economics in support of their goals.

9.3.8 Equity and CBNRM

Equity, including gender equity is becoming an important element of any CBNRM activity. Past experience suggests that in various activities and CBNRM projects equity issues have not be properly addressed resulting in a skewed benefit distribution. The weaker and marginalized may be further weakened and marginalized as the benefits concentrate in the hands of the powerful few.

Any CBNRM activity, at whatever level, needs to take into account equity and gender considerations in an open and constructive manner. Past experience demonstrates that it is often the women and the poor who depend to the greatest degree on the natural resources, and so have the most to loose when benefits from CBNRM are concentrated in the powerful few. If women are the dominant natural resource managers, it is clear they need to be part of the decision making processes about those natural resources. Using cultural norms is no longer acceptable if it continues to promote inequity, as it does so in the case of gender.

While gender is one important consideration, equity issues are wider. Often the poor, marginalized and land less, the very people it is so important to work with, are left out of the decision making process, because they have no power to be at the negotiating table. Equity issues need to be better addressed in the context of power and stake negotiating ability.

9.3.9 Monitoring and Evaluation

Being able to show, at different levels, that CBNRM makes a difference to both livelihood and environmental security is proving difficult. It is easier to demonstrate the benefit flows to communities, for instance in terms of amounts harvested, sold or used. Demonstrating the short and, more importantly long term conservation benefits is more difficult. Many existing projects have tended to focus on the community benefits which are easier to measure, rather than the conservation and environmental benefits.

However monitoring for conservation and environmental objectives is not easy, and is required at a number of levels, particularly at the community levels, and the level of the responsible institution. Participatory monitoring mechanisms are starting to be put in place, for instance to

monitor the level of resource use in a forest, for fish size in a reef. Improved mechanisms for both short and long term monitoring for both the food security benefits and the conservation status are badly needed. These need to be at two main levels, - the community and the responsible institution. In addition they need to be simple and robust. One key tool should be to use environmental impact assessments, particularly on activities that not only could have effects but also influence the region. This will be particularly important for transboundary issues.

9.3.10 Conflict Management

Conflict is a serious issue in the IGAD region. Some of this conflict is political in nature, and is not part of the scope for CBNRM, at least not directly. However there is much conflict which often has at its root causes conflicts over natural resources. In particular this relates to

- Water, for example for livestock and for people in dry ecosystems;
- Marine areas where there is conflict over fisheries. This can affect some freshwater fisheries as well, for instance in Lake Victoria;
- Access to critical browse and forage resources in pastoralist areas, particularly those which straddle national boundaries;
- Problem animal conflict in many parts where land use and population pressures are forcing wildlife into smaller and smaller areas resulting in greater conflicts;
- Conflicts over mandates; and
- Conflicts relating to natural resources that may have been expropriated without prior consultation and agreement, for instance national park, forest reserves etc.

In fact a lot of good CBNRM relates to resolving natural resource conflicts of one sort or other through the creation of negotiated agreements between different parties. This in turn will serve to reduce tension and reduce the possibility of conflict which is of a more political nature.

Clear unambiguous rights and responsibilities are critical for any good CBNRM work. The present lack of clarity in this area causes confusion and uncertainty, and so a hesitancy to fully become involved in CBNRM. No county in the region divests full control, let alone direct ownership, for important natural resources to the community level. There are always national checks and balances put in place in the belief, justifiable or not, that they are needed to prevent over use and degradation. This is an important area for analysis of both policy and legislation, but more importantly on how this impacts on CBNRM on the ground. Demonstrating the tenure conditions which are best suited to different forms of CBNRM would be most important. For example, various forms of restrictive tenurial instruments, such as certificates and leases may be appropriate in some circumstances, but they may not be conducive to long-term arrangements and sustainability.

9.4 Ecosystems

Similar ecosystems are found in the different countries and can be a basis for joint pilot activities. Examples are:

1 Pastoralism and rangelands for instance the Borana of Southern Ethiopia and of Northern Kenya, Somali Pastoralism in Djibouti, Ethiopia, Kenya and Somalia, Kenya and Uganda, pastoralism and wildlife conservation in the area bordering Eritrea, Sudan and Ethiopia;

2 Mist forests are found along the Red Sea and Gulf of Aden (Somalia, Djibouti, Eritrea and Sudan), as well as in Kenya;

3 The Mount Elgon ecosystem straddling Kenya and Uganda;

4 Wetland systems cross a number of national borders. The most important of these is the Nile system which embraces Uganda, Sudan, Ethiopia and Eritrea, and includes both Lake Victoria and Lake Tana. Kenya and Ethiopia share the Lake Turkana basins. While alkaline lake systems are found in Djibouti, Ethiopia and Kenya following the Rift Valley;

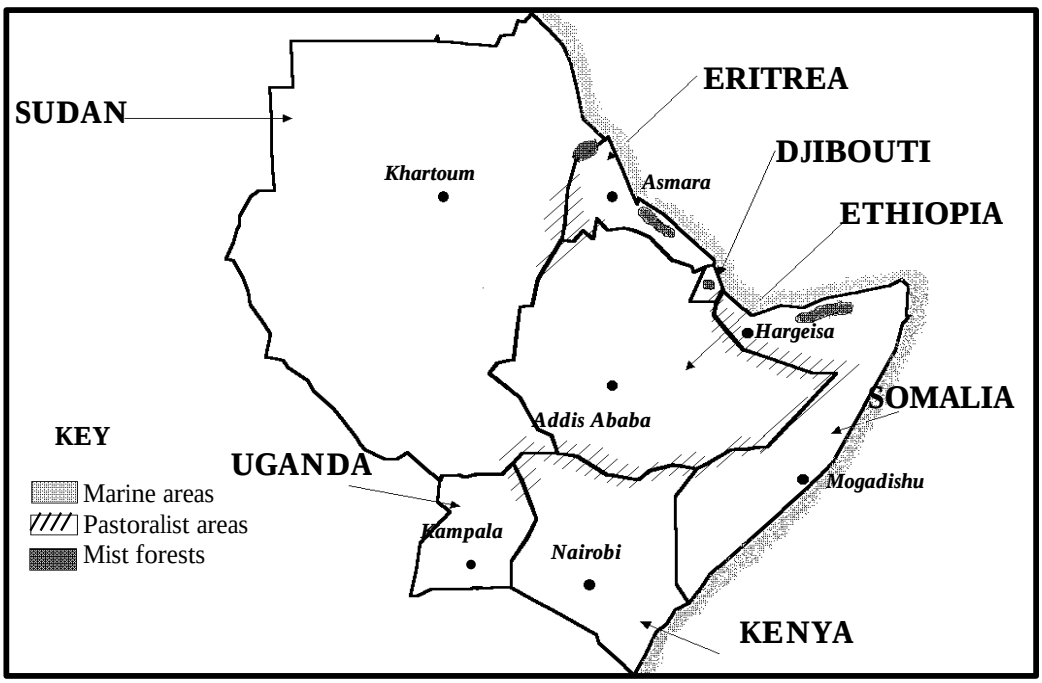
5 Non-timber forest products for instance henna, gum arabic, frankincense and myrrh as a means to improve and provide added economic opportunities particularly in the vast drylands of the region. There may be other resources which could benefit from a shared management, investment and marketing approach;

6 Wood carving industry; and

7 Managing bush encroachment and invasive species (for instance *Prosopis chilensis* which could be used for charcoal, marine and fresh water invasives) with community based approaches.

Map 2 provides an illustration of some of the actual areas where some of these pilot activities might take place, though the wetlands, especially the Nile Basin have not been included here.

Map 2: IGAD Countries - an Illustration of Some Potential Areas for Pilot Activities



There are a range of opportunities here which can contribute to overall CBNRM, including:

- The importance of reserved grazing and browse areas in different pastoralist situations: closures in Eritrea, ownership of riparian woodlands in Turkana Kenya, shared village forests in Somaliland, etc.;
- Ownership of critical resources, for instance trees, water;
- Role of culture and religion in CBNRM, for instance sacred trees, sacred groves; and
- Rules and regulations governing access to and use of natural resources.

In terms of fisheries management, establishing "no fishing zones" is seen as an important management tool, as it allows fish stock to breed and protected juveniles. In some cases, there are customary regulations which close off areas to fishing to allow stock to recover. In other areas, fishers themselves are suggesting and proposing the establishment of such "marine protected areas". There some of examples of this in Kenya (Shimoni), Tanzania (Tanga) and the Comoros (the new marine park). If such activities can be piloted in a number of sites with built in action learning and study tours then the lessons from such activities could be more widely integrated and developed nationally.

9.5 CBNRM as a Tool to Provide Greater Regional Harmony

The stage is set for CBNRM to become central for both natural resource management and development, as well as food security. As the future of protected areas is enhanced by community conservation, the region is turning to CBNRM outside protected areas, together with collaborative management agreements. Though change has come fast, the pace may not be fast enough to cater for raised community and political expectations. Devolving responsibility and authority to land users is not easy for government institutions, and building the management capacity of communities is also slow. Where local resource users have been given authority, however, they have shown that they are capable of managing natural resources in a sustainable and responsible manner.

Conservation must find a distinctive niche in the rural landscape and contribute financially and socially to rural lives if it is to be incorporated into land use. CBNRM has reduced levels of conflict and opposition, and is beginning to establish a local constituency. However, fundamental conflicts of interest exist between the short term needs of poor rural communities and the interests and obligations of governments. These are not going to disappear. Natural resources and wildlife are likely to persist only if their sustainable management will bring advantage to land users by adding value to them, or can be demonstrated to provide the most remunerative land use on its own.

All countries in the region have undergone, or are still undergoing various forms of structural change relating to both National Biodiveristy and Action Plans, and Poverty Reduction Action Plans. Both of these can be interlinked so as to demonstrate the importance of conservation and biodiversity as one component or one set of opportunities to assist with reducing poverty and securing both the livelihood and natural resource bases.

Community management of natural resources presupposes the commitment of communities to sustainable use, and genuine commitment of management authorities to share responsibility and control. When these two conditions are met, governments and the international community can feel confident that promoting community conservation initiatives will strengthen the conservation of biodiversity. Until it is clear that communities are ready and able to take up their responsibilities, and put in place management regimes that are based on long-term intentions, CBNRM will remain an uneasy, though productive, compromise between the demands of communities for resources and power, the reservations and intrinsic conservatism of governments and conservation authorities, and the result-orientated, sometimes idealistic interventions of donors and NGOs. This is the challenge facing CBNRM in the IGAD region, and for this project development process in particular.

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ANNEX 2: DEFINING THE TERM "*COMMUNITY*"[10]

Community Conservation is a term of questionable definitional rigour or analytic utility. Community is a noun that has consistently defied precise definition, and conservation a word frequently given meaning at odds with the cultural perspectives of the "communities" that are expected to practise it. In spite of this ambiguity, the term has in the last two decades gained a prominent place in the international lexicon of environmental policy and practice embracing a broad spectrum of approaches and programmes, often with their corresponding acronyms. These various approaches exhibit differences of intent, emphasis and substance, but equally there is a broad focus which places them under the rubric of community conservation. In its most generic and embracing sense, the term represents a broad spectrum of new management arrangements and benefit-sharing partnerships for the involvement in natural resource management by people who are not agents of the state, but who, by virtue of their collective location and activities, are critically placed to shape the present and future status of these resources, so as to enhance the conservation of natural resources and the well being of local people and communities.

The terms "Conservation" and "Wildlife" evolved from an essentially Western definition, where 'wild' is defined in terms of human control, 'conservation' in terms of the "maintenance of quantified aggregates of biodiversity and the preservation of natural habitats", and management objectives which relate to species and habitation protection, government control and abstract policy (Murphree 1996). This is at dissonance with African perceptions, where customary property regimes determined what belonged to the household and what was a common pool resource. Natural resources and wildlife life were a common pool resource. Conservation for rural people is an investment in the sustainable use of their natural resources, and is a means to an end rather that an end-in-itself (Murphree 1996).

This "Fortress Conservation" or segregationist perspective is still espoused by many, but more often than not by those who do not have day to day contact with wildlife. For such local people ,sustainable use of natural resources is of more direct concern, since at a local level natural resources can play a vital role in rural people's lives. With increasing land use and population pressures, these utilitarian arguments for conservation have been given increasing emphasis as agencies recognize the need to link conservation and development (IUCN 1991; Adams 1996). The sustainable use of natural resources (conservation) has to be balanced, and in balance with the needs rural people have for land for cultivation, and the needs they have for the use of natural resources. However, this can lead to irrational conservationism, or "forced" degradation of natural resources (Parker undated) through over use. The framework presented here helps put this argument in perspective with respect to the locus of the objective of land use.

The definition of community is rarely addressed explicitly in approaches which seek community involvement in wildlife management. Community is one of the most vague and elusive concepts in social science and continues to defy precise definition (Sjoberg 1964). Communities can be

[10] This Annex is based on Barrow, E. and M. Murphree (2001). Community Conservation - From Concept to Practice. In edt. Hulme D., and M. Murphree. African Wildlife and Livelihoods: The Promise and Practice of Community Conservation. James Curry, Oxford. 24-37; and the editors are grateful for being allowed to use this.

functionally defined in several ways; e.g. through representative structures, area, common interest, ethnicity, affinity, resource user groups or land use. Communities may be typified by their variation (between social groups, for instance gender), variegation (within social groups), and stratification (by wealth and power). Community can be a system of values and moral codes which provide members with a sense of identity (Cohen, 1985). No community lives in isolation but is connected to others and to society in general. Communities are also dynamic and variable over time, and for different people at different times with varying roles. Elite's exist in all communities and tend to be over-represented in leadership roles. From a conservation authority viewpoint they are sometimes defined primarily in terms of populations relevant to management concerns, such as resident neighbours to a protected area.

In its study of community approaches to wildlife management, IIED points out that the concept can be approached in spatial, socio-cultural and economic terms (IIED 1994). Spatially, communities can be considered as "groupings of people who physically live in the same place". Socio-culturally, they can be considered as social groupings who derive a unity from common history and cultural heritage, frequently based on kinship. Economically they can be considered as "groupings of people who share interests and control over particular resources". By combining these constructs, one can derive a model of community as an entity socially bound by a common cultural identity, living within defined spatial boundaries and having a common economic interest in the resources of this area. An example of this model is found in what IIED calls "the archetypal notion of the African village composed of founding lineage's who have stewardship and control over a bounded set of resources within a territory, lineage's who have married into the community, and more recent settlers, all of whom inter-marry, who speak the same language and who practice the same way of life". (IIED 1994, p.5). With variations, this basic model serves fairly well to describe small scale social aggregations where the homestead level is basis for much of rural Eastern and Southern Africa. Such "communities of place" are fairly typical where rural farmers are sedentary and primarily reliant on arable agriculture.

Problems arise, however, when we try to apply this ideal-type model everywhere, and in all cases across contemporary rural Eastern and Southern Africa. The model is static, giving little hint of the heterogeneity changing membership, and composition of rural locales due to forced relocation, migration, rural/urban labour and resource flow, and changing agricultural practice. As a result "communities" are far more internally differentiated than the model implies. Their boundaries also change as development shifts land from one jurisdiction to another, and governments impose new units of local governance on rural landscapes. Analytically the models poses problems in its spatial dimension. For example, the fisher community around Masali Island compriss 1640 fisher folk from 29 coastal wards or "Shehias" around Pemba Island in the Indian Ocean (Cooke and Hamid 1998).The resource management community, defined in terms of residents, may not coincide with the accepted resource use community, defined socio-culturally. In particular, the model is not easily applied to semi-arid and arid areas where various forms of pastoralism prevails and where " communities of place" interact with each other over a much wider range in a system of reciprocity either seasonally or at times of environmental stress, to mitigate risk and enhance resilience.

While attractive, the concept of "community" can be misleading. Where several parties require access to a common resource, proposed community "ownership" has utility as a unifying organisational principle. The price of belonging to a community is the acceptance of its customs, like patriarchy or deference to elders, unlike urban western society where individuality is emphasised (Metcalfe 1996). The assumption that in rural society there are distinct autonomous social units, separate one from another, is false. Individual security of access to resources is based on

membership of a community which involves obligations as well as rights. Allocation of land and resource rights by elite's, tradition, distant rulers etc., functions to control behaviour, (Metcalfe 1996). This helps cater for the variability of, and fluidity within, a community

A problem with using "community" as an organising principle for conservation concerns fitting it into the modern nation state structure of central and local government, based on the principle of individual adult representation. For example, in Zimbabwe and other countries the local authority has three or more tiers, namely district, ward or division, and the village. While modern ward boundaries in Zimbabwe generally complement the traditional "headmanship" unit, the modern village boundaries contradict the "kraalhead" unit. These two sources of authority, democratic and customary, present conflicting sources of institutional legitimation (Metcalfe 1996). Conflict between them can rupture community orientated conservation policies. These considerations make any attempt to provide a polyvalent definition of community futile, except at a level so generalised as to be analytically sterile. In this study we take another, actor oriented and functional approach to the topic.

Firstly, we identify the level of governance and civic organisation which the concept addresses. This is the arena of social action requiring collaborative management of common pool natural resources by rural farmers, pastoralists or fisher folk below those of the large scale bureaucratic units which government have created at sub-national levels. Institutionally, this is a manifest gap in the structure of environmental governance in African today, and an arena in which community conservation, however conceived, operates.

Secondly, we see the nature of this action as being primarily inter-personal, guided by peer expectation and mutual reciprocities rather than by bureaucratic prescription. This characteristic has implications for institutional scale since any organisation based primarily on personal interaction requires that members have the opportunity for at least occasional face to face contact. Such units will thus be restrained in their size and we can refer to them as "small scale", bearing in mind that this refers to social and not spatial scale.

Thirdly, we ask the question "What is required by rural resource users to effectively organise themselves for collective action for effective natural resource management?". The answer to this question is likely to throw up a variety of profiles depending on content. While the detail is left for the analysis found in the following chapters, we suggest at this stage that any organisational vehicle for such collaboration is likely to require four characteristics: cohesion, legitimacy, delineation and resilience.

Cohesion and Identity: This refers to a sense of common identity and interest which serves to bring people together for collaborative action, and leads them to collectively differentiate themselves from others. At its core, this characteristic arises from subjective perceptions, although it is fed by instrumental consideration. Its sources commonly arise from a shared history and culture, although it may be a product of political and economic factors which force people to share a finite resource base. Whatever its history is, cohesion becomes the social glue which persuades people to act collectively to enhance mutual interest and represent it to others.

Demarcation: Cohesion sets social boundaries and determines membership. A parallel requirement is demarcation, which sets the boundaries of jurisdiction for the collective regime. This demarcation is commonly based on spatial criteria, a delineation of a fixed land area and the resources on it. It may, however be drawn on the basis of socially sanctioned access to given resource categories, as in the case of pastoralism or some fisheries. Whatever the criteria used, the

definition of jurisdiction limits authority and responsibility for the collective grouping and is necessary for efficient organisational activity.

Legitimacy: Just as collective organisation requires demarcation, it also requires legitimacy for its processes and leadership which needs to relate to both power and authority. Legitimacy can be conferred by external authority but this on its own is not sufficient. More important is internal legitimacy arising from socio-cultural and socio-economic criteria. In many contexts, these criteria are at odds with those which modern African states currently seek to impose on rural populations, and the persistence and adherence to them creates tension and conflict. An internal legitimacy, endogenously derived and also sanctioned by the state, is likely to produce a more robust base for organisation.

Resilience and Risk: In the rapidly changing world of rural Africa, the components of organisations are dynamic. The roots of social cohesion may change in their substance and combinations. Boundaries of jurisdiction and affiliation may shift. The sources of legitimacy may permute. Effective organisation must accommodate this change evolving over time. Resilience, that is the right and capacity to adapt in content and structure, permits it to do so and is a key tool to the management of risk in uncertain environments and livelihood systems. Not only does this characteristic provide durability to organisations, it also provides the scope for them to improve through processes of adaptive management.

The organisation characteristic described above, located in small scale, personalised arenas of social interaction, provide the profile for what we take to be "community" in the study. Our preference is in fact for the term "community conservation" since our emphasis is an interaction and process rather than form.

Participation: The language of democracy and participation is found everywhere, at a national level with reference civil society and governance, and at a local level it appears as commitment to participation (White 1996). This is part of a fundamental shift in development thinking (Chambers 1983; Oakley 1991), and is now embraced in conservation. Participation helps strengthen capacities of rural people to gain responsibility for their natural resources. The concept is varied (Annex 2), and reflects the many interests different people have in terms of who participates, and the level of participation involved (White 1996). Key issues include **gender** differences in the way men and women use natural resources; **equity** for improving conditions of the poor; **decision makers** at individual, household and group levels, and the rest of the population. In addition, the use of **local knowledge** systems can be a valuable information source.

Adopting participatory approaches is a powerful tool but it does not guarantee of equity, and sharing through participation does not necessarily mean sharing of power (White 1996). Use of participatory management styles give voice to local people but may be not to everyone. People may be negatively affected by something that benefits others. The more varied a community is, the more challenging participatory processes are. Participation cannot be merely wished upon rural people. It must begin by recognizing the powerful, multi-dimensional and, in many instances, anti-participatory forces which dominate the lives of rural people (Oakley 1991).

Table 1: How people can participate in development programmes

Participation Typology	Some Components
Passive	Told what is going to happen or already happened. Top down, information belongs to external professionals
Information giving	Answer questions from extractive researchers. People not able to influence
Consultation	Consulted. External agents listen to views. Usually externally defined problems and solutions. People not involved in decision making.
Material incentives	Provision of resources, labour. Little incentive to participate after the incentives end.
Functional, organizing	Form groups to meet predetermined objectives. Usually done after major project decisions made, therefore initially dependent on outsiders but may become self dependent, and enabling.
Interactive	Joint analysis and actions. Use of local institutions. People have stake in maintaining structures or practices.
Self-Mobilisation, Empowering	Already empowered, take decisions independent of external institutions. May or may not challenge existing inequitable distributions of wealth and power. Participation as empowering

(Sources: (Pimbert and Pretty 1994; Oakley 1991))

Different forms of participation can be used to different degrees of scale and scope for different types of community conservation. Prescriptive forms cannot be forced on systems, which, under policy and statutory terms, cannot cater for them. It is the notion of real and responsible participatory approaches and the use of participatory tools which is more important. These are determined by the tenurial arrangements as they need to relate to the statutory conditions which control access to, and ownership and use of, conservation resources.

ANNEX 3: PROFILES OF SELECTED CASE STUDIES

3.1 Lake Naivasha Riparian Association - Development and Implementation of the Management Plan (Kenya)

Introduction
Lake Naivasha is the only fresh water lake within the Rift Valley in Kenya. The lake has no surface outlet, and water flows in and out of the lake from underground reservoirs. The River Malewa is the main source of surface water, rising in the rain shadow of the Aberdare mountain range to the east. In 1995, Lake Naivasha became the first privately owned and community-managed site in Africa to be designated a Ramsar site, under the Convention on Wetlands. It won the Ramsar Wetland Conservation Award for 1999 and was nominated for UNEP's Global 500 award.

The Resource
Lake Naivasha supports a diversity of flora and fauna. The lake is a national resource that is surrounded by privately owned land. The human population in the lake's vicinity is growing rapidly. In 1977, fifty thousand people were living within three miles of the lakeshore. Twenty years later, that figure had increased to a quarter of a million. The lake supports three surrounding townships and an abundance of important industries including flower and vegetable growing, geothermal power generation, tourism and fishing. There has been a substantial increase in the number of tourists to Lake Naivasha and the surrounding attractions, Hell's Gate National Park and Mt Longonot.

Approximately 30 large, medium and small-scale horticultural farms are found around Lake Naivasha. The produce from these farms accounts for nearly 75% of Kenya's horticultural exports and employ approximately 20,000 people directly. The intensive use of pesticides and fertilisers and the resultant run-off poses a threat to the biodiversity of the lake. The threat of water pollution from domestic waste is also increasing, due to the growing population of the surrounding towns and inadequate urban sewage treatment systems.

Nearly 15% of Kenya's total electricity demand is supplied by Ol Karia geothermal power plant, which uses naturally occurring underground superheated water from the lake. The Kenya Energy Generating Company (KenGen) is in the process of installing another plant as part of the Ol Karia Phase II. In addition, KenGen has licensed Orpower4, a private producer, which is already producing 8 megawatts with plans for expansion within the vicinity of the lake and around Mt Longonot and Eburu Forest.

The Project
The Lake Naivasha Riparian Association (LNRA) developed a management plan for the lake in 1995 and official implementation of the plan began in 1997. Under this plan, codes of conduct, rules and regulations have been developed for the different sub-sectors represented in the membership. These include the horticultural, tourism, fisheries, power generation, municipal council, wildlife, livestock and dairy sub-sectors.

Members of LNRA are drawn from a variety of stakeholders including the landowners, flower growers, small-scale farmers, fishing co-operatives, livestock and dairy farmers, and the local

municipal council. LNRA has a membership of almost 140 based on the principal of one vote for each landowner, irrespective of the size of land holding.

Each of the sub-sectors is represented in the Management and Implementation Committee, together with several government agencies. Government agencies represented on the committee include the ministries of Environment and Natural Resources, Lands and Settlements, Water and Agriculture, the Fisheries Department, the Kenya Wildlife Service (KWS), the municipal council, KenGen, and the local administration, which includes the District Environment Officer and the District Commissioner. The Biodiversity Monitoring Committee of LNRA has appointed a full-time biodiversity monitor who determines water quality, pollution and changes in biodiversity.

The implementation of the management plan is impacted by the policy and legal framework of the various sectors including forests, wildlife, fisheries, energy, agriculture and water. In addition, the newly enacted Environmental Management and Co-ordination Act, 1999 provides the management committee and other concerned individuals with legal recourse against the unsustainable utilisation of the lake and surrounding resources. Previously, the LNRA relied on voluntary compliance and education to enhance sound environmental management practices within its membership.

Issues

Competing Interests: Expansion of human activities threatens to drive the stakeholders apart unless they can reconcile their different and sometimes conflicting demands on the lake. In addition, there is need to expand membership to other stakeholders who have an influence and/or stake in the lake but who may presently be excluded. The LNRA proposes to introduce associate membership to include these stakeholders.

Need to address the conservation of the catchment area: In order to sustainably manage the Lake, there is need for the LNRA to address issues with regard to the conservation of the catchment area. In the recent past, there has been extensive destruction of the Eburu and Aberdare forests, which are part of the lake's catchment area. The LNRA is seeking to spread its mandate to the catchment area.

(Source: Lake Naivasha Management Plan and discussions with representatives of LNRA)

3.2 Mt Elgon Integrated Conservation and Development Project (Kenya)

Introduction

The Mt Elgon Integrated Conservation and Development Project was initiated by IUCN and its partners in 1998. The long-term objective of the project is the conservation of the Mt Elgon ecosystem that is shared by Kenya and Uganda. Since the late 1980s, IUCN had been implementing a project on the Uganda side of the mountain and it was felt that there was need to address the conservation of the entire.

The Resources

Mt Elgon is a dormant volcanic mountain with an altitude of 4,320 meters above sea level that straddles the borders of Kenya and Uganda. It is the second highest mountain in Kenya and the fourth highest in Africa. On the Kenya side, Mt Elgon comprises of 16,000 ha. of a gazetted

national park, two forest reserves that cover 90,000 ha., and Trust land. The mountain is composed of forested areas, grassland, bamboo and high altitude moor.

The Mt Elgon ecosystem faces degradation by saw millers, encroachment especially by farmers involved in the Non-Resident Cultivation scheme of the Forest Department, poaching for game, charcoal burning and forest fires. In addition, the surrounding communities, mainly the Bukusu and Sabaot use the forest for diverse needs including firewood, grazing, medicinal plants and a wide range of non-timber forest products for the livelihood and cultural needs.

The Project

The project areas includes the National Park and Forest Reserves plus four communities drawn from the 10 km band adjacent the protected area of Mt Elgon in Trans Nzoia and Mt Elgon Districts, comprising approximately 8,000 people, on a pilot basis. The project activities include:

- information gathering on the Mt Elgon ecosystem, including mapping;
- training of the relevant government agencies, especially the KWS and Forest Department to enhance their capability to conserve the ecosystem;
- purchase of equipment, including fire-fighting equipment, motor cycles and radio communication;
- training of the community in environmental education.

Under this activity 60 primary and secondary school teachers have been trained on how to integrate environmental education into their school curricula. IUCN, in collaboration with Kenya Institute of Education, is in the process of developing a manual on environmental education. Representatives of women groups have been trained in business and leadership.

In a bid to reduce the community's dependence on the forest, IUCN has implemented activities aimed at improving their livelihoods. These activities include beekeeping, the production of soya bean, seed potato and onions, and use of zero-grazing methods to reduce the amount of grazing in the forest. These projects have worked to varying degrees. Presently, there is need to address the marketing aspects of these activities in order to explore the possibilities of these activities becoming commercially viable.

IUCN brought the Kenya Wildlife Service and the Forest Department on-board during the implementation phase. In addition, other stakeholders, such as the local authorities, the district agricultural and extension agents and local communities were also involved in planning for the implementation of the project. During the inception phase of the project, stakeholder analysis was conducted to determine how the project should work with four communities on a pilot basis. PRAs were conducted in these four communities.

After stakeholder workshops, several institutional structures were created for the implementation of the project. These included the Project Management Unit (PMU) composed of the Project Manager, the Chief Technical Advisor, the Rural Development Advisor and two District Project Co-ordinators. In addition, a District Management Unit was established to include the heads of departments of relevant ministries, the District Forest Officer, the KWS Warden, the district Agriculture, Water, the Social Development officers, local extension agents, and community representatives.

The project is impacted by the national and sectoral policies and legislation on the management of natural resources, with regard to wildlife, forests, agriculture and water. In addition, Mt

Elgon is one of the ecosystems covered under the Memorandum of Understanding between the Kenya Wildlife Service and the Forest Department that was signed in 1991.

Issues

Relationship with the Funding Agency: The Mt Elgon Integrated Conservation and Development Project was initiated by IUCN with financial support from the Royal Netherlands Embassy. The project was originally designed as a five-year project with the possibility of extending it to 10 years. However, after changes in the objectives and priorities of the funding agency, the duration of the project was reduced to two and a half years. The immediate objective of the project was changed to one that could be achieved in less than three years, namely "creating linkages and liasing with NGOs and other relevant development agencies to continue with the activities that IUCN initiated".

Community Cohesion: The Mt Elgon area had been one of the areas where ethnic clashes were experienced during 1992. The two main communities are the Bukusu, who mainly practice farming, and the Sabaot, who are pastoralists. Due to the ethnic clashes, there is still a high level of suspicion and mistrust between these two communities. The communities that were chosen by IUCN to implement the pilot projects comprised both the Bukusu and the Sabaot. There has been mistrust between the different community representatives and this lack of cohesion has also contributed to competition for project resources, where each ethnic group feels that the other was benefiting more from resources, such as beehives, seeds and training.

Due to the ethnic clashes, some members of the local community have migrated to other parts of the country. During the life of the project, these community members returned. The return of these emigrants changes the dynamics of the local community and further interferes with the emerging trust and cohesion being promoted by the project.

Criteria for Selecting Pilot Communities and Representatives: IUCN used the criteria of the presence of active extension agents to select communities to implement the pilot phase of the project. The communities that were not selected for the pilot phase did not understand why they were left out. In addition, the representatives of active community groups, including self-help groups, women and youth groups were invited to serve on the community conservation teams and the action plan committees. Sometimes, there has sometimes been confusion among selected community representatives about their role within the project. For example, members of the Community Action Plan Committee, were supposed to link IUCN officers with the local communities. However, often, members of the committee nominated themselves to engage in identified activities. Also, they expected to be directly involved in the implementation of all these activities, including on-farm production of food and seed crops, bee-keeping and agroforestry activities.

Policy and Legislative Framework: One of the weaknesses of the MoU between KWS and FD is that it is not legally binding. Therefore, the implementation of collaborative activities is often based on the commitment of individual officers in these two institutions. There are limited avenues of recourse to address lack of commitment among the officers. In the Mt Elgon project, there have been varying degrees of commitment of the officers that IUCN has been collaborating with. Further, in some cases, the FD and KWS officers have expected IUCN to provide them with resources to implement their institutional mandates, such as fuel, rehabilitation planting within the Forest Reserve, equipment and the development of the tourism infrastructure within the National Park.

Institutional Framework: Collaborative arrangements between government agencies are sometimes hampered by the limited institutional capacities of these agencies. Further, there are often disparities between the resources available to the different institutions. For example, the KWS officers are usually better equipped than their counterparts in the Forest Department. The institutions with fewer resources sometimes expect that projects implemented by NGOs will subsidise them and provide them with the necessary resources to fulfil their mandates.

Lessons Learned

The activities implemented by the project had varying relationships with the conservation of the Mt Elgon ecosystem. Although the activities addressing the livelihood needs of the project have contributed to poverty alleviation, it was not always clear how they were related to the conservation of the forest. In addition, there was need to better target those individuals already utilising forest resources in alternative activities so as to reduce their dependence on the forest. For example, the project did not specifically target members of the local community who were involved in timber harvesting or charcoal burning in its activities. Individuals engaged in non-resident cultivation within the forest were said to have originated from other parts of the country, e.g. Kisumu, and were therefore not members of the local communities resident within the area.

The illegality of the harvesting of certain products from the forest, such as timber and charcoal burning, makes it difficult to identify those individuals engaged in these activities. However, the IUCN project has been able to identify people grazing within the forest and targeted them with resources and advice on zero-grazing to reduce their use of the forest.

Organising communities for collaborative efforts is difficult and time-consuming. Some project activities have been delayed in order to ensure that the appropriate community structures have been formed for successful implementation of the project.

(Source: Mt Elgon Integrated Conservation Project staff)

3.3 Traditional Medical Practitioners Project (Kenya)

Introduction

It is estimated that in the East and Southern Africa region approximately 80% of the people rely on traditional medicines for their health needs. Increases in the costs of conventional medicines, the inaccessibility of modern health facilities, and local people's preferences have contributed to the continued use of traditional medicines. Approximately 90% of traditional medicines are derived from plants, with animals, insects and salts constituting the base for the remaining 10%. The availability of traditional medicines is being threatened by habitat loss, unsustainable harvesting of these medicines and changes in land use. In Kenya a list of 27 species of plants were documented as being extensively/commonly used for medicinal purposes. In addition, 37 species were found to be either threatened or endangered.

The Resources

In 1996, the East and Southern Office of Trade in Flora and Fauna (TRAFFIC) conducted a survey of trade in animal and plants used for medicinal purposes in 17 countries in East and Southern Africa. The research findings are contained in a report entitled *Searching for a Cure: Conservation of Medicinal Wildlife Resources in East and Southern Africa*. The survey revealed that there is:

- a decline in the abundance of numerous medicinal plant and animal species
- an increase in the use of traditional medicines due to high costs and inaccessibility of conventional medicines.
- an increase in the commercialisation of traditional medicines
- an increase in the scarcity of certain medicinal species, some of which are endangered
- limited collaboration in the conservation and propagation of medicinal plants to address issues of scarcity of wildlife medicines.

The Project

In 1999, Traffic East/Southern Africa initiated a project to stimulate government and private action in the propagation, breeding and sustainable harvesting of medicinal plant and animal species. The project is implemented in collaboration with the Machakos Traditional Medicinal Practitioners Association, KEFRI, KWS, Forest Department, ICRAF, local schools and community-based groups. The Rufford Foundation provided financial resources for the 12-month project.

The specific activities under this project included prioritising threatened and endangered medicinal plants species through consultations with traditional medical practitioners (TMPs). A literature search on propagation techniques for the identified priority species was conducted. This search revealed that propagation techniques had been determined for only a third of the 37 identified priority species.

In response to this lack of information, an experimental germination of seeds for all remaining priority species was started in collaboration with the Peter Greensmith's Nursery of IUCN. Information generated by the experimental propagation, consultations with experts and the literature search were compiled in a manual entitled "Kenya Medicinal Plant Propagation Manual." Propagation Kits were developed that include the Manual, seedling pots, UV plastic and seeds of priority species.

The Machakos TMP pilot project

A conservation and management strategy was developed and is being implemented in Machakos District. The objectives of the pilot project are to reduce the decline in medicinal resources and to practically demonstrate the conservation of medicinal plant species through awareness creation and skills development of TMPs. Specific activities have included awareness raising among TMPs in Machakos District and school children, the establishment of seedbeds in schools, and the development of an education syllabus comprising of six lecture modules. The project has been granted permission by the KWS to sustainable harvesting medicinal plants from National Parks and Reserves.

Other on-going activities include the establishment of an office, laboratory and demonstration nursery. The laboratory will offer testing equipment for common ailments such as malaria, typhoid and amoeba. The demonstration nursery will be used to educate the TMPs and the local community on propagation techniques for identified priority species. A store of sustainably harvested medicinal plant materials will be available for sale to the TMPs. In addition, simple grinding and encapsulating machines will be available for use by the TMPs at a fee.

Traffic is working in collaboration with the Machakos District Traditional Medicinal Practitioners Association to implement the pilot project. The Machakos District TMP Association is part of a National Traditional Medical Practitioners Association. In addition,

TRAFFIC is collaborating with the local officers of the KWS, FD, the District Commissioner, the District Education and Medical officers, local schools and community-based groups.

The project is impacted by the national and sectoral policies and legislation on the management of natural resources. According to the Wildlife Management and Conservation Act, under which National Parks and Reserves are gazetted, no consumptive utilisation of the natural resources is catered for. However, the project has made a special request to the KWS Director to be allowed to sustainably harvest medicinal plants from the specific national parks.

Policies and legislation on intellectual property rights have potential impacts on the project. According to the Environmental Management and Co-ordination Act (S. 52), the National Environment Management Authority (NEMA) is mandated to issue guidelines and prescribe measures for the sustainable management and utilisation of genetic resources in Kenya for the benefit of the people of Kenya. These guidelines include appropriate arrangements for access to genetic resources of Kenya by non-citizens including the issue of licenses and fees to be paid for that access, regulation of the import and export of germplasm, benefit sharing, and biosafety measures to regulate biotechnology.

The willingness of local communities to plant trees on land is affected by the land tenure system and the security of tenure it guarantees them. Efforts to promote the planting of medicinal plants, especially trees will be affected by the ownership structure of the land. Participating TMPs and members of local communities may be more willing to plant trees on their privately owned land as opposed to government or trust land. The planting of trees is often seen as competing with the growing of food crops. Therefore, there may be reluctance by people with small land holdings to plant trees on their farms.

Access to resources on trust land and on government land is usually defined by the relevant government agencies, especially the KWS, the Forest Department and the Local Authority. The participation of communities in the planting of trees in protected areas does not guarantee them access to these trees once they mature.

Issues

Community involvement: There were issues around the expectations of the local community and the participating TMPs about the project. Some members of the collaborating Association had expected more tangible benefits at the personal level. The failure of the project to meet these personal expectations had decreased their level of commitment to the project.

Formalised agreements: The participating schools, the local administration, the FD, KWS, as well as the District Education and District Health officers, have been involved in the project to varying degrees. However, there are no formalised arrangements for their involvement in the project. It will be necessary to draw up such formal agreements in order to enhance the commitment of the participating government agencies. In addition, there is need to formalise the arrangements with the local schools and community-based organisations and clearly define roles and responsibilities for the project.

Lessons Learned

Organising communities for collaborative activities can be challenging and time-consuming. However, lack of commitment and cohesion within the community can jeopardise CBNRM projects that have potential to address community needs. There is therefore need to enhance the channels of communication so as to promote local ownership of projects and the commitment of community members.

With the increased awareness of the uses and propagation of medicinal plants, there is need to protect the indigenous knowledge of local communities from exploitation by commercial entities both nationally and internationally. The growing demand for natural remedies internationally has resulted in bioprospecting by the pharmaceutical industry. Due to the weak legal protection of local knowledge there is a danger of exposing the TMPs to exploitation by such bio-prospectors.

(Source: TRAFFIC East and Southern Africa project documents and discussions)

3.4 The Machakos Wildlife Forum (Kenya)

Introduction

Kenya wildlife resources face diverse threats from land use changes, the destruction of habitats and the illegal hunting of game. In order to enhance the conservation of wildlife, organised landowner groups have been advocating for increased consumptive utilisation of wildlife. Sport hunting was banned in 1977 and the only legally allowed form of utilisation is tourist game viewing and cropping. However, most ranches and farms in Kenya are scenically unsuited to game viewing by tourists.

Wildlife forums were created by groups of landowners in response to the officially recognised reality that communities should accrue direct benefits from wildlife. Some forums have put in place formalised, registered associations while others are less formalised. These forums have developed wildlife management and conservation plans, engage in regular wildlife counts on their land and receive hunting quotas from the KWS for identified species of wildlife.

The Resources

The Machakos Wildlife Management Unit (MWMU) covers approximately 929 km^2 , which is roughly eight times the size of Nairobi National Park. The MWMU is made up of two distinct ecological zones; the Athi-Kapiti plains comprising of open grassland and smooth topography and the Ulu Hills zone comprising of thick bushland. Within the MWMU are found plains animals including gazelles, kongoni, wildebeest, impala, zebra, giraffe, ostrich, oryx, buffalo, waterbuck and warthog. There are limited big game animals such as elephant and rhino.

Wildlife within Kenya's rangelands has been facing increasing threats due to the sub-division of large communal and private land holdings into individualised units. The limited commercial viability of large-scale ranches has contributed to this push for sub-division. Following the sub-division of ranches, there is a tendency for the individual owners to clear the vegetation to make way for farming and cattle rearing.

Within the Machakos Management Unit, wildlife numbers have declined in certain ranches due to poaching (Konza, Malili, Aimi Ma Kilungu and Malinda) and sub-division (Maanzoni, Katani and Lukenya).

The Machakos Wildlife Forum

The Machakos Wildlife Forum is an unregistered association of landowners with a voluntary membership. The Forum comprises of 22 farms and ranches of varying sizes under both individual and communally owned titles. It has a Management Committee drawn from its membership. The broad purpose and guiding principals of the forum are as follows ;

- To explore avenues of action by which wildlife and especially plains game can be accommodated and gainfully managed on ranches in Machakos District
- To promote co-operation between ranches and when appropriate, to present co-ordinated and unified submissions to the government
- To recognise that individual ranches are free to initiate any projects independently of recommendations coming from the working group

The Machakos Wildlife Forum was the first forum in the country to crop plains game when it was granted user rights in 1991 as part of the KWS wildlife utilisation scheme. The Forum also conducts game counts in collaboration with KWS. The ranch owners provide vehicles, personnel, monitors and equipment for the counts. KWS sends observers to verify that proper counting techniques are used, and provides technical advice. Following the counts, the Forum recommends to KWS the appropriate cropping quotas, which are approved by the KWS Director. The Forum then allocates part of the quota to each qualifying ranch.

Issues

Threats to Wildlife Resources: Poaching continues to increase as a threat to wildlife. Despite efforts by individual landowners to protect and conserve wildlife, the migratory patterns of wildlife puts them in danger when they move to areas with high incidences of poaching, especially with large settled farming communities. In Machakos, it has been observed that when Eland move to the woodland hills around Kilima Kiu in search of browse they are in increased danger of poaching which is severe in the Ulu area. Therefore, there is need to address the conservation of wildlife from a broad perspective that takes into consideration large and small-scale landowners.

Costs and Benefits of Wildlife Conservation: The limited returns from wildlife cropping have failed to adequately compensate farmers and ranchers for losses incurred by wildlife and have led to increased apathy and hostility towards wildlife. The re-introduction of sport hunting has been recommended as one way to increase revenue from wildlife resources and investments in wildlife based enterprises. Sport hunting is said to be the most profitable form of wildlife use since the value per animal hunted far exceeds its carcass and hide price. Further, some game are more suited to sport hunting than cropping due to factors such as the value of their meat and hide, the size of animal and hence ease of disposal of the meat and the risks to the cropper. For example although Buffalo pose serious hazard to cattle farming by competing for grazing, water and salt, damaging fences and transmitting diseases, especially East Coast Fever, they are unprofitable for cropping purposes.

Limited Institutional Capacities: One of the main challenges to the cropping programme of the Machakos landowners is conflict with small-scale farmers who poach and snare wildlife thus upsetting conservation plans. Due to limited financial and personnel resources, the KWS is unable to control poaching. Landowners' forums have suggested the increase in the number of honorary wardens drawn from the community to augment the efforts of KWS wardens. Collaboration between community-based groups and KWS are hampered by frequent changes in staff of the community wildlife services. Changes in KWS officers often leads to inconsistency, frustration and delays in the implementation of activities.

Policy and Legislative Constraints: Presently, the utilisation of wildlife is only allowed under the "Director's Special Licence. The lines of legality about the extensive utilisation of wildlife under this provision are blurred. Also, there is uncertainty among holders of the cropping licence because they feel that these user rights can be revoked at any time depending on

changes in the policy direction of KWS. Further, the Director's Special Licence is open to varied interpretations by KWS officers based on their individual interpretations and attitudes towards wildlife utilisation. The existing policy and legislative framework in Kenya has failed to provide for an integrated approach to natural resource management that takes into consideration wildlife conservation, farming, ranching and other forms of land use. This has lead to the replacement of wildlife by crops and domestic stock.

Cumbersome Procedures: The requirements of the government for private sectors entities and community-based groups to engage in wildlife related activities are complex and cumbersome. For example, to engage in tourism activities, several licenses are required from different institutions including, the Tourist License, Hotel License, Trade License, County/Municipal Council License, Service Charge License, PSV Vehicle License and Dealers in Foreign Exchange License.

(Source: Machakos Wildlife Forum documents and discussions)

3.5 The Iloodo-Ariak Land Case in Kajiado District (Kenya)

Background

The Iloodo-Ariak ("the red waters") is an approximately 146,682 ha. piece of land situated about 80kms from Nairobi in Kajiado District. It is occupied by over 6,000 indigenous Maasai people. Iloodo-Ariak was Trust land, vested in the Olkejuado County Council by virtue of section 114 of the Kenya Constitution and the Trust Lands Act. In or around 1979, the Iloodo-Ariak area was declared an adjudication area, according to the provisions of the Land Adjudication Act (Cap. 284). Adjudication officers and an adjudication committee were appointed and deployed to the land to carry out the adjudication and demarcation exercise.

The process of adjudication was completed in 1989. The adjudication register was published for inspection and so that any objections could be submitted within 60 days of the completion of the register. A total of 459 objections were lodged and resolved by 1990. Thereafter, those recorded as owners of the parcels of land in the section were registered and issued with title deeds under the Registered Lands Act (Cap. 300).

The Case

After the adjudication and registration processes, a total of 362 people who were not residents of Iloodo-Ariak were registered as owners and issued with title deeds. Further, over 1,200 legitimate indigenous inhabitants of Iloodo-Ariak were left out of the adjudication and registration exercise and thereby rendered landless.

In September 1991, the residents of the Iloodo-Ariak area lodged a case with the High Court challenging the adjudication exercise. However, their case was dismissed by the High Court on the grounds that it had been lodged too late. The case was brought two and a half years after the adjudication exercise was concluded, while the time limit is six months.

The Institutional Framework: The Ministry of Lands and Settlement is responsible for land adjudication, demarcation, consolidation and registration. These are separate departments within the ministry. In addition, the respective Local Authorities are vested with Trust Land for the benefit of the residents.

Policy and legal Framework: The Minister of Lands and Settlement is vested with the authority and discretion to declare an area of Trust Land as an adjudication area, according to the Land Adjudication Act, Cap. 284, 1968. As part of this exercise, first there is the recording of existing rights, followed by adjudication and demarcation of the land.

The Trust Lands Act and Section 114 and 115 of the Constitution vest all trust land in the respective local authorities for the benefit of the people resident on the land.

Following an outcry from several communities that felt that land in their areas had been adjudicated irregularly, the government published the Land Adjudication (Amendment) Act in 1999. The Bill, which has never become law, had the main objective of amending the Land Adjudication Act in order to cancel title deeds issued for land that had been registered irregularly in Mosiro and the Iloodo-Ariak Land Adjudication Sections in Narok and Kajiado Districts, respectively.

Issues
Although Section 14 of the Land Adjudication Act requires that the residents of an adjudication area be notified of an adjudication exercise in their area, some residents of the area were not aware of the adjudication and demarcation exercise.

Corruption within the adjudication committee resulted in the members allocating themselves large parcels of land and registering people who were not ordinarily resident in the area.

Although the Land Adjudication (amendment) Bill was published in May 1999 to address the issue of the irregular allocation of titles in Narok and Kajiado Districts, it is yet to become law. The slow process of enacting laws to redress cases of corruption and injustice leads to local communities losing their trust in the government's commitment to addressing issues pertinent to their social and economic well-being.

(Source: The Memorandum on Iloodo-Ariak Land Case: For the Commission of Inquiry on Land in Kenya, April 2000)

3.6 The Lake Nakuru Community Conservation Project (Kenya)

Background
The World Wide Fund for Nature (WWF) has been involved in conservation activities around Lake Nakuru and its catchment area since 1974, when the organisation purchased 50,000 acres of the land surrounding the Lake at a cost of USD 500,000 and turned it over to the government for establishment of a national park. Initially, only the lake and its shores, covering approximately, 65 km^2 were gazetted as a national park. Today, the park covers 188km^2. Lake Nakuru is the second most frequently visited park in the country, Kenya's first Ramsar Site, and Africa's first bird sanctuary.

WWF built a chain link fence around the park to reduce the level of human-wildlife conflict. Other activities that the organisation has been involved in at the lake include:

- establishing the Baharini Wildlife Research Station to generate information on the lake.
- lobbying the government for the relocation of a fungicide factory whose effluent was having a negative impact on the lake.
- the establishment and running of a Wildlife Clubs of Kenya hostel at the lake.
- assisted in the establishment of the Rhino Sanctuary

Before the 1970s, the lake's catchment area was occupied by large-scale farms that employed large populations of Kenyans. In the 1970s, these large farms were sold through financial support from the British Government with first priority being given to the former workers of the large farms. Loans were availed on Guaranteed Minimum Returns basis, whereby the new owners were required to remit repayments only when they had a good yield. During this period, the farms remained intact. However, once the new owners finished repaying the loans, they sub-divided the land into between 2-10 acres.

The Resources

Lake Nakuru occupies an area of 44 km^2 at 1,759 meters above sea level, and is one of a series of closed basin lakes in the Rift Valley. The lake is alkaline and supports the cyanobacteria, *Spirulina platensis*, populations which is the preferred food by the lesser flamingo. The lake also supports a population of cichlid fish (*Sarotherondon alcalicum grahami)* that was introduced from Lake Magadi in 1953, 1959 and 1962. The lake and its surroundings support over 51 species of water birds and over 350 terrestrial birds.

Lake Nakuru receives its water from direct rainfall, three feeder streams, several springs along its northeastern shore, urban storm water, two small streams that flow into the lake only during periods of high rainfall, and from ground water recharge. The Lake's water level rises and falls with changes in ground water levels. The significance of ground water to the lake's water budget has earned it the descriptive label *"window on the water table"*. The Lake is subject to cyclical dry outs, when the level goes below its gauge (10cm) or dries out.

The catchment area for Lake Nakuru is approximately 1,800 km^2 and includes the Mau Complex, Eburu Forest, Bahati and Menengai Highlands. Deforestation of the catchment, especially the Eburu Forest and the Mau Complex has impacted the flow of water into the lake, with the local communities reporting that while previously the rivers flowed all year round, they presently only flow after heavy rains. Between 1970 and 1986, approximately 400 km^2 of the natural forest vegetation has been lost resulting in a decrease of the natural vegetation from 47% of the catchment area to 26% in 1986.

Presently, small-scale farmers own 66% of the catchment basin, largely on a freehold basis. In addition, there are some absentee landlords, especially in the southern part of the Lake Nakuru National Park whose land is presently occupied by squatters. There are approximately 106 villages in the catchment area, each comprising about 100 people. Approximately 60% of the population in the catchment area depend directly on river water for their domestic and livestock needs.

Siltation and pollution are the major threats facing the lake. Most of the pollutants originate from the farms within the catchment area. Despite the existence of the fence, human-wildlife conflicts continue especially because baboons have learnt how to jump over the fence by avoiding the live wires.

The Project

The World Wide Fund for Nature (WWF) has had a community-based conservation project around Lake Nakuru since the early 1987. The primary objective of the project is to promote sustainable development based on sound conservation principles. WWF uses the catchment approach to conservation, wherein conservation efforts are distributed throughout the catchment area of the Lake.

The main objective of the project is to create awareness among the local communities that the natural resources belong to them and it is their responsibility to conserve and manage them. The project is working with 40 villages in the catchment. In addition to working with the local communities, WWF regularly monitors the Lake's water quality and biodiversity. A survey of 400 farms within the catchment revealed that a total of 44 chemicals were being used on the farms, with 12 of them being dangerous pollutants, including DDT.

Changes in flamingo populations over the project's lifespan and the factors that contribute to these changes, such as the changes in nutrient levels and pollution levels, have also been monitored. In 1993 and 1995 there were extensive deaths of flamingo and the possible causes of these deaths were investigated. In December 2000, a WWF officer reported that flamingos were mating and laying eggs at Lake Nakuru for the first time in about 50 years.

WWF also facilitates human-wildlife conflict management sessions for the local communities and is encouraging the villagers to plant alternative crops to reduce destruction by wildlife. The project works with 145 schools in an environmental education programme. The project facilitates environmental education sessions, provides teaching aids to schools and facilitates the integration of environmental education into the school curriculum.

The project works in collaboration with the ministries of Agriculture, Environment and Natural Resources, KARI, KWS, the Municipal Council, the local administration, the Catholic Diocese and Egerton University. The link with the university is especially important for the research component.

The project initiated the formation of Village Environment Committees, which are composed of 10-14 people elected by the villagers. The members of these committees have received training courses in sustainable agriculture from the Baraka Agricultural College. The Village Environment Committees facilitate the villages to conduct natural resource mapping of their respective villages. Through this process, the villagers identify their most threatened resources and the sources of these threats. They then develop action plans on how to address these threats in collaboration with the other villagers and with the adjacent communities.

The project is impacted by specific sectoral policies especially the Water Policy and Act with regard to water abstraction. The provisions of the Agriculture Act have implications for the project with regard to river bank protection. In addition, municipal by-laws on waste disposal and industrial affluent have an impact on the project. The Pharmacy and Poisons Act, Cap. 244; the Use of Poisonous Substances, Cap. 247; the Pest Control Products, Cap. 346 and the Food, Drugs and Chemical Substances, Cap. 254, have implications for the importation, sale and use of pesticides. The project could potentially use the provisions of the newly enacted Environmental Management and Co-ordination Act, 1999, which entitles Kenyan to a clean and healthy environment and gives them the responsibility for safeguarding and enhancing the environment.

Issues

Insecurity of Tenure: Lack of security of tenure for squatters occupying land belonging to absentee landlords makes them a difficult group to work with. These squatters often fail to understand why they should conserve resources and/or plant trees on land that does not belong to them.

Siltation: Due to the small land holdings, many of the villagers have cut down the trees on their farms to make way for crops. Additionally, many destroyed existing terraces that had been

constructed to control soil erosion. The resultant soil erosion contributes to the siltation of the rivers and the lake.

Charcoal Burning: On-farm charcoal burning is prevalent because of the needs of the local communities for a ready cash income and due to the existing urban market for charcoal.

Local Ownership of Problems and Solutions: In the past, the local communities felt that the conservation problems and the measures to address them belonged to WWF. There was a feeling that they were doing WWF a favour by participating in conservation activities. This lack of ownership of identified problems was especially prevalent when WWF worked informally with the communities, through village meetings *(baraza)*, to explain to the villagers the implications of soil erosion. WWF initiated the formation of Village Environment Committees in 1997 to enhance the local ownership and participation of the villagers in identifying and owning their conservation problems and in coming up with innovate ways to solve them. WWF also encourages the villagers to seek diverse stakeholders in getting assistance to address their identified problems, including themselves, the local churches and NGOs. The different Village Environment Committees monitor and evaluate each other's initiatives and through this there is peer pressure to perform. This process of self-evaluation has also resulted in increased independence of the villages.

Pollution: Although the government has banned some of the identified pollutants, they continue to be sold and used. There is therefore need for the government to better enforce laws on the sale and use of poisonous substances.

Lessons Learned
There is need for institutions involved in CBNRM projects to engage in lobbying and advocacy activities in order to encourage the government to create an enabling environment for sustainable natural resources management. Greater collaboration with other agencies and NGOs involved in similar CBNRM initiatives will enhance the capacity of individual organisations to engage in lobbying and advocacy activities.

(Source: WWF-Nakuru project staff)

3.7 Indigenous management systems for common property resources: cases from Wello and North Shewa (Ethiopia)

Indigenous institutions and management systems have regulated resource use at Wuraf Forest in Dessie Zuria, and guassa areas in Qalam, Yadi (Manz), Laimush (Tagulat) and Andit Tid (Tagulat). Dessie Zuria and Qalam are in Wello, and the other sites are located in Northern Shewa.

The traditional rules that governed management of resources at these sites focused on exclusion. Unlimited use of resources was limited to the inhabitants of a geographically defined area and/or birth lineage (being a descendant of the acknowledged founding fathers). In most cases, rules for exclusion were applicable only during selected seasons each year.

For example, in Qalam, outsiders were denied access for grazing during the rainy season (i.e. July to October), although everybody, including passing caravan traders, had accesss to grazing areas during the dry season. At the end of the rainy season, the grass was harvested by the

hereditary users of the land. Those without hereditary rights could only bring their animals for grazing after the hay was cleared. Therafter, the *guassa* was 'opened' and there were no restrictions on the number of animals that a household could bring into the common grazing area.

At Yadi (Manz), the rules of exclusion were associated with the *rest* system that conferred usufructuary rights on all the living members of a group tracing their lineage to a certain pioneer father. In addition to the exclusion of outsiders, the *guassa* was periodically closed to animals and humans for periods of between two and four years. After this regeneration period, when grass and bushes in the *guassa* grew to between one metre and two metres tall, community members would harvest thegrass before bringing in their livestock. This situation lasted until the onset of agrarian reform in 1975.

The Yadi community appointed an *Abba-quera* to enforce closure of the *guassa*. Any items carried by a trespasser (e.g. tools, livestock) would be confiscated. .Repeat offenders were penalised more severely. If anyone repeatedly brought livestock into the *guassa*, the *Abba-quera* would alert community members and take the extreme measure of slaughtering one of the confiscated animals.

At the Laimush and Andit Tid, the management system was influenced by the fact that Tegulat Tagulat was part of a crown estate. This means that resources from the area were supplied to the court. Local farmers first harvested the grass from the *guassa* for supply to the royal stables, and then harvested the remainder *guassa* grass for their own use. The practice remained in force until the Italian Occupation in 1936.

In Wuraf Forest, communal protection of the forest was supported by the the church. Any person who cut down a live tree without permission from the church would be reported to the local administrator, known as a *chiqa*. The *chiqua* would confiscate the offender's tools and hand them over to the church. Therefore, the church assisted the local community to enforce the rules for forest management.

(Source: Admassie, 2000)

3.8 The Participatory Development Training and Extension System (PADETES): a dilemma for development agents (Ethiopia)

Government support for agricultural extension activities began in the 1930s. The extension programmes where strengthened during the late 1960s after increased support from donors. However, under the *Derg* government, priority was given to state and collective farms. The smallholder sector was neglected. Since the change in government, support from external funding agencies has increased, and small-scale farmers are receiving more attention. Participatory approaches for agricultural extension have gained widespread acceptance. Several 'farmer-focused' approaches are being applied, although there are major challenges to closing the gap between participatory ideals and local realities. The participatory agenda is being applied in the context of historically hierarchical relations between the government and farmers, and among government agencies. The participatory processes are also subject to serious technical and financial constraints

In 1995, the Ministry of Agriculture adopted a methodology known as Participatory Development Training and Extension System (PADETES). This system revolves around the work of Development Agents (DAs) who work directly with farmers, in consultation with a community planning team comprising representatives of community groups (e.g. youth, women and elders). The DA helps the community draft plans for on-farm demonstration and community-based soil and water conservation activities.

By 2000, it was apparent that the number of DAs was inadequate. Each DA was expected to reach between 1000 and 1400 households. In addition to the unrealistic workload, the DAs lacked key resources for their work, including transport.

The DAs are also constrained by the legacy of previous approaches to agricultural development. In the past, extension agents were the frontline implementers of the government policy of `mass mobilisation', in which peasants were forced to participate in soil and water conservation activities. Memories of such coercion persist, and are perpetuated by the fact that DAs still request them to contribute up to twenty days per year for `community participation' without reward. In some cases, although participation in the development and implementation of local development plans is supposed to be voluntary, some farmers have been threatened with fines (and even of loss of land) if they do not `participate'.

Participatory ideals are difficult to realize. Many of the problems facing participatory extension activities in Ethiopia arise from the status of the DAs. They are usually both members of the communities in which they work, and representatives of the government. They are potential distributors of benefits for farmers and can also adopt a controlling or coercive role. They work with limited resources for relatively low salaries. There is an incentive scheme, pegged to their ability to persuade farmers to adopt recommended technologies. Therefore, they are motivated to work mainly with the wealthier, `model' farmers who show interest in such technologies. This is at odds with the objective of allowing farmers to determine their own needs, and lends credence to the notion that "the government knows best".

The technologies promoted by the DAs are not always always appropriate to the particular agro-ecological and economic conditions of the area in which they work. In areas of where rainfall is more variable and uncertain, the risks for farmers are much greater. After the harvest season, DAs are expected to recover loans received by the farmers irrespective of farm productivity. The ability to recover loans is also a measure of a DA's success. Therefore, a DA has to appear both as an ally of the farmer and an instrument of coercion.

For DAs, each community is closely identified with formal institutions of government at local level: the *Kebele* Administration (KA), and the household-based *Mengestawi Buden. Mengestawi Buden* means literally `governmental team', indicating that at the local level, government and `the community' cannot be neatly separated. These formal institutions do not adequately represent all interest groups within a community. Plans to involve less powerful or articulate community members are seldom realized. For example, men alone are consulted on farming matters, probably because very few DAs are women. Among male DAs and their supervisors, there is a feeling that even the few female DAs that exist may be too many. They stress that farmers are men, despite women's active role in farming.

DAs are usually given other duties, in addition to their work with extension packages. They may be involved in soil and water conservation projects, tax collection, or the implementation of 'food-for-work activities supported by the World Food Programme. Decisions about which of these competing demands to prioritise are based on pragmatic assessments. DAs are

understandably less interested in their participatory value than in the resources attached to them. For example, DAs may opt to concentrate on food-for-work projects that place them in a more influential position within their community.

The PADETES system is being reviewed with the aim of making it more responsive to farmer needs. A new version, Participatory Extension Planning (PEP) is intended to move away from the idea of quota delivery. Local institutional acceptance of the new scheme may depend on the availability of resources.

(Source: Harrison, 2001)

3.9 Genetic Resources Conservation by the Omotic Ari people (Ethiopia)

The Omotic Ari people in Southern Ethiopia conserve the genetic resources of enset (*Enset ventricosum*) through use in their agricultural systems and preservation of wild enset habitats. Enset is a member of the banana family and is endemic to south-western Ethiopia. The area of distribution spreads all over the Ari territory between 1200 and1600 m asl.

The Ari people recognise seventy-eight varieties of enset. Each variety is clearly distinguished by its vernacular name and morphological characterstics. Farmers not only know vernacular names, but also the life history of each individual enset plant. Cultivated enset plants rarely flower because they are harvested prior the flowering stage. Wild enset is known as *gela* and propagates spontaneously from seeds. Local people distinguish *gela* from *agemi* (cultivated enset) and insist that they never eat *gela*.

The wild populations of enset grow in wet sites such as swamps (*baz)* and river banks (*chaka).* Among the habitats of wild enset population, certain sites are known as *kaiduma.* The Ari people recognise *kaiduma* as important habitats for *gela* (wild enset). According to a local legend, *gela*, was planted by God and *kaiduma* are sacred sanctuaries that must be protected from human disturbance and destruction.

It is forbidden to enter a *kaiduma* and these sites cannot be cultivated under any circumstances. If someone cultivates a *kaiduma* by mistake, he should expect to die for violating this taboo. According to local traditions, there are fireballs within *kaiduma*. Any person who sees a fireball during the day will die, and anyone who sees a fireball at nigh will suffer a serious illness. It is also said that there are huge snakes in *kaiduma* so a trespasser may suffer from fatal snake bites or go insane.

However, these strong prohibitions do not completely prevent the Ari people from going into *kaiduma*. On rare occasions, a person may have to enter a *kaiduma* to draw water for a purification ceremony known as *sheena*.

(Source: Shigeta, 1990)

3.10 Rangeland Resource Management by the Afar (Ethiopia)

The social organization of the Afar people is based on kinship and consanguinal relationships. Their social organization is convenient for the management of the livestock and the maintenance of social order in a mobile society. They maintain five major levels of social

structure: the branch, tribe, clan, lineage and family. The members of each lineage group cooperate in practical matters such as herding livestock or guarding settlements.

The clan is the strongest and most cohesive institution and is headed by a *makaba*. The clan is a territorial unit which has legislative executives and judiciary functions. The head of each clan is assisted by a group of elders who are summoned whenever a need arises. Each family is organized along patrilineal lines where the male is the head of the household. Families comprise the male head, with one or more wives and their children. The lineage is vital for livestock productio , regulation of marriage, mutual aid and defense, as well as, the control of common property.

The Afar maintain permanent settlements in the plain, where children, the elderly, sick people and weak animals stay, even during the rainy season. During the rainy season, the Afar take most of their livestock into the hilly country to the north, west and south. Brief stays may be made in wet season pastures during the short rains (February and March), although standing water is scarce and unreliable at this time. Therefore, the greater part of the year is spent in restricted areas of dry season pasture particularly in the Maro Gala area.

In recent years, the Afar have expressed concern over the increasing density of livestock in the region, associated with the declining availability of high quality forage. According to some elders, over stocking has led to consumption of the high quality herbs before they could produce seeds for replacement.

Decision-making among the Afar requires the full participation of all adult members. A full debate and examination of any case is required before a decision is made. Decisions are usually reached when all opposing arguments have been addressed or withdrawn. To reach a consensus, every participant of the assembly has to have a chance to argue his case. Within families, decisions are made by the head of household, although the attitudes of the family and clan group influence their decisions. In general, women have no right in decision making and are not allowed to participate in public meetings.

(Source: Kassa, 1997)

3.11 Rangeland and water resources management by the Boran (Ethiopia)

Herd management is the principal means of sustaining livelihoods in Borana, where pastoralists maintain mixed herds of cattle, goats, sheep, camels and, sometimes, horses. Maintaining mixed herds has the advantage of utilizing both browse and grass species, which is particularly important in arid and semi-arid areas. Mixed herds also offer greater security against the impacts of disease.

The Boran pastoralists have adopted traditional strategies to solve problems related of watering and grazing their livestock. Their herds are sub-divided into *worra* (milking herd) and *forra* (dry or non-milking herd) based on the frequency of watering, and the availability of good grazing and browsing grounds.

The *worra* herds spend much of their grazing time within a circular area not very far from villages and water wells, while the *forra* herds travel much further. Most Borana villages also reserve enclosed grazing areas *(kallo)* for calves.

In recent years, the traditional pasture management system has broken down. The present grazing system is more random with livestock owners driving their herds to any available site, at any time of the year. Overstocking is becoming a serious problem, and the productivity of the rangelands has decreased.

The Boran have an elaborate indigenous social organization based on the principal of *Nagaiya Borana*, and the quality of being Boran known as *Borantiti*. The Boran are divided into 17 clans and some 60 lineages. At clan level, every Boran is expected to help others in times of hardship, and the settlement of disputes. This kind of intra-clan assistance is known as *Gosa Gonfa* and is recognised as a means of wealth redistribution within each clan.

The Boran are administered by their own political organization, known as *Gada*. It is a generation-based system in which one generation is assigned to maintain the peace of the Boran. *Gada* has a set of rules and rituals, which have practised for centuries. The Boran have also adopted a system of territorial organization that is not directly related to kinship affiliation. Families are grouped into neighbourhoods known as *solola*. Several neighbourhoods comprise *olla* (village) and several villages are grouped into *arda*. A group of *arda* comprise a *medda.*

Among the pastoralists an *olla* may consist of 7 to 10 *tukuls* belonging to closely related families. A group of ollas whose inhabitants move together in search of pasture several days from their neighburhood is known as a *dheda*. A collection of *dheda* that use the same sources of water is called a *medda*. One peasant association can have up to five *medda*.

(Source: Coppock, 1994)

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