ECONOMIC ASPECTS OF COMMUNITY INVOLVEMENT IN SUSTAINABLE FOREST MANAGEMENT IN EASTERN AND SOUTHERN AFRICA

Hezron Mogaka, Gacheke Simons, Jane Turpie, Lucy Emerton and Francis Karanja

March 2001

NRI NATURAL RESOURCES INTERNATIONAL

IUCN The World Conservation Union

This publication, and the research upon which it is based, was made possible by a grant funded under the Forestry Research Programme of the United Kingdom Department for International Development for the benefit of developing countries. Project Number R7477/ZF0114: **Community involvement in forest management: an analysis of key opportunities and constraints to the responsible involvement of communities and rural people.**

The findings, interpretations and conclusions in this publication are those of the authors and participants at the workshop. They do not necessarily reflect those of IUCN, NRI or DFID.

Published by: IUCN — The World Conservation Union

Citation: H. Mogaka, G. Simons, J. Turpie, L. Emerton and F. Karanja, *Economic Aspects of Community Involvement in Sustainable Forest Management in Eastern and Southern Africa.* IUCN — The World Conservation Union, Eastern Africa Regional Office, Nairobi

ISBN:

Produced by: IUCN — The World Conservation Union, Eastern Africa Regional Office

Available from: IUCN Eastern Africa Regional Office,
PO Box 68200, Nairobi, KENYA
Tel: ++254 2 890 605-12 Fax: ++254 2 890 615/407
Email: mail@iucnearo.org

POLICY BRIEF

POLICY BRIEF

This study investigates the extent to which communities have been provided with economic incentives to become involved in sustainable forest management in Eastern and Southern Africa.

Findings

The study has a number of clear findings:

- If communities are to be willing, and economically able, to involve themselves in sustainable forest management they must receive greater economic benefits from conserving forests than from degrading them. Sustainable forest management must tangibly improve local economic welfare, and generate local economic benefits to sufficient levels and in appropriate forms to counterbalance the opportunity costs incurred by sustainable forest management.

- There is generally little recognition by either economic or forest sector decision-makers and planners of the high economic value of forest resources for communities, or the potentially high local economic costs of sustainable forest management.

- The contribution of the forest sector to national economies is generally underestimated as a result of emphasis only on formal wood-based industries and omission of consideration of the value of non-timber products and functions.

- Because the forest sector has such a low recorded value throughout all the countries studied, it has been accorded little priority in economic policies and development strategies. In many cases, economic policies in Eastern and Southern Africa have actually provided economic disincentives to communities in sustainable forest management,

- Macroeconomic policies have influenced community involvement in sustainable forest. A positive influence has been as a result of the national trends towards decentralisation, privatisation and devolution of the role of public sector, which have a greater degree of participation in forest use and management. Economic liberalisation has dismantled many of the price and market distortions that have traditionally discriminated against forests as a land use. However, many of these positive influences have been counterbalanced by a series of economic crises and conditions that have undermined local livelihoods and contributed to forest degradation and loss.

- Sectoral economic policies largely omit forestry concerns, and tend to place emphasis on activities which have the potential to lead to the unsustainable exploitation, clearance and degradation of forest species and areas. Many sectoral economic activities benefit from, use or degrade forest goods and services at low or zero cost. Sectoral economic instruments have sometimes acted as perverse incentives against community involvement in sustainable forest management – for example unsupportive systems of land and resource tenure, and subsidies to resource or land-degrading activities.

- Policies in environment and natural resources sectors pay little attention to economic considerations, including the need to make conservation profitable to communities, the

need to raise finance and funds, and the need to counterbalance disincentives and perverse incentives provided by macroeconomic and sectoral economic policies.

- National forest policies have moved away from a focus on strict protection and commercial production to approaches geared towards using forest resources in pursuit of sustainable development goals, and to the economic benefit of local communities. In line with this shifting focus, four main types of economic measures have been deployed in Eastern and Southern Africa in support of community involvement in forest management: benefit-sharing, the development of forest-based markets and enterprises, the promotion of local alternatives to forest-based sources of income and subsistence, and direct payments to community members.

- Despite a much greater emphasis on "community-based" approaches to forest management, there are few instances where this has actually managed to counter-balance the local-level opportunity costs associated with forests or to generate substantive economic benefits of a sufficient quality or quantity to compete on economic terms with the unsustainable use of forest land and resources.

Conclusions

Two overriding conclusions arise from the study:

- Broader economic conditions in Eastern and Southern Africa are generally unsupportive of community involvement in sustainable forest management

- Economic concerns have been dealt with inadequately in most community-based approaches to forest management in Eastern and Southern Africa.

Recommendations

The study also highlights a number of policy recommendations.

Most importantly, the omission of economic considerations from both forestry and economic policy, planning and practice has resulted in a situation where, in many parts of Eastern and Southern Africa, sustainable forest management is not economically attractive to communities. There is an urgent need to provide economic incentives for communities to become involved in sustainable forest management, including:

- Ensuring that the full economic value of forests is appreciated, and reflected in both economic and forestry decision-making, paying particular to economic costs and benefits that accrue at the community-level;

- Identifying, and dismantling, the economic disincentives and perverse incentives that macroeconomic and sectoral economic policies provide and that hinder community involvement in sustainable forest management;

- Developing and testing economic incentive measures within the context of on-going attempts at community-based forest management, which generate tangible benefits in forms and at levels that are at least equal to compensate for the economic costs that accrue to communities.

SUMMARY

SUMMARY

THE FOCUS AND AIMS OF THE STUDY:

The economics thematic study aims to investigate the extent to which communities have been provided with economic incentives to become involved in sustainable forest management in Eastern and Southern Africa, and how far perverse incentives and disincentives encouraging forest degradation and loss have been overcome.

The study enquires whether forest management regimes in the region have actually provided communities with sufficient economic benefits to make them willing, and able, to conserve and to use sustainably forest resources in the course of their production and consumption activities. To these ends, it asks the questions: Are broader economic conditions in Eastern and Southern Africa supportive of community involvement in sustainable forest management?; and Are economic concerns dealt with adequately in community-based approaches to forest management in Eastern and Southern Africa?

The review covers fifteen countries in Eastern and Southern Africa – Angola, Botswana, Eritrea, Ethiopia, Kenya, Malawi, Mozambique, Namibia, Somaliland, South Africa, Sudan, Tanzania, Uganda, Zambia and Zimbabwe.

KEY THEMES AND ISSUES:

Links between economics and forest status

Economic forces are tied intimately to the status of forests, and to community involvement in sustainable forest management. While forest resources form an extremely important input into community livelihoods, economic forces — from both within and outside communities — also constitute major causes of forest degradation and loss. In particular, the clearance of forest land for settlement and agriculture and the unsustainable harvesting of timber and non-timber forest products have devastated forest ecosystems throughout Eastern and Southern Africa. An important aspect of community-based approaches to sustainable forest management is whether they attempt to offset these direct causes of forest degradation and loss.

Economic causes of forest degradation and loss

One of the reasons why people carry out economic activities in ways and at levels that degrade forests is because they can gain high economic benefits from doing so. Conversely, there is often little immediate economic gain from conserving forest resources or using them sustainably. This imbalance is particularly acute among forest-adjacent communities in Eastern and Southern Africa, where livelihoods are typically limited and insecure and where forest management regimes have long denied communities legitimate opportunities to use forest resources for their own economic gain. In the search for adequate subsistence and income, and in the absence of alternatives, people often have little choice but to degrade forests in the course of their economic activities. As long as this situation holds, and greater economic and financial benefits can be gained from degrading or destroying forest resources than from conserving them, communities have little reason to become involved in sustainable forest management.

The need for economic incentives

One of the clear challenges in forest management, and especially in community-based approaches, is to ensure that local communities are provided with sufficient economic incentives to become involved in sustainable forest management. On the one hand this requires that tangible local-level economic benefits are generated from forests — an important reason why communities have in the past failed to become involved in sustainable forest management is that there have been few opportunities to gain from it. It however also requires identifying, and overcoming, the broader economic conditions and forces that drive people to degrade forests in the first place, because they make it an economically necessary or attractive option.

Five broad categories of economic incentives relating to community involvement in sustainable forest management that have been practised on the ground and discussed in this report include: direct economic incentives encouraging sustainable forest management; indirect economic incentives encouraging sustainable forest management; economic disincentives discouraging forest degradation and loss; economic disincentives discouraging sustainable forest management; and Perverse economic incentives encouraging forest degradation and loss.

Economic aspects of community involvement in sustainable forest management

This study traces the linkages between forest values, economic policies, forest management systems and incentives for community involvement in sustainable forest management. It attempts to assess, in the light of past and present experiences, whether economic incentives have been provided for communities to become involved in sustainable forest management, and to draw lessons learned about the needs to consider economic aspects in forest management planning, policy and practice.

THE PROBLEM OF UNDERVALUATION:

The role of the forest sector in national income

Looking at national-level statistics, it would be easy to believe that forests have little or no economic importance to Eastern and Southern Africa. In none of the countries under study is the recorded contribution of the forest sector to GDP greater than 3%, and in many cases it is considerably less than this. The major reason for this apparently low value is that national income statistics are based almost wholly on the output of formal sector, wood-based industries. They thereby miss a huge proportion of the value of the forest sector, and fail to recognise that activities in other sectors of the economy rely heavily on using forests sustainably and maintaining forest status.

Unaccounted national forest values

In most countries in Eastern and Southern Africa, non-timber forest values far exceed the recorded national income generated by formal forest industries. For example, the majority of Eastern and Southern Africa's population rely on wood-based energy (including over 85% in Namibia, 90% in Malawi, 70% in Zambia, 80% in Mozambique and 97% in Tanzania). Other non-timber forest values are also demonstrably high — for example the use of forest-based traditional medicines is worth between US$ 77-155 million in South Africa, the potential recreational value of forests in Kenya is up to US$ 30 million, and the sum of non-timber values is US$ 180 million in Namibia (a figure that is nearly 450 times higher than income from commercial logging).

Forest services, such as watershed catchment protection, erosion control, nutrient cycling, maintenance of soil fertility and local and global climate control also have a high, and largely unrecorded, economic value. The few studies that have attempted to quantify these indirect benefits underline this high value. For example soil erosion costs avoided by the presence of natural vegetation have been estimated to be worth up to US$ 42 million a year in Malawi, up to US$ 80 million in Zimbabwe, and US$ 1.5 million in Eritrea. Kenya's indigenous forests are thought to provide water catchment services with a value in excess of US$ 25 million a year, and the global value of carbon sequestration by Eritrea's forests and woodlands has been calculated at more than US$ 27 million.

Forest economic benefits and costs at the community level

Perhaps the most glaring omission from national income statistics is however that of the local-level economic benefits that accrue from forests to adjacent communities. Forest goods and services play an extremely important economic role in local economies in all of the countries under study, and are often worth far more than any other component of forest value. In Kenya, for example, forest resources are thought make a major contribution to the livelihoods of more than 10% of the population, to a total annual value of almost US$ 100 million, and in Namibia household-level wood use accounts for more than 93% of the total national value of forests. Forest products generate substantial income and employment at the local level, as well as providing valuable economic goods which are used only within the household. They often also tend to have a particularly high economic value for the poorest and most vulnerable groups — for example in South Africa poorer households use a much greater variety and quantity of forest resources than richer ones, and in parts of Zambia forest resources contribute nearly three quarters of the total output of poorer households (compared to a third of richer households' total output).

Estimates of national forest values also ignore the fact that forests can incur substantial economic costs to communities. The presence of forests and woodlands interfere with other economic activities at the local-level. Most notable are forest opportunity costs — all the other economic outputs foregone or precluded by maintaining land under forest cover. In Uganda, for example, the agricultural opportunity cost of forest protected areas in terms of farm output foregone is estimated at US$ 113 million a year. Another widespread cost results from the crop damage caused to local farmers by forest-dwelling birds and animals, estimated in Uganda to give rise to losses worth more than US$ 65 million a year.

FOREST VALUES AND ECONOMIC DECISION-MAKING:

Links between economic policies and forest status

Macroeconomic policies and development plans set the overall conditions under which economies operate, and provide the framework within which policies are formulated for individual sectors of the economy. They regulate the economy, and attempt to influence the nature and direction of economic activities, so as to achieve particular development goals. Not only do they influence forest sector activities, but they also shape economic activities in sectors of the economy that rely, or impact, on forest ecosystems.

Broad economic conditions as a determinant of forest management and status

Broader macroeconomic policies, and the general status of the national economy, has affected community involvement in sustainable forest management. Some of the recent trends and changes in macroeconomic policy in Eastern and Southern Africa are broadly

supportive of community involvement in sustainable forest management — for example increasing decentralisation and devolution of the powers of the state, and liberalisation of formerly distorted input and product prices and markets. Simultaneously, macroeconomic status has also hastened rates of forest degradation, especially through its effects on community economic welfare. Economies throughout the region have however also undergone a series of economic shocks over the last decade, which have had major impacts on local economic welfare, community livelihoods and forest use. Most countries faced, over the 1980s, progressive economic stagnation and declining growth. Both these worsening economic conditions, and the economic stabilisation and adjustment measures subsequently deployed to overcome them during the 1990s, resulted in a considerable contraction of the economy, decline in rural living standards and fall in income and employment. In forest adjacent areas, weakened community livelihoods had immediate effects of increasing pressure on forest resources. In some countries these shocks have been even more extreme — for example the widespread civil unrest in Angola, Eritrea, Mozambique and Somalia, which has had devastating influences on both community livelihoods and forest status.

Consideration of forests in economic policies

Because economic policies target goals of economic growth and development, they are heavily influenced by the economic value of different sectors and activities. Due to the low perceived value of forests, throughout Eastern and Southern Africa, in none of the countries under study is much emphasis placed on the forest sector as a source of national development or economic growth, or are the links between forest status and economic welfare (at both national and community levels) recognised. Other sectors of the economy, most notably agriculture, but also commonly including industry, manufacturing, energy, water and infrastructure have long formed the emphasis of national development planning and the focus of macroeconomic policy. In turn, economic policy emphasis on these sectors has implications for forests, because activities in all of these sectors have the potential to impact on forest status by using forest resources and land, often unsustainably. To some extent, by targeting these sectors and promoting their activities, macroeconomic and sectoral policies have hastened forest degradation and loss.

Economic instruments that impact on forest management and use

Both macroeconomic and sectoral policies rely heavily on the use of economic instruments to achieve their goals. These economic instruments — such as taxes, subsidies, price controls, markets, loans, credit arrangements, interest rates and exchange rates — all aim to manipulate profits and returns so as to make particular sectors and economic activities attractive to producers and consumers, and to stimulate output, employment and income. This has also had impacts on the forest sector, because it influences the relative profitability of different land and resource uses — often at the cost of forests, and often discouraging community involvement in sustainable forest management.

The example of economic instruments used in support of agricultural policy goals is well-documented, and has arguably had the most detrimental effect on forests, and on community involvement in sustainable forest management, in Eastern and Southern Africa. In the pursuit of national goals of food security, rural income generation and export earnings, the agricultural sector has long been promoted as a key source of development and growth in all of the countries under study. A range of economic instruments have been

used to improve the profitability of, and stimulate the output of, activities such as ranching, grain production, export cropping and irrigated agriculture.

These economic instruments have involved manipulating fiscal, financial, price and market mechanisms — such as through the imposition of relatively lower tax rates on agricultural land uses, subsidies to inputs, government intervention in marketing, preferential credit arrangements, relief on taxes and duties, and high spending on research, extension, development and marketing. By artificially inflating the profitability of agriculture, this has encouraged the spread of farming activities, often at the expense of forests. It has also exerted a strong influence on the relative desirability of different land and resource uses at the community level, making sustainable forest-based activities appear to be less economically desirable, and substantially increasing the agricultural opportunity costs of maintaining land under forest cover. Although the case of agriculture is perhaps the most extreme, and well-documented, similar examples of sectoral economic instruments that act as perverse incentives against community involvement in sustainable forest management exist in other sectors of the economy— for example in land, industrial mining, water and energy sectors.

DO ECONOMIC INCENTIVES EXIST FOR SUSTAINABLE FOREST MANAGEMENT?

Economic goals in forest policies

After a long history of forests being managed according to protectionist and exclusionary principles, which denied communities the right and means to benefit from forest resources, recent years have seen a move towards community-based approaches to forest management in Eastern and Southern Africa. Most national forest policies now contain the stated aims of managing and using forest resources in pursuit of sustainable development goals, and to the economic benefit of local communities. These policy goals have been translated into a series of actions that attempt to provide economic incentives for community involvement in sustainable forest management. To these ends, three sets of economic incentives have most commonly been deployed — various forms of benefit sharing and revenue sharing, the development of forest-based markets and enterprises, and the promotion of economic alternatives to unsustainable forest activities. A wide range of examples exist of these measures being used as part of community-based forestry strategies, throughout the region.

Benefit sharing

National Parks Authorities, and (less commonly) Forest Departments, in most of the countries under study have some policy of benefit sharing, whereby a proportion of government revenues are used to finance community development activities in forest-adjacent areas. The Uganda Wildlife Authority, for example, has committed to return a fifth of park revenues to projects in surrounding areas, such as the provision of basic infrastructure, support to education, training and micro-enterprise development. Similar arrangements exist in most other parts of Eastern and Southern Africa, initiated by both governments, NGO and donor projects. There is a clear economic rationale to these benefit-sharing arrangements — that improvements in local welfare, and the provision of visible local benefits from forest, will engender community support for protected areas and reduce unsustainable or illegal forest activities.

Forest enterprise development

There are also many examples of the implementation of community-based forest management projects that include the development of forest-based rural enterprises. For example, attempts have been made throughout Malawi to allow for the use and marketing of minor forest products by adjacent communities. Other forms of forest-based enterprise include the development of locally-run forest ecotourism ventures (for example in Mabira and Budongo Forest Reserves in Uganda), small-scale handicrafts, processing and cottage industries (for example in Central, Copperbelt and Luapula Provinces of Zambia). These measures are based on the economic rationale that adding value to sustainable forest enterprises and markets is a way of reducing or replacing unsustainable utilisation activities, ensuring that communities have an economic stake in forest conservation, and improving economic welfare in forest-adjacent areas.

Development of alternatives to forest products

Another widespread use of enterprise and market development activities as a strategy in community-based approaches to forest management is the promotion of alternatives to forest damaging activities. One example of this approach was set in place under the Kenya Indigenous Forest Conservation Project, and involved the promotion of alternative enterprises and livelihood activities such as zero grazing, energy-efficient stoves, new sources of income and employment and the provision of credit facilities to allow their development. Here, the economic rationale is that if local pressure is to be taken off forests and if communities are to forego unsustainable forest-based livelihood activities, then they must be provided with alternative sources of income and subsistence products that can replace them.

Impacts of economic measures for community-based forest management

These examples of the use of economic measures within community-based approaches to forest management have undoubtedly improved relations between communities and forest-managing authorities, and may have helped to reduce local-level pressures on forest resources. There is however little evidence that they have led to any substantial improvements in the economic welfare of forest-adjacent communities, or that they have addressed the economic forces that drive communities to degrade forest resources in the first place.

Few of these examples of benefit-sharing, forest-based enterprise, and development of alternative livelihood activities, as they have been practised to date, actually reduce the local-level opportunity costs associated with forests or generate substantive economic benefits of a sufficient quality or quantity to compete with the unsustainable use of forest land and resources. There are still few experiences of the application of more innovative arrangements or more effective economic incentives for communities to become involved in sustainable forest management (although isolated, but notable, exceptions do exist, such as the development of a community trust fund around Bwindi-Mgahinga Forests in Uganda, the handover of forest plantation areas to communities to oversee commercial management in Malawi and Tanzania, or the development of private-community joint ventures in forest management and utilisation in Zambia).

Community-based forest management strategies have, to date, rarely factored economic considerations into their planning or practice. In most parts of Eastern and Southern Africa, involvement in sustainable forest management still remains a less economically

attractive, and sometimes economically unviable, land and resource option compared to the pursuit of economic activities that contribute to forest degradation.

CONCLUSIONS:

It may be concluded that although major steps forward have been made over recent years in integrating community economic concerns into forest policies and management, there still exist few economic incentives for communities to become involved in sustainable forest management in Eastern and Southern Africa. Broader economic conditions in the region continue to be generally unsupportive, and economic factors have yet to be adequately dealt with in community-based approaches to forest management.

The omission of economic considerations from both forestry and economic policy, planning and practice has resulted in a situation where, in many parts of Eastern and Southern Africa, sustainable forest management is not economically attractive to communities. The study highlights the need to provide economic incentives for communities to become involved in sustainable forest management. Of particular importance is:

- Ensuring that the full economic value of forests is appreciated, and reflected in both economic and forestry decision-making, paying particular to economic costs and benefits that accrue at the community-level;

- Identifying, and dismantling, the economic disincentives and perverse incentives that macroeconomic and sectoral economic policies provide and that hinder community involvement in sustainable forest management;

- Developing and testing economic incentive measures within the context of on-going attempts at community-based forest management, which generate tangible benefits in forms and at levels that are at least equal to compensate for the economic costs that accrue to communities.

It should be emphasised that setting in place the right economic conditions for community involvement in sustainable forest management is not however wholly the responsibility of the forest sector, but also other sectors of the economy. This is particularly so for the sectors, which have the potential to conflict with community involvement in sustainable, forest management. Perverse incentives that discriminate against sustainable forestry as a locally profitable and economically desirable land and resource use require to be dismantled.

Finally, it is important to note that economic incentives are a necessary, but not by themselves sufficient, condition for community involvement in sustainable forest management. Non-economic factors also influence the ways in which communities use and manage forests, and non-economic incentives – including those targeting social, institutional, policy and tenure issues – are also required to strengthen community involvement in sustainable forest management.

CONTENTS

TABLES, FIGURES AND BOXES

1 INTRODUCTION: The Economics Thematic Study

1.1 Background to the review

This synthesis report draws together the findings of three regional components of an economics thematic study on community involvement in forest management. The studies were carried out between October 1999 and February 2000 by Dr. Hezron Mogaka of the Kenya Forestry Research Institute (Eastern Africa: Eritrea, Ethiopia, Kenya, Somaliland, Sudan, Tanzania, Uganda), Dr. Gacheke Simons of Malawi (Southern Africa: Botswana, Malawi, Mozambique, Zambia), and Dr. Jane Turpie of the University of Cape Town South Africa (Southern Africa: Angola, Namibia, South Africa, Zimbabwe). They are available in their complete form as working papers, and as edited versions in Section II of this report.

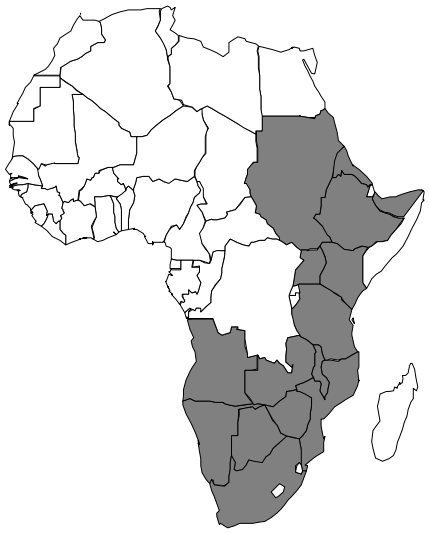
This synthesis report was edited and compiled by Lucy Emerton and Francis Karanja of IUCN's Eastern Africa Regional Biodiversity and Economics Programme. It was subjected to a detailed review by Mr Eugene Muramira, Resource Economist of the National Environment Management Authority Uganda, to whom thanks are due for his helpful comments and suggestions.

This economics thematic study forms part of a broader regional review of community involvement in forest management in Eastern and Southern Africa. The review also includes thematic studies dealing with land and resource tenure, policies and institutional arrangements, and stakeholder involvement. The findings of these reviews are published as separate synthesis reports and working papers (Alden Wily and Mbaya 2000; Kigenyi, Mugabe and Gondo 2000; Barrow, Clarke, Grundy, Kamugisha and Tessema 2000).

1.2 Scope of the economics study

This thematic study aims to investigate how far communities have been provided with economic incentives to become involved in sustainable forest management in Eastern and Southern Africa. The review covers fifteen countries in Eastern and Southern Africa (Box 1) – Angola, Botswana, Eritrea, Ethiopia, Kenya, Malawi, Mozambique, Namibia, Somaliland, South Africa, Sudan, Tanzania, Uganda, Zambia and Zimbabwe.

Box 1: Geographical coverage of the economics thematic study



In this document, for the purposes of clarity, **communities** are defined in spatial terms as people who live in or adjacent to forests, and who rely in some way on forest resources for their livelihoods. The focus of the document is on rural communities, including both settled and nomadic populations. **Forests** are taken to include all forms of natural forests

and woodlands, but mainly excludes exotic plantations and trees that have been planted on-farm. The study focuses on **sustainable** forest management — forest management and utilisation systems that maintain, or even improve, forest cover, species numbers and diversity.

It should be noted that both the quality and amount of information relating to economic aspects of community involvement in forest management varies widely between countries. Whereas there is a relatively large body of information dealing with Kenya, Malawi, South Africa, Uganda, Zambia and Zimbabwe, little or no information is currently available relating to Angola, Botswana, Eritrea, Somaliland and Sudan. The detail accorded to different countries in this report reflects this availability of information.

Detailed descriptions of the extent and type of forest cover and forest degradation in Eastern and Southern Africa are not presented in this document, as they are covered in detail elsewhere (for example FAO 1999). Because they form the focus of other thematic studies in this review, only minor detail is accorded to the topics of land and resource tenure (Alden Wily and Mbaya 2000), policies and institutional arrangements (Kigenyi, Mugabe and Gondo 2000), and stakeholder involvement (Barrow, Clarke, Grundy, Kamugisha and Tessema 2000).

1.3 Content of the synthesis document

The report is divided into three sections:

- **Section I**, includes a synthesis of the findings of the overall study:
  - **Chapter 1**, presents the background to the economics thematic study;
  - **Chapter 2**, outlines key themes and issues relating to the links between economics and forest management, and to the use of economic incentives for community involvement in sustainable forest management;
  - **Chapter 3**, looks at the economic value of forests;
  - **Chapter 4**, analyses the impacts of economic policies on community involvement in sustainable forest management;
  - **Chapter 5**, assesses the use of economic measures in community-based forest management approaches;
  - **Chapter 6**, draws conclusions as to whether economic incentives have been provided for community involvement in sustainable forest management.
- **Section II**, presents key aspects of the country reviews:
  - **Chapter 7**, Angola;
  - **Chapter 8**, Botswana;
  - **Chapter 9**, Eritrea;
  - **Chapter 10**, Ethiopia;
  - **Chapter 11**, Kenya;
  - **Chapter 12**, Malawi;
  - **Chapter 13**, Mozambique;
  - **Chapter 14**, Namibia;
  - **Chapter 15**, Somaliland;
  - **Chapter 16**, South Africa;
  - **Chapter 17**, Sudan;
  - **Chapter 18**, Tanzania;
  - **Chapter 19**, Uganda;
  - **Chapter 20**, Zambia;
  - **Chapter 21**, Zimbabwe.
- **Section III**, consists of:
  - **Chapter 22**, which includes references to the literature consulted during the course of the study.

SECTION I:
Synthesis

2 KEY THEMES AND ISSUES: Economic Values, Economic Incentives and Community Involvement in Sustainable Forest Management

The level of benefits and costs that accrue to communities from managing forests sustainably is a major economic concern. One of the primary reasons that forests are degraded is because communities can gain substantial financial profits and economic benefits from carrying out economic activities in ways, and at levels, that clear forest land or deplete forest resources. People carry out these unsustainable economic activities to generate subsistence and income, because they often yield higher returns than the income and subsistence benefits accruing from sustainable forest management. It follows that if communities are to be willing, and economically able, to involve themselves in sustainable forest management then they must receive greater economic benefits from conserving forests than from degrading them. This requires that broader socio-economic conditions are supportive of community involvement in sustainable forest management, and that forest management systems themselves generate tangible benefits at the local-level. Economic incentives provide tools for ensuring that both of these conditions are fulfilled.

2.1 Hypothesis and assumptions of the economics study

This study is based on the hypothesis that:

> ***The conservation and sustainable use of forests depends intimately on the economic benefits that accrue to communities from forest utilisation and management.***

In other words, it assumes that communities are unlikely to be willing to become involved in sustainable forest management unless it tangibly improves their economic welfare. To these ends, the study asks the questions:

> ***Are broader economic conditions in Eastern and Southern Africa supportive of community involvement in sustainable forest management?***
>
> ***Are economic concerns dealt with adequately in community-based approaches to forest management in Eastern and Southern Africa?***

The paragraphs below describe the background, and economic rationale, to this hypothesis and assumptions.

2.2 Links between forest status and economic activities

Economic forces are tied intimately to the status of forests. While forest resources form an important input into economic production and consumption activities, at local, national

and global levels, economic activities can also contribute to forest degradation. Economic forces comprise both the direct and the underlying causes of forest loss. Activities such as resource over-exploitation, the use of damaging or destructive harvesting methods, and the clearance of forest lands for agriculture all degrade and deplete forests directly. ***An important aspect of community-based approaches to forest management is whether they attempt to offset these direct causes of forest degradation and loss.***

In turn, these economic activities are permitted (and sometimes even encouraged) to take place at levels, and in ways, that deplete forests because of much broader failures and distortions in the ways that economic policies, institutions and markets operate. For example weak and distorted markets in forest goods and services, or the low participation of local actors in these markets, mean that there is limited potential for communities to benefit from forest conservation or sustainable use. ***Efforts to overcome these underlying causes of forest degradation and loss should form a central part of forest policies and management strategies.***

Widespread poverty, land pressure, unemployment and limited and insecure local production bases often mean that — in the absence of alternatives — community members have little choice but to over-exploit forest resources to generate sufficient subsistence, income and employment. Simultaneously, policy and market distortions in other sectors of the economy, such as agriculture, artificially inflate the profitability of land and resource uses that contribute to forest resource over-exploitation or forest clearance. ***The success of community-based approaches to forest management thus also depends on the extent to which broader macroeconomic and sectoral economic policies impact on community welfare generally, and on the local land and resource uses that impact on forests specifically.***

2.3 Forest values, costs and benefits

Whether sustainable forest management can compete with other, unsustainable, land and resource uses depends to a large extent on whether people receive sufficient gain from it. All too often, sustainable forest management does not make economic sense at the community level, in itself or in comparison to alternative uses of land and resources.

Despite a typically high dependence on forest resources, in the light of pressing and immediate livelihood needs, and in the face of broader distortions and failures in the ways that markets, policies and institutions work, there is frequently little local economic gain in sustainable forest management. Unless it makes tangible economic and financial sense to them, local communities are likely to be unwilling — and indeed are frequently unable — to conserve forests or to use them sustainably in the course of their production and consumption activities. The direct and opportunity costs associated with sustainable forest management often outweigh local economic benefits. ***Community-based approaches to forest management must therefore not only generate local economic benefits, but also ensure that these benefits accrue to sufficient levels and in appropriate forms to counterbalance the actual and potential returns yielded by land and resource uses that degrade forests, and to counterbalance any local costs incurred by sustainable forest management.***

2.4 The need for community economic incentives

Following on from these links between economic conditions and forest status, ***there is a clear need to ensure that sustainable forest management is economically desirable to communities — in the interests of local economic welfare as well as towards the end of sustainable forest management***. In other words, it is necessary to set in place incentives for community involvement in sustainable forest management.

Incentives can be defined as specific inducements designed and implemented to influence or motivate people to act in a certain way. Economic incentives for community involvement in sustainable forest management are concerned with making it more worthwhile in financial and livelihood terms for communities to manage forest resources sustainably, rather than to degrade or deplete them, in the course of their economic activity.

Five broad categories of economic incentives relating to community involvement in sustainable forest management can be defined (from Emerton 1999), and will be referred to in this report:

- ***Direct economic incentives encouraging sustainable forest management:*** mechanisms that are targeted to specific objectives, and encourage communities to become involved in sustainable forest management by providing conditional rewards for changed behaviour (for example by providing financial remuneration for forest conservation activities);
- ***Indirect economic incentives encouraging sustainable forest management:*** mechanisms that encourage communities to become involved in sustainable forest management by setting in place general enabling conditions (for example by strengthening and diversifying local livelihoods);
- ***Economic disincentives discouraging forest degradation and loss:*** mechanisms that discourage communities from unsustainable forest activities (for example fines and penalties against certain types of forest use);
- ***Economic disincentives discouraging sustainable forest management:*** mechanisms that discourage communities from becoming involved in sustainable forest management (for example the existence of high-value markets for unsustainably-exploited forest products);
- ***Perverse economic incentives encouraging forest degradation and loss:*** mechanisms that are targeted at other goals and aims, but have the indirect effect of discouraging community involvement in sustainable forest management (for example subsidies to agriculture that encourage forest clearance).

This study investigates the extent to which economic incentives for community involvement in forest management have been provided by forest management policy and practice in Eastern and Southern Africa, and how far perverse incentives and disincentives encouraging forest degradation and loss have been overcome. It questions whether forest management regimes in the region have actually provided communities with sufficient economic benefits to make them willing, and able, to conserve and to use sustainably forest resources in the course of their production and consumption activities.

3 THE PROBLEM OF UNDERVALUATION: Misrepresenting the Economic Importance of the Forest Sector

Forest costs and benefits, especially those accruing to communities, have long tended to be underestimated by economic planners and decision-makers. Throughout Eastern and Southern Africa the forest sector is seen as having little economic importance, because national income and development estimates focus on only one part of forest value — the output of commercial timber industries. There is little recognition that forests also generate substantial economic benefits, and costs, for communities.

3.1 National income statistics and the forest sector

Looking at national-level statistics, it would be easy to believe that forests have little or no economic importance to Eastern and Southern Africa. In none of the countries under study is the recorded contribution of the forest sector to national income greater than 3%. Even in countries such as Kenya and Zambia, in which commercial forestry and wood-based industries are relatively well developed, forest earnings represent only around 1% of Gross Domestic Product (GDP). In other countries where the forest sector also has a recognisably high domestic and international value, such as Sudan, where gum arabic accounts for over a fifth of the country's exports — and supplies between 70%-90% of world production — the forest sector is estimated to contribute below 3% of GDP. Where there is little closed-canopy or industrial forest, such as in Botswana, Eritrea Namibia or Somaliland, the official role of the forest sector in the national economy is almost negligible.

A major reason that the forest sector apparently has such a low value to national economies in Eastern and Southern Africa is that official statistics tend to record only the output of formal, wood-based industries (Box 2). They focus mainly on products supplied from exotic plantations, such as timber, pulp and paper, large-scale polewood, charcoal and fuelwood production. They thereby miss a large proportion of the value of the forest sector — income generated by the informal sector, at the household level, and from non-timber products and functions.

Box 2: Official statistics and the economic value of Kenya's forest products

Official statistics estimate that, over the last decade, the forest sector in Kenya accounted for an average of 1.3% of GDP, about 13% of the non-monetary economy and approximately 3% of wage employment in formal industry. These statistics are based on income generated by round logs, sawn timber, pulp and paper, industrial fuelwood, poles and posts.

These figures underestimate massively the true economic value of forest products to Kenya's national economy. Compared to formal sector industrial earnings of about US$ 2 million, illegal hardwood extraction is thought to be worth nearly US$ 8 million a year. It is also estimated that nearly 3 million rural households depend heavily on the use of forest products — worth more than US$ 94 million a year. The value of the recreational use of forests for leisure and tourism has been calculated to have the potential to earn more than US$ 30 million a year.

(From CBS 1996, Emerton, Ndugire and Bokea 1998)

3.2 Unaccounted national forest values

In most countries in Eastern and Southern Africa, non-timber values far exceed the national income generated by formal forest industries (see Boxes 2 and 3). Although there is little quantified information, the small amount of work that has been done on non-timber forest values in Eastern and Southern Africa underlines their national economic importance. Reliance on wood-based energy is particularly well-documented. For example in Namibia over 85% of rural households are known to rely on firewood for cooking (LaFranchi 1996), in Malawi some 90% of energy needs are met from trees, and woodfuel accounts for 70% of national energy use in Zambia, 80% in Mozambique and 97% in Tanzania (Mogaka 2000, Simons 2000). The value of the use of forests for domestic energy, alone, is immense — but remains largely unquantified.

Other non-timber forest products are also known to be widely used, to a high economic value, in the countries under study. In South Africa, for example, between 2.5 million and 3 million people gain direct economic benefits from woodlands, mostly outside the industrial forest sector (DWAF 1997). This includes some 84% of the African population in Durban who purchase traditional medicines sourced from natural woodlands (Mander 1998) and an estimated annual value of between US$ 77 million and US$ 155 million from the use of forest medicines by traditional healers across the country (DWAF 1997).

The national economic value of the services yielded by forest ecosystems is also high, although again has been subjected to little quantification and is almost never represented in national income statistics. These services are wide-ranging, and include watershed catchment protection, erosion control, nutrient cycling and maintenance of soil fertility, as well as climatic regulation at both global and local levels. Studies in Malawi demonstrate, for example, that soil degradation — which is tied closely to deforestation and the loss of natural vegetation — may impose economic costs of between US$ 13 million and US$ 42 million to farmers each year (Bishop 1995). Soil losses in communal areas of Zimbabwe result in a considerable loss of production — up to US$ 80 per ha in grazing lands (Norse and Saigal 1993). In Eritrea, forests and woodlands have been estimated to generate national economic values worth up to US$ 1.4 million a year from erosion control services and

Box 3: Non-timber forest values in Namibia

Namibia's forestry resources come mainly from woodlands and savannahs, which together occupy about 84% of the country's land area. Use of these resources for commercial forestry is extremely limited — as the table below shows, use of non-timber products from woodlands is, with an annual value of nearly US$ 180 million, worth nearly 450 times more than commercial logging.

Forest product	Main species	Value (US$ mill/yr)
Construction poles	Mopane	64.9
Tourism	Various	36.9
Fences	Mopane	29.7
Firewood	Mopane, *Acacia* spp.	22.2
Kraals	Mopane	5.3
Medicines	Various	5.3
Charcoal	Various bush invaders	3.8
Crafts and	Various	3.6
Mahangu baskets	Mopane	2.1
Goat forage	Various	1.6
Other fencing poles	Mopane	1.1
Food	Marula oil	0.8
Other baskets	*Hyphaene* spp.	0.7
Beverages	Various	0.3
Pestles and mortars	Various hardwoods	0.3
Carvings	Various	0.2
Ornamental roots	Mopane	0.2
Mopane worm forage	Mopane	0.1
Wild foods	Mangetti kernels	0.03
Total		**178.9**
Commercial logging	*Pterocarpus* spp., *Baikea* spp.	0.4

(From Turpie 1999. DOF 1996)

global values of US$ 27.5 million from carbon sequestration (Asrat and Emerton 1998). Kenya's indigenous forests are thought to provide watershed catchment protection to an economic value of at least US$ 25 million a year (MENR 1994).

Despite their high, and in some cases quantified, value, most countries have failed to incorporate any of these non-timber forest goods and services into official estimates of national income. With few exceptions (for example some efforts have been made to account for the true value of forest loss in relation to Zimbabwe's national income (see Adger and Grohs 1994, Crowards 1996), and to make estimates of broader forest values as they relate to Botswana's national accounts (see Perrings *et al* 1989)) measures of national income, economic output and growth in Eastern and Southern Africa ignore some of the most valuable components of the forest sector.

3.3 Community economic benefits and costs from forests

Perhaps the most glaring omission from national economic statistics is that of the forest economic values that accrue at the community level, within households and from informal enterprises. Forest goods and services play an extremely important role in local economies in all of the countries under study. These local economic values are typically far in excess of commercial timber values. In Kenya, an estimated 10% of the country's population rely on closed-canopy natural forests in some way for their livelihoods, to an annual value of almost US$ 100 million; commercial forestry earnings are less than 5% of this value (Emerton *et al* 1998). In Namibia, of a total national wood consumption of 1.3 million m^3 a year, household use for construction and fuelwood accounts for 93% (Ollikainen 1991).

Box 4: Local forest economic values in Eritrea

The vast majority of Eritrea's population (between three quarters and 80%) live in rural areas and depend on forests or woodlands in some way for their economic survival. Local forest and woodland economic values include:

- **Woodfuel**. Woodfuel consumption in Eritrea is estimated at nearly 1.5 million tonnes, comprising over two thirds of total energy consumption, and with an value of some US$ 71 million a year
- **Polewood**. Rural polewood consumption is estimated at over 1,500 m^3, with an annual value of US$ 0.5 million
- **Frankincense, gum arabic and doum palm leaves**. All of these non-timber forest prodcuts are importance sources both of subsistence goods and income. Together the income earned by their sale is worth US$ 0.7 million a year.

Although unquantified, forest resources also have an extremely high local economic value because they provide a source of emergency and fallback goods and services, available when other sources of goods fail. The use of forest resources during dry seasons and drought is particularly important in Eritrea, an arid country where rainfall is uncertain. At these times, forests and woodlands provide emergency human foods, and also supply dry-season grazing for livestock. Forest products, particular timber and charcoal, are additionally used as income sources when cash is needed for emergencies, for unforeseen expenditures, or when other sources of income are scarce.

(From Emerton and Asrat 1998)

One reason that national income estimates ignore community-level economic values is that many forest products are used only within the household, for subsistence purposes. They never enter the market and are thus not recorded as economic output. Fuelwood, utility items, wild foods and medicines, fodder and pasture all provide examples of products that form a part of non-marketed household production in Eastern and Southern Africa (Box 4).

A wide range of studies document local use and forest values for different forests in Kenya, and all demonstrate the high incidence of forest utilisation, and its high economic value. In Kakamega forest in Western Kenya, up to 85% of adjacent households carry out at least one extractive forest activity (Emerton 1992c), in the coastal Arabuko Sokoke forest 63% (Mogaka 1991a) and in the Mau forest of the Rift Valley 75% (Emerton 1992d). Household forest use has been estimated to be worth between $350 and $450 a year for households living around Mau forest (Lubanga 1991), $160 for households living around Kakamega forest (Emerton 1992c), $135 for households living around Arabuko Sokoke forest (Mogaka 1991a), $212 for households living around Mount Kenya forest and $165 for households living around the Aberdares forest in central Kenya (Emerton 1995a, Emerton and Mogaka 1996) and $100 for households living around Oldonyo Orok forest in the dry southern rangelands of Kenya (Emerton 1996a).

Literature also demonstrates that the value obtained from forest products forms a significant part of the household economy. Looking at the role of forest use in livelihoods, studies find that in eastern Mount Kenya Forest, forest products comprise an average of one tenth of household subsistence income (Emerton 1997), in Oldonyo Orok forest products are worth a third as much as the net annual value of subsistence livestock production, the main form of livelihood (Emerton 1996a), and in the Aberdares over half as much as the net annual value of food production (Emerton and Mogaka 1996).

One particularly important aspect of non-market forest use is as an input into other household production processes. For instance, animal browse from trees and shrubs provide almost a third of the feed requirements of Sudan's livestock population (Mogaka 2000). Forest products also often provide the only source of basic needs when other sources fail — such as under dry season and drought conditions, or in situations of civil unrest and war. The use of forest lands for dry-season livestock refuge is well-documented (for example in arid northern Kenya, Barrow 1988, Chevenix Trench and Makee 1994), as is the consumption of forest foods in emergency situations. For example in part of Southern Sudan around the Sudd Swamps, woodland species provide emergency foods for up to half a million people, sometimes contributing as much as 79% of annual calorific requirements, with a value of up to US$ 200 per household per year (Howard and Emerton 1999). In Angola, although the national economy is heavily dependent on petroleum for 60-90% of government revenues, this sector does not produce significant employment or income to other economic

Box 5: The economic importance of forest products for poorer households and women in Zambia

In rural areas of Central, Copperbelt and Luapula Provinces, forest products utilisation is worth an average of US$ 100 per year per household. Much of this value is composed of so-called "minor" forest products such as medicines, fodder, wild foods and other non-timber products. Forest products play a much greater role in the livelihoods of poorer households. In Central Province, forest products contribute an average of 35% to household output, rising to over 75% for poorer households. In Copperbelt these figures are 10% and 25% respectively, and in Luapula Province 25% and 60%. As well as having a high subsistence value, in Central Province both the rates and the value of use of forest products to generate income is particularly high among poorer households (contributing over 80% of household cash earnings), with similar trends in both Copperbelt and Luapula. With many of the adult men in these areas temporarily or semi-permanently away from home, working in mines, a high proportion of the value of these products accrue to women.

(From PFAP 1998)

sectors – living in conditions of severe social disruption and civil unrest, the majority of Angolans are dependent on forestry and fisheries for their livelihoods (Turpie 2000).

Forest products also tend to have an especially high value for more vulnerable or marginal social groups, such as poor households, women, and the unemployed (Box 5). For example, in poorer households in Zimbabwe, natural resource-based income can account for up to 20% of household income for poorer households (Campbell *et al* 2000). For the poorest households in the Central Region of Malawi, forest resource values account for about half of household income (Simons 1999). Poorer households in South Africa tend to use a greater variety and quantity of forest resources than richer ones (Shackleton and Shackleton 1997). Around Kakamega Forest in Kenya, pitsawing and charcoal burning provide one of the most common income-earning opportunities available to otherwise unemployed male youth (Mogaka 1999).

Forest economic values are not, however, always positive at the community level. The presence of forests and woodlands incurs significant local costs, because they interfere with other economic activities (Box 6). Maintaining forest cover imposes opportunity costs – it precludes other uses of land, most importantly agriculture. For example, taking variations in agro-ecological zone and different farming systems into account, the total value of arable production on land currently occupied by indigenous forest in Kenya has been estimated to be $308 million per annum (Emerton 1995c).

Box 6: The economic costs of forests to local communities in Uganda

Although generating huge economic benefits – including products worth more than US$ 135 million a year, and services to a value of US$ 50 million, natural forests in Uganda also impose significant economic costs on adjacent communities. Most importantly, the presence of forest protected areas gives rise to opportunity costs, because they preclude alternative, agricultural, land uses. This opportunity cost is estimated at some US$ 113 million a year. Forest-dwelling birds and animals also cause crop damage to nearby farmers, incurring economic losses of up to US$ 65 million.

(From NEMA 1999)

Forest-dwelling birds and animals also give rise to a wide range of economic losses to adjacent farmers because they destroy crops, trees and domestic stock. For example, households living adjacent to Shimba Hills National Reserve in Kenya, which contains indigenous forest, claimed a total of $45 000 in 1987/88 as compensation for the damage caused to their crops by wildlife (Thomson and Ochieng 1993). In the area lying around the Aberdares Forest, also in Kenya, an estimated 36% of adjacent households lost crops to wildlife in 1991, and 61% suffered damage to fencing and farm buildings (KIFCON 1992). Households living on the south western side of Mount Kenya Reserve regularly suffer crop damage from wild animals, and lost between 50% and 83% of their harvest in 1993 (Thomson 1993). In all these cases, households were estimated to suffer substantial financial losses as a result of wild animal damage.

4 FORESTS AND ECONOMIC DECISION-MAKING: Macroeconomic and Sectoral Policies that Impact on Communities and Forests

Underestimation and misrepresentation of forest values has implications for economic and development policies, which set the overall conditions under which forests are managed and used by communities. Because the forest sector is perceived to have such a low value it is accorded little emphasis by economic planners and policy-makers, and little thought is given to ensuring that broader economic conditions are supportive of community involvement in sustainable forest management. In many cases, macroeconomic and sectoral policies in Eastern and Southern Africa have actually provided economic disincentives to communities becoming involved in sustainable forest management.

4.1 Forest values and economic policies

Policies are used by governments to influence the structure and functioning of economies. They aim to attain goals and targets for development and economic growth by using economic, financial, legal and institutional instruments to encourage or discourage particular forms and types of economic activities at macroeconomic and sectoral levels. For example, macroeconomic policies throughout Eastern and Southern Africa manipulate exchange rates, money supply and interest rates so as to achieve economic growth, stimulate employment and investment, and generate foreign exchange, and agricultural policies in the region have long employed a combination of subsidies, taxes and credit arrangements in order to promote the goals of food security, increased export earnings and rural income generation.

Economic policies and their various supportive instruments impact on forest status and on community involvement in sustainable forest management because they shape economic activities. They affect the ways in which land and resources are allocated and used, investments are made, markets function and economic opportunities are presented. They set in place the economic conditions under which people conserve or degrade forest resources.

Economic policies are determined, to a large extent, by the perceived value of different sectors of the economy and their apparent ability to contribute towards economic growth and development. Because the forest sector has such a low recorded value throughout most of Eastern and Southern Africa, it has been accorded little priority in economic policies and development strategies. In none of the countries under study is much emphasis placed on the forest sector as a source of either national or local development and economic growth. There is generally little recognition that forest products make a substantial contribution to national income and to community livelihoods and there have been few attempts to maximise these values or to develop "non-traditional" forestry sectors. Underemphasis of the forest sector in economic policies also means that there is little attention given to the fact that forest degradation gives rise to economic costs, at both national and local levels.

As the paragraphs below describe, this underemphasis on forests in economic policy formulation and implementation has had devastating impacts on forest status in the region, and has done little to foster the conditions under which communities have economic incentives to become involved in sustainable forest management.

4.2 Macroeconomic conditions as a determinant of forest status

Even though there has been little economic policy emphasis on the forest sector, macroeconomic policies in Eastern Africa have still influenced community involvement in sustainable forest management. By defining national development goals and setting in place strategies for economic growth, they influence local economic conditions and forest use.

Although the countries under study have in the past followed very different macroeconomic and development models, a number of common themes arise, and recent economic policies are remarkably similar. A combination of economic stagnation, rising unemployment, declining economic growth, severe public sector deficits and balance of payments problems, compounded in many cases both by national and regional unrest and protracted drought as well as by external donor pressure, have over the last decade resulted in the adoption of economic stabilisation and structural adjustment measures throughout Eastern and Southern Africa. These changes in macroeconomic policy have, in most countries in the region, involved a move from heavy state regulation and government control in

Box 7: Macroeconomic policy impacts on the forest sector in Tanzania — the case of structural adjustment and the agricultural sector

About 40% of Tanzania's land area is covered by forests and woodlands. Macroeconomic reforms, carried out over the last two decades, have impacted on these forest and woodland resources. Research carried out on this points to the conclusions that deforestation in Tanzania is linked not so much to issues of forestry alone, but are intimately related to questions of public policies, economic and social forces.

Structural adjustment has had a particularly intense effect on Tanzania's forests and woodlands. In the late 1980s and 1990s, a series of economic reforms were introduced, responding to a series of economic crises. These reforms aimed at restoration of balances in the economy and creation of a basis for sustainable growth through the liberalisation of key markets from excessive state control. The agricultural sector was a major focus of these reforms, where the role of the state in the marketing of outputs and inputs was diminished considerably, and the private sector assumed an increasing role. At the same time, an increasingly liberalised economic environment was accompanied by a devaluation of the local currency, and a considerable increase in inflation rates. These and other conditions led to a decline in per capita income and a rise in the cost of living, making it increasingly difficult for both urban and rural dwellers to make ends meet. They also had major impacts on the way in which land and other natural resources were used, including:

- Devaluation increased the price of imported inputs, agro-chemicals and machinery. As these became more expensive, farmers reduced or abandoned their use, thus accelerating extensive agriculture which required the clearing of woodland and forest to increase production.
- Removal of price controls and parastatal subsidies created more space for trading in crops, which translated into a greater market demand for crops, and greater production. Since the private sector has failed to assume many of the more extension-based roles of government, many farmers remain uninformed of sustainable farming practices and agricultural expansion has often occurred at the expense of the environment.
- Falling yields, linked to poor extension and farming practices and to relatively higher costs of inputs, have encouraged farmers to expand production through extensification, often into forests and woodlands.

(From Shechambo 1999)

most sectors of the economy to a model of market-driven and private sector-led economic growth.

National trends towards decentralisation, privatisation and devolution of the role of the public sector have to some extent presented a positive environment for community involvement in sustainable forest management, because they allow a greater degree of private participation in forest use and management. Similarly, economic liberalisation — especially the removal of subsidies and other price and market controls in sectors that compete with forest-based land uses or demand forest resources — has, by dismantling distortions that discriminate against forests as a land use and encourage the overexploitation of forest resources, provided a positive framework for sustainable forest management.

These positive influences of macroeconomic policy on community involvement in sustainable forest management are however counterbalanced by a series of economic conditions that have undermined local livelihoods and contributed to forest degradation and loss (Box 7). Most countries in the region have undergone a series of economic shocks over recent years, which have had major impacts on local economic welfare, community livelihoods and forest use. Over the 1980s most Eastern and Southern African countries faced economic stagnation and declining growth, and increasing public sector and trade deficits. Both these worsening economic conditions, and the economic stabilisation and adjustment measures subsequently deployed to overcome them during the 1990s, resulted in a considerable contraction of the economy, a decline in rural living standards and a fall in income and employment. In forest adjacent areas, this had the immediate effect of increasing pressure on forest resources. In some countries economic and livelihood shocks have been even more extreme — for example the wars and civil unrest in Angola, Eritrea, Mozambique and Somalia, which had devastating influences on both community livelihoods and forest status.

4.3 Sectoral economic instruments as perverse incentives to community involvement in sustainable forest management

Although in no country is there any particular emphasis on the forest sector itself in statements of macroeconomic policy, development strategies do target sectors of the economy which have the potential to affect both community livelihoods and forest status. It is these individual sectoral economic policies that have the most direct impact on the forest sector and on community involvement in sustainable forest management. Forestry concerns have largely been omitted from sectoral economic policies, and emphasis has been placed on activities which have the potential to lead to the unsustainable exploitation, clearance and degradation of forest species and areas — for example in the agricultural, industrial, mining, energy and manufacturing sectors. At best sectoral policies in the region have tended to ignore impacts on community welfare and sustainable forest management, at the worst they have actually presented perverse incentives which discriminate against community involvement in sustainable forest management.

Sectoral policies rely heavily on the use of economic instruments to achieve their goals. These economic instruments — such as taxes, subsidies, price controls, loans, credit arrangements, interest rates and exchange rates — all aim to manipulate profits and returns so as to make particular sectors and economic activities more attractive to producers and

consumers, and to stimulate output, employment and income. This manipulation of profits and returns has had impacts on the forest sector, because it has influenced the relative profitability of different land and resource uses — often at the cost of forests, and often discouraging community involvement in sustainable forest management. Examples exist, throughout the region, of the use of economic instruments to promote sectors that run the risk of over-exploiting forest resources (such as in the energy and urban sectors), that run the risk of clearing woodlands and forests (such as in the agricultural, mining and infrastructure sectors) or that run the risk of generating wastes and pollutants that undermine environmental quality (such as in the industrial and manufacturing sectors) (Box 8).

Box 8: Sectoral economic policy incentives and disincentives for sustainable forest utilisation and management in Zambia

Policy	Economic incentives	Economic disincentives	Gaps and omissions
Macro	- Incorporation of sustainable development concerns - Liberalisation of forest prices and markets - Empowerment of private sector and communities	- Continuing promotion and protection of sectors reliant on forest land and resources	- Poor recognition of the role of forests and trees in national income, employment and economic growth
Agriculture	- Land and environmental conservation and restoration - Promotion of sustainable farming practices	- Punitive and restrictive approach to natural resource conservation - Main focus on optimising agricultural production	- Lack of consideration of role of trees in agricultural systems - Lack of recognition of dangers of agricultural conversion of forest land
Land	- Definition of land tenure and ownership - Provisions for land management	- Punitive and restrictive approach to natural resource conservation - Main focus on optimising agricultural production - Unclear rights and tenure over tree and forests - Unclear role of traditional authorities in natural resource management - Lack of land use policy and guidelines	- Little mention of forests or trees, their tenure or management
Water		- Focus on increasing water abstraction and use - Underpriced water	- Lack of consideration of upstream catchments
Energy	- Improvement in woodfuel supply, production and marketing		- Lack of consideration of role of forests in hydropower
Authority and decision-making	- Enforcement of controls on forest use and conversion	- Fail to empower communities, minimise group and individual rights over trees and forests - Allocation of land and resources based on goals other than sustainable forestry	- Role of forests in livelihoods and development underemphasised

(From PFAP 1998a)

The use of economic instruments in support of agricultural policy goals has arguably had the most detrimental effect on forests, and on community involvement in sustainable forest management, in Eastern and Southern Africa (Boxes 7-10). In the pursuit of national goals of food security, rural income generation and export earnings, the agricultural sector has long been promoted as a key source of development and

growth in all of the countries under study. For example in Zimbabwe both the Land Reform process and structural adjustment programme, backed up by agricultural policy, see any attempt to produce crops on "under-used" land as a positive and efficient land use, regardless of the achievable productivity levels (Katerere *et al* 1993). Both Botswana and Namibia use a range of economic instruments that subsidise livestock production for domestic consumption and export (Muir *et al* 1996). In almost all of the other countries under study, economic policies have employed similar strategies of protection and subsidies to stimulate farm production and arable expansion.

The range of economic instruments that have been used in support of the agricultural sector are well-documented, and have mostly involved manipulating fiscal, financial, price and market mechanisms — such as through the imposition of relatively lower tax rates on agricultural land uses, subsidies to inputs, government

Box 9: The impact of market and policy distortions on wildlife profitability in Namibia

Although the level of agricultural sector protection has decreased in Namibia over recent years, there still exist a range of taxes, subsidies and foreign exchange manipulations which influence the profitability of wildlife-based land uses by driving a wedge between the financial profits landholders face and true social and economic values. These policy and market imperfections have a net negative effect for landholders by decreasing profits and increasing costs. The results of financial and economic analysis show that even where financial returns are low or negative for landholders, wildlife is socially and economically profitable. This demonstrates that policy and market distortions discriminate against wildlife-based land uses, and that wildlife deserves public policy support.

	Sheep/game ranch	Cattle/game ranch	Game lodge
Financial NPV/ha	US$ -4.3	US$ -10.1	US$ -13.5
Economic NPV/ha	US$ +5.1	US$ +1.4	US$ +18.1
Effect on costs/ha	**US$ +4.0**	**US$ +4.6**	**US$ +6.2**
Effect on cash income/ha	**US$ -2.2**	**US$ -2.7**	**US$ -2.7**

(Adapted from Barnes and de Jager 1995)

Box 10: Perverse economic incentives to community involvement in forest and wildlife management in Kenya

The Kenya Gazette of April 1995 contained a small notice that imposed a land tax differentiated on the basis of land use in the District of Laikipia — a part of Kenya that has high wildlife populations, and extensive areas of natural woodland habitats. It proposed that the County Council could, henceforth, levy land taxes as follows:

- For (arable) agricultural land, a flat rate of KSh 6 acre per annum, to a minimum of KSh 75
- For forests, a flat rate of KSh 15 per acre per annum
- For private wildlife conservancies, a flat rate of KSh 500 per acre per annum, to a minimum of KSh 300,000

These land taxes aim to encourage landholders to put land under agriculture, by subjecting it to relatively lower rates. Yet, at the same time, this actually presents a perverse economic incentive against forest and wildlife conservation because it makes them relatively more expensive uses of land. Throughout Kenya there is a history of similar subsidies to agricultural land uses which have acted at the cost of sustainable forest management and utilisation. For example, land privatisation has resulted in the sub-division of former large or communally-owned areas into individual farms, most of which are too small to support woodlands and forests and are below the minimum areas required for wildlife.

Agricultural policies have contained a number of measures aimed at stimulating domestic crop and livestock production such as duty and tax exemptions on imported inputs, low interest credit facilities, price-fixing, protection against imported commodities and heavy spending on research and technology development. Although the agricultural sector has been undergoing liberalisation over the last decade it is still heavily protected in comparison to wildlife and forests. Wildlife and forest inputs are more expensive in market terms because they are subject to taxes from which agricultural inputs are exempt, and lack many of the subsidies that agricultural inputs have. For most landholders, it still makes more financial sense to put land under agriculture than to maintain natural forests and wildlife populations.

(From Mwau 1996, Vorhies 1996)

intervention in marketing, preferential credit arrangements, relief on taxes and duties, and high spending on research, extension, development and marketing. By artificially inflating the profitability of agriculture, this has encouraged the spread of farming activities, often at the expense of forests. It has also exerted a strong influence on the relative desirability of different land and resource uses at the community level, making sustainable forest-based activities appear to be less economically desirable, and substantially increasing the agricultural opportunity costs of maintaining land under forest cover.

Although the case of agriculture is perhaps the most extreme, and well-documented, similar examples of sectoral economic instruments that act as perverse incentives against community involvement in sustainable forest management also exist in other sectors of the economy. Unsupportive systems of land and resource tenure have provided strong perverse incentives that discriminate against community involvement in sustaianable forest management in many countries in Eastern And Southern Africa (see Alden Wily and Mbaya 2000 for a detailed analysis of this). For example, Namibia's dualistic land tenure system and South Africa's former apartheid land tenure arrangements discriminated against local communities by pushing them into more and more marginal areas, and hastened forest clearance and degradation. Policies in other environment and natural resource sectors have also, in many cases, provided disincentives to community involvement in sustainable forest management through their focus on strict protection and on excluding local uses and users (for a detailed analysis of this see Kigenyi, Gondo and Mugabe 2000).

5 DOES THE FOREST SECTOR PROVIDE ECONOMIC INCENTIVES? Economic Impacts of Forest Policies and Management Approaches on Communities

There is great potential for forest policy and management systems to counterbalance the disincentives and perverse incentives provided by macroeconomic and sectoral economic policies in Eastern and Southern Africa. Yet here, too, there is little evidence that economic concerns have been incorporated into forestry activities or that local-level economic incentives have been set in place, despite an increased focus over recent years on community-based forms of forest management. Some steps have been taken towards recognising the need to ensure that forest benefits accrue locally, and a very narrow range of economic measures have been used in support of community involvement in sustainable forest management. However, for the main part, forests are still managed in ways, and according to policies, that at best fail to maximise local economic values and at worst incur significant local economic costs.

5.1 Economic potentials and needs in forest sector policies and management approaches

In the light of largely unsupportive macroeconomic and sectoral economic frameworks, there is great potential — and need — for policies and management approaches in the forest sector to counterbalance the broader economic disincentives and perverse incentives against community involvement in sustainable forest management which exist in Eastern and Southern Africa. As long as economic policies and instruments continue to favour activities that contribute to the conversion of forest lands and over-exploitation of forest resources, and put communities in a situation where it makes economic sense to use forests unsustainably, then the burden rests with forest sector policies and management approaches to provide economic incentives for community involvement in sustainable forest management.

There are various ways in which forest policies and management approaches can take account of economic forces and provide economic incentives for community involvement in sustainable forest management. Most basic is a recognition, at the policy level, that forest management can and must contribute to community sustainable development benefits, and attempt to minimise local economic costs. In turn, forest management approaches need to translate these goals into concrete actions. Without this, sustainable forest management stands little chance, at the local level, of competing against other seemingly more profitable, but unsustainable, uses of land and resources. This chapter investigates whether, in practice, forest policies and management approaches have succeeded in setting in place such economic conditions and incentives.

5.2 Economic implications of changing forest policies and management regimes

Most countries in Eastern and Southern Africa have a long history of external intervention in the forest sector. These past policies and management approaches have had major economic impacts at the local level, and exert a strong influence on the ways in which

forests are managed today (Box 11). For the most part they have involved denying any local economic stake in forest resources and have led to a situation where, until recently, few economic incentives existed for community involvement or for sustainable management.

In most countries in Eastern and Southern Africa, formal forest legislation, policies and protected areas were originally introduced under colonial rule. In Zimbabwe, for example, controls on woodland use were first established in 1928 under the Native Forest Products Act, followed by the Natural Resources Act in 1942 and the Forest Act of 1948. In Kenya forest legislation governing mangroves was passed as long ago as 1891, extended in 1900 to all coastal forests and to forests along the Mombasa-Nairobi railway, and in 1902 the East African Forest Regulations were set in place. In Sudan formal interests in forest conservation were initiated in 1902 with the establishment of the Woods and Forest Department, and a Central and Provincial Forestry Law introduced in 1932. Most of these colonial laws and institutions, and the protected forests they controlled, were based on establishing a national forest estate and protecting it from local human interference, at the same time as managing forests for commercial timber needs to supply the demands of urban and industrial sectors. Over the colonial period, increasing areas of forest were put under protection and government control, while the industrial timber industry grew in most countries. The establishment of forest laws, and the management of forests as protected areas or for industrial timber supply, had the immediate economic effect of curtailing the local use of forest resources and lands.

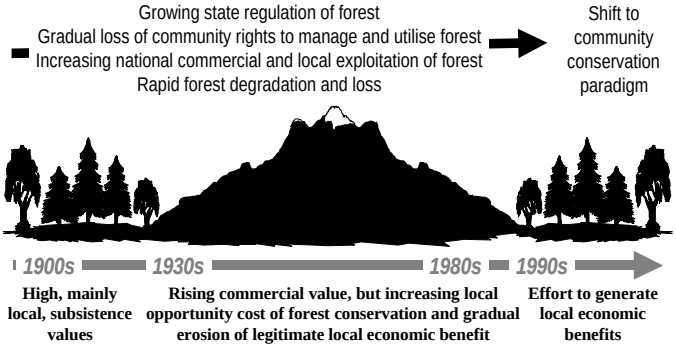
In general, the advent of independence led to few substantive changes in the legal and policy basis under which forests were managed in Eastern and Southern Africa. Forest management continued to be based on excluding local communities and on vesting increasing powers in the state to control and regulate forest use. Simultaneously, demands on forest lands and resources intensified — as a result of growing population and land pressure, due to resettlement, because of the spread of arable agriculture, from increasing urban and industrial demands for forest products, and in some countries because of widespread civil unrest which forced populations into forested areas and diminished other sources of survival. In response to these pressures, and to rapid and escalating forest degradation, this led to a tightening of forest regulations throughout the region, especially those restricting or banning the extraction of indigenous forest products. While the local opportunity costs of forest conservation in terms of alternative land and resource uses foregone grew considerably, the economic benefits legitimately available to adjacent communities were increasingly restricted.

Despite growing controls over utilisation and management, forests continued to be degraded and lost at alarming rates in the region. Low forest sector revenues, combined with increasing public sector deficits, meant that few Forest Departments could afford to enforce forest protection. Illegal, and frequently unsustainable, forest exploitation continued unabated. This led to a gradual recognition that strict controls and protection were an ineffective means of conserving forests, and that forest conservation required the active support of adjacent populations. Over the late 1980s and 1990s, most countries in Eastern and Southern Africa have started to reform their national forest policies, to shift from command and control-type ways of regulating forest use, and to move towards operationalising community-based approaches to forest management.

Box 11: The local economic impacts of changing management regimes in Mount Kenya Forest

Mount Kenya Forest has been subject to four clear phases of external management over time. These phases of management provide the context within which community-based forms of forest conservation are now being initiated. Since the early years of the century state regulation of the forest has gradually increased while community rights to manage and utilise forest resources have progressively decreased. Simultaneously both commercial and local demand for forest resources have grown, resulting in rapid and severe forest degradation. In response to the perceived need to halt processes of forest loss and to conserve forest resources in a way which both involves and benefits the forest-adjacent human population, the 1990s have seen the beginnings of a shift towards community-based forms of forest management.

CHANGING FOREST MANAGEMENT REGIMES



LOCAL ECONOMIC IMPACTS

1900-1930s: initiation of commercial forest exploitation

After the appointment of the first Conservator of Forests under colonial rule in Kenya, the East African Forest Regulations of 1902 were published, supported by the Forest Rules. A number of key reserved forests were declared Crown Land at this time, including Mount Kenya Forest. Mount Kenya Forest was one of the first Kenyan forests to be logged commercially, supplying sleepers for the construction of the Uganda Railway as well as providing for the timber needs of an expanding colonial administration and settler population. In the early years of the century the forest was exploited as a commercial production forest, initially freely and then under a rudimentary management plan, by European and Indian settlers and by colonial timber companies.

Commercial logging was concentrated exclusively on indigenous species from natural forest areas at this time, mainly *Ocotea usambarensis*, *Vitex keniensis* and *Podocarpus spp*. The first large timber enterprise was constructed on the north-eastern side of the forest in 1912, followed by the opening of further sawmills on the western side in 1916. During the 1920s a series of both indigenous and exotic plantations were established and government Forest Officers posted to the forest. Although growing rapidly, commercial forestry operations covered relatively small areas of the forest. Prior to and during this period, the primary users and managers of Mount Kenya forest were the Embu, Gikuyu and Meru tribes who occupied the area and depended on a wide range of forest resources to support their day-to day livelihood needs. Forest exploitation outside commercial logging areas was regulated and defined under a range of customary rules and restrictions.

1930s-1980s: gazettment and commercial expansion

After its declaration as a protected area in 1932 Mount Kenya Forest Reserve was formally placed under the control of the government Forest Department. The 71.5 km^2 mountain area above the forest line was later gazetted as a National Park, now managed by the parastatal Kenya Wildlife Service. While focusing on continuing commercial exploitation and recognising the environmental importance of the forest, the Forests Act of 1942 and Forestry Policy of 1957 (both subsequently revised with little amendment after Kenyan Independence) permitted local communities opportunities to utilise forest products for subsistence purposes, although firmly retaining the management and control of forest resources in the hands of the state.

The first plantations in Mount Kenya Forest reached maturity in the 1950s and 1960s, by which time natural forest areas had been extensively logged by both sawmills and pitsawyers. After being temporarily stopped during the unrest accompanying the "Emergency" period of the late 1950s and early 1960s, commercial logging of both plantations and natural forest continued on a large scale after Kenya gained Independence in 1963. Over this period local communities, who had been confined to "Native Reserves" under colonial rule and subsequently resettled on Trust Land and former European-owned farms after Independence, became increasingly sedenterised. As population grew and demand for agricultural land increased in central Kenya a number of excisions into the Forest Reserve were made for human settlement, and the scale and scope of local forest resource utilisation expanded. Mount Kenya Forest began to show signs of substantial degradation.

1980s: initiation of strict forest protection and local exclusion
Heavy commercial exploitation of Mount Kenya Forest under improved transport and communications networks in central Kenya, accompanied by rising local utilisation of forest resources from a rapidly growing and sedenterised human population resulted in severe forest degradation which worsened during the 1980s. In response to the rapid loss of forest species and increasing encroachment, the Forests Act was revised in 1982 and 1992 and a series of bans and prohibitions against natural forest exploitation were introduced during the mid and late 1980s, and implemented through heavy policing of the forest and prosecution of offenders. Forest management was based on an increasingly restrictive and exclusionary system of protection.

Despite this legal narrowing of extractive forest activities, forest utilisation continued to be intense – albeit illegal – at both commercial and subsistence levels, and rates of forest loss and degradation escalated. The forest continued to provide a major local source of local subsistence, income and employment and the national and international market in indigenous hardwoods originating from Mount Kenya Forest remained strong.

1990s: shift towards community-based forest conservation
It is against this background of local forest dependence, high national and international demands for indigenous timber and widescale forest degradation that recent attempts have been made to initiate community-based forms of forest conservation in Mount Kenya Forest. Purely exclusionist forms of forest protection have proved to be difficult to implement successfully, due to the extremely limited financial and staffing base of the government Forest Department.

Supported by wider moves to reform national forestry policy and practice, there has been a shift in forest management methods in Mount Kenya Forest Reserve. Most importantly, new approaches to forest management recognise the need to involve – and benefit – local people in conservation. Already the *shamba* system of cultivation in plantation areas and limited forest grazing have been reinstated and efforts made to control problem animals which destroy crops and livestock, moves which have proved popular with the large, poor and land-scarce forest-adjacent rural population. Various community consultations have been carried out since 1993 under the aegis of the joint Kenya Wildlife Service and Forest Department Memorandum of Understanding as a precursor to implementing other planned community conservation activities including the initiation of joint forest management, sharing of forest revenues with local communities and establishment of a range of on and off-farm development projects aiming to substitute for forest sources of income and subsistence.

(From Emerton 1998a)

5.3 Economic goals and measures in current forest policies and management approaches

National forest policies are in the process of being reformed throughout Eastern and Southern Africa. For example Eritrea, Malawi, Namibia, South Africa, Tanzania and Zambia have all set in place new forest policies over the last decade, and Ethiopia, Kenya, Mozambique and Uganda are in the final stages of doing so. Most of these policies move away from a focus on strict protection and commercial production, and now contain the stated goals of managing and using forest resources in pursuit of sustainable development goals, and to the economic benefit of local communities (Box 12).

Box 12: Economic goals in Kenya's, Malawi's, Mozambique's, Namibia's and Zambia's national forest policies

Kenya: The 1996 Forest Development Policy states that "sustainable forest management is an integral component of national development. It aims at raising the people's living standards, creating employment, and increasing industrial produce for domestic and urban markets", and has among its sever broad objective "to increase the forest and tree cover in the country in order 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", "to manage forest resource efficiently for maximum sustainable benefits …" and "to recognise and maximise benefits of viable and efficient forest-based industry for national development".

Malawi: The 1996 National Forest Policy states that "The use of coercive, heavy-handed approaches in the enforcement of provisions of the Forest Act led to the alienation of local people who came to regard trees or forests as not being conserved to their benefit but to the benefit of the Government … It was in recognition of this fact that the decision was made to formulate a policy whose main objective was to guide the Malawi Government in its efforts to balance its approach to conservation by recognising the inherent existence value of the forest resources while at the same time endeavouring to integrate conservation and rural development … sustainable social (and) economic development cannot subsist on a dwindling natural resource base."

Mozambique: The 1996 Strategy for Forestry and Wildlife states that the objectives of the forestry and wildlife sector, over the long-term, are the protection, conservation, utilisation and development of forestry and wildlife resources for social, ecological and economic benefit, for present and future generations of the Mozambique people. This includes reinforcing the role of the sector in poverty alleviation, and in the promotion of economic development and income generation.

Namibia: the 1992 Forest Policy defines 11 objectives to guide forestry sector development, including that "forestry should play a key role in the contribution to sustained food production through close integration with the rural sources of livelihood."

Zambia: The National Forestry Policy 1998 recognises that "forestry's contribution to the national economy is grossly under-reported" and enunciates "guiding principles for optimising the commitments of local communities, rationalisation of forests and forest products, pricing, and intra and inter sectoral co-ordination towards sustainable forest management and utilisation".

Although recognition of economic forces and factors at a policy level is a important stage in enabling community involvement in sustainable forest management, far more significant is the extent to which these policy goals are translated into on-the-ground practice. As community-based forms of forest management have gained ground in the region, so have a range of economic measures been incorporated into these management approaches. In particular, four types of economic measures have most commonly been deployed in Eastern and Southern Africa: various forms of benefit-sharing, the development of forest-based markets and enterprises, the promotion of local alternatives to forest-based sources of income and subsistence, and direct payments to community members. All of these measures are based, at some level, on overcoming the local economic forces that lead to forest degradation and loss, and on increasing the level of economic benefits accruing to communities from forests.

5.3.1 Benefit sharing

One of the most common approaches in Eastern and Southern Africa for ensuring that local communities gain in economic terms from natural resource management is to directly share the revenues or other benefits accruing from forests with them. To a large extent these benefit-sharing arrangements have their roots in the wildlife sector, where they were first developed. There is a clear economic rationale to benefit-sharing — that

improvements in local welfare, and the provision of local benefits, will engender community support for forest conservation and reduce illegal or unsustainable forest utilisation activities.

Forest revenue sharing is a common phenomenon, especially in East Africa. Here, National Parks Authorities (and in some cases Forest Departments) set aside a proportion of protected area income and use it to fund small development projects in forest-adjacent areas (Boxes 13-17). The Uganda Wildlife Authority, who control many of Uganda's protected closed canopy indigenous forests, has for example committed to spend a fifth of National Park revenues on small projects such as the provision of basic social infrastructure, support to training, education and micro-enterprise development. Similar arrangements exist under the Kenya Wildlife Service (Barrow *et al* 1996), Tanzania National Parks (Dembe and Bergin 1996) and South African Parks Boards (Wells 1996), as well under the well-documented (although largely wildlife-based) experiences of CAMPFIRE in Zimbabwe (Muir *et al* 1996) and ADMADE in Zambia (Kapungwe 1996).

Box 13: Community benefit sharing in Kenya

Kenya Wildlife Service's revenue sharing policy uses a Wildlife Development Fund as a mechanism to distribute some of the revenues earned from protected areas to local communities. Initially this was based on a quarter of gate fees, subsequently revised. Between 1991 and 1995 over US$ 1.25 million was allocated to community-related activities in protected area buffers zones, including water, education, health, livestock and enterprise development as well as the provision of famine relief. Such revenue-sharing mechanisms currently operate in thirty three Districts of the country.

(Adapted from Barrow et al 1996)

Box 14: Benefit-sharing around the East Usambara Forest, Tanzania

The conservation of East Usambara Catchment Forest dates back to the early 1930. Upon its gazettment as a protected forest, local communities lost some of their rights on access, use and control of the resource. It was envisioned that through the command and control approach, the then government would control logging activities which were considered as a threat to long-run conservation of the forest. However, several decades later, it was realised that the approach had not achieved its intended objectives – instead illegal forest harvesting continued unabated. Therefore, in 1990, the government designed a more people-centred project – The East Usambara Catchment Forest Project with the overall aim of ensuring long-term conservation of the forest. An important component of the project entailed participatory planning and implementation of the project activities. The local community was central in this planning process. Sustained access to priority forest uses (benefits) by the communities was considered as a main incentive measure focused at enhancing community involvement of the forest. The Project implementation strategy included thorough discussion with the local communities on their perceptions about East Usambara Forest, their needs, and how these needs would be met. On this basis, the project has invested in strengthening villagers' rights over the management of designated forest areas (two forest reserves have been surveyed for possible gazettment as village forest blocks).

Since the inception of EUCFP, illegal forest encroachment and other illegal extractive activities have been brought to manageable levels. Final draft on the by-laws governing the use of the two designated village forests is yet to be presented to the villagers for discussion.

(From Kessy and Mallya 1999)

Box 15: Community benefit sharing in South Africa

Pilanesberg National Park in Bophuthatswana was one of the first efforts in South Africa to integrate community development with wildlife conservation. In an attempt to compensate local people for the loss of residence, grazing land and access to wild resources caused by the fencing of a large area as a National Park and to encourage them

to support wildlife conservation, a range of benefit sharing arrangements were set in place by the park authorities through the formation of a Community Development Organisation. Activities undertaken included the development of local enterprises such as vegetable growing and clothing manufacture, the establishment of a community game reserve, employment, use of local contractors and infrastructure development. Surveys carried out before and after these arrangements were effected show a shift from an initially hostile reaction to the Park to a situation of strong support where almost 90% of local community members approved of the use of public funds to maintain the Park, nearly a third had visited it and half expressed willingness to occasionally work in the park on a voluntary basis.

(Adapted from Davies 1993)

Box 16: Revenue-sharing around Bwindi Impenetrable National Park, Uganda

Bwindi Impenetrable National Park lies within one of the most densely populated areas in Uganda. The community around the park practice peasant agriculture mixed with some livestock rearing. The community is relatively poor and in the past have relied extensively on the forest for a wide range of products. Therefore, in pursuit of their livelihoods, the surrounding communities have carried out a wide array of activities including forest logging, hunting, honey production, collection of traditional medicines and fuelwood among others.

These activities and the high population density coupled with high incidences of poverty land-degradation practices have exerted heavy human pressure on the remaining forest ecosystem. It is generally accepted that in the past the local communities have been hostile towards the conservation agencies.

This hostility has been directly linked to the community's loss of access to the forest, loss of income that has resulted from increased conservation strategies by the government; crop damage by wild animals and exclusion of the local community from decision making. In effect as of 1986/87, community hostility towards the forest reserve reached its climax. The surrounding communities were upset about the increasing loss of access to the reserve and therefore a possibility of total exclusion. The Government of Uganda, however, realised that to achieve sustainable conservation of the reserve a more people-centred and incentives based approach were necessary. Three major incentive measures were adopted and they include

- Revenue Sharing Program (RSP) Introduced by Uganda National Parks (UNP) for sharing ecotourism benefits with communities around the park.
- Implementation of the Mgahinga and Bwindi impenetrable Forest Conservation Trust and
- Implementation of Development Programmes through conservation.
- The revenue sharing programme was introduced to ensure that the local communities who incur relatively higher costs of conservation than other distant communities and compensated.

The improvement of the quality of the life for the local communities through investment in social welfare infrastructure and also other local development initiatives was one of the three objectives of the revenue sharing programme.

(From Mogaka 2000)

Box 17: Community benefit sharing in Zambia

Two forms of benefit sharing operate in seven of the protected areas in Central, Copperbelt and Luapula Provinces of Zambia, all of which contain forests. ADMADE retains hunting rights and concession fees and half of animal licence fees from hunting in Game Management Areas through a Wildlife Conservation Revolving Fund, 35% of which is allocated to local community development activities. LIRDP sets aside 40% of revenues from culling, hunting, park entry and leases for community development activities. Together these funds helped to finance community development projects worth nearly US$ 0.25 million in 1996. Communities benefited from these developments, but it is not clear that they provided sufficient incentives for wildlife damaging activities to decrease. Although a major motivating force for wildlife loss in these areas is clearance of habitat for agriculture, unsustainable wild resource use and pressing local needs for cash income, there is only one case of community cash income generation and livelihood development through wildlife in all three provinces – the community-managed Nsobe self catering camp in Bangweulu Swamps, Luapula Province.

(Adapted from Kapungwe 1996)

5.3.2 Forest-based markets and enterprises

Another common economic measure that has been incorporated into many community-based forest management initiatives in Eastern and Southern Africa is the development of forest-based local enterprises. Here, the economic rationale is that adding local value to sustainable forest enterprises and markets is a way of replacing or reducing unsustainable utilisation activities, ensuring that communities have an economic stake in forest conservation, and improving economic welfare in forest-adjacent areas.

Various examples exist of the allocation of rights to communities to harvest, manage or use certain forest products (a form of benefit-sharing), and the provision of assistance in marketing these products (Boxes 18, 19, 21, 22, 23, 24, 26). Community-based eco-tourism can be taken as a special case of the development of forest-based markets — particular efforts have been made in this regard in Uganda's Forest Reserves (Box 20) and Namibia's conservancies and communal areas (Box 25).

Box 18: Sustainable markets in palm leaves in the Greater St. Lucia Park, South Africa

The Mabaso people of Maputaland live in an area of low agricultural potential and rely on the use of natural resources. They use the leaves of *Hyphaene coriacea* for weaving baskets and mats, but increasing pressure on these resources has led to their demise in the communal lands. Women from the community approached the conservation authorities for permission to harvest leaves from the adjacent park, and conditions were agreed upon regarding access, and quotas. The neighbouring community was given the sole right of access, and conservation staff helped to build a central palm leaf shop. This allowed harvesters to set a higher price for the leaves, and with the high demand for leaves and sole rights of use, has created the incentive for users to exploit the resource sustainably.

(From McKean 1998)

Box 19: Forest-based enterprise development in Mwanza Community Forestry Project, Malawi

The Mwanza CIFM project is covering 5 villages in Mwanza district (about 930 households and 3956 people). Located along the Lilongwe-Blantyre road this is an area of high forest degradation, through both local use and illegal harvests by merchants from Blantyre and Limbe. For this project the WSM spent a total of DM 533,473 (Information Exchange workshop, 1999). In 1997 the project started by creating environmental awareness through village drama, song and dance. These sessions drew large crowds and were quite successful. At the same time, the villagers learnt some aspects of forest management and the WSM helped them understand their rights under the new forest polices (1996) and Forest Act (1997). The villagers then through their village headmen and women established Village Forest Areas (VFAs) established for protection and use by the villagers. Along with these and following the model of VFAs, several Individual Forest Areas (IFAs) were formed. To join in the effort and to take advantage of the new favourable forest polices local churches and schools also established their own areas for forest conservation and management. By middle of 1999, the 4 villages had 10 VFAs and over 30 IFAs. Project staff sensitised the communities on the importance of involving women and youth in natural resources management activities and supported the formation of women and youth clubs in the community school. Now over 75% of the project participants are women.

The project then facilitated the formation of 11Village Natural Resources Committees (VNRC) as the key body for co-ordinating all village level natural resources activities. The VNRCs also developed village natural resources management by- laws. Several village level by-laws were married to come up with by laws applicable to all the villages under the project. Many offenders but all (not in areas where leadership is weak) have been punished under these laws

In addition, the project has supported the formation of 70 natural resources based interest groups and clubs. Above these the project facilitated the formation of a mother body, the Local Steering Committee, overseeing all resources

activities in the 5 villages. These local institutions were strengthened through leadership skills and resources management techniques while inter-village exchange visits and contact with villagers from Mozambique and Botswana motivated the villagers.

One of the areas that interested the communities immensely was their new rights to confiscate forest products (mainly charcoal, timber and firewood headed for Blantyre) harvested illegally from their forests but they failed in this particular activity. There are huge profits for merchants trafficking these products to urban centres and unfortunately, this is the one area where under the new policies where the VNRCs need clearance form the minister. On occasions the villagers set up roadblocks but wood merchants confronted them demanding their written authority to confiscate products.. Having no such papers since response had not come from the minister's office, the villagers retrieved and this aspect of forest management is a still a problem. The illegal harvesters are able to collude with the police. Intimidated villagers eventually gave up. One time the when the minister visited the project (his project gets lots of visitors) the villagers followed up on their application and the delay was explained in terms of government red tape related delays.

To demonstrate the additional direct benefits communities could get from conservation, the project supported several forest based enterprises. This was proceeded by a study (G. Simons, 1997) on identification of forest products in the area -and those that could be marketed. Another study around the same time (Taylor, 1999) identified over 100 possible forest products including wild flowers. but realised that nobody knew about their availability/supply and certainly much market research was necessary to determine their marketability, and value. The project trained VNRCs and interest groups on guinea fowl rearing, bee keeping, cane furniture making, f ire briquettes making, and wild fruit processing .

By 1999 the community had produced 70,000 tree seedlings and sold three quarters of them.
The villagers were producing and marketing guinea fowls with 40 clubs raising 1000 birds and many raising their own birds at home (additional project benefits). Currently the project has 24 bee keeping clubs and a total of 84 bee hives (only 20 identified in the whole community in 1997). They are also marketing indigenous fruits (the project opened a buying centre at a good price and as feared some villagers started cutting down trees and branches to increase harvest). Others protected their private trees. Now the project and the VNRCS have introduced a system of licensing harvest. The project also introduced fruit processing to add value and to distribute availability the year round. The demand for these two wild fruits juices and jams and marmalades, though only being marketed in Blantyre, exceeds supply and the project is ready to hand over the processing to the villagers.

The project is funding additional research on marketable products and markets. The project has also acquired high visibility and donations and promises for continued support. As of 1999, the communities income from marketing of non timber forest products was in the tune of MK 282,057 (US$6,400) while in the two years the project spent DM 0.5 million

(From Simons 2000)

Box 20: Developing forest eco-tourism in Budongo Forest Reserve, Uganda

The main threats that necessitated the use of incentive measures and thus closer involvement of local communities in the management of Budongo Forest Reserve include; illegal pitsawing, forest encroachment and uncontrolled commercial exploitation of the reserve. In the face of these threats and challenges, a number of strategies were designed to address considerable forest degradation and depletion that had started to take place. Two projects were formulated, Budongo Forest Conservation project and Budongo Forest Eco-tourism Development Project. The projects aimed at promoting eco-tourism as a means of raising revenues from non-consumptive uses and to encourage community participation in conservation through creating awareness, education, sharing responsibilities and returns.

Prior to the formulation of the two projects, the benefits of the forest to the local community included water, firewood, building materials, honey, fruits and wild game. However, additional and new benefits were created through the formulation and subsequent implementation of the two projects and these benefits include; revenue sharing from eco-tourism activities, encouragement of community involvement in alternative income generating activities and employment. Some the income generating activities initiated by the projects include bee-keeping. Through the projects, interested community members were requested to form pitsawyers association to negotiate with the Forest

Department on specified concessions. In this regard, the Department agreed to give concessions to the sawyers if they could also operate within specific felling areas and pay royalties for wood removed.

Some of the constraints that have been experienced with this approach include lack of signed long-term agreements with the community and this is attributed to past management practices of the Forest Department. Given the long period for which command and control system has been used, the Department found it necessary to first build trust with the communities.

Despite the numerous benefits associated with the two projects, some members of the community still feel that survival depended heavily on the entire set of forest goods and services and not just the non-timber products and eco-tourism activities that the projects have focused on.

(From Mogaka 2000)

Box 21: Ways forward in the agro-industrial exploitation of cinnamon to strengthen rural livelihoods in Madagascar

The Landscape Development Intervention (Développement Agro-Ecologique Regional) seeks to combat poverty in rural areas and to protect unique natural resources in Madagascar. On the East Coast of Madagascar *Cinnamomum zeylanicum* grows spontaneously in natural forests, within *Ravinala* and *Goyava* trees. Unfortunately the quality of this cinnamon, and the status of the forest, is threatened by slash and burn agriculture and indiscriminate harvesting of young plants. One initiative, working with local farmers and with PHAEL FLOR, a Malagasy society which produces and commercialises extracts of aromatic and medicinal plants, is developing the commercial potential of cinnamon through tapping new products and new markets in essential oils from cinnamon. This sustainable exploitation and marketing of biological resources has had the effect not just of strengthening existing rural agro-based livelihoods, but has also taken pressure off natural resources by slowing the expansion of slash and burn agriculture into forest land.

(From Tsilavirany et al *2000)*

Box 22: Forest products market development in Botswana

The project started in 1996 in Western Kweneng Sub-District. This is part of the semiarid Kalahari sand veld - flat land covered with grass, clusters of hardy bushes, and occasional thorn trees and only marginally suitable for agriculture. The project is implemented collaboratively between Veld Products Research and Development (VPRD), SNV (Dutch assistance program) and GTZ through SADC forestry support unit. The 3 villages include Khekhenye (300 people of the Basarwa tribe) Thane (350 people) and Motokwe (1350 people-the Bakgalagadi tribe).

With a per capita income of US300 for the Basarwa US1200 for the cattle owning Bakalagadi, these communities are much better off, for example, than the ones in Malawi in Malawi or Mozambique. Since there has been no past attempt at this kind of project, the staff use a trial and error method learning lessons and applying them to subsequent activities and using a repeated annual participatory consultation cycle.

In the last two years the achievements have included domestication of some veld products (30-40% of households trained and participating in this) and fruit trees, development of methodology for resource assessment by the villagers ; identified grapple and thatching grass as marketable products, and build storage facilities. There has also been Village Based Organisations (VBO) that include many women especially among the disadvantaged Basarwa tribe. The Village Based Organisations are functioning well but marketing of veld products has proved to be quite challenging. Without any hope of land and resource rights being established in the near future the project develop a simple procedure through which the community can assess availability of resources and then enforced laws on harvest areas and quotas while attempting to cultivate plans that in insufficient amounts.

With a 2-year budget of DM 405,000 the project started some limited marketing activities. This includes marketing of grapple, thatching grass, indigenous teas and truffles. At the end of 2 years these marketing activities brought the communities a total of P45,997 (US$10,240). In terms contributing to incomes this is a small, for example amounting to an annual average of US $5.1 per household per year. While excessive commercialisation risks over exploitation of a highly fragile ecology, the project worries that without finding new marketable products and delivering more benefits, VBOs might not hold together . It is important to find new markets but this requiring specialised skills is

challenging even for the NGO itself... In an attempt at finding new marketing opportunities and incomes for these communities, the project hired marketing consultants from South Africa to investigate the commercial potential of veld products, develop marketing and product strategies for selected products (including potential buyers, price structure) and to assess possibilities for community groups to be involved in processing, transportation, packaging and product promotion. They consultants concluded that some possibilities exist but overall this was big challenge for the project.

(From Simons 2000)

Box 23: Generating new forms of rural income and employment through trade in butterflies from Arabuko Sokoke Forest, Kenya

Arabuko Sokoke forest contains unique plant and animal biodiversity. It is also extremely threatened by clearance for settlement and agriculture. Rural communities living around the forest have few sources of cash income and employment, and have until recently viewed the forest protected area as a wasteful use of scarce land because it yields few tangible benefits to them. Since 1993, the Kipepeo project has been working to diversify local income and employment through the farming of forest butterflies by local residents, for live export to private collectors and traders in Europe and North America. Butterfly farming is particularly suitable as a community enterprise because it requires little investment, and uses simple and already-available equipment and materials. In the seven years since this trade opened up, it has generated earnings of over US$ 200,000 — over four times the initial funds required to start up the project. Not only have local income and employment opportunities expanded accordingly, and diversified away from forest-damaging activities, but local perceptions of forest conservation have changed considerably.

(From Gordon and Ayiemba 2000)

Box 24: Forest-based enterprise development in Mozambique

The CIFM project covers 2 villages (Hochane and Madliwa) located in Gaza province, Mabalane District 385 kilometres northwest of Maputo. The villages area a new resettlement of villagers (800 people and 150 households) who had been displaced by the war.

This is an area with high rate of forest degradation mainly resulting from commercial activities of timber merchants trading outside the local areas and bringing no benefits to the local communities. Degradation also occurs as a result of local agricultural, firewood and charcoal burning activities. The project aims at reversing this trend by getting the communities to protect their forests, supporting them in managing and utilising their forests sustainably for heir own livelihood benefits, and in the process supporting some marketing of forest products.

Starting from 1997 the project is being implemented through the Forest Research Unit (semi autonomous govt institution) in partnership with a local NGO. The project started with an appraisal of villagers' livelihood status and by introducing the objectives of the project. The villagers were difficult to access at first because they still had a military mentality and did not trust outsiders easily, lacked cohesion and village level social structures around which they could organise. Generally it was difficult to describe them as a community.

First they wondered why they should worry about forests while that is all they had. They wanted water, food, schools and immediately. But unlike in the case of Botswana the Mozambique government is not in a position to easily provide resettled villagers with such social facilities. Then the villagers wanted the project to provide jobs with fixed wages. This resistance and expectations among other things delayed the start of the project until end of the year but eventually the attitudes changed.

The project's forestry experts started by identifying what constitutes sustainable harvests of firewood, charcoal and poles and gave guidance on where and how the harvesting should be done. The project also tried to connect the villagers with buyers who would pay them promptly. Then it helped organise villagers into 3 committees focusing on horticulture and controlled harvesting and sale of identified forest products. The first committee was the Natural Resources Management Committee that where and how much products are harvested from the forests. This committee determines the proportion of the forest product sale proceeds that should go to a community fund and then issues permission to harvest in selected areas using agree methods. After the harvest the committee collects what should go to the community fund. The Finance Committee records and banks the community funds and makes proposals on how the money should be used. The Horticultural Committee focuses on horticultural production, which

has been most successful. These committees included people respected by the villagers, teachers and women but in general in these villages women's participation has been limited and difficult.

(From Simons 2000)

Box 25: Community wildlife income in Namibia

In four communal areas of Namibia communities gained benefits in excess of US$ 0.5 million in 1995 from wildlife through a series of arrangements including locally-controlled enterprise, employment and partnerships with government and the private sector. Income from wildlife is up to four times as high as the costs wildlife incurs at the household level. Potentially, community economic benefits from wildlife may become three times higher as community enterprises develop.

(Adapted from Ashley 1995)

Box 26: Private industry's investment in Southern Africa's biodiversity: international biotrade in Devils Claw from Namibia

Devil's Claw (*Harpagophytum procumbens*) is a vine that is found in drier parts of Southern Africa, primarily in the Kalahari Sands of Namibia, Botswana, South Africa, Angola and to a lesser extent, Zambia and Zimbabwe. Its tubers contain substances that have important medicinal properties, and have long been in use as an analgesic and anti-inflammatory remedy by local people.

In recent decades, there has been growing international market demand for Devil's Claw, as a source of active medicinal ingredients for the production of different commercial phyto-medical drugs. Since 1962, when the first large-scale sales of dried Devil's Claw were made to Germany, Namibian exports have increased to around 600 metric tons per year. At this level and at current international prices, these are generating an estimated US$ 1.5 million in foreign exchange export revenue. France, Germany, and South Africa have been the main importers in the past 3-4 years, but Spain, Switzerland and UK have also become important destinations.

Although only a very small proportion of earnings accrue at the local level, they provide an important source of income. Most of the Devil's Claw in Namibia is harvested in communal areas – an estimated 10,000-12,000 families depend on the local revenues from this biotrade. These families tend to be among the poorest of the poor, having few if any other livelihood options. Normally, these harvesters sell their products to middlemen (often at very low prices), and Devil's Claw then passes through several stages of the marketing chain before being exported.

In the recent years there have also been concerns that the levels and harvesting of Devil's claw is unsustainable. Harvesting problems and the concerns with associated biological resource degradation have elicited at least four responses from governments, NGOs and the private sector:

- a project aimed at facilitating sustainable harvesting (the 'Sustainably Harvested Devil's Claw' Project) carried out by an NGO;
- private efforts to propagate and cultivate Devil's Claw commercially;
- a proposal (originating from Germany) to include Devil's Claw in Appendix II of CITES (among plants and animals whose international trade is to be strictly regulated); and
- the re-introduction by the Ministry of Environment and Tourism of an (interim) permit system for harvesting.

(From Krugmann 2000)

5.3.3 Alternatives to forest products

The development of alternatives to unsustainably harvested, scarce or threatened forest products forms a strategy in many community-based forest management initiatives. This measure is based on the economic rationale that making non-forest sources of products or income available to forest-adjacent communities will both improve local economic welfare as well as replacing existing, damaging, forest utilisation activities.

The development of alternatives to forest products can take several forms. A common activity is the domestication of wild forest resources, and their propagation on-farm or in constructed forests – for example in woodlots (see Boxes 27, 28). Alternatives may also be provided to forest products, with the aim of replacing their use altogether (see Box 29).

Box 27: Promotion of alternatives to forest resource in Omusati Region, Namibia

The Omusati Region, one of the four regions that made up former Owamboland, is a densely populated rural area in northern Namibia, where most of the population depends on subsistence agriculture, with very little access to electricity or sanitation. Natural resources are under severe pressure, with deforestation, overgrazing and declining soil fertility. Yet excessive use of natural resources continues unabated, and communities do not seem to have realised the gravity of the situation. There is a growing scarcity of mopane wood, due to the increase in number of homesteads in the area . Mopane poles have become so scarce in parts of the region that households are switching to alternative building materials, and firewood has become so scarce in some areas that people have turned to inferior fuels, such as weeds and manure. Wealthier households are able to buy firewood in town, requiring N$1008-2016 (at N$1 per kg) to fulfil their annual needs.

Demand for mopane is particularly high in the Omusati region. People here make impenetrable fences from mopane branches to surround their fields, in order to free up their children from livestock tending so that they can attend school. Omusati inhabitants thus use four times as much wood as people in the other Owamboland regions, where this type of fencing is not practised.

According to the local farmers there are no systems of management for the woodlands and shrublands in their villages, except inasmuch as tribal authorities prescribe customary rules on the use of trees on communal land. In the past there were strict laws on felling, such as not cutting too many trees in one place, and not cutting fruit trees or small trees. No trees could be cut without permission from village headmen, and fines of up to two cattle were levied on those who cut without permission. Nowadays the laws are not followed, especially since the death of the king in 1971, and also because of population growth, with increasing needs for construction, etc., and poverty. Traditional authorities do not control tree cutting as they do not receive any benefits for doing so, and traditional authorities have recently even became involved in cutting trees for commercial purposes. On communal land, anyone can cut trees without limitation, and only certain important trees (e.g. important shade trees, meeting places) are left alone. The traditional authorities still protect trees from fire, however, fining people up to N$200 for burning. Even where traditional authorities try to uphold rules, people seldom listen. Women uproot live mopane stumps to harvest the roots for fuel, a practice which the men find worrying, but do not control. In Omusati, forest resources are also depleted by outsiders who cut down trees to sell as firewood. Tree poachers are often relatively well-off people living in towns, and they often pay unemployed youths in villages to cut down trees for them. In addition, people now tend to cut more than they need, because they are able to sell the excess due to increasing availability of transport. People increasingly need money to survive, to pay for school fees, medical care and food, and for this reason there is increased sale of forest products.

The price of land in the communities is high - N$400. Because of this, affluent people fence off their land and conserve trees together with grazing vegetation. On fenced farms, farmers manage their trees, for example by pruning and removing pests, and they pollard, rather than cut whole trees, allowing their trees to regenerate. They tend to be far more selective about where and how they cut their own trees. Although fields are largely cleared of trees, most farmers leave some trees in their fields for shade. Yet these farmers still make use of the decreasing area of communal lands for grazing and tree cutting, and tend to meet their needs from off their farms to the detriment of these communal lands.

Even if better community-based management was introduced, there is some doubt as to whether it would be possible to utilise the mopane resource on a sustainable basis while still meeting current demands . According to the farmers, the deforestation will only be stopped if the government provides incentives and other measures. Incentives would include subsidised alternative building and fencing materials, soft loans, and provision of employment through self-help projects. Many people have switched from using mopane poles to using bricks in the Omasuti region, but most people would actually prefer to use poles. Farmers also stated that equal land distribution to the communities would be a positive measure towards conservation of tree resources, but at least the owners of large farms should be prohibited from using communal resources. Indeed, fencing of private mopane-rich areas may contribute to their

more sustainable management, but is making access to woody resources by people living in mopane-poor areas even more difficult .

Having studied the situation, the Namibia-Finland Forestry Programme within DoF selected three pilot communities to develop integrated forest management programmes. There is now significantly less illegal cutting in these communities. The programmes entailed forming and training CBNRM committees, which carried out forest resource inventories, and setting up a forestry extension service, and carrying out extension, awareness and law enforcement activities. Future activities in these pilot areas will include establishing incentives and financial schemes for integrated forest management.

At least in the Ombalantu area, the government has introduced schemes to provide fencing materials by means of low interest loans. However, to be eligible, borrowers need to have a regular income, which probably excludes 70-80% of households in this area, thereby only assisting the wealthier households . The GRN has tried to get around this by allowing 'joint liability'. However, farmers have apparently been reluctant to form such groups, possibly because of their somewhat individualistic Owambo culture .

(From Conroy 1996, Salinas et al *1998, BMS 1998)*

Box 28: The development of forest alternatives through Woodlot projects in the Eastern Cape, South Africa

A total of 91 woodlots have been established in the past in the former Transkei and Ciskei bantustans, with an average area of 140 ha per woodlot, to supply communities with timber products. They are state-owned, comprise mostly alien tree species (gums and wattle), and are all staffed by members of the Department of Forestry. Twenty-five of these were planted adjacent to indigenous forests in order to alleviate the pressures on the indigenous resources. Aerial photographs show that the impact on indigenous forests is lower in areas where these woodlots have been established, although reliance on indigenous resources remains high in areas where the woodlots have been established at some distance from villages. However, certain indigenous species, such as hardwoods and mangroves, are still sought after in these areas for certain purposes. The remaining woodlots were established in areas where trees have long been scarce. In accordance with the new forestry action plan for local economic empowerment, DWAF is in the process of devolving the management and/or ownership of these woodlots to communities. In reality, the woodlots cannot be handed over entirely to the communities as yet, because DWAF is unwilling to retrench its managers. About 10 - 15% of the woodlots are profitable, and communities will be encouraged to set up small businesses, selling pulp and poles. For less profitable woodlots, communities will be able to set up joint management schemes to reap subsistence benefits. Woodlots adjacent to indigenous forests will not be handed over to the communities, however, as these are considered critical to the conservation of the indigenous resources.

(From Graeme Harrison, Community Forestry, DWAF, pers. Comm; Ham 1999)

Box 29: Replacing unsustainable activities in Kakamega Forest, Kenya

The conservation of Kakamega forest reserve demonstrates a process of management which has gone through a series of systems, i.e., local community-based, local government controlled, Central Government controlled and since 1990, people-centred.

The households around the forest use the forest in many ways with the most prominent being;

- In connection with traditions and rituals;
- For subsistence,
- Cash earnings on small scale, and
- Cash earnings on a commercial scale.

A number of management changes have taken place which have set the foundation of parallel forest management by the government on one hand and the local communities on the other. Associated with such a system is an attitudinal problem where the government and the local communities are suspicious of each other's use and management of

the forest. Therefore, antagonistic relationships have marked the management regime of the forest for a long time and this has been attributed to the exclusion of the local communities in forest management.

The government through the Forest Department and the Kenya Wildlife Service have designed various measures in form of incentives to enhance community participation in forest resource management. These government agencies have been involved in a number of local development initiatives. Notable examples of incentives offered to the community include the development of infrastructure around the forest, establishment of schools, and donation of school materials worth Ksh. 51,000. Problem animal control measures have also been implemented as away of reducing the costs incurred by the communities. However, the introduction of animal control measures faced resistance from the local community for a number of reasons. First, the approaches adopted a top-down approach. Secondly, some of these measures were perceived as a way of the government controlling the use of the forest by the communities. Other incentive measures that have been introduced include consultation with the local communities on regulating forest use, development of alternatives to forest utilisation including off-farm employment and investment in social and economic infrastructure in the local communities. Other sectors notably agriculture have been used as an entry point to reducing forest encroachment by making the farms self-sufficient in the produce they previously relied on from the forest. The Forest Department has also been involved in issuing free seedlings, promotion of zero-grazing and other agroforestry activities to divert pressure from the forest.

These efforts have not gone without major constraints. It has been argued that the forest management's perception of community priorities is too narrow or has been placed on the periphery (Kamugisha, Ogutu and Stahl 1997). Out of the various incentives that the Forest Department and KWS have implemented only the creation of employment opportunities and support of local schools are fully appreciated by the locals.

Local community support is still being hampered by the slow attitudinal change on the part of the policing personnel who in some cases have been involved in fatal confrontation with local community user groups. In general, despite all these measures, local attitudes towards forest management institutions are manifested in suspicion, fear, and distrust. Therefore, illegal forest activities are on the increase.

(From Mogaka 1999)

5.3.4 Direct payments for involvement in sustainable forestry activities

Although less common today, direct payments have in the past been used as economic measures to encourage community members to plant trees, conserve forests or to engage in sustainable forest activities. Here, payments are used as compensation for curtailing unsustainable forest use or as rewards for forest-conserving behaviour. Two main examples exist of the use of direct payments as economic measures for community involvement in sustainable forest management – as cash or kind wages or remuneration for carrying out forest conservation activities (Box 30), or as compensation for the loss of access to or use of, or the transfer to other parties of, forest land and resources (Boxes 31 and 32). It is also worth noting that direct payments can, and have, been widely used as a disincentive to the illegal or unsustainable exploitation of forest resources, through the imposition of fines or other penalties on community members.

Box 30: Direct payments as incentives to promote natural resource conservation in Ethiopia

The country periodically suffers from severe drought. Extensive deforestation has manifested itself in serious soil erosion, loss of productivity and devastating floods in lowland areas. Forest degradation and depletion over time has forced the local people to meet fuel needs by burning manure, producing charcoal from few scattered trees, gathering shrubs and grasses, illegal forest exploitation – all of which have served to advance the state of forest decline. Following this trend, determined efforts have been launched to halt land degradation through the use of incentive measures. As early as 1974, conservation projects were initiated with the participation of national and international agencies and the local communities. The objectives of one such project were (1) to ensure sustained yield production of fuelwood and building materials for local consumption and (2) to demonstrate the link between soil erosion and soil use to the local population to improve land use planning.

This project was based on the joint action of the Organisation for Conservation and Development of Forests, the Peasant Associations, The World Food Programme, Food and Agricultural Organisation of the United Nations, and the United Nations Development Programme. Over time, the scope of the project changed from that of small-scale local experimentation to that of national scale involving about 120 sites (mostly where local people expressed a desire to co-operate with the project team) roughly of 1,000 ha each. Incentive measures that were applied included joint planning of the area activities with Peasant Associations, preparation of contracts of execution works with Peasant Associations, post agrarian reform land tenure guarantee of up to 10 ha to each household supply of planting materials, supply of construction materials such as corrugated iron, nails and cement, and supply of food rations consisting of 3 kg of wheat or maize and 120 g of vegetable oil for each working day on conservation projects (food-for-work).

(From Velozo, R. 1987)

Box 31: Leases as an economic incentive for community conservation of Ongoye and Ntendeka forests, South Africa

Both the protected Ongoye and Ntendeka forests in KwaZulu-Natal have been the subject of land claims by displaced communities that now live adjacent to the parks, but in both cases, the protected areas contain biodiversity assets of national importance, which meant that the claims were unlikely to go uncontested. The Ongoye community approached experts for advice, and were shown the costs and benefits of various types of ecotourism ventures that could be set up in the park. Faced with a potentially profitable situation, this community agreed to withdraw their land claim in exchange for acquiring development rights in the park. Following a land claim on the Ntendeka forest, the government approached experts for an assessment of the benefits of a variety of potential land-uses in the park. It was demonstrated that the park had significant tourism potential, including cultural tourism. This provided a strong enough incentive for the community to agree to lease certain areas for tourism development and sustainable consumptive use of forest resources, in exchange for leaving core conservation areas and limiting grazing in the park.

(From Lewis & Mander 1999; Lewis et al. 1999)

Box 32: Encouraging private sector investment in wildlife conservation around the Serengeti National Park, Tanzania

A new wildlife tourism facility is in the process of being developed on Village land adjacent to Serengeti National Park. This camp will be run as a three-way joint venture between a commercial company, the local Village Council and a bilateral donor, who will provide the bulk of investment funds on a soft loan basis. A 40 year land lease, to be renewed every 5 years, has been agreed with the Village Council for the construction of the 30 bed camp. The terms of this lease and joint venture agreement include the allocation of equity in safari operations to the Village Council, a re-negotiable annual land rent of TSh 1 million and bed fees of US$ 5 per visitor. The camp management has also committed to support village income and employment through sourcing foodstuffs locally, drawing staff – including management trainees – from the locality and establishing a micro-credit scheme for villagers. If a similar occupancy rate to other lodges in the Serengeti area is achieved, this may provide rental and bednight fees of some US$ 20 000 a year for the Village, in addition to other local income and employment opportunities associated with the camp.

(From Emerton and Mfunda 1999)

5.4 Do economic measures translate into community incentives?

As the examples presented in this chapter illustrate, both forest policy and forest management practice have changed over the last decade in Eastern and Southern Africa to incorporate sustainable development and economic goals. The majority community-based forest management initiatives now include the use of economic measures, most commonly some form of benefit-sharing, development of forest-based enterprise, promotion of alternatives to forest goods, or direct payment for involvement in sustainable forestry activities. Documented experiences tend however to be limited to this relatively narrow

range of economic measures, and to their application in and around protected areas. There are few experiences of the use of other economic instruments, or of their application to forests on private and communal lands.

It is difficult to gauge the success of these approaches. There is remarkably little information about the impacts that economic measures have had – on community economic welfare, on the levels, types and sustainability of forest utilisation, or on the degree of involvement in sustainable forest management. Evaluations of the success of such approaches focus mainly on the overall amount of revenues or benefits shared, the quantity of projects implemented, or the number of community members involved. None of these indicators relate to economic impacts or incentives, or attempt to measure whether supportive economic conditions for community involvement in sustainable forest management have been set in place.

Overall, the use of economic measures and the generation of economic benefits has undoubtedly improved relations between forest-adjacent communities and forest-managing authorities, and may have helped to reduce local-level pressures on forest resources. A key question is, however, the extent to which these economic measures provide lasting incentives for community involvement in forest management – how far they actually change the economic conditions under which communities use and manage forests.

A major problem with the use of economic measures in community-based approaches to forest management is that in almost all cases they do not fully address the links between local economic forces, involvement in forestry activities, and sustainable forest management. They are based on a sound rationale – that local communities, who are often already economically marginalised, are unlikely to become involved in sustainable forest management unless it generates benefits for them. This rationale is however incomplete, and it does not follow that any measure that generates or increases local benefits will stimulate community involvement in sustainable forest management, or will constitute an economic incentive. A major omission is the failure to consider the nature of benefits generated, in themselves and relative to the local economic costs of sustainable forest management. In most cases, economic measures go only part of the way towards setting in place economic incentives for community involvement in sustainable forest management.

Revenue-sharing and benefit-sharing measures, which have been particularly widespread in East Africa, take the least account of these broader linkages. With few exceptions, they focus on the generation of broad development benefits (such as schools, water, roads and other social infrastructure), at the whole-community level. Typically the amount of revenues or benefits shared is extremely small, and is far less than the local costs (or perceived costs) and economic losses associated with sustainable forest management. In addition, broad social development benefits rarely compensate for the opportunity costs of sustainable forest management – real losses in income, food and resources, which accrue mostly at the individual or household level. Benefit-sharing usually does not put community members in a position where, economically, they are enabled to forgo economic activities that contribute to forest degradation (although it may, by improving relations and awareness, make local feelings about forest protected areas more positive).

The development of alternatives to forest products, and promotion of forest-based enterprises, is often based on similar misconceptions. Here, again, the kinds of enterprises,

opportunities and products being offered are often inadequate to compete with unsustainable forest use, or are not actually substitutes for unsustainable forest products and activities. In addition, these types of measures require careful analysis of the economic dynamics driving forest product demand, consumption and extraction. It is not self evident that adding value to forest markets or making additional sources of income and subsistence available will in fact have any impact at all on levels and types of forest use, and sometimes the reverse is true. Unlike revenue and benefit-sharing measures, the use of such measures may well increase local economic welfare. Whether in fact they provide any stimulus to community involvement in forest management, or improve the sustainability of forest activities, is less sure.

The use of payments to encourage sustainable forest activities can be an extremely effective economic incentive. It can simultaneously have major effects on community involvement in forestry, on sustainability and on local economic welfare. The desirability of this kind of measure in terms of participation and long-term viability is however questionable. Although engendering involvement, like most economic measures it does little to enhance community participation and is based more on generating income, and on buying labour and other resources. Making payments to community members is rarely a long-term solution, as it does little to change the social or economic conditions under which forests are used and managed, and is rarely a practical option given the low revenue-generating capacity of most forests and the weak budgets of most forest-managing authorities.

6 CONCLUSIONS: Experiences and Lessons Learned on the Links Between Community Economic Incentives and Sustainable Forest Management

It may be concluded that although major steps forward have been made over recent years in integrating community economic concerns into forest policies and management, there still exist few economic incentives for communities to become involved in sustainable forest management in Eastern and Southern Africa. Broader economic conditions in the region continue to be generally unsupportive, and economic factors have yet to be adequately dealt with in community-based approaches to forest management.

A review of experiences and lessons learned from the region point to a number of economic forces which have discriminated against community involvement in sustainable forest management, including:

- There is ***little recognition of the high economic value of forest resources*** for communities, or of the potentially high local economic costs of sustainable forest management, by either economic or forest sector decision-makers and planners.

- Poor appreciation of forest values generally, and specifically as they relate to communities, has meant that ***the forest sector is accorded little emphasis in development and economic policies***. These rarely see sustainable forest management as a potential source of local economic development and growth, and rarely take account of the impact of other economic activities on local forest values.

- For the main part ***economic policies have promoted sectors which have the potential to contribute to forest degradation and loss***, at national and local levels. Historically, a range of economic instruments have been used to subsidise or to artificially inflate the profitability of land and resource uses which are incompatible with sustainable forest management, especially the agricultural sector. Even today, destructive forest and land uses are still perceived to generate higher and more immediate profits than sustainable forest management, by community members and by economic planners and decision-makers.

- There has also been a poor appreciation of local economic benefits and costs in ***forest sector policy and management practice, which has traditionally been based on excluding communities and denying them economic benefits*** from forests, thereby giving rise to high local opportunity costs. In the face of pressing and competing demands for the use of forest lands and resources sustainable forest management has not made economic sense at the community level, and has even given rise to economic losses.

- Forest policies are undergoing change, and now place a ***much greater emphasis on economic goals, sustainable development and community benefits***. This emphasis forms an important first step in providing economic incentives for community involvement in sustainable forest management.

- Changing approaches to forest policy and management, especially the advent of community-based approaches, have to some extent translated these policy goals into practice through the ***use of economic measures to promote community involvement in sustainable forest management***. These measures are concerned with generating, or increasing, economic benefits for communities. Four main sets of economic measures have commonly been applied in the region – revenue-sharing and benefit-sharing, the promotion of forest-based enterprises and markets, the development of alternatives to forest activities, and direct payments for involvement in sustainable forestry activities.

- There is ***little evidence that the use of economic measures within community-based forest management approaches has translated into greater economic incentives*** for community involvement in sustainable forest management. This is largely because the benefits generated by such measures do not adequately balance the costs that sustainable forest management incurs on local communities, in terms of either the amount or type of benefits they generate. They do not set in place economic conditions under which community members are any more willing, or able, to become involved in sustainable forest management over the long-term, or lead to a situation where sustainable forest management makes more economic sense to community members than other, unsustainable uses of forest lands and resources.

There are however clear indications that major steps have, recently, been taken towards the provision of economic incentives for community involvement in sustainable forest management. An important move, in forest sector policy and management practice, has been the incorporation of economic goals and measures, targeted at communities. There is now, however, a need to translate these goals and measures into concrete economic incentives. This requires using a broad range of measures to ensure that sustainable forest management makes economic sense at the local level, in itself and in comparison to other, unsustainable, uses of forest lands and resources.

There is undoubtedly a great need to integrate economic incentives into community-based approaches to forest management. Setting in place the right economic conditions for community involvement in sustainable forest management is not however wholly the responsibility of the forest sector. Action is also required in other sectors of the economy, particularly those which have the potential to conflict with community involvement in sustainable forest management, and especially through identifying and dismantling the perverse incentives that discriminate against sustainable forestry as a locally profitable and economically desirable land and resource use.

Finally, it is important to note that economic incentives are a necessary, but not by themselves sufficient, condition for community involvement in sustainable forest management. Setting in place the conditions under which sustainable forest management makes economic sense at the local level does not self-evidently lead to improved economic welfare, more sustainable forest use or greater community involvement in forest management, and rarely achieves all three simultaneously. Non-economic factors also influence the ways in which communities use and manage forests, and non-economic incentives – including those targeting social, institutional, policy and tenure issues – are also required to strengthen community involvement in sustainable forest management.

SECTION II:
Country Reviews

7 ANGOLA

Availability of information on community management of forest resources in Angola is scarce. Hence, this section is based largely on the IUCN's (1992) environmental status quo report, unless indicated otherwise.

7.1 Background

Angola has been ravaged by a civil war since independence was achieved in 1975. At least one million of the country's 13 million people have left their home areas, most of whom have moved to urban areas. In 1990, 37% of the population lived in urban areas. This was estimated to increase to 48% in 2000. The population is unevenly distributed, being concentrated in the west and north west, and low in the arid regions.

The national economy is highly dependent on the petroleum sector, which accounts for 60 – 90% of government revenues. However, this sector does not produce significant employment or spin-offs to other economic sectors. The majority of Angolans are dependent on agriculture, forestry and fisheries for their livelihood.

After independence in 1975, the agricultural sector collapsed, and has never recovered. The country is dependent on food aid and imports. Commercial agriculture collapsed totally, and the subsistence sector has suffered a 70% decline in output. Many areas that were previously cultivated have been reclaimed by natural vegetation. The fisheries sector is very important in socio-economic terms, although it contributes only about 1% to GDP. This sector is considered to be underdeveloped.

Angola has vast biomass reserves, with an estimated aggregate sustainable yield exceeding 150 million tons per year, yet the World Bank economic survey does not mention the economic contribution of the forestry sector. It appears that no quantitative analysis has been made on the economic potential of this sector.

The Angolan economy will in future be highly dependent on natural resources, because of the dependence of most of the population on primary sector activities. Using natural resources wisely will be one of the major sustainable development issues in Angola. The resource base is in a relatively good condition, particularly since the abandonment of large parts of the country for nearly two decades has allowed natural resources to recover.

Angola contains a high diversity of vegetation types, ranging from evergreen forests to semi-arid areas. Closed canopy forests predominate in the north west and in high altitude areas. Woodlands, mostly Miombo, are the most widespread vegetation type in Angola, covering nearly half of the country, and shrubland thickets are also common throughout the country. Savannas (with only a sparse woody component) are found throughout the country in mosaics with woodlands, thickets and forests. The country also has grasslands in high altitude areas of the interior plateau, and numerous large wetland areas.

Four categories of protected area are generally recognised in Angola - National Parks, Strict Nature Reserve, Regional Reserves and Forest Reserves. Partial Reserves and Public Hunting Areas exist on paper, but not really in practice. There are six National Parks, one Strict Nature Reserve, one Regional Park and one Partial Reserve, all of which were

established by 1972. Four of the National Parks contain woody resources, covering a total of 25 060 km^2. The two largest parks (totalling 29 920 km^2), conserve arid systems and floodplain grasslands. The Luando Strict Nature Reserve conserves 8 280 km^2 of mixed habitats, including woodland, riverine forest and swamp forest. A further ten strict nature reserves have been proposed, mostly under 400 ha, which would cover a total of 3970 km^2, including woodlands, tropical rainforest, and several other forest ecosystem types. The existing Namibe regional reserve protects 4684 km^2 of arid savanna, shrubland and grassland ecosystems, and a further 9 regional reserves are proposed, totalling 8220 km^2. Hunting, fishing and collection of wild animals and plants, and industrial, commercial or agricultural activities may be prohibited or conditioned in such reserves. There are at least 17 forestry reserves in the country, covering over 17 000 km^2. However, there has been no attempt to manage them on a sustainable basis.

Protection afforded to different habitat types is very uneven. For example, the relic Afromontane *Podocarpus* Forests, which are the most seriously threatened of all ecosystems in Angola, are not represented in any protected areas. Afromontane forests are generally under threat from excessive burning and felling.

Despite having over 68 000 km^2 designated as protected areas, protection is weak, and the protected area system is in a shambles. Protected areas are viewed negatively by many Angolans as symbols of privilege and oppression. The potential benefits that conservation areas have to offer have never been experienced in Angola. Before independence, some attempts were made by the Portuguese government to develop Angola's national parks for tourism, but little was achieved, and visitor numbers were limited. After independence, the park infrastructure collapsed, and all protected areas were invaded by large numbers of poachers. Little could be done about the situation due to extreme lack of funds, staff and equipment. Nevertheless the potential still exists for using these areas to their best advantage.

7.2 Management and economic value of the forestry sector

A total of 35% of the area of Angola (53 million ha) is considered as "forest". Of this only 2.373 million ha is considered as productive forest, with a potential annual harvest of 326 000 m^3. The remaining areas have to be protected for protection of major watersheds. The economic contribution of this sector is unknown.

Forest and woodland management is almost non-existent in Angola. Current management practice consists of issuing of cutting licenses to forestry industry. It appears that several institutions at all levels issue these licenses. There is little control on the area logged, the volume extracted or the species used. There is no management plan for the sustainable development and utilisation of natural forests and woodlands.

The majority of the population is dependent on fuelwood and charcoal for energy. Current fuelwood and charcoal production in Angola amounts to some 5.5 million tons, although estimated potential production is much higher, at about 148 million tons (Geldenhuys 1996). Charcoal production around urban areas is reportedly causing severe land degradation. People in these areas have no choice but to degrade the resources they are dependent upon. In their struggle for survival, there is no incentive to manage these resources sustainably.

There is little information on the benefits and costs associated with non-timber forest resources. In general, it appears that much of Angola's wildlife has been destroyed during the civil war. Wholesale harvesting of large mammals occurred in all parks and reserves. However, it is quite probable that many populations have been able to recover in areas which have been deserted.

In addition, forests and woodlands are being degraded by burning. Fire is generally used in hunting, and this activity is causing the incineration of vast areas of woodlands and savannas. Savanna areas are also burnt to provide grazing for livestock, and to clear land for planting. Through frequent burning, many woodland areas are being converted to and maintained as savannas. Appropriate management could reverse this process, thereby increasing the woodland benefits to local populations.

7.3 Incentives provided by the institutional, policy and legal environment

Because of the war, the country's economy is in disarray, and political, institutional and traditional social structures have been severely affected. Environmental concerns have been relegated to the backburner, while the nation concentrates on its mere survival. The country's main priorities are the rehabilitation of infrastructure and public services, and development, which is likely to involve the rapid exploitation of the country's abundant natural resources. Sustainable development is generally not on the agenda, and without an awareness of the connection between environmental health and economic development, sustainable development policies have not been developed. Despite recent and ongoing institutional and legal reforms, environmental issues remain limited to traditional conservation measures such as the establishment of protected areas.

Accordingly, there is no government institution dealing specifically with environmental affairs, and existing structures reflect a poor understanding of environmental management. The Institute for Forest Development (IDF), which was formerly the National Directorate for Nature Conservation (DNACO), is located within the Ministry of Agriculture and Rural Development (MINADER). Formerly mandated to promote capital intensive "modern" state agriculture, this ministry is now mainly responsible for the planning, regulation and support of the private agricultural sector. Whichever form it takes, however, agricultural activities are potentially in direct conflict with environmental conservation, especially under the control of a ministry which lacks clear policy guidelines. The IDF is the only body responsible for environmental issues within the whole government structure, despite recommendations from an inter-ministerial commission, initiated by the Angolan Association for the Environment (AAA), that environmental issues should be handled by an independent environmental body at the highest governmental level. This commission was responsible for Angola's contribution to the Rio Conference (1992). Their views on development and environmental issues are gaining limited but gradually increasing acceptance in most governmental bodies, and environmental awareness has also been increased though pressure from the international donor community.

Little action has been taken, however. In general, the government suffers from shortages of funds, equipment and skills, as well as low work ethics. Furthermore, there is a lack of clearly defined policies in most fields, so that the country operates virtually within a policy vacuum. As well as lacking a clear agricultural strategy, MINADER operates without a clear

forest policy, land-use strategy or land reform policy, and there is no clear idea as to the respective functions of the state and private sectors. By 1992, the FAO was in the process of preparing a Tropical Forestry Action Plan for Angola.

Similarly, there is no appropriate legal framework for the protection of the environment, and laws that do exist (e.g. the land law, forest law, national park regulations) lack a direct connection with a monitoring or enforcement body. Moreover, the war has made control over parks and forests difficult, and it is generally felt that legislation is a waste of time because it is unlikely to be enforced.

8 BOTSWANA

8.1 Introduction

Botswana has not shown much interest on forests as an economic resource partly because it has very few forest resources, and secondly because of its focus on diamond mining. With an annual per capita GNP of US$2,800 Botswana is economically stronger than many countries in the region. However, there are many rural households that are poor and heavily dependent on the direct extraction of natural resources for survival. However, Botswana has very little in terms of forests and what there is in5 small reserves that are degraded by both by the actions of people, livestock and wildlife. Efforts in rural afforestation, plantations and woodlots have failed partly because of lack of tree species that will grow under the dry weather conditions and poor soils. The more important source of rural households natural resources use is the collection of veld products (found in open savannah land) especially by the poor rural households.

8.2 Forest Polices and Strategies

For a long time the forest sector in Botswana has been relatively unimportant and undeveloped. However, more recently forestry planners are beginning to consider forestry a possibility for economic diversification, especially as diamond mining is non- renewable. In reality, Botswana's has been ineffective in managing or protecting the forest resources, or making this sector of much economic significance. The country is still in the process of writing a new forest policy. The 1997 draft reflects many of the principals of CIFM and the need to work with local communities but most of the statements are rhetorical and unclear about how to pursue this approach or specifically how the communities would get additional economic benefits. Overall, the government seems reluctant to allocate land rights and most of land is still used under open access regimes.

Botswana 1968 Forest Act has not been reviewed and its laws have not been enforced. The Act was designed to ensure some protection and administration of forest reserves and sate land (25% of the country). Since then there has been growing conflict between the Forestry Department and local communities especially over forest reserves established in tribal lands. In 1990, Botswana developed a National Conservation Strategy focusing on tree nurseries and establishment of plantations, creation of forest industries and employment for rural people, and forestry training and research. It did not go as far as considering involvement f communities in forest management or increasing rights and direct benefits to local communities. The present policy draft still falls short of this, and reflects a reluctance to allocate land use rights, instead favouring the open access system.

8.3 Forest Resources and Economic Contribution

Botswana is a large country (58,173,000 hectares) but of this land only 0.8% is classified as forest land while two thirds of the country is covered by Savannah woodland,, dunes and scattered trees. All of the forests are in 5 small forest reserves concentrated in Chobe District and Okavango delta in the North. Botswana has only 1,000 hectares of plantations but for all practical purposes the country has no commercial plantation forestry activities (SADC /FSTCU, 1994). Given the size of the forests and inability to police them these forests are highly degraded. By 1994 the use of these forest for commercial and any other purposes was stopped to give government time to find solutions to the degradation

problem. There has been mention of CIFM activities in the 5 forest reserves, but after the forests have recovered. But it is also estimated that the forests would not support any profitable activities for more than 10 years (FSTCU 1994). In the meantime Botswana imports all its wood competitively while passively looking up to the SADC forestry program for ideas on how to manage its forests and for tree species that might survive their harsh weather conditions. Under the country's ecological circumstances and the government reluctance to eliminate free access land use systems, there are no easy solutions.

8.3.1 The Formal Forest Industry

.As of 1999 wood based businesses were using only imported wood. Even with the limited forest resources when the forest industry was in operation Botswana never fully realised the economic potential of its forests. In 1992 these activities generated an income of P 11 million (US$4.4 million) per year (FSTCU, 1994). This is about 10% of the estimated total potential of P118 million (US$ 47million). In the formal sector the main economic activities were logging saw milling and furniture making in Gaborone. Saw milling is primarily done by one parastatal (Botswana Exotic Timber BET) owning a mill that operated well below capacity. Furniture and Joinery is done by only a few private companies (relying almost exclusively on imported hard woods) in Gaborone and Francis town.

Timber was marketed locally in small quantities, for example, in the tune of 120 cubic meters in 1992 and lower in 1993. But there is little data on domestic use of wood. Apart from limited resources lack of skilled manpower and affordable imports have further constrained the growth of the forest industry in Botswana. There have been various failing attempts at establishing forest plantations especially with the lack of government or private sector focus on this activity and also because of poor weather conditions. The lack of water and slow growth rate suggests that a better strategy might be managing natural forests rather than attempting to establish woodlots and plantations.

8.4 Local Benefits from Forests

In the settled areas the main use of forest products is in the form of fuel wood and construction poles The forest area itself being so small and concentrated in small areas that the main benefits for the communities are obtained through the use of veld products. The veld ecology has a wide range of products including scattered trees, wild foods, herbal teas, grass and medicines and are good for hunting of small animas. Not much work has been done on communities and use of natural resources in Botswana. The economic value of these products is undocumented but the average household value from use of these products can be expected to be high especially because of continual use. There is also evidence of degradation especially around the settled area.

From 1997 the SADC forestry program is funding a CIFM project in three small communities to the West of the country. The project is implemented through a local NGO –the Veld Products Research and Development. The objective of this project is to A undertake research and development projects in partnership with rural communities and households to improve their quality of life through the sustainable utilisation and management of natural resources (FSTCU Exchange workshop, 1999). One of the benefiting communities is a group of Bushmen of the Basarwa tribe, which happens to be

socially and economically disadvantaged. Traditionally this tribe has survived by gathering and hunting in the veld. However, recently the Botswana government settled them in a village so that they can provide them with facilities such as running water, clinics and schools for their children. Unfortunately, the Bushmen prefer to be the hunters and gatherers they have always been - unsettled and traversing the veld without permanent homes or local institutions. This way, they would probably survive well and leave the veld well balanced ecologically. This settling begins the degradation of a highly fragile ecology without taking away the poverty as such, and creates unhappy people who end up as servants and labourers for cattle owning richer tribes. While the project is intent on working with this easy tribe, the bushmen's overriding concern is their negotiations with the government about their social package and whether they must stay in villages, and trying to go back to the bush life; they are concerned about how their children now going to school might fit in such a model; they are ambivalent and dealing with a sense of being de-rooted, and a culture of settledness, livelihood style and economic system they do not understand, nor sure they want, but they have performed well under the project.

Against this background, the CIFM project focuses on organising the three communities for the purpose of marketing of veld products, while attempting to domesticate the species that seem most promising. In the two years progress has been made and the communities are marketing 5 different products. However, the process is difficult and the economic benefits to the communities still small.

The household income from this project is extremely small and demonstrates the difficulties of the approach and the need for high level of project financing. The household income is particularly little considering the households' products collection labour and time project in organisational. There are some additional benefits of the knowledge gained. At the same time, the experience may lead to communities change in attitudes, for example, treating the veld products as valuable and exhaustible resources. If the level of income manages to keep the village organisations together they could be useful in other development opportunities while community benefits might increase.

The marketing consultants found it difficult to assess the market potential of the veld products in the area simply because there was no information on available supplies, costs of processing, and it was known who would provide the necessary infrastructure. In general, they concluded that there is a growing market for natural herbal remedies and alternative medicines in South Africa and globally which could potentially provide market opportunities for the veld products. The greatest commercial potential in S. Africa and probably elsewhere is for those plants that have medicinal properties, Herbal tea plants and plants from which essential oils and essence can be extracted. But the team was doubtful that as things stood, these potentials could be realised; they doubted that the communities could deal with the dynamic markets, changing demand, uncertain supply and whether the communities could ensure quality control and development of new products- all necessary for dynamic markets.

Medicines probably have the best potential but the communities needed to be competitive since many of the indigenous medicinal plants are also available in S. Africa and Namibia. For example, some pharmaceutical companies buy from these countries at prices-including delivery, well below those paid to producers in Botswana. Also, in many cases the trade of traditional medicines is informal and secretive. It is difficult to work out a price structure.

To penetrate the South African markets Botswana needs to do a lot product development work including improving harvesting and processing techniques, packaging and distribution networks. In the meantime, they should target their veld medicines to the urban and peri-urban markets in Botswana, and to traditional healers in S. Africa – and not try to penetrate the formal market.

The communities could immediately market herbal teas through health shops and farm stalls. In the medium term teas could be marketed through emporiums and pharmacies where the required packaging and labelling is more sophisticated and pricing more competitive. selling in bulk could still profits to communities.

In the long term the teas could get into the super market chains and exported, but this means sophisticated packing and labelling. To be feasible the trade needs to be done in high volumes and perhaps to work through a marketing organisation with finances and support from several sectors including the government and NGOs.

There are not many more CIFM projects in Botswana but the country has done much better in the wildlife sector. It has more land under national parks and have started some community based wildlife activities including sharing of revenues.

8.5 Conclusions on Botswana

Botswana has not as yet focused seriously on the forestry sector. The formal forestry sector activities have stopped and most wood needs are met through imports and the few forests there are have been closed pending a strategy for sustainable management. The forest policy is still in draft form and it seems unlikely that there can be much land use reforms giving communities rights of land and minimising the use of open access systems. As of now the national interest in CIFM is very much just on paper. There are a few CIFM project attempts focusing on marketing veld products and four products are already in the market. However, this has turned out to be difficult, to need heavy financing and the community income from these project activities is very small. There is fear that unless community benefits increase, the newly formed village levels organisation will collapse. On the other hand, increasing commercialisation of veld products might mean degradation of a highly fragile ecology. The project therefore also includes domestication of marketable species and use of a quota harvesting system.

Attempts at finding additional markets for veld products are constrained by lack of data on available supplies of various products, sustainably harvestable quantities and inability to predict the marketing and processing potential of the communities. In case of sufficient supplies and operating finances South Africa could potentially provide markets especially for herbal medicines, teas and eventually plants from which oils and essence could be extracted.

9 ERITREA

9.1 Introduction

Eritrea is one the countries in the Region considered as a source of various plant varieties. Natural resource base – agriculture, forestry and wildlife play a pivotal role in the country's economic profile. Therefore, biodiversity conservation in general and forest resource management has been given high priority in the country's national planning process. It is fully recognised that forest resources have important functional and structural roles to play both at the national and local levels. Emerton and Asrat (1998) note that land degradation and deforestation are considered issues of major national concern and therefore soil and water conservation, catchment protection, afforestation and reforestation and the establishment of closures, protected areas and national parks are all afforded a high priority in agricultural and forestry strategies. As a direct result of this, incentive-based programmes to promote water and soil conservation through afforestation and reforestation have been undertaken. Through the use of food for work and cash for work, over 110,000 ha of permanent forest conservation sites have been established through consultative agreements with the immediate surrounding communities.

9.2 Historical profile of forest management in Eritrea

The country is currently focused at formulating macro-economic and sectoral policies aimed at stimulating economic growth. Although given high priority within the country's economic agenda, forest conservation may not necessarily be enhanced through the current national development activities. Therefore, deliberate efforts are required to ensure that sustainable forest management activities are implemented in the course of the priority national economic activities that are envisioned to contribute directly towards economic growth and development.

The Eritrean population and the national production base have been marked by war which has had considerable negative impact on the natural resource base. It is observed that as a newly independent state, Eritrea is at its initial stages of defining its economic profile and hence forest conservation and management has a relatively short history. The forestry and wildlife sub-sectors' policies have recently been developed and have not yet been fully adopted.

9.3 Challenges facing the forestry sub-sector

Agricultural expansion forms the immediate and more feasible development strategies the Eritrean government has emphasised on as a way of stimulating other economic activities and possibly achieving short to medium term economic development. Therefore, resettlement of the refugees and other displaced population is the main preoccupation of the government. Resettlement of the affected population has manifested itself in expansive forest clearance. Other serious threats to long-run forest conservation include the expansion of largely irrigated agriculture into ecologically sensitive and marginal zones. The cultivation of high-value exotic crops is perceived also as having higher returns in comparison to forest conservation.

A vast majority of the population live under the poverty line and depend heavily on biomass as the main source of domestic energy. Forest resources therefore are the

traditional sources of fuel. The expanding population also depend on the same resources for materials for shelter. These are basic indicators on the nature of challenges that may continue to face the forestry sector.

Land and land resource tenure is equally an imperative factor in determining the success of any government forest conservation strategies. It is noted that secure land and resource tenure is an extremely important precondition for forest conservation.[1] Although recent land reforms go some way towards improving the degree to which land users manage and benefit from various land resources, its positive impact on the forest conservation may take some considerable time before it is achieved. Land and resource tenure is indeed an important incentive measure that may stimulate local communities to increase their investment in conservation of forest and tree resources.

Some of the measures the Eritrean Government has put in place to ensure long-range forest conservation include the establishment of protected areas. However, these areas are under considerable pressure from the surrounding population and therefore the success of such measures may depend on the way the Government formulates its forest policy particularly in consideration of the surrounding communities. One possible problem being faced is that most of the areas ear-marked for protection lie in zones that have already been considered for resettlement. Therefore, it is argued that given these economic needs and pressures, the establishment of multiple use conservation areas in which there is a significant degree of local participation in management and decision-making may provide the only socio-economic conditions under which forest resources may be conserved.[2]

9.4 The economic benefits of forest resource conservation

Eritrea's forest resources have a high value although in many instances not easily quantified. Forest resources provide the raw materials for shelter, medicines, fuel, food and household utilities. Alongside the direct benefits, forests are sources of spiritual nourishment and basis for the local and indigenous knowledge systems. Other functional roles include climate amelioration, watershed protection and soil conservation. These are all roles that fully acknowledged both at the national and local levels. Subsistence and commercial economic production activities are therefore closely associated with forest resources. Overall, it is estimated that forestry contributes about 29% of the quantified economic value of Eritrea's biological resources and ecosystems.

In Eritrea, forest resources particularly have been known to support local economies. For example, frankincense, gum arabic and doum palm leaves are produced locally from indigenous plants to meet both subsistence and cash needs. In 1996 alone, the country earned approximately Nfa 5 million from the sale of about a combined total of 1,276 tonnes of these three products. Doum palm leaves alone are used for a wide variety subsistence and local trade purposes which include roofing, fodder, mats, ropes and other household containers. Honey production is seen as an important local forest resources that is an important source of the rural income in most parts of Eritrea. It is estimated that about 150,000 hives are managed in the rural parts of the highlands with a similar number

[1] See Emerton and Asrat, 1998.
[2] Ibid.

being maintained in the lowlands. An production of about 2,500 tonnes of honey has been recorded and thus estimated to be worth Nfa 40 million.[3]

9.5 Indirect benefits of forest resources to the Eritrean population

As already noted, forest resources not only provided direct benefits to the local communities and the national economy of Eritrea but also accorded the same population a wide range of indirect benefits. Most important indirect benefit of forest conservation to the national economy is the maintenance of environmental security and ecological stability. Therefore, catchment protection and erosion control through the maintenance of forest ecosystems cannot be overemphasised. Some of these values have already been expressed in economic terms and therefore are relatively easy to be incorporated in policy formulation.

[3] Emerton, L and Asrat, 1998.

10 ETHIOPIA

10.1 Overview

With an average in income per capita being US$ 120 per year, and population increase of about 3.3 per cent, and widespread poverty incidences, the place of forest resources within local livelihoods has become more critical than ever before among the rural and urban inhabitants of Ethiopian population. Forest land occupies approximately 2.9 per cent of Ethiopia's total land area. Forest degradation and depletion has marked the historical profile of forest management and conservation in the country. It is estimated that by early 1950s, high forests occupied about 16 per cent of the total land and as by 1980, forests occupied only 3.6 per cent with the current coverage being less than 2.9 per cent.

The current annual loss of high forest area has been estimated to be between 150,000 ha to 200,000.[4] Some of the immediate sources of forest loss which have been identified include population pressure particularly within the highland areas – where degradation has taken place at the highest rates, lack of afforestation and reforestation programmes, and policy and legislative regimes that have largely ignored the noble role local communities play in forest conservation.

However, in the recent past, efforts have been advanced in formulating biodiversity conservation strategies and action plans in general and in particular forestry action plans aimed at enhancing the involvement of the key stakeholders. Although the command and control approach through protected area systems is still common, there is growing realisation that incentive-based measures may achieve more effective forest conservation in the long run. Some of the incentive measures therefore that have been designed and implemented include the formulation of new forest policy and legislation; limited reform of land tenure; and involvement of the local communities in natural resource management.

10.2 Ethiopia's national economy

Ethiopia's GDP per capita is about US$ 120 a year and ranks as one of the poorest countries in the world. It is therefore noted that the Transitional Government of Ethiopia (TGE) that came into power in 1991 faces a series of environmental and natural resources conservation challenges which are as a direct result of two decades of inappropriate macro- and sectoral government policies, insecurity and civil war. During this period the country experienced considerable loss of the natural wealth due to environmental degradation including depletion and degradation of the country's forest base. EFAP argues that natural resource degradation is one of the factors accounting for the poor economic growth. This is indeed the context in which the country pursues its current economic development strategies in general and forest conservation in particular.

Agriculture plays a key role in the Ethiopian economy and accounts for approximately 45% of the GDP, 85% of exports, and employs about 80% of the workforce. Over the last two decades, the agricultural sector, like the overall economy has declined in growth. In effect agriculture has been the main source of stagnation and variability of the overall economic status. Due to extensive deforestation, soil erosion and loss of fertility have been attributed

[4] Teklay, T. 1997, The Present Status of Forests in Ethiopia.

to the declining productivity of the agricultural sector. The huge demand for fuelwood surpasses the supply and therefore the use of crop residues and animal dung as sources of domestic energy are widespread. Mismanagement of forest resources is directly linked to this scenario.[5]

Therefore, the TGE recognises that a reversal of environmental degradation is critical to the country's overall economic development. It has identified deforestation as one of the key environmental conservation problems and proposes to address this challenge from a multi-sectoral perspective including all areas that have an effect on land use. To meet this objective, the TGE supported the development of a National Conservation Strategy (NCS). The formulation of a NCS proceeded through the participation of key stakeholders at all levels. The first of the sectoral development programs prepared under the NCS is the Ethiopian Forestry Action Program (EFAP).

10.3 Historical profile of forest status

Historical data indicate that about 42 million ha or the equivalent of 35% of Ethiopia's land area might have been covered with forests (EFAP, 1994). However, with the inclusion of the Savanna woodlands, the estimation automatically rises to some 66% of the country. The remaining highland forests is an indication on how vast the areas were covered with high canopy forests in the ancient times. Forest decline has been evident and for example in the early 1950s, the forests that remained covered about 19 million ha or 16% of the land area. In the early 1980s, coverage was reported at about 3.6% and in the 1989, it was estimated at 2.7%. Some 5 million of savannah woodlands were remaining, giving a total forest and woodland area of about 7%.

There are about eight common forest vegetation types in Ethiopia and they include;

- woodlands
- natural forests
- bushlands
- industrial forest plantations
- peri-urban plantations
- community woodlots
- catchment and protection forests
- farm forestry

However, for practical management purposes Ethiopia's forest cover is classified into four main categories.

1 Natural high forests – commonly defined as land covered by a closed stand of trees with a more or less continuous canopy rising 7 to 30 m and sparse ground cover of few grasses. Ethiopia's remaining natural high forests include various types of montane forests concentrated in the less populated southern and western parts of the country. Humid and mixed forests occur in southern Ethiopia and Hararghe province, with *Podocarpus, Croton, Olea, Schefflera* and *Hagenia* at higher altitudes.

[5] Gesese, R. 1997, The prevailing economic and environmental realities in Ethiopia.

2 Woodlands[6] **and bushlands**[7] – Lowland woodland, bushland and wooded grassland represent a variety of woody vegetation types. They are mainly found in the Awash region, East and South Harerge, the Rift Valley and Sidamo among others.

3 Plantations – they include industrial and peri-urban plantations established and operated by the Government, as well as community woodlots and catchment/protection plantations. The majority of the industrial plantations are found within the boundaries of the National Forest Priority Areas (NFPAs). *Eucalyptus* and *Cupressus* are the main species in industrial plantations (58% and 29% respectively), followed by *Juniperus procera* (4%), *Pinus* (2%) and other species (7%). Community woodlots are plantations created and maintained by groups of farmers or a community.

4. **Farm forestry** – this system integrates tree growing within farming systems. The term is used for all land-use systems and practices in which woody perennials are deliberately grown on land also used for crops and pasture.

10.4 Forest management practices

Natural high forests, woodlands and bushland, the different types of plantations, and farm forestry all perform various functions including production, protection and conservation. For example, trees or woodlots planted on farms are primarily for production purposes, but may also perform important protection functions while the main goals for forest conservation according to the above classification is as follows;

Natural high forests – it is a national policy to use the high forests primarily for protection and conservation while commercial utilisation is a secondary objective. Present forest management regime has however failed to achieve this objective. The high forest areas are widely used by local communities for cultivating crops, some grazing and collecting fuelwood and building materials. Local communities consider the establishment of state plantations within the high forests to be an encroachment on their forest resources and land. The state's conservation and protection goals are therefore in conflict with the immediate consumption needs of the growing local populations. The Government has classified 58 of the most important high forest areas (totalling an estimate 2.8 million ha) as National Forest Priority Areas (NFPAs). Each area may include high forest, plantations and non-forested land. However, NFPAs have not been gazetted and this has contributed to the uncontrolled, illegal cutting and the encroachment and clearing of forest land for crop production and grazing.

This is a clear demonstration that the government's approach that is not people centred has a series of constraints that need to be addressed in respect to the conservation and management of natural high forests. The first step to help resolve this conflict of interest over the use of the high forests is to implement realistic management plans with the involvement of the local communities. The plans need to recognise their rights to the use of forest resources as well as obligations of the state so as to honour the interests of both

[6] Woodlands are defined as land covered by an open stand of trees taller than 5m and up to 20 min height and a canopy cover of more than 20%. It is further noted that woodlands here do not consider bamboo areas, riverine forests, and the mangrove forests on the Red Sea cost.

[7] Bushlands are defined as land covered by an open stand of trees and/or taller shrubs 2 to 5 m tall and a canopy cover of more than 20%.

the state and the local communities. Some of the specific constraints limiting the development and implementation of community-based management plans include the absence of State–local Community Collaboration mechanism. This is mainly attributed to the forestry staff having traditionally regarded the high forests as state assets which need to be protected at all costs from being 'illegally' appropriated. Therefore, the preparation of NFPA management plans needs to be a joint effort between state/community forestry, extension (crops, livestock, and forestry), land use planning, and conservation departments, local authorities and communities. The institutional arrangements required for such integration and co-operation do not exist. Secondly, poor extension approaches have been applied. While there is general adherence to the 'participatory' principle, extension officers, forestry staff, and land use planners lack the required skills to engage in a 'new' dialogue with farmers and community leaders. Thirdly, the legal status of the NFPAs and Land Tenure for farmers has acted as a disincentive to effective involvement of the local communities in forest conservation. The nationalisation of land in Ethiopia in 1975 has resulted in the public regarding as open their access to state controlled land (such as NFPAs). In as much as access to such resources is commonly perceived as ''open access'', people find little reason to abstain from consuming woody biomass and thereby, changing the use of the land.

Woodlands and bushlands – occur mainly in the pastoral and agro-pastoral zones. They are important sources of fuelwood and construction materials for the local communities. Production of charcoal for urban markets and collection of minor forest products such as gums, incense, myrrh and honey is also common in the woodlands. It is noted that the woody biomass of the woodlands and bushlands is being rapidly depleted by the spread of sedentary farming, the growth of pastoralist populations and attendants increase in livestock and the increasing urban demand for fuelwood and charcoal.

Therefore a major constraint facing sustainable use of forest resources within the woodlands and bushlands relates to pastoralism and enforcement of property rights. Pastoralists are traditionally users of semi-arid woodland and bushland and they are by definition, periodically absent from the land they use. This limits their ability to prevent 'outsiders' from cutting trees and bushes. Occasional absence of the pastoralists from these areas has been a potent incentive for outsiders to maximise on the benefits from these resources. Therefore, collective management for optimum land use (that involves the pastoralists and other opportunistic woodland resource users) is necessary. This implies that management of semi-arid woodlands and bushlands should not be left to the state or pastoralists alone but should involve other user groups.

Industrial plantations and peri-urban plantations – these forest types are aimed at the production of sawlogs, plylogs, transmission and telecommunication poles. They are owned and managed mainly by the Government. They offer limited benefits to the local communities. Their development by local communities and the private sector faces two main constraints related to land tenure and the pricing of forest products. A prerequisite for private investment in the industrial plantations is security of tenure of land and trees. Under pricing and lack of an incentive policy to internalise costs of production occurring as a result of 'open access' to forest resources on state and common land constitutes a major constraint on private investment in plantation forestry.

Community woodlots and catchment/protection plantations – community forestry in Ethiopia has been undertaken for two main reasons, that is, to provide fuelwood and construction materials for the community, and to reclaim degraded areas, particularly hillsides. Communal woodlots are usually maintained by Producer Co-operatives. However, even after the height of this campaign, less than 5% of the Ethiopian rural farmers are involved. As a result, the communal woodlots have never played a significant role on national scale. In the late 1980s, catchment/protection plantations were initiated on large scale by the Community Forestry and Soil Conservation and Development Department. The plantations were of varying sizes up to 80 ha. Larger plantations were officially state plantations. A wide range of factors have been associated with the failure of the establishment of community woodlots and they include;

The public good problem – protecting downhill agricultural and grazing land by tree planting on steep hill slopes produces benefits that cannot be appropriated solely by any single individual or in some cases even a single community. Those that plant and maintain the trees receive a fraction of the total benefits; small amounts of fuelwood and poles. The main benefits of reduced erosion, higher downstream crop yields, stabilisation of the watershed, and increased biodiversity in the area accrue to the population at large. For this reason, the work cannot be done unless incentives are provided.

The free rider problem – whereas all the farmers in the watershed may support the protection scheme, most would prefer to count their neighbours to do the work while still being able to reap the benefits. This kind of problem is common when the cause is collective but the benefits cannot be captured solely by those who do the work.

Land ownership and tenure – if communities are to invest in afforestation of hillsides or communal woodlots, the question of tenure of the land and the rights to the trees thereon will further need to be satisfactorily clarified.

Application of the **demand driven development** may enhance community involvement in forests conservation on hilltops. The initiative to establish and maintain hillside plantations and sustainability of benefits from such plantations will only materialise if the communities themselves support them. The initiative to establish such plantations must therefore come from these communities as part of their overall land-use plans which explicitly express their land use needs and priorities

10.5 Forest resources and its contribution to the national and local economies

Like in many other countries in the Region, the contribution of forestry to the national economy has not been systematically and accurately determined. Data on the stock of and flow of forest resources is scanty. However, with the limited available data and information, it is estimated that the forestry sector contributes 2.5% to the GDP. This figure reflects the value of forest activities which are easily quantified and marketed. The worth of forest resource flow to meet local household needs has not been determined.

Data on export of forest products is also scarce. However, the value of export of forest products -–mainly fuelwood and charcoal, is insignificant compared to the value of the country's total exports. At the national level, the main forest goods and services considered

include gathering of fuelwood, production of timber (mainly round wood and poles for use in industry and construction; production of charcoal; production of natural gum, incense, and medicinal herbs. In 1988/89 forestry sub-sector's employment-generating capacity amounted to about 2.2% of the total work force and 2.8% to the agricultural sector. However, it is argued that the officially reported contribution of the forestry sub-sector to GDP does not reflect the true contribution of forestry to national income. Forest activities responsible for the creation of these employment opportunities include fuelwood production[8], reforestation and afforestation activities, wood-based industries and industrial plantations, and incense and gum production. The value of forest resources to local livelihoods has not been determined thus suggesting that there is gross under-estimation of the value of forest resources.

10.6 Enhancing community involvement in forest management

In the past, forestry development in Ethiopia has largely adopted the command and control system with heavy emphasis on the development of plantation forestry. Achievement of macro-economic policy of promoting development in the economic sector has been the aim of plantation forestry. Local community involvement in forest conservation has received minimal attention but it is noted that there is a gradual change on the part of the forest conservation agencies. The recently completed National Forestry Action Plan (prepared following the recommendations outlined in the National Conservation Strategy – NCS) pays special attention on the need to promote people-centred forestry development. Forestry activities if effectively implemented with the support of the grass-root communities is identified as an important avenue for improving various communities' livelihoods. The country's intentions to formulate Forestry Action Programmes at the regional level is another manifestation of community-centred forestry development being promoted.

The command and control system as in many parts of Africa failed to realise sustainable forest management patterns. Therefore, with time the government has reverted to the use of incentive-based measures to stimulate the participation of local communities in natural resource management.

The use of this type of incentive measures recorded three major achievements.

- There was spectacular increase in fodder production in conjunction with the regeneration of pasture lands declared off-limits grazing,
- An economic rate of return of 10% (and up to 20% with more modest investments in conservation) proved a major incentive to community participation
- Increased production of fuelwood and construction materials.

The implementation of the project too had a number of constraints.

- Poor co-ordination and energy among the various agencies intervening.
- Slow start if the project due to the wrong assumption by the state agencies that demonstrations on small areas would be sufficient to induce farmers to carry on the work on their own.

[8] Absorbs approximately half of the total workforce in the forestry sector. This indicates the extent to which fuelwood gathering is responsible for the alarming rates of forest loss.

- Inadequate capacity among the peasant Association members to participate effectively in project preparation
- Lack of stated standards for peasant Association on the use of off-limits or restricted grazing lands.

This project is a clear demonstration on the importance of specific elements of incentive measures in the forestry and conservation programs which include;

- Food for work partially offset the economic capacity of the community and their involvement in forest conservation was enhanced.
- Secure land tenure, the acute fuelwood and food supply problem and government encouragement all had an enormous impact in peasant involvement in the various conservation works.
- Secure land tenure overcame the problem of guarantee that the peasant would be able to harvest the long cycle tree crops planted.

10.7 Constraints and challenges related to community involvement in forest management

Efforts invested in the promotion of people centred forest conservation although minimal have experienced a number of challenges which take a wide range and may be described as non-inclusive planning process, attitudinal, perverse policy regimes, non-inter-sectoral integration, and gender insensitivity.

Forestry development has been promoted through a centrally planned process with heavy emphasis on state involvement in the production and management of forest goods and services. Expansion of industrial forests has been the main emphasis. Similarly initiatives focused on community involvement in forest conservation and management have been viewed by the communities as a continuation of the state's control on forest resources. It is noted that local communities distrust the government, having witnessed their grazing land expropriated for the establishment of protection forests or National forest Priority Areas.

It is further argued that some community members have been unwilling to participate in forest activities with no clear basis on benefit sharing.[9] Individual private forestry development and/or effective involvement of local people has mainly been discouraged through land use policies which have prohibited private ownership of land and trees and instead established state monopolies on the market for wood and wood products whose controlled prices are below the economic value, thus, leaving the local people without an incentive to engage in forest activities aimed at wise utilisation of forest products.

Until recently, forest development has been pursued largely in isolation from agricultural development. Uncoordinated sectoral development strategies have therefore placed forestry activities in conflict or competition with agricultural development. In effect, these two sectors should be viewed as being complementary within the household economic production. Gender perspective has not been adequately incorporated in forest conservation. Women in many cases are intricately linked to trees and forests. However, women tend to be ignored during the planning and implementation processes of forestry activities.

[9] Teklay, T. 1997

Imperative to community involvement in forest management is land and tree tenure. Because trees and hence forests have long gestation periods, the decision by mostly resource-poor farmers to invest in forest activities is largely influenced by their perceptions on the level of the risks involved. Over the last 20 years, land and tree tenure have made community involvement in forestry activities unattractive. Frequent redistribution of land has exacerbated the local communities negative attitudes on the high risks of land repossession.

10.8 Constraints to forest resource management through local community's participation

Based on research conducted in the Northern Ethiopian Highlands, a number of specific issues were found to contribute profoundly to lack of interest in the local communities to effectively participate in natural resource management. It was concluded that the environmental problem in Northern Ethiopia should be defined not just in terms of the defence of the environment against human use, but how natural resources can best be managed and exploited creatively for people's benefit, to optimise their usefulness to the present generation and to maintain and enhance their ability to sustain future ones. This implies that the local community and other stakeholders must invest in the management of natural resources. However, the research concluded that the Ethiopian peasantry is too exhausted from repeated droughts, inappropriate land and resource tenure, centralised planning and civil strife to embark on a transition to sustainable resource use within their local communities. Therefore, this calls for the Government and the international community to intervene by assisting the Ethiopian Government to reform its land use and natural resource policies and laws, to establish realistic natural resource conservation strategies and action plans.

In many of its policy statements, the Ethiopian Government has rightly identified the impediments in sustainable natural resource conservation.[10] The Government report on conservation of biological diversity, it was stressed the remaining areas under natural forest should be afforded the highest protection possible as a matter of urgency. Measures were also identified to accelerate the rehabilitation of degraded lands through afforestation and community tree planting. Some of the specific measures included the expansion of plantation forests to meet the increasing fuelwood demand and industrial timber needs and the use of incentives to increase the participation of people in forest development and conservation. Some of the specific incentive measures identified include clarifying the laws on land tenure and benefit sharing with the local communities to compensate what they see as lost access to traditional systems of forest utilisation.

10.9 NGO Activities and their impacts on forest resource conservation

As of 1992, some 30 NGOs supported the implementation of over 50 projects in the area of forestry and soil conservation. Community forestry is supported by FARM AFRICA, Food for the Hungry International, Society of International Missionaries. FARM AFRICA is actively promoting multi-community collaborative program to conserve the remnants of montane and riverine forests outside Addis Ababa. CARE, Red Cross Society of Ethiopia,

[10] Transition Government of Ethiopia, 1989, Conservation of Biological Diversity.

Self-Help, World Vision and ARM AFRICA have successfully implemented participatory approaches to forestry extension.

11 KENYA

11.1 Introduction

It is estimated that forests[11] cover approximately 2.8% of Kenya's total land area. This area is dominated by closed canopy indigenous forests and forest plantations which occupy an area of approximately 1.24 million ha and 0.165 million ha respectively. Kenya's forests are classified into four basic categories which are based on regional climatic conditions. They include, coastal forests (82,500 ha of natural forests and another 3,200 ha of plantations), montane rain forests (consisting of about 748,500 ha of natural forests and 102,800 ha of plantations), western rain forests (mainly located within the western region of the country and they cover 49,000 ha of natural forests and 18,600 ha of plantations) and dry zone forests (about 211,000 ha and 8,200 ha of natural forests and plantations respectively).

As well providing environmental security and ecological stability, Kenya's forest estates provide the local communities with energy sources, construction materials, foods, medicinal plants and socio-cultural satisfaction. In effect it is estimated that about 3 million forest adjacent dwellers directly depend on forest resources to meet their basic household requirements.

At the national level, the country's forest sector contributes about 1% and 13% to the monetary and non-monetary economies respectively. However, it is postulated that this contribution is grossly under-estimated given that the contribution of the sector to local economies is not accurately reflected. It is estimated that forest-related enterprise and industry may on annual basis provide employment to over 60,000 people, generate revenues to the Forest Department of over US$ 0.7 million, yield formal sector industry earnings of over US$ 2 million and produce about US$ 22,000 in foreign exchange.[12] Arguably, on the basis of the role of forest resources to both national and household economies while other factors being constant, there is evidence of economic incentives to stimulate community involvement in forest management. At the same time, these incentives may lead to over-exploitation of the same resource that is pivotal to livelihood systems.

11.2 Forest management regimes

Forests in Kenya fall within different management regimes and therefore have different legal status. A vast proportion (about 1.65 million ha) of the indigenous and plantation forest land is gazetted – areas which have been surveyed, demarcated and declared as forest reserves. Forest reserves are owned by the government and managed by the Forest Department. Joint management by FD and the Kenya Wildlife Service (KWS) applies to those forest areas which are covered under the Memorandum of Understanding (MoU). Typical examples of such forests include Kakamega, Arabuko-Sokoke and Shimba Hills. Those forests located on Trust lands are normally held in trust by the Local Authorities on

[11] Referring to all forms of woodland, plantation, and indigenous forests including the mangroves. Specific references to forest types (natural forests, forest plantation, bushland, farm woodlots) are made in the text where necessary.

[12] See Emerton, L. 1998.

behalf of the local residents. The Forest Department has limited control over forests found on private farms.

Forest exploitation in Kenya is subjected to the provision of the Forests Act and to some extent Presidential Decrees and directives. The Act stipulates the various forest entry and utilisation procedures and likely penalties in cases of illegal use. The command and control approach of conservation has been widely used since formal forest management was instituted in Kenya in the early part of 19th century. However, forest degradation and depletion over the years has assumed an increasing trend. It is estimated that the country losses about 5,000 – 6,000 ha of forest areas to sanctioned excisions and illegal encroachment by the adjacent communities. A number of reasons have been advanced for this trend and prominent among them is peoples' engagement in economic activities that tend to degrade forest resources because these options are cheaper and more profitable to them in their private capacities. The exploitation patterns are largely aimed at maximising the private benefits. Some of the economic activities considered as threats to sustainable forest management in Kenya include, charcoal production, over-grazing, forest encroachment and development programmes perceived to be more profitable than maintaining the forest.[13] In many of these cases, the government's traditional approaches to conservation – the command and control – has alienated the local communities in particular from forest management and therefore they have limited incentives to be rational in the process of forest resource exploitation.

11.2.1 Historical profile of forest conservation and management in Kenya

The current status of forest resources in Kenya is largely a result of historical efforts invested by a wide range of stakeholders and in particular by local communities. The history of forest conservation in Kenya is as old as the communities who have depended upon it. The Kenyan economy being mainly agrarian, the forestry sector plays a major role in supporting the country's natural resource-based economic production and consumption activities.

Prior to the introduction of the protected area system of conservation, local and traditional institutions[14] in place then regulated and controlled forest resources ownership, access, and exploitation patterns (Kamugisha, *et al.,* 1994). Studies from the Pokot and Turkana regions of Kenya (Barrow, 1988) indicate that local people embrace traditional management regimes which they have applied for several years to use local trees sustainably. Nevertheless, since the introduction of formal management systems,[15] traditionally and locally-based mechanisms of forest management have been eroded.

Formal conservation interventions disregarded (and largely continue to do so) the need to involve local communities in decision-making. Prior to gazettement, the local community's consent is hardly sought for by the government. The conventional practice (Republic of

[13] Gathaara, 1999. Some of these factors have been pointed out as real threats to the conservation of Mount Kenya Forest and therefore remedial interventions are required urgently.

[14] These include norms, knowledge and practices.

[15] Important implications of formal forest management include the following: the declaration of land resources within gazetted areas as being the property of the Government; the Government through the Forest Department regulates and controls access and use of forest resources; and commercial activities and any benefits thereof accrue to the Central Government, e.g., all transactions related to the sale of any forest product (fuelwood, saw logs, thinning, seedlings and poles/posts among others.

Kenya, 1982) of giving a notice through the Kenya Gazette is ineffective for two reasons. First, a fair proportion of local community members are illiterate and therefore are not equipped to read the notice and, secondly, the Kenya Gazette does not reach the rural areas where most forest estates are located. Local communities' perceptions and values regarding forest components are therefore inadequately reflected upon in the management tools to enable the formulation of appropriate incentive measures to enhance communities' involvement in forest management.

11.2.2 Historical landscape of forest management

It is estimated that two to three millennia ago, 12% of the wetter parts of the country were under forest cover (Hutchins 1909; Logie, *et al.*, 1962) - as compared to the current area of about 2.8% (IUCN, 1996; Gathaara, 1999). Extensive cultivation and commercial exploitation of forest resources were uncommon in the earlier days and this may have accounted for the large areas under forestry then. Local and indigenous systems and practices for forest resources conservation included resource use and access sanctions that were easily enforced through taboos, customary regulations, and rules. During the pre-colonial era, for example, Kakamega forest was protected by religious taboos and its utilisation was restricted by community-based management (Kamugisha, *et al.*, 1994).

Since 1891 a number of interventions have been undertaken to protect forest resources, particularly in areas where commercial exploitation and the frontier population were conceived as a threat (Table 3.1 presents a summary of these interventions). For example, indiscriminate commercial exploitation of forest resources caused concern and in 1891, the first forest legislation was established to regulate mangrove utilisation around Vanga (Coast region). In 1900, legislation was extended to cover all coastal forests and those along the railway line (Logie and Dyson, 1962).

Table 1: Summary of major enactment related to forestry development

Year	Legislation/Intended Action	Purpose
Prior to 1890	All forest blocks under customary management	to ensure community members benefited fairly from forest resource conservation.
1891	First forest legislation	to protect mangrove forests at Vanga - Coast
1897	Ukamba woods and forest regulations	Established a strip marking two miles each side of Uganda railway. Strip was effectively placed under the control of D.F.O and railway Administrator.
1900	Extension of 1891 and 1897 regulations	to cover all forests in the coastal region and all those along the railway line.
1902	Establishment of post of conservator of forests	the post was created to oversee the management of regulated forests from the national level.
1902	East African Forest Regulations	allowed for the gazetting/degazetting of forests and control of forest exploitation through a system of licences and fines
1908	Major gazetting of forest blocks, boundary surveying and marking	to bring the majority of forest blocks under the control of the government
1932	Declaration of remaining expansive forests as gazetted	to bring under control most of the forests in the high potential areas under the control of the government
1932	First draft of the Forests Act	to outline circumstances under which various activities were to be carried out by various stakeholders.
1947	First revision of Forests Act	focused on including forest protective aspects
1957	First forest policy paper on	Outlined governments plans in respect to forestry development

	forestry	
1967	First sessional paper on forestry, first forest policy	outlined for debate in more concrete terms intentions of the government in the forestry sector. Policy paper accepted as the official government policy for forestry sector
1985	Ban on *shamba* system	to resettle communities outside gazetted forest areas
1982	Second revision of the Forests Act	same as for 1947
1986	Presidential order on establishment of Nyayo Tea Zone Development Corporation (NTZDC)	physical buffer zone between agricultural land and forests. Designated for protection, provision of alternative source of income and employment
1988	Establishment of NTZDC as an Act of parliament	as above
1994	Draft of revised forest policy - still awaiting cabinet approval	to confront realities of forest management by being more less 'preservationist' centred. Concept of local community management indicated earlier.
1996/7	Revision of forest technical orders and notes	to include recent research findings and reflect the evolving requirements of effective forest management.

Source: (Wass, 1995; Logie, *et al.*, 1962; KFMP, 1994; Hutchins, 1909; Castro, 1988)

The various pieces of legislation and actions undertaken by the government in the forestry sector allude to one major point. Local communities are largely perceived as the main threat to forest resources. There is little attempt to systematically understand the nature of the perceived threats, and the way communities perceive forestry resources. Therefore the introduction of most of the mentioned intentions and legislation lead to curtailed fulfilment of household needs based on forest goods and services. Thus the welfare of local communities who depend on these resources is adversely affected. Public qualitative knowledge on the role of forestry resources at local level notwithstanding, there is little, if any, integration of quantitative data on the economic value of forests into the planning process.

For several decades, as in many parts of the world, various communities in Kenya have relied on the forest as a source of their livelihood. Some of the community needs forests have fulfilled include, fuel-wood, foods, medicines, construction materials, wild-game, and shelter among others (see for example Pearce and Brown, 1994; Castro, 1988). Alongside the structural roles, forestry has been recognised by these communities to serve other important functional roles, for example, as a source of spiritual nourishment and knowledge base, sacred sites for giving offerings and even as a 'rainmaker'. For example, Castro (1988) notes that the indigenous people of Ndia and Gichugu regard Mount Kenya as a resting place of *Ngai* - the supreme deity. Kamugisha, *et al.*, (1994) observes that in the early 20th century, the Luyha community inhabiting Kakamega forest-adjacent areas used the forest and specific trees to discipline wrongdoers. The latter were taken into the forest and made to swear by certain trees not to repeat an offence lest death or punishment from ancestral spirits would follow, as was believed. These roles and functions have underpinned perpetual inspiration of community participation in the conservation of forests. In effect, some of the small forest blocks in Kenya have remained because local communities have looked after them and extended traditional control over their use, for example Kisere forest in Kakamega District (KFMP, 1994). The recommendation drawn based on this observation is that their future lies very much in the hands of the communities, and this should be recognised and communities encouraged to continue looking after them in the face of increasing land pressure and changing socio-economic conditions.

Although perceived as a major disincentive to effective community involvement in forest conservation, formal management regimes have also played a significant positive role in conservation, particularly in areas where land hunger is most perverse. In the absence of strong and credible traditional and locally-based resource conservation, the combination of poverty and perceived or real land scarcity would have had a toll on forest resources.

Developmental/evolutionary and to some extent revolutionary management techniques and approaches have marked the historical landscape of forest resource conservation in Kenya. The 'evolutionary' process is applied in this context as a systemic change in management based on changing socio-economic conditions, either from national or local perspectives. Forest conservation-related economic needs and real threats are in this context the engine of an evolutionary management system. On the other hand, revolutionary process measures are driven by subjective judgement on the status of forest resources. This process is not entirely engineered by needs or real threats, but by subjective judgement on forest status. This is exemplified by policy measures which are taken due to perceived threats, without necessarily being founded on actual data. The inception of formal forest management regimes in the 1930s is characteristic of a revolutionary process in the forestry sector given that traditional communities' management approaches were radically transformed into a protected area management system.

The current status of forest resources is a direct product of the transformations that characterised the forestry sector in the early parts of the 20th century. This period also marked a turning point in forest resource management in two aspects. First, forest frontier communities experienced a move by the forest management authorities to alienate them from resource management. Richard and Tucker (1988) note that the restrictions on the Kikuyu tribe's traditional access to Mount Kenya and other grazing lands disrupted their way of livelihood significantly. Secondly, exotic species plantation establishment efforts were intensified with *Eucalypts, Cuppressus*, and *Pines* species being the most dominant (Troup, 1922). Eucalyptus species was established along the railway line as a source of energy for the locomotives while pines and cypress species were established as sources of industrial forest products (Logie, *et al.*, 1962). These three species constitute what is the Forest Department's plantation sub-sector. Gazetted closed canopy forests occupy about 1.7 million hectares, while plantation forestry covers about 0.16 million hectares, with the highest area being under C*upressus* species.

Forest management in Kenya has been driven by two categories of management philosophies, i.e., utilitarian and the preservationist philosophy . In principle the former approach is perceived as an important incentive to conservation while the latter is a potent disincentive. The underlying principle of the 'preservationist' approach is the exclusion of protected areas from extractive activities (Pearce, 1990). This applies mostly to forests within national parks and reserves and forest nature reserves (Spash, 1997). The philosophy behind true conservation is that of allowing sustainable extractive and non-extractive activities from designated ecosystems. In most cases, the basic approach to resource protection either through preservation or conservation, leads to local custodians being constrained in respect to access, utilisation and control of the very basic resource that supports their livelihood.

11.2.3 Challenges and realities of forest management

In spite of government measures, forest degradation and depletion has continued unabated. The government perceived some of the forest activities to have run out of control and these were banned in the 1980s through Presidential Decrees or forest departmental orders and rules including logging of indigenous tree species, charcoal burning and residential cultivation in forest areas under plantation establishment. Cultivation in the forest was later re-introduced as the non-residential *Shamba*[16] system. Nevertheless, most of the other banned activities have continued illegally in most forest estates in the country. These measures have been undertaken to control what the government perceives as over-exploitation of forest resources by various stakeholders in general and by the local communities in particular. There is a need to note that there is no established mechanism through which the local communities may influence decision-making and implementation of such measures. Measures in form of bans and Presidential Decrees have in many cases lead to spiral resource degradation.

However, Davies, *et al.*, (1998) and Heywood (1995) argue that one of the most important elements (thus incentive) of forest resource conservation is the provision of space for cultural assertion and spiritual welfare, experimental social learning, including the articulation and application of indigenous knowledge in addition to theoretical and scientific knowledge. The lack of scientific knowledge on local forest use and values is a major impediment in forest planning and management in Kenya. There is minimal data on forest stock and resource flow and the general contribution to social and economic welfare of various stakeholders.

The current status of various forest resources, primarily in areas where the government has had minimal control, is a result of prudent application of accumulated traditional and indigenous knowledge systems. For example, Ellis *et al.*, (1984) found that there is no evidence of deforestation or other adverse environmental impacts due to anthropogenic activities in South Turkana in Kenya. This is attributed to the lifestyle the inhabitants of the area (the Turkana tribe) have adapted in response to ecosystem dynamics, by raising stock which take advantage of the existing woody forage, by maintaining mobile and dispersed exploitation patterns and selective use of trees. These knowledge systems are products of several years experimentation and innovative practices. Nevertheless, in areas where the government has had control, the inauguration of formal management systems, local peoples' knowledge of forest conservation was inadequately considered as an important ingredient in the design and implementation of the interventions. Davies, *et al.*, (1998) observe that most conservation programmes have largely failed because they did not have a process in place and within the planning matrix to learn about local peoples' needs, aspirations and knowledge.

The principle of stakeholder involvement in forest management has barely been embraced by the government. It is pointed out (KFMP, 1994) that forestry has been mainly in the hands of the state with insignificant involvement of other stakeholders. The forest department has been the developer-manager of the forest resources and as a controller of

[16] This is the equivalent of the *taungya* system where trees and ordinary agricultural crops are raised on the same piece of land until the point when it is no longer possible to grow agricultural crops due to tree crop dominance. Affected farmers are then allocated another piece of land where the same system is propagated. *Shamba* is a Kiswahili name referring to farm (see Castro, 1988)

their utilisation by local people and the private industrial sector. Nevertheless, lessons learnt from the Communal Areas Management Programme for Indigenous Resources (CAMPFIRE) and from other parts of the world (Nepal, Indonesia, and India) indicate that for effective long-run conservation to take place, there must be positive economic benefits that outweigh the costs associated with conservation of protected areas (Western, D. *et al.*, 1994; Poffenberger, 1994; Metcalfe, 1994; Kigomo, *et al.*, 1993; Owen and Talbott, 1995).

Local community value identification and quantification provides an important indication on the beneficiaries and cost-bearers of resource conservation (IIED, 1997b). For such values resources hold for communities to have an impact on the planning process, they may be viewed within the wider livelihood framework, that is, by taking into consideration socio-economic factors. Titi and Singh (1995) argue that the path towards sustainable development and the reversal of impoverishment processes lies in the recognition of the existence of mutual and dynamic interactions between the social, political, cultural, economic and ecological factors of local communities. It is on this basis that measures may be designed to minimise both private and social costs of conservation while maximising the net benefits and this is the biggest challenge facing forest resource conservation authorities in Kenya.

11.2.4 A paradigm shift in forest conservation approaches

In the recent past, there has been a shift in conservation and management approaches. Local communities' knowledge and practices are being considered, at least in principle. Lack of adequate policy and institutional arrangements to enhance community-based conservation strategy is at the moment the main hindrance (KFMP, 1994). As already noted there is some realisation, as identified in the current forest policy[17], of the growing need to bring all the stakeholders into the conservation arena as partners. Therefore, the biggest challenge is how to involve the wide array of stakeholders, especially local communities, with divergent interests as partners in time. One possible avenue is to assess the various preferences and thus interests of local communities in forest conservation and management. IIED (1997b) suggests that local valuations with resource users reveals more comprehensive and relevant, rather than assumed, economic values of local resources and incentives for their management. Local-based data provides better information for policy making and thus increases the likelihood of designing and implementing more appropriate policies and plans. Possible strengths with the current forest status and interaction with the local communities rests on the fact that these communities, though under land pressure, still value local forest resources - not only for the provision of tangible economic benefits but also as sources of satisfaction that go beyond what the conventional market-based systems can measure.

11.2.5 Recent efforts in enhancing forest conservation

Over the years, the government has taken a number of measures to arrest forest resource degradation and depletion. Instituted measures range from policy oriented, practical management to institutional aspects. Some of the more specific and pronounced measures include, gazetting particular areas as conservation and protection areas; creation of various institutions with specific mandates in forest conservation; and intensification of patrolling and policing of protected areas; re-introduction of non-residential *shamba* system.

[17] Although drafted in 1994 and still awaiting Cabinet approval.

In addition, between the period covering 1991 to 1994, through the now defunct Kenya Indigenous Forest Conservation Programme (under World Bank Forestry IV), the government made attempts to involve local communities in forest management as active partners[18]. The programme's overall aim was to enhance forest conservation without adversely affecting the livelihoods of people who depend on forest resources. Direct and more active involvement of local communities in planning and management of the forests was one of the key interventions advanced by the government.

The completion of the Kenya Forestry Master Plan is an important step in addressing sustainability in the forestry sector. The overall goal of the Plan is to enhance forest management so that the sector makes an increased contribution to the country's national economy by attaining a balanced distribution of the costs and benefits (first by internalising costs of management). Enhancing the role of the forestry sector in the socio-economic development of the country, particularly in the rural areas stands out as being an important overall objective of the interventions articulated in the document (KFMP, 1994). An important recommendation contained in the Plan is that in future, the forestry authority considers involving actively all of its development partners.

Documentary tools of forest management have been revised in the recent past to reflect the challenges of forest management in a changing socio-economic environment. The current Forests Act and the 1968 forest policy were revised in 1992 and 1994 respectively, although the latter is still awaiting cabinet approval (Emerton, 1998; Republic of Kenya, 1992). The Environmental and Co-ordination Act provides for the integration of traditional knowledge for the conservation of biological diversity with mainstream scientific knowledge. The Act also provides for the measurement of the value of unexploited natural resources in terms of functional and structural roles (Republic of Kenya, 1999).

From time to time, Presidential decrees have been instituted to curb activities that undermine sustainable forest management. The ban on extraction of indigenous species, residential *shamba* system, (commonly known as the *taungya system)*, forest grazing, wild honey harvesting and use of power saws within forest areas are some of the decrees effected in the last fifteen years or so. Some of the decrees issued may have no management rationale, but are implemented for the *common good of all*. Institutional measures include the establishment of various institutions with various forest conservation mandates. Other than providing a host of disincentives to community involvement in forest conservation, there is no authentic data base on how successful these interventions have been in achieving the overall goal of forest conservation, that of improving the livelihoods of Kenyans.

In spite of the aforementioned efforts, forest degradation and depletion continues unabated. As earlier stated, it is estimated that the country loses close to 6,000 ha yearly (IUCN, 1996). Clearly, at this rate, if all other factors remain the same, the country will witness the total demise of the forestry sector in the next two millennia.

[18] This was on a pilot basis with Kakamega forest (western rainforest), Mau complex (montane type of forest) and Arabuko-Sokoke (coastal forest) being the pilot sites

11.2.6 Institutional structures and arrangements for forest conservation

The number of institutions linked either directly or indirectly to forest conservation and management in Kenya is large. However, the forest department is the principal institution charged with the overall mandate of forest resource conservation and management - broadly regarded as the forest management authority (KFMP, 1994).

Two broad institutional categories can be identified, that is, formal and informal institutions. Formal institutions in this context refer to institutions sanctioned by the government to carry out activities aimed at enhancing forest conservation and this is the class under which most of the known institutions fall. On the other hand, informal institutions refer to organised groups or values that contribute to forest conservation although not sanctioned by the government - most of them being at the grassroots level and hence less known in the wider circles of conservation.

Values related to informal conservation institutions are, as argued early, inadequately incorporated into policy formation. This is clearly linked to the origin and intentions of initial conservation aims which were particularly driven by market-based principles. Informal institutions basically add value to forest conservation through the absorption of forest benefits and costs although primarily outside formal market-based mechanisms. Traditional conservation mechanisms are important informal institutions that have contributed in some cases to sound forest management (Kajembe, 1994). Positive preferences concerning forest conservation for cultural purposes is an important institutional dimension that cannot be over-emphasised. However, in forest management, formal institutions tend to play the major role, thus closing out the participation of informal institutions. Without the formal institutions creating space for the informal institutions to express and advance their values and priorities regarding forest conservation, it may remain hard to achieve sustainable forest management at the local level, a level where informal institutions abound.

The status as given above clearly indicates that local communities as important institutions for forest resource management are not reflected within the framework of formal forest management. The various policy documents do refer to local communities as important agents of forest utilisation and hence the need to be involved, but they do not address the imperative question on how this may be achieved. As already mentioned, in principle, many of the formal institutions have started to realise the need to incorporate local people's values into forest management and planning processes. The Forest Alliance Initiative by the World Wildlife Fund and the World Bank aims at promoting forest conservation by forging partnerships with various stakeholders, including the local communities (World Bank/WWF, 1999).

11.3 Policy and legal framework

This section analyses the body of policy and legislation relating to the forestry sector in Kenya and examines changes over time in relation to local communities. Its aim is to examine how policy and legislative changes have enhanced forest conservation and in particular the place of local communities in forest use and management. The section concludes that forest policy and the legislative processes have had a minimal contribution in enhancing the inclusion of local forest values into the planning processes. Similarly, the frameworks have had little regard to local community interaction with the forest resources.

These processes largely fail to set in place mechanisms through which planners can take into consideration local forest values in planning and decision-making.

This is based on the background that the legislative and policy measures are important elements in the formulation and implementation of comprehensive plans for the conservation, management and utilisation of forest resources. They have the potential to provide the structural framework and controls necessary for rational, informed and wise decision-making as it relates to access, utilisation and other economic incentives for forest resources conservation. Although current reforms in the forestry sector constitute a significant advance over the previous traditional 'exclusionist' and 'preservationist' approaches to management, they still fail to provide adequate room for the recognition of local communities values. The frameworks also lack the guidance of appropriate economic signals which reflect the full social costs and benefits of conservation.

11.4 Local communities in forest management: Reflections on forest policy

As already noted, the historical profile of local forest management by communities is complex, being a history of learning, experimentation and innovation. These factors have been associated with efficient resource utilisation that characterised communal resources management. It is noted in many areas that local resource transformation and transaction costs were kept at a bare minimum - though not necessarily in monetary terms (Sjostrand, 1993). There are several explanations of this effect. One of the most important factors that contributed to increased efficiency was institutional flexibility. The framework evolved in line with community needs, priorities and aspirations. Exogenous factors were less pronounced and hence had minimal impact on resource development trajectories adopted by traditional communities. The most important factors included political, cultural and economic structures that promoted community development based on natural resources in general and forestry in particular. Within any single community, interests and exploitation patterns were clearly governed by traditional norms.[19] Therefore, one question that needs to be addressed is whether the introduction of formal forest management through forest policy and other legislative tools took all these factors into consideration so as to incorporate specific incentive measures as necessary instruments for long range forest conservation. Castro (1988) argues that the transition from customary to state control and its impact on forest access, exploitation, and management are vital issues of understanding contemporary forest use patterns in Kenya.

11.5 Local community perceptions and values of forests

In the rural areas the number of people living below the absolute poverty line is estimated to have increased from 40.2% in 1982 to 46.4% in 1992 (Republic of Kenya, 1997c). Although it is not precisely clear on the influence of poverty incidences on the effectiveness and propensity of community involvement in forest conservation, the statement underpins the importance of forestry resources to local communities who have limited access to heavily commercialised products. The reserves are essentially the producers of the major requirements of local communities, and thus mostly referred to as production units. What is effectively being witnessed is increased reliance on the

[19] Where norms consist of built-in expectation, they are products of past experiences and interactions. Grouping of norms include laws, regulations, rules, routine, conventions, traditions, customs, myths, taboos and habits. - see Sjostrand, (1993)

environment as the primary source of these important materials. The missing link between policy formulation and the state-of-the-art is the economic worth of the numerous benefits of forest conservation in not only being a source of required subsistence needs but also as a source of cash-income through local trade in forest products and therefore the nature of (dis)incentives to promote sustainable forest conservation..

The place of forest resources, in spite of their central role in the local economies, receives relatively less attention as compared to other resources in the economy. This scenario has exacerbated the impact of perverse incentives on the forestry sector. One of the major aims of the current development plan is to improve the quality of life of people in the rural areas by encouraging value adding to agricultural and livestock activities (Republic of Kenya, 1997c). One can argue that the forestry sector is not mentioned for two reasons: firstly, either the status of forests activities does meet current requirements (quantities and qualities), or secondly, the value of forest resources in the local economies is minimal and hence warrants no attention. The latter reason is more probable than the former given that forest processing and recovery in the country is very poor (Kant, 1992). This is an indication that policy makers have not realised the human economic values of forest resources in full. Over-centralised, bureaucratic processes fail to take advantage of local knowledge of the needs, preferences and opportunities or of the managerial capabilities of local communities (Repetto, 1986).

11.6 Ownership and control of forest reserves

As currently defined, gazetted forests are legally under the custodianship of the Government with the forest department being the principal management authority. Gazettement inherently denies and/or restricts the right of local communities to control, have free access, use and to claim ownership over forest resources. The existing policy and legislative measures firmly vest monopoly control over Kenya's national forest estates and responsibility for their management in the Central Government. As indicated earlier, the Government has the legal powers of altering forest boundaries, gazetting areas as forest areas or even degazetting by giving a 28 day notice in the Kenya Gazette (Republic of Kenya, 1982). The 1968 forest policy which is still in use (effectively) reveals a situation where local community values are subordinated by the government's conservation approach. This is exemplified by the provisions of the policy which state that:

> *"... In principle the Government's view is that the existence of private rights in the Forest Estate tends to endanger the objects for which the Government manages the estate and such rights are therefore objectionable. The Government's policy is, therefore, firstly to define and limit any existing rights, secondly to negotiate on a just and reasonable basis the final eradication of such rights and, thirdly, to allow no new rights to arise ..."* (Republic of Kenya, 1968)

The proposed forest policy considerably relaxes the degree to which local communities are excluded from forest management. The role and importance of NGOs, the private sector and local communities in forest resource management is articulated in the proposed forest policy and the Master Plan (KFMP, 1994).

11.7 Access to forest resources

Forest use in Kenya is primarily defined and regulated through the issuing of licenses, the establishment of restrictions and fining or imprisonment of illegal forest users (see for example Republic of Kenya, 1982). Overall, these provisions specify that no person shall without license utilise forest land or products, and restrict access to forests at particular seasons and times of the day. However, the Act makes specific reference to forest use by local communities, contained in subsidiary legislation rules relating to forest reserves which allow local residents to utilise particular forest resources and carry out specified activities on forest land without licence or fee by virtue of customary practice. These Rules vary for different forests, but include permission to:

> *"... take for fuel dead fallen wood for his or her personal domestic use; collect and take wild berries and fruit for his own consumption; place and visit honey barrels; graze cattle, other than sheep and goats in open grasslands; take stock through Central Forests by existing routes; cut and utilise bamboo foliage for stock feed; be in possession of poisoned weapons that may be needed in defence of his stock; take or collect the bark of dead trees for thatching beehives; collect and take creepers and lianas for building purposes; enter and sleep, for a period not exceeding two weeks, for genuine tribal ceremonies connected with circumcision, handing over of the ruling age grade and certain dances, and at such time take such forest produce as is required by custom for those taking part; cut and take thatching grass at places approved by a forest officer; (take) poles and withies required for the erection of schools and medical buildings and the requirements of paupers; (engage in) the collection and removal of pottery clay and the burning of pottery at places prescribed by a forest officer; (engage in) the extraction and removal of red ochre; (engage in) the collection of leaves for medicinal purposes ..."* (Republic of Kenya, 1982)

The recognition of customary rights to community forest use has in common with many other forest-based activities been largely overridden by the imposition of a wide range of bans and prohibitions on utilisation of forest reserves.

Therefore, there are few allowances made for the recognition of local perceptions, preferences and values regarding forest resources by the outlined policy and pieces of legislation. Most are in direct contradiction to the stated aim of the government to encourage a situation whereby forests are managed to the direct benefit of the Kenyan society and economy. By empowering the state to take a heavy regulatory role in forest management and utilisation of government forest lands they also effectively override, and negate, any recognition of local tree knowledge or of community forestry management and utilisation systems and hence value.

11.8 The Kenyan economy and the forestry sector

Widespread natural forest degradation and depletion is the main environmental economic problem facing Kenya's forest sector. On the other hand, the plantation sector is poorly managed and this is a threat to the supply of industrial forest materials (Foster, 1996). Observers including Emerton (1997) postulate that the current poor state of the forest sector is mainly due to weak policy and institutional framework, poor enforcement of

forest regulations and protection, inadequate private rights to use and manage forests, poor stakeholder-manager linkages, and improper pricing and valuing of forest goods and services.

Nevertheless, Kenya's forests play a pivotal role in the national and local economies. It is estimated that the forestry sector contributed about US$ 88 million to Kenya's Gross Domestic Product (GDP) and stimulated capital formation worth US$ 3 million in 1995 (Republic of Kenya, 1996). Although the sector's contribution to GDP has remained relatively small and constant over the years (approximately 1.3% and 13% of monetary and non-monetary economy respectively), its support to informal and subsistence activities is substantial. It is estimated that the forestry sector and other associated enterprises and industries support approximately 10,000 households through formal employment and generate direct financial revenue to the Forest Department of about US$ 3 million annually (Republic of Kenya, 1997). As already mentioned, it is estimated that about 3 million forest-adjacent people who live directly adjacent to forest boundaries derive cash income and meet their subsistence needs through the use of this resource.

Similarly, it is estimated that the forest provides habitation to about 40% of large mammals, 30% of birds and 35% of butterflies found in Kenya and more than half of Kenya's threatened and endemic mammals are forest-dependent (Wass, 1995).

11.9 The costs of forest conservation

It is noted that forest conservation and management attracts a wide range of costs, including the direct costs of management as well as non-management costs incurred by the local people.[20] The costs incurred by the local communities due to the presence of forest estates include the opportunity cost, loss of property and crops due to wild animal invasion. The direct financial costs of forest management in Kenya include capital expenditure on the basic infrastructure (buildings, roads and road maintenance), and recurrent expenditure (mainly staff remuneration). For example, for the financial year 1993/1994, the Forest Department's budget was at US $1.2 million.[21] However, measures aimed at minimising marginal crop production loss should be put in place as a way of maximising on forest conservation benefits.

As a vast proportion of closed canopy forests in Kenya occur within the heavily populated areas, it is estimated that the loss incurred by these communities is proportionately high. Two categories of costs have been estimated in various parts of the country. Firstly, the local communities suffer losses from forest dwelling animals. Secondly, due to forest maintenance, communities forego a wide range of other alternative land uses. Although there is no national data available on the losses incurred by local communities, a number of case studies conducted in the recent past reveal that invasion of forest dwelling animals is a major cost that has impacted negatively on communities' attitudes towards forest conservation. For example, households living adjacent to Shimba Hills Forest claimed a total of US$ 45,000 in 1987/88 as compensation for the damages caused to their crops and other property by wildlife. Similarly, it is estimated that 36% of the households inhabiting

[20] Emerton, L. *et al.*, 1998. In the same context, McNeely notes that reduction of the direct costs incurred by communities due to wildlife damage provides a strong incentive base for maintaining community interests in conservation

[21] KFMP< 1994.

areas adjacent to Aberdare Ranges forest lost about a third of their crops to wild animals and another 61% suffered damage to fencing and farm buildings. Households living adjacent to the South-Western of Mount Kenya Reserve suffer crop damage from wild animals and loss between 50% and 83% of their annual harvest. Similarly, it was estimated that the communities living adjacent to Ntugi-Kijege Forest Reserves suffered crop damage and livestock injuries/deaths worth US$ 0.28 million in 1998.

11.10 Forest conservation benefits

Forest resource conservation is an integral part of the local communities' livelihood systems. The range of benefits associated with forest conservation is wide, ranging from direct to indirect benefits. Detailed studies carried out around Ntugi and Kijege forest reserves indicate that local communities meet their household subsistence needs, cash eeds as well as spiritual nourishment from the reserves.

11.11 The use of incentive-based conservation approaches to conserve Kakamega forest

Given that the command and control approach to forest management has failed to realise adequately the objectives it was originally intended for, the Kenyan Government for the last ten years has made attempts to introduce people-centred forest management systems. The conservation of Kakamega forest reserve demonstrates a process of management which has gone through a series of systems, i.e., local community-based, local government controlled, Central Government controlled and since 1990, people-centred.

The households around the forest use the forest in many ways with the most prominent being:

- In connection with traditions and rituals;
- For subsistence,
- Cash earnings on small scale, and
- Cash earnings on a commercial scale.

A number of management changes have taken place which have set the foundation of parallel forest management by the government on one hand and the local communities on the other. Associated with such a system is an attitudinal problem where the government and the local communities are suspicious of each other's use and management of the forest. Therefore, antagonistic relationships have marked the management regime of the forest for a long time and this has been attributed to the exclusion of the local communities in forest management.

The government through the Forest Department and the Kenya Wildlife Service have designed various measures in form of incentives to enhance community participation in forest resource management. These government agencies have been involved in a number of local development initiatives. Notable examples of incentives offered to the community include the development of infrastructure around the forest, establishment of schools, and donation of school materials worth Ksh. 51,000. Problem animal control measures have also been implemented as away of reducing the costs incurred by the communities. However, the introduction of animal control measures faced resistance from the local community for a number of reasons. First, the approaches adopted a top-down approach.

Secondly, some of these measures were perceived as a way of the government controlling the use of the forest by the communities. Other incentive measures that have been introduced include consultation with the local communities on regulating forest use, development of alternatives to forest utilisation including off-farm employment and investment in social and economic infrastructure in the local communities. Other sectors notably agriculture have been used as an entry point to reducing forest encroachment by making the farms self-sufficient in the produce they previously relied on from the forest. The Forest Department has also been involved in issuing free seedlings, promotion of zero-grazing and other agroforestry activities to divert pressure from the forest.

These efforts have not gone without major constraints. It has been argued that the forest management's perception of community priorities is too narrow or has been placed on the periphery.[22] Out of the various incentives that the Forest Department and KWS have implemented only the creation of employment opportunities and support of local schools are fully appreciated by the locals.

Local community support is still being hampered by the slow attitudinal change on the part of the policing personnel who in some cases have been involved in fatal confrontation with local community user groups. In general, despite all these measures, local attitudes towards forest management institutions are manifested in suspicion, fear, and distrust. Therefore, illegal forest activities are on the increase.

11.12 Conclusion

It has been demonstrated that forest management in Kenya has gone through a number of stages since the inception of the protected area system. The resources supports both directly and indirectly the national and local economies. Given the current trends of forest management, its future existence is seriously threatened. Lack of appropriate incentive measures to enhance community involvement in conservation is an important issue the government may consider seriously. The nature of incentives already introduced in the sector is restricted to limited access to forest resources by the local communities. Macro-economic (fiscal, tax rebates) incentives have not been tried.

[22] See Kamugisha, J. R., Z. A. Ogutu and M. Stahl.

12 MALAWI

12.1 Introduction

Compared to other countries in the Southern African region, Malawi has done relatively well in terms of furthering the concept and practice of Community Involvement in Forest Management (CIFM). This progress can be associated with the interest and support of several donors, Malawi Government's relatively good will towards taking account of poor local communities and pursuing models of forest conservation-development integration, and the encouragement for NGO to play a substantial role implementing CIFM projects. Progress has primarily come from efforts put in forest policy revisions in favor of CIFM and ground level attempts, though isolated, to institutionalize the approach and to implement pilot projects.

The country has still a long way to go first because the CIFM concept itself is challenging in the sense that it entails pursuing development and forest conservation goals simultaneously. CIFM is particularly challenging in the Southern region where most poor people live and where forests are highly degraded. Malawi is dealing with situation of poor people, poor forests and limited national economic growth opportunities.

Malawi continues to lose its forest at a rate of 1.6% a year and as high as 3% in the Southern region and rural poverty has not halted. Malawi now has several national programs focusing specifically on CIFM as a model for forest management with attempts to institutionalize it throughout the country. There definitely are good and continuing efforts, and progress has made both in revising policies and enacting supportive laws and in setting up institutional structures for promoting CIFM projects.

12.2 Historical Evolution of CIFM in Malawi's Forest Policy

The current forest policy starts with an effort to articulate, formalize and popularize the concept of working with, rather than against local communities, and to draw the linkage between present problems and the alienation of these communities. For example, the forest policy (1996) starts by articulating the relationship between misguided past forest management regimes, rural poverty and current levels of degradation. It then specifies approaches and revised roles for community involvement in the management of customary land forests, national parks and forest reserves, and gives specific guidance on devolving power from the Minister to the Director of Forestry and to the local communities. It has also specified and given guidance and power over the formation of Village Forest Areas (VFAs) and given power to Village Natural Resources Committees (VNRC). It has in the process reduced the role of the Government and the overall legal power lies with these local institutions, with only advise from the Government. Communities have the authority to appeal if in case of disagreement with any Government decisions. Although some areas are still unclear, for the most part these changes are specified to the extent that several agencies and Non Governmental Organisations have used the polices for effective change on the ground, and to start several CIFM projects.

The current progress in centralizing CIFM in forest policies has happened partly because of a favourable history of forest policies recognizing and including some role for local authorities and rights for local people from as early as 1964. For example, while the focus

of the 1964 forest policy was clearly protection and commercial use of forests for government revenues, it required consultation with traditional leaders. The policy allowed the minister to declare any area a forest reserve, but in the case of customary land part 2 section 3 states that "any chief within whose jurisdiction such land or part thereof lies shall be consulted prior to any such proclamation " and " any person disturbed who satisfies the minister that any right or privilege lawfully enjoyed by him will be adversely affected by such proclamation shall be compensated by the payment of such sum of money or in lieu thereof by the grant of a like right of privilege on other land in the vicinity, as a public officer appointed by the minister in that behalf shall deem to be just and equitable@ This policy also allowed village headmen to demarcate land as Village Forest Areas for their own use but did not devolve much management authority to the local communities, and needed this to be cleared and registered with minister, and managed and used according to rules provided by the minister.

The 1993 forest bill began to recognize the linkage between rural economic goals and management of forests and focused on increasing efficiency of use and economic benefits from national forests. This bill made significant progress towards involving local communities in forest management but left their involvement only in customary land and not in government plantations or protected national parks and forest reserves. On customary land, it reduced the role f government and increased that of communities. Particularly it furthered the concept of Village Forest Areas to revive what had become dysfunctional approach. For example, part 5 of the bill stated the purpose of this sections is "to provide for the Promotion of participatory forestry on customary lands through protection, control and management of trees and forest by the people on customary land, demarcation and management of Village Forest Areas, ownership of indigenous forest trees, establishment of tree nurseries and regulation of forest produce@

Devolving power from the minister to the Director of Forestry and making the process less lengthy section 29 stated that AAny village headman may, under the advise from the Director of Forestry, demarcate on customary land a VFA which shall be protected and managed in the prescribed manner for the benefit of the village community@

This bill also encouraged the involvement of District Councils and NGOs in forest management and use allowing them to demarcate any area under customary land and make it their area of management and use as long as it was not contradictory to good forest management. It allowed anybody to start a forest plantation on customary land for his or her own use as long as agreed with the FD.

However, this bill did not go as far as identifying specific ways for the communities to get economic benefits, did not give any financial support from government through NGOs, and clearly stated that any use of forest reserves even in customary land had to be licensed . The bill had several weaknesses some of them addressed by the new policies. For example, it did not provide for integration of forestry with other related sectors and was not well linked to the overall development aspiration, and this to an extent still a weakness of the new policies. In addition, the overall objectives have been expressed in vague terms, providing for a broad framework but not specific enough to provide a firm basis for decision and actions such as sharing benefits from protected land or private plantations (Similar to the current situation on Zambia's forest policy). In addition it imposed restrictions on indigenous trees so that no indigenous tree would be moved from private

land without permit issued by Department of Forestry while and cutting of indigenous trees on private land also requires a permit.

The current forest policy (1996) and Act(1997) address many of these weaknesses by being more specific about community benefits, legal authority over unclear matters. It has also CIFM beyond customary land to include activities in forest reserves, national parks and plantations in and outside customary land. It also encourages formation of partnerships between local communities and the formal private sector. Subsequently the National Community Forest Program (1994) prepared by FD with assistance of UNDP gave advise on integrating community development and resources management in rural areas (see attached extract of parts of the new forest policy and Act). Also assisting the policy revision process several donors supported comprehensive land tenure studies. The new polices have strengthened both the concept of Forest Village Areas and the effective use of Natural Resources Committees. To date 2000 NRMCs have been formed throughout the country.

In the new policy some government control and potential conflict (especially regarding freedom on indigenous trees use) still remains. But much progress has been made and guidance provided for forming CIFM community organisation and local governing bodies.

12.3 Current Economic contribution of the Forest Sector

About 40% of the country is forested. Annex 2 shows the total land and forest base and types of forests. Of the total forestland, forest reserves, national parks and game reserves together comprise 67% and customary land forests 33%. Malawi is a small country relatively disadvantaged by having a limited forest base, high population density, high levels of rural poverty and high degradation especially in the Southern region where 50% of the people live Compared to other countries, Malawi has much less forest land to support its population (10 million) and in particular its high rural population (89%). For example, on a per capita basis, while Malawi has about 0.5 ha of forest per capita, Mozambique has 4 times as much, and Zambia over 7 times as much while less than 40% of its population is urban.

Eighty nine percent of its 10 million people live in rural areas primarily on customary land (70% of the country) practicing small-scale agriculture which is also a major cause of deforestation in the Southern region. The Southern region has a high density of 125 people per square population and hosts 50% of the population and only 33% of total land and 29% of forests (see annex3 for forest and population distribution in Malawi). In the Southern region is located 30% of forest reserves, 37% of national parks and game reserves, and 33% of customary land forests. Agriculture is a major cause of deforestation on customary land.

Malawi has an annual per capita GNP is US 170, being only higher then Mozambique's US$80 but much lower than for other countries in the region and for example, Zambia (with400) and Botswana (with 2,800). Its rate of economic growth from the 1985-1994 was negative(–0.7%) and then most likely it has stagnated or improved very slightly since then (see annex 3). When considering the rural communities, their average incomes are well below the national average and about half the rural population lives below the already low national poverty line of US$40 per year or US$0.20 per day. On the other hand, Malawi's

rural population is highly dependent on the direct use of natural resources, this being only second in importance to crop production.

The major economic value of forests is realised through use for energy – 90% of Malawi's energy needs are met from wood. Malawi 's production of sawn wood is small and mostly done in natural forests by pit sawyers.

12.3.1 The formal Sector

The major economic resource for commercial forestry is the plantation forestry that covers 110,000 ha (more than double the commercial plantation area in Zambia). Most of the plantations are in the North (61%) but there, only 7% is being utilized. The rest is left unmanaged and underutilized while potentially it could bring large benefit to the country. The plantations in the South and Central regions are heavily exploited due to fuel wood shortages.

The formal timber sector has only 3 companies one of which has been recently privatized. But they are all producing well below capacity.

Pit sawyers are operating through out the country but concentrated in the south where competition for saw logs is highest. Some of the pit sawyers are self-employed and sell to small and medium scale saw millers who then resell. Sawn wood is consumed almost entirely in the domestic market with little export or adding value through further processing.

Wood Consumption: By a rough estimate domestic consumption is 40-50,000 cubic meters as of 1990 and quite low compared to other SADC countries. Most of the wood quality is low and geared towards an un demanding domestic market. The pricing structure in Malawi is uncomplicated and does not respond to supply demand conditions.

In general industrial forestry is hardly growing. The greatest potential lies with the largely underutilized plantations in the north of the country. For example, a report on doing report on doing business in SADC Countries (1999) noted that the industrial plantations are one of Malawi=s underutilized resources; that they could provide 14% of Malawi=s sustainable wood production from only 3% of its closed forest area. There may in addition be opportunity to develop some small industries based on unutilized natural forest and secondary species. At this time however, there is insufficient information on this resource to allow any plans to be developed. Malawi is trying to advertise internationally, inviting wood processors to tender for rights to logging and plantation management but not the land. While the business climate has improved since liberalization polices beginning 1994, there has not been much response.

12.3.2 Local Communities Forestry Benefits

In rural Malawi forest resources are of major economic significance, especially in the Central and Southern region where the contribution to the household economy comes only second to crop production and is higher than from livestock production. Traditionally communities use forests for subsistence consumption of products and minor local sales. A study (G. Simons, 1997). of one local community in the Southern region indicated that the most important products are charcoal and firewood, construction materials, medicines,

wooden farm and kitchen implements, and wild fruits and vegetables. Forests in addition provide relishes such as mushrooms, mice, flying ants, birds, edible caterpillars beetles and other insects. About all households are use these products (see 4). According to rural communities, the importance products are those help meet basic needs (energy, food, construction materials and medicines). They also consider the extent to which the forest products have affordable substitutes and seasonality of supply, valuing more those forest products that can be harvested most of the year.

By these criteria, firewood for domestic energy (using 2 head loads or about 40 kgs of wood per household per week), construction poles and grass for shelter construction, medicinal herbs for household health, and fruits, wild relishes were highly valued. These products are used by one hundred percent of the villagers, some of them such as firewood on a daily basis. The value from direct consumption then is about MK MK 364 (using the lowest village prices of MK 3.50 per load) which is equivalent to US$24 per household per year. This value is equivalent to 25% of the average household income for that region. In addition to this there is the value of the other products. In another study (G. Simons, 1999) in the central region the data indicated that 93% of the households were using forest products regularly, used a wide range of products and on average consuming forest products worth approximately MK 3,300 (US$75) per year which is equivalent to 17% of the annual household average income for the same population. For the poorest households the value of forest resources use amounts to about 50% of their average income. The most value comes from use of firewood.

12.3.3 Local communities' Marketing of forest products

The non-timber forest products are of major economic value to mostly comes direct consumption, and to a lesser extent for local sales. There are relatively few households involved in the sales of forest products and hardly any in sales outside village boundaries (see annex 5). When households sell these products they do so at minimal prices especially because of low effective demand or purchasing power among other villagers. Given their poverty levels and day-to-day survival strategies they are in relatively poor bargaining positions while dealing with outsiders.

The main marketing activities include firewood and charcoal sales. 25% of villagers engage in local sale of firewood on a regular basis. While 25% may not be too high not too high, those that do sell in larger quantities than that consumed and it was estimated that about as much firewood is sold as is consumed by the total population of villagers. To those households involved in sales, firewood alone brought a value of MK 21,000 (US 477) per year which is well beyond the average household income of the area. Then there is the additional value from other products.
Even examining the value of firewood alone, there are significant economic benefits through consumption and sale and CIFM projects that attempt to control such harvest without bringing nearly as much income are likely to face resistance.

Most of the firewood and charcoal that is sold comes from communal forests where no ownership rights have been established resulting in high degradation of those particular forests. The benefits of communities also come from employment when merchants from the urban centres contract local people to cut the firewood especially from communal areas. However, outsiders compensate local people cheaply for their labour. The villagers do not always see these outsiders' activities as an aggression against their forests but many

times as opportunities for a little much needed income. In many areas of Malawi degradation and rural poverty are progressing simultaneously and re-enforcing each other. Especially with the government's inability to control illegal and unsustainable harvesting in communal areas and forest reserves, CIFM is being tried as a possible approach for reversing this poverty-degradation vicious cycle.

12.4 CIFM Approaches and Community Economic Incentives

In Malawi the major attempts have been made in developing forest-based rural enterprises, co-management of forest reserves, allowing communities the use of minor products from national parks, and transferring government plantations to communities. There has been some progress in each of these approaches, but the objectives of reversing the vicious cycle is far from being realised. Several donors have contributed to trust funds and micro financing projects in support of this approach but the efforts are still young and to a large extent the projects are done on an isolated basis and many still at a pilot stage.

There have been some economic benefits from these efforts but they remain small and they demand external financing and technical support out of proportion with the benefits. However, there is some evidence of a positive linkage between CIFM efforts and the improvement of the forests. One of the cases that seem relatively successful is a forest based rural enterprise development project supported by GTZ through the SADC and implemented through a local NGO, the Wildlife Society of Malawi (WSM). The first objective of the WSM was to help villagers change their attitude an d see that for the forest to continue supporting their livelihoods, the forest products must be valued and treated as critical economic resources that need to be wisely managed and protected from destructive activities of their own, and those of outsiders - not just survival Gifts from God@ that will always be there. The project aimed helping villagers identify and add value to the marketable NTFPs through processing and trade, and progressively shift from excessive *poverty-driven* exploitation of such products to *economically profitable* rural enterprises that support their livelihood objectives. Now this one community has identified over 5 different products and is getting some income from their marketing. It is an innovative approach heading in the right direction but also facing challenges.

Although this type of approach could work, it requires high financing and the returns on average are too low and a small part of per capita income. There are many donor supported projects of this nature, but they all tend to be small and isolated, each funded by a different donor, and many still at the pilot stage. They are all characterized by heavy external financing and limited community incomes. For all this effort, the key question is whether it will provide sufficient economic inceptives to keep the communities together and interested in conservation. The economic benefits on average are small but there are other benefits of learning and producing at individual level. It is also income that they otherwise did not have and their opportunity costs are low.. But perhaps most important is that the realization of additional incomes from forest products may help change attitudes in favor of protect resources, which then means that at least in future the resources will be there even if only direct subsistence consumption. Even without much income now, the investment in training may be worth much in terms improving the welfare of families at individual levels.

At the moment, the inability to control illegal harvesting (which accounts for large loss of forests) could undo the community level structures and efforts. This is the one area where Malawi forest policy falls short of giving the villagers full authority

12.5 Other CIFM Incentives

Apart from forest based rural enterprises, the new forest policy encourages community participation and use of traditional authorities and community organisations in the management and use of forest products from national parks. One relatively successful example is the formation of the Nyika-Vwaza Community Based Organisations including Village Natural Resources Committees. These are highly organized community groups that have signed memorandum of understanding with the Wildlife Department allowing villagers to protect and in turn harvest products such as grass, wild foods, dead wood and other such products from the park. There are many other successful CBOs in Malawi including the Beach Village Committees and the Bee Keeping Associations.

In Malawi, SADC forestry program has made a major effort in helping the Government to transfer plantations near Blantyre to local communities, with full rights of management and use. This effort has been going for several years, progress has been made and thousands of hectares turned over to communities. However, a recent evaluation reported numerous delays associated
With communities' lack of knowledge to manage the plantations and the forest staff not quite understanding the ultimate goal of this effort. In terms of economic benefits, CIFM focusing on plantations might have the best promise for community benefits simply because sale of wood typically brings in more income –compared to the minor forest products such as those in the Mwanza project.

Forest reserve co-management programs have generally been less successful for several reasons - Forestry Department allows only the collection of minor forest products but when the villagers get there they find there is more they can take home. This is also exacerbated by the fact that when it comes to reserves, the villagers do not have long-term rights and have less interest in conserving them. The progress made in the Wildlife sector, for example in Nyika Vwaza project has not been matched in the Forestry department.

There has also not been much success in forging partnerships between the formal private sector and communities. This is partly because there is hardly any private sector natural resource based ventures in Malawi -other than the few logging establishments. In general Malawi lacks opportunities and resources for commercially profitable natural resources based ventures and many people see too much risk involved. Suggestions have been made to provide loans and for nature endowment funds to cushion private entrepreneurs against risks and then convince them to invest in conservation and working with communities. However, there is not much progress in this direction.

12.6 Supportive Institutions

Malawi has several institutions focusing on CIFM or specific aspects of it. For example, USAID is funding a five-year program (COMPASS) to focus only on the institutionalization of CIFM . This program focuses on linking all CIFM practitioners through information networks and supporting existing project on community mobilization skills, as well supporting the government's policy formulation process. Other donors have

provided funds for major land tenure studies that have been instrumental in shaping the current policy.. The Forestry Department has received assistance in interpreting its forest policy an Act with the objective of deciphering the legal language and making the policies more accessible and usable by other people including NGOs and local communities. The national programs such as the NEAP and the subsequent Environment Support Program have not done much in terms of building CIFM approach, but they have not inhibited the progress made on a project-by-project basis.

12.7 Conclusions on Malawi

Overall it can be concluded that Malawi_has done relatively well on CIFM and in articulating supportive forest policies and forest act, and defining community rights and mechanisms for achieving clearly specified goals. It has good cases of success but are isolated, and at the moment each directed by the interest of the donor in charge. There is some progress in forest based rural enterprise development, benefits sharing and use of forest products from national parks, transfer of plantations to communities, formation of Village Forest Areas as the main mechanism for increasing communities' control and strengthening of Village Natural Resources Committees as the core instruments of change at the village level. Although there still remains a few conflicting policy statements, for the most part the polices have specifies villagers' legal rights and allowed for negotiations in case of disputes between the villagers and the government or neighbors. Malawi is intent on continued improvement of its polices to suit CIFM and on finding more support for CIFM projects.

One of the major problems facing Malawi, is the general lack of forest resources especially in the South where poverty and population densities are high. As such, the level of community economic benefits will always be minimal. However, also because poverty is high, even the small benefits coming from CIFM projects, as little as they are, may go a long way in terms of capturing villagers= interest and transforming their attitudes and behavior towards the forests.

13 MOZAMBIQUE

13.1 Introduction

After many years of war Mozambique is focusing on the rehabilitation of almost all its development sectors. It is unclear what the effects of the 15 years of war was on the forests and so far most of the forestry sector has focused on research to try and establish the level of their resource base. The formal sector activities are constrained by several factors including debilitated equipment and poor infrastructure. As of now there are few community level forestry activities but the SADC forestry program has started a CIFM project in two communities in the North and other donors are beginning to generate some interest in the subject.

13.2 The State of the Forest Policy

Like Botswana, Mozambique is still in the process of revising its forest policy. At the moment the government seems to be focusing on creating an environment for foreign investors and the forestry sector has not received much attention. However in 1997 the Ministry of Forestry and Wildlife with the assistance of FAO technical experts began to consider possibilities for promoting CIFM. At the time, they were considering starting with the creation of a community forestry unit in the department and man this with a capable person who would develop the guidelines for the ministry's CIFM portfolio. In the meantime much of the work in forestry has focused on research and inventories to try and establish the state of the forests and develop plans.

For most purposes Mozambique is still using the old approach of forest policing but the forestry department is weak and facing a lot of resistance from local communities. In the rural areas there are major conflicts between local communities returning from war or hiding and the forestry department forest policing force and between local residents and outside timber merchants trafficking wood to the urban centres. The Forestry department has not been able to do much in terms of enforcing laws and stopping illegal trade.

13.3 Forestry Sector Resources

During the war forests in the danger zones would have regenerated and the ones in the safety corridors including the coastal strips degenerated but the data available forest resources and production is outdated and incomplete.

According to this data, 71% (57,000,000 ha) of the country is classified as forests (see annex 2). And 34% of this has some potential for industrial forestry. Much of the rest is savannah woodlands. Of the area classified as forest, less than 2% (1,044,000 ha) is under forest reserves while most protected area (11% of the country) is national parks mainly focusing on wildlife production. This is in 4 national parks, 5 animal reserves and 12 game and hunting areas where some community activities have occurred.

The land under plantations is insignificant (22,508 ha) and Mozambique has almost no commercial activities based on plantations. The province of Sofala has largest forest area (two thirds of country's forests) but these forests are classified as open forests and said to e

highly exploited. The woodlands are the main source of forest harvest with two thirds located in the Northern provinces.

13.4 Economic contribution of the Forestry Sector

Mozambique has 17 million people with 72% (as in Botswana) living in the rural areas. With an estimated annual per capita GNP of US$ 80 in 19994, Mozambique is one of the poorest countries in Africa, even poorer than Malawi . However, this is a result of 15 years of war and the situation in recovering and there are plans to build up the economic contribution of this sector.

13.4.1 Formal Industrial Activities

The formal sector activities are well below the productive potential of the forests. In 1983 the forestry share of GNP was 7% but the contribution declined during the war period. For example, the production of wood declined from an average of 200,000 cu m/year in 1969-79, to 48,000 chum/yr between 1978 and 1988, to 30,000 cu.m/year in 1990.

It is estimated that forests account for 80% of the country=s energy needs. In 1990 the consumption was 18 million cubic meters- 85% rural and urban households and 15% industrial use. Then the forestry sector contribution to GDP in 1989 was 8.9% of which 0.2% through industrial and 8.7% through non-industrial forestry activities

The volume of wood harvested for industrial use is not precisely known but believed to be less than 70,000 cu m i.e. very small proportion of the volume cut each year. The Allowable Annual Cut (AAC) is about 1.1 million cubic meters and while the industrial use figure is not precisely known, this figure will be much greater than the commercially harvested volume for recent years (FSTCU, 1994). The forest industries are far from healthy with no more than 2 facilities established since 1975. Many existing ones are characterized by old equipment, lack of skills and plants operating well below capacity. There are 77 sawmills and all the rest of forest industrial activity are done by an additional 9 companies. The Government adopted a privatization policy and some of the operations are privately run but still quite inefficient. Mozambique has little in terms of export or import activities

A study (1999) on doing business in SADC countries concluded that overall Mozambique has room for substantial growth in Mozambique with the following points must be kept in mind:

-The current production is well below the existing real potential
-Growth potential in the main forest areas is related to plantation forests, which themselves represent half of the growth opportunity;
-The Southern region already may have more capacity than resources and any development there would mean transporting logs from the North

The government on the other hand cautions that forest resources are limited and the potential should not be overestimate; that there are low exploitable volumes. It recommends small-scale industry spread through out the country, and adding value instead of trading logs.

13.5 Community Economic benefits from Forestry.

The highest value comes through domestic use of firewood and use of other forest products without effort to increase community benefits through CIFM approaches. A few donors including the World Bank are interested in community natural resources based activities but perhaps the most advanced project is one funded under the GTZ/SADC forestry program. Here, the CIFM project tries to work with communities to reduce their destructive activities, to protect the forests from outsiders while engaging in some marketing of forest products.

The committees meet regularly and are said to be functioning well. These committees have also helped develop by-laws that are specific in terms of allowed harvestable quantities of each product. In 1999 there were no cases of destructive activities, villagers seemed happy with the proceeds and are guarding the forests successfully from outsiders. They have also benefited from exchange visits to Malawi and are planning to start some of the activities in Malawi such as guinea fowl farming and basket making. They have also been trained in various subjects related to the implementation of the project and benefited from several studies including forest inventories, land use planning, anthropological studies and on agricultural system. Although data on community incomes is not available, it can be expected that the income is relatively small especially compared to project costs. Despite the slow start their has been positive change both in terms of income, attitude towards the forests, degradation has halted and the project has been successful in demonstrating the close linkage between conservation and livelihoods benefits. Also, the neighboring villages are keen to start a similar programs.

13.6 Conclusions on Mozambique

It can be concluded that Mozambique is still at an early stage of both rehabilitating its economy and implementing CIFM activities. Its government is not opposed to the principals of CIFM but is not making much progress in the face of other priorities. At the moment, the psychological state and attitudes of the villagers coming out of war is perhaps the most challenging aspect of establishing CIFM activities. This makes villagers much less accessible, for example, compared to the Malawi situation. Mozambique also may not have that much in terms of forest resources (data base is very weak) while the high levels of poverty mean high dependence especially local communities.

14 NAMIBIA

14.1 Background

Namibia has the lowest population density in the region, with only about 1.7 million inhabitants. However, most of the population (about 1.2 million) is concentrated in the northern parts of the country, where the nation's major forestry resources are also located. As a result, there is considerable pressure on existing resources, which has led to local shortages in the supply of forest products. Up till now, degradation has been fairly localised, but there are signs of increasing degradation and deforestation.

Namibia does not contain any significant areas of true forest habitat. Its forestry resources come from woodlands and savannas, which occupy about 20% (16 million ha) and 64% (53 million ha) of the nation's land area, respectively (DOF 1996). Within these areas, an area of about 10 million ha is classified as forested, of which 1.9 million ha are classified as commercially exploitable (Ollikainen 1991). According to some estimates, the total annual increment of the woody biomass could be as high as 5 million m^3.

Under German colonial rule, forestry policy in Namibia concentrated on nature conservation. This changed after 1925 with the change to South African governance, and the policy of nature conservation gradually changed towards forest exploitation. Exploitation has since continued unabated due to lack of technical capacity and poor administration, but an effort was made to control the country's forestry activities with the creation of the Directorate of Forestry after Namibia's independence in 1990 (DOF 1996).

Namibia has a dualistic land tenure, a legacy from the colonial period. Communal lands are concentrated in the north and cover 41% of the country, while freehold tenure characterises 44% of the land, mostly belonging to larger-scale farmers in the south (Björkman 1999). In the communal areas, traditional leaders control land distribution and ownership, and individuals usually do not own land, but maintain the right to use it.

Namibia's protected area network includes 21 proclaimed parks and reserves, covering about 13.7% of the total land area. Within the woodland and savanna biomes, 16% of the area is protected (Girot 1998). Namibia also plans to incorporate 10% of national territory into managed forests, either state, regional, community or farm-level forests, with a total planned area of 3.3 million ha. At present, only one state forest reserve of 150 000 ha in Eastern Caprivi, has been gazetted. In addition, since the passing of legislation in the 1960s and 70s enabling freehold farmers to own and raise wildlife, there has been a move towards the establishment of conservancies in Namibia (Girot 1998). This has led to the development of a profitable tourism and hunting industry, initially among private landowners, and now increasingly on communal lands. There are four officially gazetted community conservancies, covering a total of 1.7 million ha and affecting 11 000 people. At least another 16 conservancies are at different stages of registration (Girot 1998), which will bring the total community conservation area to 6.5 million ha.

14.2 Management and economic value of forestry resources

Namibia's forestry resources are not conducive for industrial timber or pulp production, and this type of use is limited. The majority of Namibia's forestry resources are within

communal lands, which also support 95% of Namibia's farming population. Forest resources are mainly used directly by rural households for firewood, construction timber, food (e.g. fruits, nuts, caterpillars and birds), materials for farm and household implements, crafts, medicine and livestock fodder, as well as for wildlife, which forms the basis of the tourism industry. The total consumption of wood in Namibia is in the order of 1.8 million m^3 per year (1990), of which household use of construction and fuelwood accounts for 93% (Ollikainen 1991). Well over 85% of northern communal residents rely on fuelwood for cooking (LaFranchi 1996). Both firewood and charcoal are exported to South Africa and elsewhere, a practice which is of concern regarding the future sustainability of such exploitation. However, the costs of transport of charcoal and fuelwood from the indigenous sources may prohibit the supply of energy needs to urban areas in the central part of the country (Geldenhuys 1996).

The total direct consumptive and non-consumptive use value of forest resources in Namibia is estimated to be N$ 1058.2 million per annum. While tourism is responsible for a major part of this value (over one fifth), domestic uses heavily outweigh tourism, especially the use of Mopane wood for construction. However, tourism also contributes a large share of foreign exchange to the national economy. Commercial logging generates relatively small value in comparison to domestic or subsistence use. In addition to these values, forest resources also contribute indirectly to agriculture and other sectors through grazing, conservation of soil fertility and water resources, carbon sequestration and genetic resources. These indirect values are considered to be of greatest importance (DoF 1996).

Nevertheless, forest stocks in some areas, such as Caprivi, have been found to be decreasing, implying that the current benefits obtained from forest resources are unsustainable (Björkman 1999). In addition, because of climatic variability in Namibia, the value of timber resources is probably highly variable from year to year. This poses a potential problem in the management of resources in that one cannot expect a constant stream of benefits to communities or other users. There is also has major implications for areas geared around non-consumptive tourism *versus* areas in which resources are consumed. Wildlife is even less predictable than forest resources.

The government is the *de jure* owner of forest resources, but the Traditional Authorities are the *de facto* managers of these resources. There is very little in the way of sustainable management of existing natural forest resources at a community level. Harvesting of firewood, sawnwood and carving wood frequently occurs at non-sustainable levels. At a community level the tangible benefits of forest management are often small, and do not provide incentives to increase management effort. However, as the supply of forest products is reduced in deficit areas, it is expected that the resultant increases in prices will increase to levels that will justify management costs. This will probably lead to the creation of incentives to reduce waste and to develop more efficient means of exploiting resources.

14.3 The establishment of community-managed conservancies in Namibia

Wildlife tourism has generated a strong incentive for conservation of private land in Namibia (Barnes & de Jager 1995). In the 1990s, it was realised that there was also considerable potential for communities on communal lands to benefit from tourism-based enterprises (Ashley 1995). Economic analysis of the potential for community-based tourism projects in Namibia indicated the potential to improve rural incomes and resource

conservation and empower local people (Ashley & Garland 1994), provided that rural communities gain similar rights over wildlife to those enjoyed by commercial farmers (Jones 1995). Furthermore, based on a study of four areas of communal land with associated protected areas, it was estimated that the potential contribution to local and national income of non-agricultural natural resource use greatly outweigh the costs of wildlife damage (Barnes 1995). The notion of conservancies as a way of managing communal land areas has since taken off in Namibia.

Since 1997, at least four community-managed conservancies have been gazetted in Namibia. One of the first efforts to involve rural people in nature conservation was initiated by the Integrated Rural Development and Nature Conservation (IRDNC) among the Himba community in the Kunene region of northwestern Namibia, through the establishment of the Torra Conservancy. The community members teamed up to establish a network of community game guards, and a pilot project was established whereby tourism was used as an incentive for community based wildlife conservation. Management responsibilities and proprietary rights over resources were progressively handed over to community institutions, and this had a positive impact on both wildlife populations and community income (Jones 1998, cited in Girot 1998).

The impact of the Caprivi conservancies has been considerable. In West Caprivi, gross community income doubled between 1997 and 1998. Thatching grass and local craft industries have provided substantial income to the local communities. After the establishment of the Nyae Nyae Conservancy, gross community income increased from N$182 000 to N$228 000 between 1997 and 1998 (LIFE Programme 1998). Trophy hunting generated N$115 000 in income in 1998, of which 65% went into household dividends.

In the Ohangwena Region, the Okongo Community Forest has been established and is proposed as a future conservancy, and provides an interesting case study of peoples' awareness and perceptions. People in this area collect many products from the forest, and are mostly aware of rules such as not to cut live trees. However, few people knew of the idea of a community forest, even though one had been established nearby. They are positive about managing such a resource, but are not confident that they could manage the forest without involvement of the state. People living close to the conservancy believed that they would benefit from it, mainly in the form of grazing for their livestock, but those further afield could not see any advantage in it (DRFN 1997).

An important consequence of conservancy development in Namibia has been that communities have become better organised and have become more aware of the economic value of their environment (Hagen *et al.* 1998). Conservancies have also proved particularly advantageous in isolated areas it is easier for communities to be visited by tourists or trophy hunters than it is for them to trade their goods and products in outside markets.

14.4 Other incentive-based activities

In addition, several other projects provide incentives of one kind or another to sustainable forest management in northern Namibia (BMS 1998). DANCED's Forest Awareness and Tree Planting Project operates in Oshana, Oshikoto, Ohangwena and Omasuti Regions and encourages appropriate woodland use practices and raises awareness about

deforestation. Green Namibia, a small organisation founded in 1991, operates in the same four regions. It produces tree seedlings, sells environmentally sound devices such as energy saving stoves, and conducts environmental education. The Namibia Programme to Combat Desertification (NAPCOD) concentrates on education on sustainable resource use through various media such as radio. The Development Assistance from People to People (DAPP) is involved in several training activities, such as tree propagation, skills training, and helping ex-combatants to start income generating forestry projects. None of these projects offer financial incentives *per se*. However, the Co-operation for Development (CD), which operates mainly in Oshana and Ohangwena Regions, provided credit for small business development, targeting mostly women with young children. This scheme has been discontinued, however. CD now finances projects such as DAPP and Green Namibia. The Agricultural Bank of Namibia (Agric Bank) provides crop, stock and infrastructure loans to farmers, and more than N$5 million has been invested in the northern regions. The Agric Bank could play an important role in implementing credit to communities involved in forest protection (BMS 1998). However, Agric Bank is reluctant to expand its operations in the north because of the high risk involved. Indeed, the Private Sector Foundation, which used to provide small loans, mainly to women, finally closed its doors in 1998 (BMS 1998). Interestingly, most people are reluctant to consider taking credit, unless they could pay back in the form of cattle, goats, etc, because of their fear of being left in arrears (BMS 1998). Most communities are willing to use technologies that minimise environmental damage, but only if technologies are affordable, available and convenient.

The main cause of forest destruction relates to poverty and lack of alternatives. In order to address this situation, small loans should be more readily available to assist economic development in forested regions and reduce reliance on natural resources (BMS 1998).

14.5 Overview of policy/legislation

Namibia's forestry sector was largely neglected in terms of policy and institutions until after independence. Namibia's first Forest Policy Statement was prepared in 1992, and its main achievements were the establishement of the Directorate of Forestry (DoF), responsible for promoting sustainable forestry development, and securing government commitment to forest resource conservation and continuity of management. This government effort has been supplemented by various forestry development projects funded by the donor community. The 1992 policy was followed by the development of the Namibia Forestry Strategic Plan (NFSP) in 1996, which criticised much of the preceding policy, and the policy was revised as the Namibia Forest Development Policy in 1998. The Forest Act was also drafted in 1998.

The 1992 Forest Policy defined 11 objectives to guide forestry sector development, including:

- reservation of sufficient forest land for multi-purpose use (the policy includes a proposal to incorporate 10% of the total land area in state forest reserves.);
- expansion of the national forest cover to enhance the supply of wood products;
- encourage efficient and sustainable use of forest resources;
- proper management and controlled exploitation;
- increasing awareness of the importance of forests and trees in the environment though participatory rural and gender strategies; and

- forestry should play a key role in the contribution to sustained food production though close integration with the rural sources of livelihood.

Although addressing several important objectives, the 1992 forest policy was criticised as failing to adequately address economic issues, the economic and livelihood aspects of community forest utilisation and management, or economic incentives, instruments and tools that could be used in support of its aims and goals (especially community aspects). The 1992 policy stated that the derivation of direct economic benefit must be subordinate to the principle aims of ensuring environmental stability and maintenance of ecological balance which are vital to the sustenance of all life forms, including humans.

The Namibia Forestry Strategic Plan (NFSP) was published in 1996 in an effort to create a framework that would facilitate the sector's maximum contribution to the national socio-economic development process (DoF 1996). The NFSP highlighted vagueness of the 1992 policy, and took major exception to the lastmentioned statement above, stating that the management of forests for the welfare of the people should be the *raison d'etre* for their protection (DoF 1996). The national-level objectives of the NFSP are economic growth, employment, poverty alleviation and equity. Its goals, at the inter-sectoral level, are rural development, environmental protection, and national capacity building, and at the sector level, are to satisfy rural households basic needs, maintain forests protective functions and strengthen forestry institutions. The plan aims to develop two forms of forestry: natural forests and farm forestry. Natural forests in communal areas will be zoned into "production forests" and "environmental forests" in collaboration with local people. Production forests will be managed by local people, with the support of technical assistance from the DoF. Management of environmental forests is the responsibility of the government and will be geared towards producing public goods and external benefits, without compensation to local people. Farm forestry will entail tree growing or management of natural stocks on agricultural land. It is acknowledged that farmers will have to be induced to undertake tree growing by means of land tenure policies, forest legislation and government extension services, and that good marketing links for forest products will have to be in place.

The NFSP identifies two types of management (or projects) in forestry. Type I projects are development projects, in which domestic benefits exceed domestic costs, and which contribute to national socio-economic development. Type II projects are those which yield net global benefits, and are characterised by a domestic net cost, but global net benefit. While individuals, farmers, local communities and the private sector are expected to be willing to invest in Type I projects, Type II projects are inefficient from a national point of view, and depend on the willingness of the global community to invest in the implementation of the International Conventions on Climate Change and Biodiversity.

Of the four priority programmes identified by the NFSP (1996), one is community-level management of natural forests. This will involve developing partnership management of natural forests for multiple use, and an appropriate framework for community level forest management. Community involvement in management is envisaged to contribute to both rural economies and resource conservation, but only if clear, long-term usufruct rights to forest resources are granted. The NFSP thus seeks to persuade the government to grant custody of forest reserves to local people, provide them with assistance to use resources sustainably, and grant locals permission to extract royalties from outside users. Although

most forest resources are found in communal areas, traditional authority over resources has been eroded by government intervention, population growth and migration. Thus the NFSP recognises that the scope of community involvement should be determined by the nature of the resource, types of uses and the structure and functioning of communities involved. Devolution of government responsibilities to communities should be gradual and carefully monitored. The success of these programmes will also depend on the development of proper forestry mapping and inventories, and an understanding of sustainable yields. Areas zoned for utilisation will include "conversion zones" where intensive use is permitted, as well as "utilisation zones" where use will be maintained at sustainable levels. The plan makes provision for the design on a national incentive system for generating increased local communities involvement in joint forest management including security of tenure, responsive government extension services, improved infrastructure and easy access to credit. The plan will be initiated by means of pilot projects which test approaches to community level management in different local contexts. Local farmers will also be encouraged to plant trees as a way of ameliorating the shortage of basic forest products, through institutional and price incentive schemes and marketing links, supply of seedlings, extension officers and other measures. Only limited extraction will be allowed in protection forests, and local communities will be involved in their management only if they demonstrate proven resource management capabilities. It is anticipated that all these activities will lead to increase income, and that there will be possibilities of establishing small-scale processing facilities in rural centres which will create further income. Local communities will also be able to obtain increased incomes due to expanded tourism industry.

The NFSP recognises four categories of instruments that can be used to promote policy implementation (DoF 1996):

- public ownership and operation;
- public regulation of the use of private forests;
- public stimulation, guidance and assistance to private forest management; and
- private implementation of forest policies.

Namibia's new Forest Development Policy (1998) recognises that the previous policy failed to reverse the degradation of forest resources, and that part of the reason for this was its failure to notice the importance of stakeholder participation in the decision making process and in management programs, and the influence of other sector policies. The new policy has our main aims:

(a) to reconcile rural development with biodiversity conservation by empowering farmers and local communities to manage forest resources on a sustainable basis,
(b) to increase the yield of benefits of the national woodlands growing stock through research and development, application of silvicultural practices, protection and promotion of requisite economic support projects;
(c) to create favourable conditions to attract investment in small and medium industry based on wood and non-wood forest raw materials; and
(d) to implement innovative land-use strategies including multiple use conservation areas, protected areas, agroforestry and a variety of other approaches designed to yield forestry global benefits.

These aims will be achieved through:

(i) assignment of effective property rights for sustainable forest management;
(ii) regulations;
(iii) extension services;
(iv) forest research;
(v) support to overcome lack of ability;
(vi) gender equity;
(vii) forest management;
(viii) education and training;
(ix) pricing of forests utilisation; and
(x) a multidisciplinary approach to policy implementation.

Today Namibia has a very progressive legislation in terms of community participation in forestry and community-led conservation (Girot 1998), although overall forestry policy is more resource-based than socially based. The approach to social and institutional issues such as tenure, regulations and incentives need to be better developed.

The Forestry Act provides a more enabling framework of local participation in forest management, and provides steps for the creation and declaration of a community forest. This includes the provision for all revenues derived from the forest to accrue to the community. However, it is unclear whether communities can receive concessionary rights to commercial timber exploitation.

The efforts of the DoF to protect communal forest resources from overexploitation by forest reserves and issuance of use permits in reality requires strong policing, and this need will increase as populations and pressures increase. The threat of prosecution may only provide the incentive to harvest as much as possible before being arrested. It is really only the communities themselves that can adequately police the local use of resources, provided they have the incentive to do so. According to the NFSP, state forests should only be gazetted when communal and private ownership is unwilling or unable to manage productive forests or cannot adequately conserve special public interests like important watershed or biodiversity areas.

14.6 Overview of other environmental, wildlife policy and practice

Non-forestry policies also have an impact on forest resources. Based on the success of the Torra Conservancy, the Ministry of Wildlife Conservation and Tourism (MWCT) developed the first draft of a new policy contemplating the transfer of proprietary rights over wildlife and tourism concessions to communities through conservancies (Girot 1998). USAID's LIFE programme has provided key support in the development of CBNRM in Namibia, and has supported national level policy making and legislation development in this context. An amendment to the Nature Conservation Act in 1996 allowed communities to gain rights and responsibilities for the management and benefit from wildlife by establishing conservancies (Hagan *et al.* 1998), and since 1997, at least four communal area conservancies have been gazetted.

Overall there has been a general increase in national policy favouring community-based wildlife, forest and water resource management (Girot 1998).

The land policy proposes the allocation of land in rural areas based on land-use zoning, by means of regional and local Land Boards. This will promote participatory planing and natural resource allocation to the advantage of sustainable forestry management. The policy also proposes leasehold tenure arrangements to individuals, groups and communities as an incentive to encourage investment in land (e.g. through tree planting) and to provide an incentive for communities to manage their resources to the benefit of their members. Secure property rights are expected to give stronger incentives to manage natural forest resources for long-term benefits.

Policies aimed at increasing economic growth and the elimination of poverty are vital for the protection of natural resources. In general, very poor households do not anticipate the future economic importance of forest conservation, and exhibit improvident consumption. However, social and political efforts aimed at increasing economic growth could lead to further degradation of forestry resources. The NFSP recommends increased investment in health and education services, and containment of migration into environmentally fragile areas by careful infrastructure planning and by reasserting the land and resource use rights of local populations in return for co-operation in forest protection.

15 SOMALILAND

15.1 An Overview

Forest conservation in Somaliland encompasses a range of natural vegetation which are characterised by small pockets of riverine high forests, deciduous bushland and rangeland and small remnants of conifer woodland. In the recent past, forest resources are increasingly under pressure due to population increase, limited alternative means of livelihood, and lack of formal and effective management plans. Efforts to address these challenges are uncoordinated particularly in the absence of effective government institutions or other recognised mechanisms through which action plans and strategies on forest conservation may be addressed. Therefore an intervention in natural resource management should be in the context of husbanding a scarce wood resource in an arid and harsh climate without meaningful support from any formal government institutions.

15.2 Historical profile of forest[23] conservation in Somaliland

One may not adequately address present forest conservation activities in Somaliland without taking into consideration those that were formulated and implemented by the Democratic Republic of Somalia. Since early 1990's there has been no recognised government for the former Democratic Republic of Somalia. The political instability and social unrest which has prevailed in the former Republic of Somalia have adversely affected forest conservation activities. However, serious forest conservation challenges are noted to date back to over 80 years when the Italian Government used coercive approaches to fix mobile sand dunes. Local communities who were the main source of labour resisted this approach and since then forestry within the country assumed a largely exploitative trend. Riverine forests were mainly felled for timber while cutting of the bushlands supplied materials for the charcoal production industry. Tapping of the Boswelia species for frankincense has been carried out for several years.[24]

Although the colonial Italian Administration in the years 1915 to 1940 had interest in forestry (although community needs were not explicitly addressed), these efforts were curtailed by the second world war. At this point the Somalia nation was divided between five states; the Ogaden, Djbouti, Northern Frontier District of Kenya, Italian Somalia and the Somaliland Protectorate. This review therefore attempts to describe and analyse forest activities within the Somaliland Protectorate. Due to lack of data and information, the nature and extent of forest activities in the region can only be at the very general level.,

15.3 Forest conservation within the Somaliland region

Although there are no formal institutions to guide forest conservation plans, there is abundant knowledge base on the conservation and management of forest resources. Since the collapse of the Democratic Republic of Somalia, there has been increased interest in the development of forest and tree resources within Somaliland region. Some of the on-going activities were started prior to 1990 and they concentrated on the establishment of small-

[23] What may be described at a true forest is the juniper forest although found in few localities. It has also been largely destroyed by over-grazing.
[24] See for example, Bowen, M. R. 1989.

scale fuelwood plantations particularly close to population centres (e.g., Berbera, Burco Ceerigoabo, Las Caanood and also refugee camps). Other on-going interventions that were initiated prior to 1991 include afforestation activities aimed at arresting mobile sand dunes. Small-scale tree management activities are also being carried with fruit and amenity tree planting in village.

Forest resources play a major role in supporting both subsistence and cash-based economies of the rural population in Somaliland. Tree resources form the main source of energy (over 80% of the region's energy needs are met by wood), construction materials, source of protein, fodder for livestock and traditional medicines. Trade in gums and resins dates back to over 2000 years still remains important today. Nuts from Cordeauxia edulis form an integral component of the local diet and also the foliage from this tree is an important source of dry season fodder for their livestock. Fodder is highly regarded by communities and this is due to the support it provides to the livestock economy (it is estimated that livestock production accounts for over 75% of all exports). Given the absence of formal forest planning and management institutions, local community management systems have played an important role in the current status of forest and tree resources in Somaliland.

With the assistance of external institutions and/or donor agencies, notably the World Food Programme), attempts have been made to establish rain-fed plantations to reduce the current gap between the levels of demand and supply. However, the success of these interventions is questionable given that establishment and maintenance costs are prohibitively high and growth rates too slow.

Challenges facing forest and tree development in Somaliland

There are a number of challenges facing forestry and tree development in Somaliland and they include;

High establishment costs,

Harsh ecological conditions leading to poor survival rates,

Lack of technical capacity on natural resource management, and

Lack of data for effective forest planning and tree management.

Uncertainty over tree resource ownership

For example due to the harsh nature of the climatic and ecological conditions, little efforts have been directed at domestication of tree species[25].

Measures in place that stimulate forest degradation

Wealth status in Somaliland is measured through the number of livestock (cattle, camels, sheep and goats) families own. This attitude towards wealth class has an had a negative impact on the status of vegetation and tree cover. Land laws inherited from the former Democratic Republic of Somalia are still operational. For example, the law required that land considered for ownership be 'developed' and this was taken to mean cutting of the trees and bushes which lead and still leads to widespread destruction of bushland and other tree cover.

[25] A few frankincense producing trees have been established.

16 SOUTH AFRICA

16.1 Background

South Africa has a population of 38 million, of whom about 40% live in rural areas characterised by high population density, typically over 150 people per km^2 (Shackleton *et al.* 2000), and a high level of poverty. South Africa's woodland area is home to approximately 9.2 million rural inhabitants, representing nearly a quarter of all South Africans (Shackleton & Mander in press). About 2.5 to 3 million households gain direct benefits from the forest sector (DWAF 1997).

South Africa contains extensive and valuable forest resources. Landscapes with trees (mostly within the Savanna and Forest biomes) originally covered about 42 million ha, or 33% of South Africa, but the area has been reduced to about 23 million ha. Closed forests amount to only some 327 600 ha, or 0.2% of the country's surface area. Woodlands constitute the majority of forest resources in South Africa.

South Africa's political history has an important bearing on the way in which natural resources are owned and managed. About 75% of closed forests are protected. Most of South Africa's woodland area is under private ownership, and relatively little (18%) is falls within communal land areas (Table 4.1). Population densities in the latter areas greatly exceed those in the privately owned areas. About 9.6% of the woodland area (Savanna Biome) is protected. The reduction in woodlands has partly been due to conversion to agricultural systems (Table 1). In many cases, this conversion is considered beneficial, in that it has contributed to improved welfare. Elsewhere, woodlands have been replaced by unsustainable forms of land use, or have been degraded or destroyed though local overharvesting and apartheid resettlement programmes. In these cases, the use of woodland resources has not led to improved welfare in the long term.

Table 4.1. Proportion of the savanna biome under different landuses in the 1990s (Shackleton & Scholes in press).

Landuse	% of South African Savanna Biome
Cattle ranching and game farming	58
Publicly-owned protected areas	10
Multipurpose communal landuse	18
Complete alteration through intensive landuse (e.g. cultivation, mining)	14

South Africa also has about 1.45 million ha of industrial forests, mostly planted with pines, eucalyptus and wattle. These plantations are owned by government and by private-sector companies and landowners. Although many black farmers have entered the industry in South Africa, these are mostly under private enterprise rather than community based ventures. This section thus concentrates on natural forest resources in South Africa.

16.2 Management and economic value of the forestry sector

In South Africa, government agencies which are involved in the management of forests and woodlands include the Department of Water Affairs and Forestry (DWAF), Department of Environmental Affairs and Tourism (DEAT), and the Department of Agriculture. Extensive areas of State Forest land have been devolved to the administration

of provincial governments. The role of NGOs and community-based organisations in the management of state forests has been practically non-existent. In parts of the country, communities living on the perimeter of state forests are in dispute over access to resources, often leading to illegal occupation and poaching. DWAF is currently reviewing the establishment of several pilot joint forest management schemes. The South African National Parks and provincial conservation agencies manages extensive areas of natural forests and woodlands. The remaining 18% of forested lands are under communal management systems. In the rural areas of the former homelands, woodlands are communal resources, with their use being controlled by tribal authorities, subject to national regulations.

16.3 Community forest values

Little is known about the subsistence and informal commercial use of forest (including woodland) resources, and particularly about the use of non-timber forest products. Indigenous forest products often contribute a significant proportion of the income of rural households, but this value has not been recognised in South Africa until very recently, and few attempts have been made to estimate the value in quantitative terms. The total contribution that forest resources make to local communities has not been quantified (DWAF 1996, DWAF 1997), although recent efforts have been made to estimate this value. Nevertheless it would be extremely valuable to put these values in context. In these areas, agriculture accounts for less than 10% of household income (Chenje & Johnson 1994).

As well as engaging in some small scale dryland cultivation of crops, rural people use natural forests and woodlands for a number of purposes and products (DWAF 1996, Shackleton *et al*. 2000), including:

- fuelwood,
- timber for construction
- foods, such as fruit, sap, insects, bush meat, mushrooms and edible plants,
- bark for ropes and weaving
- medicinal products,
- honey production
- grass for thatching, weaving and grazing cattle
- local craft industries.

While the extent of use differs from area to area, rural people are commonly able to list more than 150 plant species that they use (Shackleton & Mander in press, Rathogwa 1999). The extent to which woodland resources are used depends on a variety of economic, social and ecological factors, such as income levels, employment, institutional controls, accessibility, productivity and the availability of alternatives (Shackleton & Mander in press). Poorer households tend to use a greater variety and quantity of woodland resources than wealthier ones (e.g. Shackleton & Shackleton 1997).

A recent study of three woodland areas by Shackleton *et al.* (2000) found an average local direct use value from harvested plants and animals of R544 per person per year, for resources consumed within the household. Extrapolation of this value to a national scale yields an estimate of total gross subsistence use value in the region of R4.5 billion per year,

which is comparable to the gross annual value of R5.4 billion of livestock and game farming in the same area (Shackleton *et al.* 2000, Shackleton & Mander in press). In the Northern Province, the value of resource harvests in communal areas was found to compare favourably to financial returns to commercial agricultural landuses in the immediate vicinity (Pollard *et al.* 1998). If little is known of the value of woodland resource use, even less is known as to its sustainability. It is safe to assume that much of the above values are derived through overexploitation of resources. Accounting for harvesting costs, Shackleton & Mander (in press) estimate that the national *net* value would be about R282 million annually if harvesting was carried out at sustainable levels. Nevertheless, this is only a portion of the value accruing to communal woodland inhabitants. It does not include livestock goods and services, and in reality, much of the harvest of woodland resources is for commercial purposes. There is a large demand for woodland resources beyond the areas in which they are harvested. For example, some 84% of the African population in Durban purchase traditional medicines, most of which hail from forested areas (Mander 1998). Local communities harvest unknown, but probably large, quantities for these markets, and many rural communities complain of "outsiders" coming in and harvesting local resources, particularly firewood and medicinal plants.

Rural communities are highly dependent on wood as their primary energy source (Eberhard 1986), and one third of households in South Africa are estimated to rely on wood for fuel. Between 9 and 11 million tons of wood being used in this way annually. Of this, 6.6 million tons are estimated to be harvested from natural woodlands (DWAF 1996). Fuelwood accounts for close to 10% of net national energy consumption, and between 50 and 60% of household energy requirements in rural areas. It is estimated that the total value of firewood harvested is between R740 million and R3.2 billion per year, which is worth approximately the same as the production of timber from the commercial timber industry. The replacement cost of this fuel, in terms of paraffin or electricity would amount to about R7.8 billion. Charcoal making is also practised in some areas.

It is extremely difficult to quantify the value of forest use for medicinal plants by the 150 000 – 300 000 traditional healers in the country. It is, however, estimated that this industry is worth R500 – R1000 million annually (DWAF 1997).

Woodcarving generates an estimated R7.37 million in retail value (DWAF 1997). Most informal woodcarvers make very little profit, however, and practice this activity only because of lack of other employment opportunities. Woodcarving is not as important in South African culture as it is in countries to the north, and local carvings generally do not compete well against imported ones.

Although woodland and forest resources yield many benefits to South Africans, the reality is that these resources have been severely degraded throughout much of the communal land area of the country, and the benefits currently being realised are unliekly to be sustained unless the degradation is reversed.

16.4 Policy influences

Government policy on communal lands in South Africa has been a strong influence on the degradation of natural resources over the long term (Ainslee *et al.* 1996). The 1913 Land Act meant that Africans could not purchase land, and land was held under a system of trust

tenure, which limited chances of land inheritance, hence reducing the incentive for development or sustainable management. The Bantu Authorities Act in 1951 reincorportated tribalism into control of the native reserves, establishing tribal, regional and territorial authorities with limited powers of local government. "Betterment schemes" were introduced from 1936 through to the 1960s. These schemes were to replace traditionally scattered homesteads with nucleated villages surrounded by rigidly demarcated arable and grazing zones. While previously the dispersed homesteads had adequate access to natural resources and could manage them sustainably, betterment planning resulted in increased pressure on resources around these settlements. These schemes also created a landless class, through displacement of rural populations. Forced relocations in the 1980s involved the resettlement of African people into the homelands, to reduce the number of Africans in white areas. This resulted in further overcrowding of the homeland areas, adding enormous pressure to the already overutilised land. All of this social engineering fostered antagonism and suspicions between communities, stifling development initiatives and lowering morale. The population increase has not been the only cause of widespread resource degradation in these areas. Other factors, such as the collapse of local institutions responsible for resource management, high unemployment and poverty are all important factors in this decline (Ainslee *et al.* 1996).

Historically, traditional authorities limited resource use, for example by controlling the harvest of live wood. However, traditional control has become weak, and government regulations have not kept abreast of reality (Shackleton 1993), with the result that woodlands have been overutilised in many of these areas. With increased populations, demand for forest resources has outstripped supply in many areas, resulting in depletion of dead wood resources, and the harvesting of live wood. An outdated regulatory approach to management has only compounded people's hardships by forcing them to maintain vigilance while collecting to avoid being caught (Shackleton 1993). Rural poverty has forced people to pursue unsustainable practices which satisfy basic needs or offer quick cash returns. Sustainable forest management, on the other hand, offers relatively slow returns. By 1993 (Shackleton *op cit.*) it was already recognised that a more effective approach would be to introduce incentive measures to reduce consumption and to harvest more efficiently.

A lack of immediate cash benefits may have led to the undervaluation of natural resources in many rural areas, which in turn, provides little incentive to manage their resources. Resultant deterioration of the natural resource base leads to deteriorating rural livelihoods and increasing poverty.

Community forestry has been neglected in South Africa in the past, mainly contributing in the form of state-owned woodlots, which are small plantations established to provide fuelwood and timber to communities. However, with a lack of participatory approach, these schemes failed to adequately take account of community needs. Thus community forestry has had little success, except in parts of the Eastern Cape, where woodlot establishment around indigenous forests has helped to conserve the natural resource. On the whole, however, woodlots have been poorly managed (S. Steyn, DWAF, *in litt.*). Many villagers have indicated a preference for indigenous species over those available in woodlots (Ham 1999), and there has been much resentment over loss of precious grazing land without adequate compensation. In neighbouring Lesotho, these grievances have been expressed through communities burning their woodlots (Meintjies 1995).

Other efforts by DWAF in the past have been the establishment of community nurseries, but many of these have failed due to lack of commercial viability, especially due to inadequate markets, and due to lack of government staff to provide extension services.

Although there have been some successes, community forestry efforts in South Africa have frequently failed to reverse resource decline and to impact on improving rural livelihoods (DWAF 1997). The lack of success of community management of forest resources is abundantly evident in pervasive fuelwood shortages, severe degradation of woodlands and local destruction of natural forests, as well as the fact that few communities have incorporated tree-growing into their local development initiatives. However, some communities have proclaimed resource management areas in an attempt to achieve sustainable use and conservation of these resources, and pilot projects are in progress in at least three former homeland areas (DWAF 1997). According the NFAP (1997), community forestry cannot be expected to offer cash benefits to all rural households. Nevertheless, it can still make an important contribution to improving livelihoods. Another approach to solving the problem of resource shortages in communal lands has been to provide access to resources in neighbouring conservation areas or private lands, such as at the Wits Rural Facility in Mpumalanga (see below).

16.5 Industrial and state forests

The industrial forest subsector, mostly based on afforestation of grassland and fynbos areas with exotic pines, eucalypts and wattles, makes the largest contribution to the national economy with an annual turnover of about R12 million, off an asset base valued at about R20 billion. With about 16 million cubic metres harvested annually, forest products account for about 5% of South Africa's agricultural output and 3.3% of total exports from South Africa (Christie & Gandar 1995). Much of the forest plantation area is fully or partially government owned. However, following recent policy changes, there is a move towards the privatisation of these assets. Small-scale farmers are also starting to take part in this industry. The plantation forestry industry is looking to afforestation of community-owned lands as a critical growth area, and the industry is thus beginning to establish joint ventures with communities (Bethlehem *et al.* 1998). This can provide substantial opportunities for economic development in rural areas, but benefits to the communities could be constrained by unequal partnerships due to lack of capacity on the part of the communities unless government plays a role (Kruger 1998).

Indigenous forests also contribute substantially to the economy. The southern Cape forests are the largest indigenous forest complex in southern Africa, forming the southern end of a chain of Afromontane forests along the eastern escarpment and the coastal forests of South Africa (Vermeulen 1999). These forests cover about 60 500 ha. Of this, about 35 700 ha are controlled by DWAF. Forests on private land are protected under the Forest Act (Act 84 of 1984). Forests under DWAF are divided into compartments, each of which is assigned a management class, which are based on forest type and identify the management objective (Table 4.2). None of these forests are under communal lands: there are very few communal land areas in this region.

Table 4.2: Management classification of Southern Cape & Tsitsikamma forests (areas in hectares). From Vermeulen (1999).

Forest Type	A Timber Production	B Protec-tion	C Nature Reserve	D Recr-eation	E Research	Total
TOTAL AREA	9276.1	16033.0	9879.1	127.0	441.4	35756.6
% TOTAL	26.0	44.8	27.6	0.4	1.2	100.0

The indigenous forest area has been heavily invaded by exotic plants, particularly *Acacia melanoxylon* (blackwood). Invaders are regularly removed from protection and nature reserve compartments, and blackwood now forms an important component of the timber harvest.

All timber harvesting is currently carried out by DWAF, and timber is sold in block form on auction. Most of this timber is used in the well-established local furniture industry, with a small amount finding its way further afield.

In 1998, a total of 3589 m^3 of timber was auctioned, realising a total income of R2 916 300. Of this 1600m^3 was blackwood. Although prices vary from auction to auction, the average price for blackwood is about 15% higher than the average price for indigenous timber. However, Stinkwood, Hard Pear and Yellowwood yield the highest prices (R1763, R1334 and R1301 per m^3, respectively, vs R942.40 for blackwood in September 1999). The furniture industry now depends on the cheaper blackwood as a substitute for stinkwood.

In addition to timber, the main non-timber forest product harvested from these forests is the seven-weeks fern *Rumohra adiantiformis*. This species is common in the southern Cape forests, especially in the moist and wet High Forest types and on moister areas of dry High Forest (van Dijk 1987). The long-lasting fronds are used in flower arrangements. *Rumohra* is harvested by private contractors over a total area of 14500 ha, under the control of DWAF. The harvest of this species is strictly controlled by a quota system in order to ensure its sustainability. In the Western Cape, a total of roughly 1.7 million fern fronds were harvested during the 1997/8 picking cycle, realising a total income of approximately R378 000 in the region (Vermeulen 1999), and about R700 000 is realised annually in the country (DWAF 1996). There is some degree of illegal harvesting, but its extent is unknown. The resource is thus used, but not managed, by local communities.

16.6 Protected areas

Conservation areas in South Africa have traditionally been managed as hands-off protected areas, allowing little, if any, access by surrounding communities to the resources contained therein. This has led to a largely negative perception of protected area management among neighbouring communities, but not necessarily to a negative perception towards conservation (Hughes & Steenkamp 1995).

Poaching in protected areas by neighbouring communities has been rife. By the 1990s it was realised that the needs of neighbouring communities had to be considered, and this led to the development of neighbour relations policies by the major conservation agencies. Based on the belief that pressures on parks by surrounding communities would only be alleviated if communities benefited from the park, most initial action in South Africa consisted of allowing access to certain park resources and development projects in the communities. In addition, protected area authorities started to actively recruit staff from neighbouring communities. Millions of rands from donor agencies were channelled into

development projects such as provision of water, schools, market gardens and community markets and business development (Hughes & Steenkamp 1995). Community markets in protected areas such as the Hluhluwe-Umfolozi Park now generate substantial incomes for local entrepreneurs running into tens of thousands of rands per month.

Thus communities are enjoying increased incomes and have been allowed increasing access to woodland resources in many protected areas. In most cases, however, the sustainable management of these resources has largely remained with the conservation authorities. This is because demand for resources, such as thatch grass and fuelwood, generally outstrips the sustainable supply, and without strict definition of communities and their rights and responsibilities, people will always behave opportunistically.

Today, conservation agencies strive to progress beyond the policy of simply providing neighbours with natural resources, and they aim to develop joint participation in conservation programmes. One pioneering example is the Richtersveld National Park, which is a contractual park operated on communally-owned land, and run by a joint management committee. This park does not contain any forestry resources, but serves as an example of what can be done in future. More recently, communities have been subject to increasing incentives to managing woodlands and forests for conservation, in order to benefit from the dramatic rise in tourism that has occurred in South Africa since its first democratic elections in 1994. In a recent land claim in Kruger National Park, the local community has opted to manage their reclaimed area as part of the conservation area, for tourism, rather than for settlement and agriculture. Other land claims in protected areas are also leading to conservation management by communities.

16.7 Privately-owned lands

Most management of natural forest woodlands is financed by the private sector, and a larger area is conserved in wildlife ranches than in protected areas. The financing attributable to woodlands in private hands has not been documented. Communities also obtain some benefits from privately-owned lands. In areas with mopane woodlands, farmers sell permits to local women to harvest worms. This generates significant revenues for both parties, but there is concern that the worms are being overharvested in some areas. Mopane worm harvesting is potentially worth R50/ha.

16.8 Overview of policy/legislation

Until very recently, there has also been no system of forest resource accounts in the national accounting system, which has resulted in an under-valuation of community forestry resources. In fact, there has been a general lack of recognition of the value of forest resources to rural households, in economic, environmental and social terms, and with that, a lack of appropriate policies and institutional frameworks. This has led to policies which over-value activities which degrade, rather than conserve, forest resources. However, policy in South Africa has changed radically since the change of government in 1994, and now takes rural and community development into account to a much greater extent. Effective policy and management decisions regarding indigenous resources will require access to a comprehensive knowledge base that includes scientific, traditional and historical information (Davies & Wynberg 1996), something which has yet to be fully addressed.

16.8.1 Forestry policy

Forestry policy in the past was concerned solely with industrial and state forests (including all indigenous closed forests). The current White Paper on the forest sector was completed in 1996, and reflects a significant change in forest policy, making the point that forestry today is about the relationships between people and the resources provided by the forest. The forestry White Paper (1996) now recognises that forests have an important contribution to make to integrated rural development, and that traditional leaders have an important role to play.

The forestry policy has nine guiding principles, including

- forests and forest resources to be treated as a national asset
- policy to promote democratisation
- gender equity
- sustainable forest development and
- a competitive and value-adding forest sector.

The policy focuses on empowerment of communities, especially women, in the planning process. The White Paper contains a specific set of policies on community forestry, recognising that this can contribute to environmental improvement, and income opportunities. It is recognised that forest resources play a vital role in household economies, and that the benefits arising from sustainable use of resources should accrue to local communities. Community forestry will have a principle element the community-driven conservation and management of resources on community-owned land. State forests will be managed through partnerships with local communities. People will be encouraged to plant trees and develop small forest-based enterprises. Government will support community forestry with relevant information and technologies, pilot programmes and projects. It will also make budget provision for financial support to community forestry where necessary and affordable. In the former homeland areas, government will place special emphasis on the development and application of community-based methods of managing forest resources and sharing the benefits obtained. Sustainable harvesting will be promoted to provide benefits and commercial opportunities to local communities, and it is stated that the government will *consider* incentives to promote sustainable management of these resources.

The goals for implementing the forest sector policy over the subsequent five year period included:

- reforming the Forest Act,
- establishing the future of forests in the former homelands,
- creating capacity in communities, and
- initiating community forestry projects (DWAF 1996).

Among other things, the new Forestry Act seeks to provide for community forestry and rural development and regulations relevant to the rights of local communities. It also seeks to provide incentives to and financing of small-scale afforestation (such as woodlots), conservation, restoration, and other related issues such as credit provision (DWAF 1996).

Following the completion of the White Paper, the National Forestry Action Plan (NFAP) was completed in 1997. The NFAP recognises a number of factors that need to be taken account in future for community forestry development to be successful, but does not mention the use of financial incentives in this list. Nevertheless, several support services are identified by the NFAP as necessary to community forestry development, including extension, training, research, supply of forestry inputs, promotion of forestry, education and financing of community forestry.

According to the NFAP, there has been little formal credit made available to community forestry activities, and the demand for such credit is also limited by the generally low and slow revenue generation in community forestry. In addition, the provision of subsidised inputs, payment of labour, and supply of materials such as fencing and transport have often resulted in creating dependence on service providers, benefits being concentrated among those with access to land and influence, reduced sense of ownership and responsibility, a perception that short-term job creation is development, and a perception that tree planting and environmental protection are the responsibility of the government. The NFAP thus advises that incentives and subsidies be used carefully so that they stimulate, rather than become the reason for, community forestry.

The Communal Property Association Act provides a framework for communities to control and manage communally owned natural resources. CBFM systems are being reviewed by DWAF, with a view to testing them.

Pilot project for both joint forest management (JFM; on state land) and CBFM systems (on communal lands) are stated tasks of the NFAP.

The NFAP recognises that the decision to mange resources reflects the perception of relative benefits form alternative actions, and that perceived benefits can be altered by applying incentives or disincentives to encourage or discourage particular actions. For example, subsidies on paraffin may encourage its wider substitution for fuelwood. However, very few concrete suggestions are made in the NFAP as to how and what types of incentive systems might be used.

16.8.2 Environmental and conservation policies and agreements

Having adopted a new constitution (1994), South Africa has recently reviewed most of its policy, and has produced a very sound set of environmental policies which could be regarded as exemplary within the region. The White Paper on the Conservation and Sustainable Use of Biological Diversity recognises the need for incentives which support the maintenance of biological diversity at the user level.

Five documents were produced at the United Nations Conference on Enviroment and Development (UNCED), Rio 1992, which have relevance to forest policy:

- the Forestry Princples
- the Convention on Biological Diversity
- Agenda 21,
- the Rio Declaration, and
- the Framework Convention on Climate Change.

South Africa is a signatory to the CBD and the FCCC, and also to the Rome Statement on Forestry (March 1995). These obligations are recognised within the Forest Policy as well as other environmental and biodiversity policies.

16.8.3 Macro-economic, land and agricultural policies

South Africa's new dispensation is framed within the Reconstruction and Development Programme and numerous other policy statements. In general, macro-economic policy contains a clear commitment to achieving equitable economic growth, sustainable development, full employment and poverty alleviation. Poverty in the former homeland areas is resulting in continued forest resource degradation. If alleviated, it is expected that pressures on forest resources will decrease, and the incentive to manage resources sustainably will increase, due to the decrease in private discount rates that accompany an increase in wealth.

In South Africa, the Land Reform Programme aims to improve access to land and tenure security though the restitution of land rights, redistribution of land and tenure reform to clarify and strengthen the rights of individuals and groups to land and resources. These developments will be crucial to the sustainable management of natural resources in future, creating the incentive to conserve, rather than mine, natural resources. However, tenure security is not a sufficient condition on its own. It will have to be coupled with strong local-level leadership and an increase in knowledge of sustainable use practices.

Past agricultural policies have had negative impacts on forests and woodlands through a primary regional focus on clearing land for cultivation in order to achieve food security (Meintjies 1995), and through subsidies which artificially increase the profitability of crops, legislation identifying land clearance as a means to establish or secure tenure, and though land reform which allocates forest land to the landless (DWAF 1997). In addition, biases in service delivery have denied poor farmers access to yield improving technology, forcing them to increase the area under cultivation (DWAF 1997). The prevailing economic situation directly influences the incentive to manage forests sustainably. For example if agricultural produce is priced higher than wood, then people will tend to invest in agriculture. Recent changes in agricultural policy, specifically the removal of direct subsidies, price support and tariff barriers, and concomitant changes in the agricultural economy have caused many commercial farmers to switch from stock farming to wildlife farming. This has led to an improvement in the state of woodland resources in certain areas.

Within communal lands of the former bantustans, changes in agricultural policy have probably had less effect on the predominantly subsistence communities. If anything, removal of price support for agricultural inputs may leave these communities marginally worse off, due to lack of immediate alternatives, and may make them more dependent on woodland resources. According to the NFAP (1997), the removal of price support for agricultural commodities should encourage communities to make better decisions about natural resource management, presumably due to their greater dependency.

17 SUDAN

17.1 Introduction

Sudan's economy is dependent on agriculture and particularly cotton as its principal cash crop and has a history of interrupted economic development plans. The country has made minimal efforts in diversifying its economy and this means that agriculture and other associated resources play a major part in sustaining its economy. Gum arabic is the only forest product that the country exports in considerable amounts consisting of about 21% of the total exports. However, the contribution of the forestry sector to the GDP is estimated at less than 3%. Forest conservation like many other countries in the region is a shrinking sector both in extent and its contribution to the national economy. Communities have minimal incentives to particiapte in forest management. Therefore, the main challenges facing the sector include increasing demand on forest products and lack of adequate incentives to stimulate local community resource investment in the sector.

17.2 Forest resource status

Early estimates made during the 1950's and 1960's indicated a productive forest area of about 45.5 million ha. However, the present estimated area of gazetted forest is 1.05 million ha. thus representing about 1.1% of the total area of forest and woodlands. Forests and woodlands in Sudan range from bushland to tropical forests. In addition to trees in woodlands and forests, woody biomass is present in semi-arid and scrubland. Farmers also leave or plant trees in their fields to meet a wide array of household needs, including construction materials, fodder for livestock and fuelwood. The available stock for utilisation is unevenly distributed between the northern and southern parts of the country. This implies that biomass haulage over considerable distances is common depending on the demand of specific forest products.

For the last three decades, forest management in Sudan has been marked with degradation and depletion which is caused by the increasing demand on forest products. For example between 1968 and 1981, the country lost about 30,000 sq km of forest land. Similarly, as by 1981, forests covered approximately 22.3% of the total land area while as of 1994, forests covered an area of about 0.5% of the total land area. This is a clear indication that without new and more innovative forest management strategies, the country's forest resources may be decimated before long.[26] The demand for other forest products has also experienced an upward trend with the demand for fuelwood reaching 37.6 million cubic meters while the cut allowable for sustainable renewal is 29 million cubic metres.

17.3 Forest policy and law

Although the formal interests in forest conservation were initiated in 1902 through the establishment of the Woods and Forest Department, clear forest policy was not stated until the 1932 Central and Provincial Forestry Law. The law stipulated that the reservation of 15% of the total land area as forest reserve. In 1986, the policy was revised and about 20% of the total land area was stipulated as forest reserve. It is noted that most forest legislation since 1932 have proved to be detrimental to the progress of forestry and they include;

[26] Sudan, 1993/94, A Country Profile.

- The Central and Provincial Forest Ordinance of 1932 as amended in 1974.
- He local People Government of 1971,
- The Regional Autonomy for the Southern Sudan of 1972,
- The Regional Government Law of 1980,
- The Local Government Law of 1981, and
- The Temporary Orders and the Amendments Act deemed necessary due to enactment of the Decentralisation of Government Law of 1982.

Both the Forestry Law of 1989 and the Forestry National Corporation Bill of 1989 do not present real tangible incentives aimed at enhancing local community involvement in forest management[27]

17.4 Forestry institutions

Unlike other countries in Eat Africa (Uganda, Tanzania and Uganda), Sudan has a limited range of institutions mandated to manage or conduct research in forestry. Under the forestry legislation, enacted in 1932, all forest reserves and all other land not used for cultivation is managed and controlled by CFA. Today, both Central and Regional Governments are involved in the management of forest lands. The regionalisation of legislation of 1980 increased the control exherted by the Regional Governments over forestry activities and thus diminished local community responsibilities over forest activities within public land. The unfolding was exacerbated by the legislation being unspecific and hence *de facto*, the Regional Governments assumed control of almost all forest areas and uncultivated land.

Forestry research is being carried out by the Forestry Research Centre which is under the Agricultural Research Corporation (ARC). Forestry extension services in many countries have provided mechanisms through local communities are involved in forest resource management. However, forestry extension service is noted as being weak in Sudan in relation to that in countries like Kenya, Uganda and Tanzania. Therefore, communities have had little opportunities of influencing forest management decisions (World Bank, 1986).

17.5 Importance of the forestry sector to Sudan's economy.

As already noted agriculture is the mainstay of Sudan's economy, accounting for about 30% of GDP, 85% of exports and 65% of formal employment. Like many other countries in the region whose economies are natural resource-dependent, the link between agriculture and the forestry is complex and in most cases indirect and thus least understood by the policy-makers. However, this review has attempt to explain the extent to which the forestry sector supports other important sectors of the economy. The forest sector on the other has direct contribution to both national and local economies. Therefore, although wood is a high-bulk low-cost product, with improved technological innovations, it can be turned into a multitude of more valuable products (for example high quality charcoal, poles, plywood) whose selling price can be much more greater than the standing value of trees. It has been estimated that by using selling price of finished products and assuming a similar price for freely collected woodfuel and poles, the contribution of the sector the GDP stands at about 8%. Woodfuel is the principal energy form for a vast majority of

[27] For details see, Granholm, H. 1990.

Sudan's population. Therefore, the use of woodfuel saves the country a considerable amount of foreign exchange. The value of charcoal production alone, in kerosene equivalent terms, and taking into account the efficiency difference, it about US$ 570 million or about 20% of the total country's import bill.

Forests provide direct employment for over 170,000 people (excluding self-collected fuelwood and poles) and are the source of gum arabic, the export value of which has been estimated at between US$ 65 million and US$ 100 million per annum (World Bank, 1986).

Sudan is the leading world producer of gum arabic. It contributes between 70 and 90% of the total world gum arabic production. Gum arabic is a product of *Acacia Senegal* and *A. seyal*. The management of A. senegal for gum production falls into two systems; hashab owner or hashab renter. The hashab owners are either small- or large scale producers with the former making up the majority. To ensure that the Sudan takes the lead in gum production and export, the government has taken deliberate measures first to ensure that there always adequate gum arabic to satisfy the world demand and secondly, the production and marketing process are carried out by one body. The latter ensures that the price for gum arabic remains relatively stable. Along this assurance on the price levels, there are mechanisms in place which ensure that even the small-scale farmers have access to credit facilities.

Trees provide other direct and indirect benefits. Animal browse from shrubs and trees is estimated to provide about 30% of the feed requirements of Sudan's livestock population[28]. Other forest products of importance particularly to the rural populations and communities are honey, fruits, fibres and medicines. From both the scientific and cultural perspectives, trees are known to improve micro-climate, thereby leading to increased crop production and soil stabilisation.

17.6 Support of the forestry sector by the Government

In spite of the important role that the forest sector plays in supporting the national and local economies, direct government support has long been neglected. It has been estimated that agriculture (the portfolio under which forestry falls) receives about 32% of the total development budget. However, forestry receives only 1.0% of the total allocation to the agricultural development. However, in the recent past, the Government has indicated that budgetary allocation within the agricultural development earmarked for the forestry sector will be increased to about 5%.

Table 3.4 Summary of the role of forestry in Sudan's economy

Broad Effect	Attribute	Benefits / costs
a) direct effects of forestry on agricultural production	**i)** Shelterbelts	reduced wind velocity, reduction in crop abrasion reduced water channel siltation increased relative humidity, over 100% increased crop yields provision of other tree products (poles, fuelwood)
	ii) provision of fodder supplies	provision cheap sources of proteins for livestock, hence livestock production

[28] Livestock production accounts for about 12% of the country's total export earnings.

	iii) birds, crop damage and forestry	reduced crop yields
b) Income generation from non-wood activities	**i)** gum arabic	gum arabic collection provides employment during the lean periods, the sale of gum arabic provides substantial and stable income for several households
	ii) other minor forest products	provides many useful products – fruits, shoots, medicinal plants, tanning compounds
c) Environmental protection	**i)** control of desertification	- increased tree cover
	ii) dune fixation	reduced threat of sand dunes on agricultural land, canals, villages and watering points
	iii) watershed protection	reduced sedimentation -reduced siltation

17.7 Effect of land tenure on farm and village forestry

Experience in many developing countries has shown that there are numerous constraints in fostering community-based approaches to reforestation, forest protection and management. The successful establishment of such forest management schemes depend upon the nature of resource tenure in existence. Trees are considered to be a long term investment and it is difficult to encourage farmers to plant and/tend trees unless security of tenure enables to certain of accessing economic benefits from the investment.

There is little freehold land in Sudan. Settlers on demarcated mechanised farming schemes are granted leases of 25 years which may be renewable. On the other hand, under the irrigation scheme arrangements, tenants hold rights to the land in perpetuity and can pass on the rights to their descendants. However, individuals are only allowed to plant limited trees around their houses.

Under the traditional system of land tenure, the right to use the land, but not ownership, belongs to the person who cultivates it. All non-cultivated land belongs to the Government. This type of land tenure provides a potent economic disincentive for long-term investments in cultivated land by planting trees or meaningful participation of local communities in management of forest reserves that fall within Government land. The 1932 forestry legislation made it impossible for farmers to own trees and therefore has been a strong disincentive to tree planting. For a long time farmers believed that by planting and managing trees, they stand to loose the right to cultivate the land. Although the legislation has been clarified, but even today a farmer should obtain Forest Department permission before cutting trees on the land they have rights over.

17.8 Development of commercial forestry in Sudan

Like many other countries in Eastern Africa, Sudan aims at being self-sufficient in the supply of industrial forest materials which include sawnwood, paper and pulp, sleepers and matchwood. The gains to local communities is minimal particularly in cases where the private sector engaged in plantation harvesting aims at maximising profitability from forest-based industrial operations. This has presented a disincentive to local community involvement in the management of industrial forest estates.

Nevertheless, further development of commercial forestry in Sudan faces a wide range of constraints. Similar constraints have hampered effective local community involvement in

the management and protection of other forest resources. Some of the most important constraints include;

- Access to markets – there is poor linkage between the points of supply of forest materials and sources of demand. This has contributed to low returns from forest-based activities in Sudan
- Poor local road network – the deplorable condition of local roads impedes delivery of forest-based raw or processed materials. This is leads to increased transaction costs and thus reduced profit margins.
- Government pricing policy – regional government policy to set lumber prices far below market values mitigates against the success of private or community involvement in commercial forestry development.
- Government manning policy – regional government policies to subsidise the maintenance of sawmilling levels far beyond production requirements and to pay full wages even when mills are not working tend to impose unrealistic costs on private industry involvement in forest development.

17.9 Women and forestry development in Sudan

Sudan's consumption of fuelwood exceeds the annual natural forest increment by 70%. The resulting deforestation has certainly threatened Sudan's fragile environment. This places additional burdens on rural populations dependent on wood as a source of energy. In rural Sudan, women who tend to be involved in all aspects of fuelwood management (collection utilisation and marketing) are most affected. Therefore, it is not surprising that women in Sudan have a different perspective about forest management as compared to their counterparts in the other countries within the region. Women in Sudan, particularly in the Eastern part are conscious about the consequences of inadequate fuelwood supplies at the household (which include household resource saving and nutritional impacts).

Women's use of forest resources in Sudan extends beyond consumption of fuelwood. They are involved in many activities which use forest products. This includes their participation in agriculture, animal husbandry, handicraft production and use of woody plants for medicinal purposes. Women are getting more involved in tree nursery establishment and management, tree planting and tending. It has been observed that community-oriented forestry projects cannot succeed without local women's involvement and support. Constraints to effective involvement of women in forest resource management include, inadequate resources e.g., water, lack of education and training, social customs promoting seclusion and lack of access to outside markets for their products.

To this extent, it is clear that there are a number of economic barriers and disincentives that need to be dismantled in the case of forestry development in Sudan to effectively involve the local communities in conservation. Some of the issues include;

- Formulation of a new policy that creates space for local community involvement,
- Clear legislation to implement the suggested policy,
- Introduction of economic, social and fiscal incentives to enhance the involvement of communities in forest conservation,
- Land tenure reforms to create defined rights over land and tree resources.

18 TANZANIA

18.1 Introduction

Tanzania's forest resources are categorised as reserve/protected area forests and public/unprotected forests. The protected forests cover an area of about 13.4 million ha of which 1.6 million ha (12%) has been reserved as catchment forests. Unprotected/public forests cover an area of approximately 13.1 million ha. The total forest resources that the country depends upon to support the national and local economies consist of closed canopy forests (covering an area of about 1,400,00 ha including 80,000 ha plantation forests), woodlands of about 42,891,000 ha and mangrove forests estimated to cover approximately 115,000 ha. Major threats facing forest resource conservation include increasing demand for forest products notably industrial timber and fuelwood, and forest land encroachment. Among the measures the country has put in place include revision of the forest policy and legislative framework and the completion of the Tanzania's Tropical Forestry Action Plan (TFAP).

18.2 Tanzania's national forest, wildlife policy and community participation

Tanzania's first national forest policy was drafted in 1953 and subsequently reviewed in 1963 to articulate the approaches through which forest resources would be managed sustainably to meet the both national and local needs. Political, economic, cultural and social changes experienced in the last three decades have largely dictated forest conservation and management objectives. As an imperative issue in forest management, the ever increasing pressure on these resources has been taken into cognisance in the planning process.

The current national Forest Policy was prepared with the full involvement of the stakeholders and this presupposes that their needs and priorities are considered. The National Forest Policy has a number of incentive-oriented statements if implemented are likely to promote sustainable forest management in the country. Regarding forest on public lands (non-reserved forest land), the Government promises to

> '*….to reduce uncontrolled use of forests, allocation of forests on public lands to villages, private individuals and the government will be promoted so as to have a defined owner. The primary policy instrument in this regard is the establishment of village forest reserves. Village institutions will be granted appropriate user rights as incentives for sustainable forest management including rights to indigenous trees….*'

The government further states that the village forest reserves will be managed by the village governments or other entities designated by the village governments for this purpose. Although it is not clear on how much power and authority the village governments are granted by the government, it is certain that in the absence of marginalisation of village members, then this policy provides the necessary incentives for the local communities to manage forest resources aimed at satisfying their needs and priorities.

The National Forest Policy is explicit on the strategies aimed at developing the necessary infrastructure for marketing of priority forest products. It is stated that '*…beekeeping resource assessment will be intensified and a beekeeping component will be incorporated in the management plans of forest reserves in the context of joint forest management….*'It is the focus of the Government to

promote beekeeping for the benefits of the local communities. This is a deliberate intervention by the government to enhance livelihood systems of the local communities. Other interventions that the government intends to undertake to promote community participation in forest conservation include the development of eco-tourism activities (as a potential source of income), development of non-wood-based industry and products (including gums, resins, bark, tannin, aromatics, latex, natural dyes, fruits and nuts, spices, etc), and regulation of trade in forest products.

Similarly, the Wildlife Policy of Tanzania articulates a number of statements if implemented may enhance community involvement in the management of wildlife. For example, the policy states that it is the intention of the government to involve all stakeholders in wildlife conservation and sustainable utilisation as well as in fair and equitable sharing of benefits; and contribute to poverty alleviation and improve the quality of life of the people of Tanzania. This wildlife policy reforms have taken place on the government considering the relative effectiveness of wildlife management with and without the involvement of the local communities.

Wildlife conservation in Tanzania dates back in 1891 when laws controlling hunting were first enacted. These laws regulated the off-take, hunting methods and the trade in wildlife. The process of the enactment did not consult the affected stakeholders and therefore the communities level of welfare was affected. However, over time, it has been realised by the conservation authorities that the alleviation of local communities from the conservation of resources that they interacted with continuously is counter productive to the articulated goals and objectives of natural resource conservation. Therefore the current wildlife policy provides a set of incentives to involve all the stakeholders in wildlife management. The current wildlife policy has the involvement of all stakeholders in wildlife conservation and sustainable utilisation, as well as in fair and equitable sharing of benefits as one of its visions. The policy also aims at using wildlife resources to contribute to poverty alleviation and improve the quality of life of the people of Tanzania.

Some wildlife conservation areas are strictly devoted to conservation where there is no human settlement while some protected areas offer opportunities where wildlife co-exists with humans. Although the local communities are not accorded any real powers in altering wildlife management strategies, this policy has gone some considerable way in providing limited incentives in form of direct benefits to local communities.

The policy identifies the following as some of the problems facing the wildlife sector

- The existing land tenure system and the wildlife resource ownership by the state, hinders investment in, and development of wildlife industry by private sector
- Inadequate wildlife use rights especially to the rural communities
- However, the policy further states that retaining the ownership of and overall responsibility for the management of wildlife resources by state, to ensure that national priorities are addressed and abuses are controlled as one of the strategies for conserving and managing wildlife resources.

Other strategies include;

- Promoting the involvement of stakeholders in setting a side PAs and PA's management and planning initiatives

- Ensuring effective partnership with rural communities and the private sector outside PAs and providing those rural communities with direct and indirect benefits from wildlife utilisation.

Therefore, both the National Forest Policy and the Wildlife Policy act as incentives for promoting community involvement in resource management as well as providing a basis upon which the scope of incentive may be enlarged.

18.3 Utilisation of forest resources.

It is noted that forest resources support both the national and local economies. At the national level, plantation forestry (main species being *Pinus patula, Cuppressus lusitanica and Tectonia grandis)* is the main source of industrial forest materials including telecommunication posts and poles and timber. At the local level, communities depend of forests to meet a wide variety of domestic needs including fuelwood, poles/posts, medicines and wild game. For example 97% of the energy used domestically is derived from natural forests. The current supply of forest-based materials does not meet the demand. The level of sustainable supply of roundwood is estimated at 25 milllion m^3 per annum, which is lower than the current demand which is estimated at about 43 million m^3 annually. This is an indication that there is gradual forest degradation and therefore the government has set in place mechanisms to ensure there is adequate supply of forest resources for the constantly increasing demand. Encouraging village level tree planting was one of the options the government has pursued in the past to grant tree planting at a rate of 200,000 ha per annum. These efforts have fallen short of the expectations and it is noted that only 7,700 ha are planted annually through the involvement of the village members. It has already been realised that if forest benefits to the local communities are sustained in a fair and equitable manner, then government interventions aimed at promoting sustainable forest management may realise their goals.

19 UGANDA

19.1 Introduction

Formal forest conservation and management in Uganda dates back to the late 1890s. Over this period, there has been increasing realisation among the various agencies mandated to manage these resources on the need to review existing policies and legislative frameworks. Old policies, legislation and management practices are no longer adequate to meet the country's new challenges of forest resource conservation.[29] For example, the first Ugandan Forest Policy of 1929 stressed on the environmental role that forests play and the economic benefits with minimal reference to the need to involve the local communities. Subsequent policies of 1939 and 1948 on the other hand laid greater emphasis on conservation directing benefits to local authorities. The 1970 Forest Policy stressed timber production, harvesting and utilisation and underplayed the conservation requirements of forest resources and the need for participation of the local communities. The 1988 forest recognised the need for biodiversity conservation and the importance of non-consumptive uses of forest resources but remains silent about the involvement of local people in collaborative management of natural forest resources.

Legislative framework for forest conservation has also been dynamic in Uganda. Before the colonial control of forest resources, it is stated that the resources were managed on either a communal or an open access basis. However, in 1900 the first forest regulations were set which prohibited cutting and harvesting of forest resources except with a license or for domestic use by the natives.[30]

Through collaborative forest management processes, it has been concluded and appreciated that local communities and indigenous peoples depend heavily on these resources and hence their welfare status may not be sustained in the absence of sound forest management practices. It is therefore argued that revenue and benefit sharing arising from the use of forest products such as timber may be good incentive measures to sustain the collaborative forest conservation activities being sought by various stakeholders, notably, government conservation agencies and the local communities.

19.2 Historical Profile of Forest Resource Management in Uganda

Like many countries within the Region, Uganda's first forest reserves were gazetted in 1930s and were facilitated by policies and laws formulated by the colonial government. The main objectives of creating an elaborate network of forest reserves was to ensure that there was adequate supply of country's needs particularly for industrial purposes. By then the increasing forest frontier population was perceived as a serious threat to forest conservation.

Until 1940, authority related to forest management was concentrated in the Forest Department through the process of command and control. The Department's focus on the establishment of industrial forest plantations and maintenance of watershed protection

[29] Mupanda, E. 1996 explains that the Uganda has undergone a series of economic and political challenges that require better formulated forest policies that are able to address adequately the dynamic needs to the rural people particularly in midst of expanding human population and economic restructuring.

[30] Mupanda, 1996.

areas. This system lacked any traces of incentives that could encourage the local communities to perceive forest resources being managed for the *common good of all.* Instead, the approach was marked with constant conflicts between the conservation agency and the communities. One then may conclude that over the long-range the command and control approach to forest conservation did not adequately achieve the objectives it was set up for.

Over the years, therefore, advocacy of incentive-based approaches have been intensified. The precursor to this has been the promotion of local community involvement in management of forest resources which in some cases has lead to the creation of Village Forest Reserves (declared and controlled by the local authorities), Local Forest Reserves (declared by the Central Government but managed and controlled by Local Authorities) and Central Forest Reserves (declared and managed by the Central Government). However, after independence, Village and Local Forest Reserves were abolished and put in the hands of the Central Government, with all the revenues going to the Central Treasury. This over-centralisation of forest resources management which was place until early 1990s had an adverse effect on the relationship between the communities and the conservation agencies.

However, since early 1990s, the Uganda Government has realised the need of using incentive-based approaches to forest conservation. The need to involve the local communities has fully been recognised. Several initiatives have therefore been put in place to enhance long-run forest conservation and they include, re-institutionalisation of village forests, local forest reserves, and revenue-sharing.

The policy framework for Uganda is gradually shifted to that which is supportive of community involvement in forest management and the use of incentive-based measures. For example the Country's constitution (1995) explicitly recognises for the first time the significance of the environment's sector is promoting communities livelihoods and health. Similarly, the National Environment Management Statute (1996) which established the National Environment Management Authority (NEMA) emphasises the importance of involving and empowering local councils and local communities in environmental management. In addition, the Wildlife Bill (1996) which formed the Uganda Wildlife Authority has fronted a policy and legislation that recognises the need to collaborate with and consult a wider variety of possible stakeholders including loacl authority and communities.

19.3 Institutional Framework for Forest Conservation in Uganda

In Uganda, two organisations are mainly involved directly in the management of forest resources. The Forest Department manages about 417,000 ha of tropical high forests and montane forests while the Wildlife Authority Manages approximately 321,000 ha. In the recent past, these two organisations have aimed at formulating policy and legislative regimes to promote the conservation of Uganda's biodiversity through close involvement of the local communities. The use of both economic and financial incentives has been central in inducing effective community involvement in the conservation of forest resources. It is also contemplated that incentive-based measures may revise the communities' poor attitude towards the conservation f protected areas.

Therefore, the Forest Department and Wildlife Authority have made part of their goal to realise meaningful conservation, the uplifting of the socio-economic status of the local communities next to protected areas as well as giving them increased access or alternatives to the resources to meet their basic needs. In recognition that uncontrolled exploitation of forests resources may jeopardise the communities' livelihoods, mechanisms have been put in place to limit extractive activities within ecologically sensitive forest ecosystems but recognise and promote extractive utilisation of non-timber forest products and the creation of local management committees at protected area levels. To enhance the involvement of the communities in conservation, revenue sharing between the Central Government, District Councils and the communities has been used as important tool. Although, national-based programmes have not been implemented, efforts have been made to initiate pilot collaborative management programmes around Bwindi Impenetrable, Ruwenzori, Mount Elgon, Kibale and Semliki forests.

20 ZAMBIA

20.1 Introduction

Zambia is beginning its process of involving communities in forest management but no major activities have started. It is still in the process of revising its forest policy in favor of working with communities. This has caused delays on possible CIFM activities for example under the pilot areas covered by the Joint Forest Management Program (JFMP). The draft policy has made general statements in favor of CIFM but largely it lacks a clear identification of the mechanisms and tools for increasing community benefits. Even with the proposed policy changes in favor of working with local communities and establishing new forestry institutions, the bulk of the power over forests remains with the government.

20.2 The History of Zambia's Forest Policy

Zambia has until now been operating on the 1965 forest policy and the 1973 Forest Act. According to Zambia's new policy draft (1998) both of these documents @expressly denied the local communities and traditional rulers a role in he management of their land based resources....engendering frustration and outright conflict@ (p 8). Like in many other African countries, forest polices of the sixties focused on establishing a protection and forest revenue collection role for the Forestry Department. The Forestry Departments needed to guard forests from local communities that traditionally had free access to the forests. Thus, the 1965 forest policy empowered the government to take over forests in a large part of the country and the 1973 Act vested into the Forest Department an emphatic policing role while the rights of local communities were taken away and in some cases reduced to limited use conditions.

The instruments of this management regime was mainly creating forest reserves and national parks to be sealed off from local users. Now Zambia has gazetted 16% of its forests as forests reserves and 14% as national parks (see annex 2). This process of protection resulted in alienating local communities and traditional authorities. One of the major sources of current conflicts is the fact that large portions of the forest reserves are on trust lands where local chiefs have jurisdiction. Both the Forestry department and the District Councils claim legal authority over these forests without clarification of their respective roles.

Apart from the fact that there is an external pressure to institutionalize CIFM approaches in Africa, Zambia is facing pressure from its local communities and traditional authorities to devolve some forests rights back to them. This has also happened due to socioeconomic, demographic and political changes, which have occurred in Zambia in the last 30 years, and simply by the passing of time. In this period demands from local communities and traditional authorities have increased and the old forest protection considered as outdated and untenable. In spite of the laws, people now question the authority and legitimacy of government control over what used to be their forests. Local peoples aggression clearly out powers the policing capacity of the low budget, inefficient and unmotivated Forestry Department. Zambian people have exploited resources in protected and unprotected areas alike and although deforestation may not be as high as in Malawi, the Zambian authorities are worrying about the trend and impact in terms of degradation and loss of government control.

At the moment the government is trying to work with local communities through extension efforts. The new policies are aimed at working together with, and not against, local communities and increasing sustained economic benefits to these communities. However, a close examination of the new polices and proposed approach to CIFM reveal that, effectively authority over forests still remains with the government and the proposed approaches are still characterized by an top down extension systems that advises the communities –not so much giving full rights over forests or letting communities decide how best to increase their forest based economic benefits.
The Zambia draft Policy has put the use of indigenous knowledge and the participation of women high on the agenda. However, Zambia is still at the planning stage and the transition from the old to the people-focused approach is still not in operation.

20.3 Proposed Tools and Mechanism for CIFM

Zambia is currently focusing on finalizing the Zambia Forestry Action Programs (ZFAP), which include provincial programs (PFAP) for rationalizing the forestry sector and pilot areas for trying CIFM. The main tools for CIFM are developed under the Joint Forestry Management Program (JFMP). The JFMP will be implemented in 5 pilot areas. Its objective is to improve forest conservation and increase benefits from commercial and non-commercial use of forest products. In the JFMP pilot areas communities will get benefits from sharing of revenues obtained by from licensing use of forest products. The licensing fees will be shared with local communities (to get 70% and the Forestry department in Lusaka 30%) but the government still maintains the sole authority over the communities' activities. For example, although actions will have to be agreed upon jointly by the Forestry department and the local communities, the benefiting local communities are expected to spend much of their share in conservation activities and under the supervision and guidance of the forestry department. Also, the JFMP stresses that "the legal status of the forest reserves is unchanged by this administrative design since by law only the Forest department has legal authority of forest management in Zambia's forest reserves"

The JFMP activities "will be governed by a Forest Management Board (FMB) including villagers, chiefs, development agencies, NGOs, licensees and concessionaries, and possibly other locally important stake holders" At the moment communities are not involved in the licensing of forests products. The JFMP is delayed by the still incomplete forest polices and act and to date lacks the legal mandate to get started.

20.4 Current Economic contribution of the Forest Sector

Zambia is a large country with a total land area of 11,914,000 hectares. Of this,, 60% is classified as forests. Agriculture covers 20% while the rest is settlement and public land. The main vegetation in the country is Miombo woodland, which covers 47% of the country (ZFAP, 1997). Compared to other countries in the region, Zambia is relatively well endowed with forests and has many areas where the forests are still intact and where supply of forest resources may exceed demand. However, actual data on forest resources is not known since there has not been a comprehensive forest resources inventory since the 1960s.

Although Zambia's economy declined from the mid 1980 to mid 1990's, with an annual per capita GNP of US$400 (World Bank estimate), Zambia's economy is much stronger than Malawi's and has most likely stabilized and perhaps improved in the last few year. Zambia's economy like in Botswana is strongly dependent on the mining of declining non-renewable resources and would do well to develop its forests as an economic base. However, with the focus on mining, a small rural populations and forests that are not much threatened, there is not much effort in this direction.

It is estimated that forests contribute only 0.9% of GDP. While this is said to be an underestimate because it excludes informal activities, Zambia is realizing only a small proportion of its potential economic benefits from the use of forests. For example, Zambia 46 million hectares of forests is estimated to have a total of 47 million cubic meters of wood while the total consumption from all of Zambia=s forests amounts to about 15 million cubic meters - or about a third of the total growth: Most of this use is through energy supply. Wood fuel accounts for 70% of total energy use in the country and the cutting of wood for fuel passes many times the harvesting of timber. Firewood harvesting accounts for 5 million cubic meters and charcoal 8 million cubic meters a year, while timber harvest amounts to only 850,000 cubic meters per year. Non-fuel and timber needs of local communities amount to approximately 1 million cubic meters a year.

Expansion into agriculture and conversion of forests to cultivated land is expected to grow at a rate of 1.5 per year, and fuel wood consumption by 2.6% a year. While these rates are high at the moment total supply exceeds total demand.

Similarly, tourism (doing better than forestry) has high potential to contribute to economic development but it is highly undeveloped and solely wildlife based.

20.5 Community level economic benefits from non wood forest use

Less than 40% of Zambia's 9 million people live in rural areas while the rest live in urban centres. With such a high degree of urbanization, there has not been much focus on rural development programs. For example, there is not much in terms of forest based rural enterprise development and outside marketing - perhaps with the exception of informal pit sawing. On the other hand, Zambia's rural communities are highly dependent on forests for their subsistence. Mainly opportunities come from charcoal and fuel wood production, jobs in pit sawing and minor incomes from sale of non-wood forest products.

The biggest value from forests is from direct consumption and local sales to support subsistence. Traditionally forests provide products such as honey and bee wax. Honey production and marketing is the most developed aspect of non timber forest products promotion and has received much attention from government with most of the honey processing and marketing done by the Government. Local communities are also highly dependent on forests for, wild foods (fruits and vegetables) thatching grass, mushrooms, edible insects, oils, medicines, and small animals. These products are an important source of rural livelihoods especially for the poorest.

Studies in Luapula, Central and Copperbelt provinces (4 million people or 800,000 households in the area) give some idea of the magnitude of use, range of products, the levels of rural household dependency on these products and their economic value

(Emerton, 1998a) This study found that households obtain 41% of the value of forest products through direct consumption and 59% through local sales.

The household forest products data was collected from 3 forests of Zambia (Chibwe, Lamba and Mansa (Nkomeshya, 1998 in Emerton 1998a). this data indicates that respectively, in these 3 areas forest products accounted for 37%, 6% and 28% of total household economic output (measured as the sum of crop, livestock, off farm and forest incomes and domestic consumption).

Poor Households use less resources but are more dependent on them, dependency here measured by the proportion of total household income accounted for by consumption and local sale of forests products (see table 1). This is consistent with other rural studies that have shown rural household forest dependency increasing with decreasing incomes (for example, G. Simons 1997 and 1999). Rich households derive more absolute value from forests use each year than poor household because of their higher level of use. In the study forests the poor derive more value from sale of products (mats, baskets, wild foods) but not charcoal (usually sold by better off households).

In the study area, forest products account for a two-thirds -three quarters of the total income of the poor. This data also indicated that on average forest products generate K 150,000 per household and 30,000 per capita per year. This amounts to 5% of annual per capita income (estimated at a GNP per capita of US $400 by the World Bank, in 1995). Among households adjacent to forests, this figure can be as high as K1.4 million - accounting for nearly half of per capita GNP of Zambia. Apart from incomes, forest products have a vital value to rural households by diversifying risk.

The high use of forests especially by households adjacent to forests has been said to be destructive – for example using destructive wild foods and medicines collection methods. As Emerton noted, in Zambia and many other countries the impact (of communities' collecting such products) on sustainable yields of particular areas and species has not been much researched, and is largely unrecorded.

Local communities therefore have a large stake in forest management and in programs and policies that promote or restrict use of forests. This is especially critical for the poorest households. While the richer households account for a bigger proportion of the harvested forest products volume, the poorest households are the worst victims of forest degradation or policies that might control use without providing significant alternative incomes.

20.6 Conclusions on Zambia

Zambia is advantaged in the sense that it has forest resources that could support CIFM projects that deliver relatively high economic value to the communities. However, it seems to have lagged behind in terms of moving towards a forest management system that truly gives the communities rights over decisions and over forests. It is slow in formulating and enacting the polices and laws required for effective change, and in starting project level activities. If one looks closely, even in the new efforts (e.g. draft policy), and proposed institutional changes, the power still remains with the Government. Though embracing the rhetoric of CIFM, the transition to CIFM as yet is not being treated as urgent, perhaps

because the mining industry still provides significant economic base for the country, and perhaps also because the rural population is small and forests are not that much threatened.

The Joint Forest Management pilot program has done some reasonable identification of possible CIFM activities but even here the operational tools and mechanisms to actualize the proposed changes need to be better defined. The Joint Forest Management initiative is being stalled by lack of legal mandates or statutory instruments. These should have been developed first but both the forest policy and act that would give the mandate to begin are not finalized. This process could stall seriously unless the Provincial Forestry Action Plans (PFAP) could proceed without worrying too much about the overall national policies. On the other hand it would be unfortunate if CIFM does not take off in Zambia because given its forest resources and a small rural population the chances for successful community enterprises are better than can be expected in many other countries in the region.

Zambia's population has a relatively high income, and because they are already deriving significant incomes from informal use of forests, it is likely that it will take more economic incentives (than is the case in Malawi) to convince the villagers to give up their uncontrolled subsistence harvesting of forest products and get involved in some enterprise development based on controlled harvesting. Notable, Zambia has placed indigenous knowledge and women uniquely high up in the national forestry development agenda and that is consistent with the CIFM approach. But there is no indication that the planners are ready to deal with the women=s subject in any way different than the simplistic pronouncements made about Women in Development since the 1980's.

21 ZIMBABWE

21.1 Background

Zimbabwe has a population of 11.7 million, 70% of whom depend on communal area agriculture (Katerere et al. 1993). The country contains 23.39 million ha of natural forest and woodland, which accounts for 60% of the total land area (Chenje & Johnson 1994), and the majority of the rural population lives in wooded landscapes.

Zimbabwe's colonial history has an important bearing on the way in which forest resources are owned and used. As a result of this history, much of the land is under private ownership. At the time of Zimbabwe's independence in 1980, 97% of the population lived on just under half of the country's land area, with white farmers dominating the remainder of the land outside of protected areas. Woodlands, forests and trees in large-scale commercial farming areas cover about 7 million ha, while those in communal areas (former Tribal Trust Lands) cover about 10 million ha. Woodland and forest resources have been severely impacted on in many of the communal land areas, and tend to be in a better condition in the more sparsely-populated commercial farming areas.

The agricultural sector is thus effectively divided into two subsectors. Large-scale commercial farms occupy the best land, use advanced farming techniques and machinery and are highly productive for a range of crops, such as tobacco and wheat. Communal area farms, in contrast, are mostly located in the lower potential regions, use low technology and have low outputs, dominated by maize and other subsistence crops.

Zimbabwe's Land Reform and Resettlement Programme has sought to redress the imbalance in rural land ownership by settling small scale African farmers on land acquired from commercial farmers since Zimbabwean independence in 1980. The introduction of the government's Economic Structural Adjustment Programme (ESAP) also has an important influence on the future of these resources, seeking to achieve overall growth in the agricultural sector.

Another 6 million ha of woodlands and forests fall within State lands and in protected areas (McNamara 1993). Mainstream forestry in Zimbabwe has long advocated the plantation of exotics, and a policy of exotic plantation of gums in communal lands has dominated both research and extension practice (Scoones & Matose 1992). There are about 150 000 ha of industrial forest plantations (Chenje & Johnson 1994), producing various timber products for domestic and export markets.

21.2 Management and economic value of the forestry sector

Zimbabwe's forest resources contribute about 3% of GDP, by conventional accounting methods (McNamara 1993). However, this is based on commercial forestry and does not take into account the many ways in which these resources contribute to rural subsistence and income, to agricultural productivity and environmental protection.

The state agencies that control land and woodland use in Zimbabwe are the Forestry Commission, Department of Natural Resources, Department of National Parks and Wildlife Management, Natural Resources Board, and Parks and Wildlife Board, all within the Ministry of Environment and Tourism. The Forestry Commission was established as a

parastatal organisation under the Ministry of Lands in 1953, and now resides within the Ministry of Environment and Tourism. It is responsible for State forestry management, conservation of timber resources, afforestation, woodland management, regulation and control of timber products, and extension (Katerere et al. 1993), and has increasingly concentrated on commercialisation since 1987.

The Ministry of Lands, Agriculture and Rural Resettlement is responsible for implementing agricultural development, and the Ministry of Local Government, Rural and Urban Development is responsible for rural development issues, operating through development committees at various levels, described below.

Zimbabwe has a long and complex history of land and natural resource management (Scoones & Matose 1992). Legislative controls on woodland use in Zimbabwe were established first n 1928 with the Native Reserves Forest Produce Act, followed by the Natural Resources Act (1942) and the Forest Act (1948). Strict regulation was imposed on the African population and voluntary regulation was encouraged in the white farming areas (Scoones & Matose 1992). The Land Apportionment Act (1930), which encouraged major clearance of woodland for arable production, had a major impact which has led to extreme resource pressures in communal areas. Between 1930 and 1960, emphasis was on planned development, and thereafter, a programme of villagisation was implemented. Up till the 1950s, the traditional authorities were generally accepted by the state as controllers of land allocation and resources access. After that, these powers were removed and vested in the state. The 1960s saw the initiation of a community development approach, and land allocation powers were returned to the chiefs, and later enshrined in the Land Tenure Act of 1970, with the establishment of Tribal Land Authorities. During the liberation struggle, the chiefs became increasingly discredited as collaborators with the regime, resulting in a power vacuum, and then expansion of arable land into previous grazing area (Scoones & Matose 1992). At independence, the situation changed again, with powers returned to state jurisdiction under the District Councils Act (1980) and the Communal Areas Act (1982). The post independence period saw a major revival of state led land use interventions (e.g. land use plans, villagisation). Powers were returned to government in the form of the state-supported Village Development Committees (VIDCOs). VIDCOs are the smallest level of government in the communal areas. Each district has a Rural District Council (RDC), and the RDCs are subdivided into Wards (of about 1000 households), each with a Ward Development Committee (WADCO). WADCOs are further subdivided into (VIDCOs). In many areas, households are uncertain as to which VIDCO they belong to (Luckert *et al.* in prep.). The situation is now one of conflict between traditional structures and state-imposed structures, although there area current moves to return some degree of control to traditional leaders (Campbell *et al.* 2000). In some areas traditional leadership has been more powerful than new political structures imposed in the 1980s, while in others, the new VIDCOs have asserted effective control (Scoones & Matose 1992). Others have come to some compromise. Today, in the communal areas, the emphasis remains on regulated control by the state, with limited options for active participation by local populations.
There is also a strong presence of NGOs in Zimbabwe, providing development aid to communal areas, but they are mostly ill-eauipped to deal with environmental issues (Katerere et al. 1993).

There are also user groups that govern resource use and marketing, such as ZINATHA, which governs the affairs of traditional healers, and each woodcraft market has a market

committee. These committees are somewhat ineffective in governing resource use, however (Luckert *et al.* in prep.).

Traditional leadership is ever weakening in Zimbabwe. This is thought to be due to political changes in power structures, modernising and economic forces that undermine traditional values, and immigration. Traditional institutions are not adjusting to accommodate population growth, increasing resource scarcity and fluctuating market conditions (Luckert *et al.* in prep.). The nature of institutional controls often varies from one village to the next (Campbell *et al.* 1997).

21.3 Communal areas

Within the communal areas, an array of rules apply to grazing areas and woodlands, ranging from national to local, and formal to informal, and a range of existing regulations and taboos govern use rights and management practice in communal woodlands, such as sacred controls, pragmatic controls (cutting rules) and civil codes and contracts (Matose 1991, Scoones & Matose 1992, Luckert *et al.* in prep). Management is usually common property management, rather than simple open access (Scoones & Matose 1992). However, there are very few working examples of common property resource management (Luckert *et al.* in prep.)

Woodlands provide a range of goods and services that are utilised by households in communal lands, and they make a significant contribution to household welfare (Campbell *et al.* 2000, Grundy *et al.* in press). The benefits derived from woodland include thatching grass, fuelwood, timber, medicinal plants, mopane worms and game meat (Campbell *et al.* 2000). They also provide graze and browse for livestock. Cattle are vital in the agricultural systems, being used for draught power and manure for fields, and the role of woodlands in providing these resources are commonly overlooked (Dewees 1992).

Within rural areas there is a large difference in wealth among households, with the richest households having incomes up to 5 times higher than the poorest quintile. The richer households concentrate on cattle, while poorer households are dependent on rich households for draught power and are far more dependent on woodland resources to sustain their incomes (McGregor 1995, Campbell *et al.* 1997, Luckert *et al.* in prep.). For example, mopane worms are used for food and income by poorer households (Campbell *et al.* 2000). Natural resource income can be up to 20% of household income in poorer households (Cavendish 1996, in Campbell *et al.* 2000). As in Namibia, there is also widespread "annexing" of as much as 2 ha of common woodland into wealthier private homesteads by extending fences, making them self sufficient in poles and fuelwood (Chenje & Johnson 1994), but at the cost of poorer households who suffer decreased access to communal areas.

Studies undertaken in two villages in Zimbabwe found household incomes from the harvest of woodland resources to be about US$75 and Z$50 per household, respectively (US$1 was then Z$6; Campbell *et al.* 1995), with certain individuals making considerably more than the average. In the Victoria Falls-Bulawayo area, wood carvers make between Z$42 and $4000 per month (Matose *et al.* 1997). Apart from the direct uses of woodland products, a contingent valuation study showed that Zimbabweans also gain considerable value from the intermediate inputs into agricultural production from woodlands (such as

crop inputs, animal feed) and ecological services, such as water production and shade, that woodlands provide (Lynam *et al.* 1994). The latter services accounted for 40% and 10% of the total perceived value of woodlands, respectively. The total value of woodlands in Zimbabwe is thought to be quite substantial, but there has been no attempt to calculate this value.

Nevertheless, the use of woodland resources in Zimbabwe is thought to be unsustainable in many areas, with deforestation and woodland degradation being a major problem in Zimbabwe (Child 1996). Many communal lands are no longer fulfilling the basic needs of communities. The main causes of this are thought to be rapid population growth, mismanagement of resources, declining productivity and burning ((Child 1996, Katarere et al. 1993). With little or no effort to control fires, thousands of hectares of woodlands are burnt each year, having particularly adverse effects in overgrazed areas. Declining productivity has led to increase area beng brought under cultivation, resulting in a reduction in grazing land (natural woodland area), which has to support increasing numbers of livestock. Communal grazing lands are the most eroded lands in Zimbabwe, and livestock numbers generally exceed carrying capacities. These soil losses result in a considerable loss of production of up to US$80 per ha on grazing lands (Norse & Saigal 1993), and should themselves provide and incentive to more sustainable management of woodlands. However, such an incentive would only be likely to operate under cohesive management systems with secure land tenure. Further evidence of the unsustainability of woodland resource management has been elicited by modelling the future impacts of current levels of utilisation of forest resources. It has been demonstrated that if current trends continue, vast areas of woodlands could be lost over the next 50 to 100 years (Grundy *et al.* in press).

Wealthier households are more likely to substitute woodland resources, purchase tree products and produce and plant their own trees, and tend to be more involved in woodland management both at household an group and community level (Campbell *et al.* 1997). Poorer households have low social status and poor articulation skills which prevent them from participating in group and community activities and having access to extension knowledge and facilities.

The status of the woodland also has an important influence on woodland management (Campbell *et al.* 1997). In deforested areas, people become less demanding in their species choice, and deforestation apparently has to be relatively advanced before people are willing to initiate resource enhancement procedures (Campbell *et al*. 1997). People are less motivated to embark on forestry programmes in better wooded areas.

Where tenure is not secure, households tend to be more reluctant in investing much time and resources in woodland management (Campbell *et al.* 1997). The conflicts arising from the dual power structure (traditional and government) sometimes have a negative effect on resource management, and the priorities of government institutions are thought to be too far removed from the priorities of the ordinary household.

Nevertheless, Zimbabwe has been a pioneer in the area of CBNRM, through the development of its Communal Areas Management Programme for Indigenous Resources (CAMPFIRE) programme. Following the success of privatisation of wildlife on privately-owned lands, CAMPFIRE aimed to secure similar benefits for people living on communal

lands. It was used to empower local communities and to devolve some of the benefits of wildlife to these communities. CAMPFIRE projects derive almost all of their income from safari hunting, the proceeds of which are distributed to members of the communities which help to protect these wildlife assets and tolerate the damages and risks associated with them. An essential aspect of the programme was the delineation of resources (Child 1997). This was achieved by granting Appropriate Authority (i.e. ownership or use rights) to district councils. The programme affects 600 000 people in some of the poorest districts in Zimbabwe (Child 1997), and is renowned for its achievements. Through this programme, wildlife management has improved in several areas in Zimbabwe.

CAMPFIRE has been initiated in 22 districts in Zimbabwe. The schemes are strongly differentiated by the quantity and diversity of wildlife, livestock and human population densities. High income-generating schemes are generally characterised by high densities and diversity of wildlife, and low human and cattle densities (Campbell *et al.* 2000).

CAMPFIRE programmes are not concerned with woodland resources *per se*, and it is argued that such a venture would not necessarily work in providing the incentive to manage woodland resources in the absence of wildlife. The success of some CAMPFIRE schemes can be ascribed to the high economic value of the wildlife resources (such as elephant for safari hunting). Although CAMPFIRE is usually reported as being highly successful, its situation is peculiar to areas with high value wildlife resources, and it has received generous international funding (although relatively little compared to the type of funding that goes into protected area conservation in Kenya, for example - Sibanda & Omwega 1996). However, not all areas provide adequate revenues from wildlife to maintain forest management (Mushove 1992). Woodland resources have much lower values (Luckert *et al.* in prep.), and woodland productivity is not very high (Frost 1996). Thus the returns to managing woodlands are relatively low and do not provide a strong incentive for sustainable management. This is well illustrated in the case of mopane worms: it was only when they entered the national market that communities started to establish rules of access to the resource (Hobane 1995, in Campbell *et al.* 2000).

In addition, CAMPFIRE projects are generally more successful in areas with low agricultural potential (where human densities are low, and wildlife populations are concomitantly relatively healthy). Programmes such as this are likely to be less successful in areas where arable potential is high, as there will be a greater incentive to convert natural landscapes to agricultural production.

Largely because of CAMPFIRE, reports on CBNRM initiatives in Zimbabwe are generally positive, but it is believed that they very often do not represent the more general realities on the ground (Luckert *et al.* in prep.). The RDCs tend to be ineffectual, with insufficient funds and lack of enforcement of local by-laws. Levies on natural resource use are generally not collected (Luckert *et al.* in prep.). In CAMPFIRE schemes, the RDCs used to take relatively low proportions of the income (Child *et al.* 1997), but now usually retain about 50%, and sometimes up to 90%, of this income (Luckert *et al.* in prep.). The revenues from wildlife are actually providing incentive for the RDCs, which have the 'appropriate authority' status, not to devolve power to the communities. Thus local people often see CAMPFIRE as a government, rather than community-based programme (Luckert *et al.* in prep). As a result, the RDCs are often not trusted by the poor.

Contrary to what has been published, many CBNRM projects do not appear to be sustainable (Campbell *et al.* in prep.). There is only one example of joint forest management in Zimbabwe, but it has not been in operation for long enough to determine its success. However, the benefits of natural resource management programmes usually take a long time to reach fruition. In Zimbabwe it took along time before communities received direct benefits for their participation in curbing wildlife poaching in the CAMPFIRE areas (Chenje & Johnson 1994).

Although the economic and financial benefits of woodland resource use are yet to be fully elucidated, Campbell *et al.* (2000) advise caution with regard to placing too much emphasis on economic analysis, as economic utility does not represent the only incentive to sustainable management. In reality, economic values may be outweighed by the value of gaining control (Wily 1997 in Campbell *et al.* 2000).

Lack of community control is clearly exhibited in the commercial timber extraction that also takes place from communal areas, under the agreement of the District Councils (Bird *et al*. 1995). This produces only a small percentage of forest products exported from these areas, but has a major negative impact on the incentive for local communities to manage their resources. The main problem is the tendency for councils to ignore the existence of local communities when negotiating timber concessions, and communities do not benefit, but have to bear the costs for which they receive no compensation. In some cases, local residents have had to watch concessionaires cutting trees that they have protected (Bird *et al*. 1995).

The incentives for sustainable management of forest resources on communal lands are currently rather lacking in Zimbabwe. Deregulation of agricultural prices is unlikely to have had a major impact on the small scale farmers in communal areas, because they are less reliant on purchased inputs and markets. However, the increased prices of fuel and paraffin, high interest rates and inflation and increasing unemployment are likely to have had a negative impact on natural resources in recent years. Unemployment has created increasing pressures on communal lands, both due to reduced incomes acquired from family members in urban areas and due to the return movement of many unemployed to the communal areas (Grundy *et al.* in press). High interest rates, which make cash more difficult to acquire, and high prices for fuel combine in their effect to increase the demand for natural resources as sources of fuel, construction material, food and income. Increasing poverty in the communal areas is leading to higher private discount rates, which undermines any regard for the future availability of resources.

With decreasing cash income at the household level, people have had to turn to income-generating activities that are often ecologically detrimental. This includes the sale of forest products, despite its being regarded as socially unacceptable, going against traditional usufruct rights. Within communities, people break local rules to cut trees and harvest other woodland resources. There has been a 20-fold increase in the marketing of woodcarvings within five years (Braedt & Standa-Gunda 2000 in Luckert *et al.* in prep.). Local institutions have generally been unable to cope with the rapid pace of change, and local rules are not being extended or adapted to cater for new situations, such as the commercialisation of baobab products (Mukamuri & Kozanayi 1999, in Luckert *et al.* in prep.)

As in South Africa and elsewhere, forestry extension in Zimbabwe's communal lands has been based on planting woodlots for fuelwood provision, in response to a perceived 'fuelwood crisis'. As with other countries, these programmes have largely failed, firstly because they were technically inappropriate for communal land conditions, and because people did not like to use eucalypts for fuel. Together with villagisation programmes, woodlots came to be symbols of Government oppression (Clarke 1991).

21.4 Private lands

Resource management on private farms is regulated by legislation, but is not well enforced. However, commercial farmers face some incentives for sustainable management of resources. The Land Tax Amendment Act of 1929 provided opportunities for tax exemption if indigenous forest on catchment areas was protected. In 1943, incentives for natural resource conservation were incorporated into crop pricing, with higher prices paid to farmers that protected their lands (Scoones & Matose 1992). The emphasis on voluntarism in natural resource management on private lands is in sharp contrast to approach in communal areas.

Although the state of woodland resources are generally far better on private lands, these areas are also subject to much woodland and forest destruction. In Zimbabwe some 700km^2 of woodland are cleared each year to grow tobacco, and curing demands some 2 million m3 of wood annually (Chenje & Johnson 1994). However, with deregulation of agricultural prices, including the lifting of subsidies to agricultural inputs, many private farmers have also turned to wildlife ranching, increasing the amount of area which is effectively under conservation.

21.5 Resettlement areas

Resettlement areas, which are previously privately owned farmland, tend to be richer in grazing and woodland resources than original communal areas. Communities that have moved into the resettlement areas thus have an interest in excluding outsiders from accessing their resources, a situation which causes some conflict with their neighbours (Goebel 1997). Because of their relatively higher sustainable yields of resources, the resettlement areas are a potentially promising area for implementation of sustainable resource management schemes. However, this programme has progressed much more slowly than anticipated, due to the financial constraints of acquiring land. Furthermore, the emphasis has been on agricultural development, and not natural resource management. Because of this, opportunities for exploitation of extensive woodland resources have not been widely explored (Scoones & Matose 1992).

Some resettlement schemes have led to severe depletion of woodland resources, with most of the settlers being no better equipped to manage resources sustainably than the farmers in communal areas (Katerere et al. 1993).

21.6 Protected areas and State Forests

State land is under sole control of the state and management by government departments or parastatals. Residents on state land are either squatters or tenants. Communities adjacent to state forests are often treated as poachers, and resource use activities are criminalised. This reduces the incentive for communities to support forest or parks management

activities. The costs of these areas are often solely borne by the local community despite the Problem animal control obligation of DNPWM (Scoones & Matose 1992).

Protected areas suffer much poaching of trees as well as wildlife. Furthermore, this poaching is often wasteful, as poaches concentrate on the higher value components. There is also poaching of forest resources in state forests by neighbouring communities, and settlers are increasingly starting to squat illegally in state forests (Grundy *et al.* in press). At present, there appear to be few, if any, incentives in place to deter these activities.

21.7 Overview of policy/legislation

21.7.1 Forestry policies

The value of woodlands to rural people has largely been ignored in Zimbabwean policy and management, with a distinct focus on merchantable timber resources from state-owned areas (Grundy 1995).

State policies governing control and use of woodlands are not considered to enable sustainable management of resources at the local level (Mohamed-Katerere *et al.* 1998 in Luckert *et al.* in prep.). They do not generally enable local management and control. The Tribal Trust Lands Forest Produce Act was amended to the Communal Lands Forest Produce Act in 1987, but with little change from the original. It places restrictions on the use of forest products in communal areas, confining them to 'own use'. Meanwhile, it also allows outsiders to exploit resources by a state permit system, thereby bypassing village structures. Nevertheless, local people do not take national laws seriously, largely because enforcement is so weak (Luckert *et al.* in prep.).

The new National Forestry Action Plan is still under construction.

21.7.2 Other policies and practice

Resource management is not only influenced y the Ministry of Environment, but is affected by policies of the Ministry of Lands, Agriculture and Rural Settlement (e.g. land tenure, valuation and planning), the Ministry of Local Government, Rural and Urban Development (such as decentralisation, local government institutional structures and financing), and the Ministry of Finance, Economic Planing and Development (.e.g. sectoral budget allocations, rural investment and enterprise strategies) (Scoones & Matose 1993).

Zimbabwe is currently concentrating on decentralisation and empowering local people. This is a fundamentally necessary step to achieve sustainable management of resources by local communities. However, the decentralised planning process is weak, in that plans created at local levels are rarely implemented (Scoones & Matose 1993): locally-available funds are scarce, and sectoral ministry planning often does not take account of local plans. The lack of district level financial autonomy reduces the incentives for devolution to lower-level authority, although the level of local involvement varies considerably between different areas (Scoones & Matose 1993). Where local institutions are weak, the resultant rigid top-town approach to natural resource and land-use planning does not suit the complex and diverse nature of systems in the communal areas.

The land policy has failed to address the question of tenure reform (Scoones & Matose 1993), such as privatisation of land, group titling, or reinforcement of customary tenure. However, tenure reform is not a sufficient condition to ensure sustainable management of forestry resources. Appropriate incentives are needed, such as methods of raising credit, enabling legal frameworks, and co-management arrangements between local and central authorities.

The most effective resource management initiatives have been linked to productive dinvestimet, such as extension of advantageous credit lines, subsidies of labour and capital inputs, and tax incentives for investment in natural resource management activities (Scoones & Matose 1993). These initiatives have been set up in large-scale farming areas, but a framework of positive incentive structures has not been established in the communal areas, where a restrictive regulatory and enforcement approach has dominated (Scoones & Matose 1993).

The Economic Structural Adjustment Programme (ESAP) was implemented in the early 1990s, with the aim to encourage entrepreneurial activity in all sectors of the economy through liberalization and deregulaton. This has included the introduction of agricultural price reforms,, having some positive impacts on the national economy, but largely impacting on the large-scale commercial farming sector (World Bank 1996, in Luckert *et al.* in prep.). In the smallholder sector, farmers became less well-off as a result of increased costs of agricultural inputs but without higher prices for their produce. Farmers also faced decreased income from urban areas, and increased costs of education and other basic services. These policies have left communal dweller more dependent on woodland resources, placing them in further jeopardy.

Both the Land Reform programme and the ESAP see any attempt to produce crops on underused land as a positive and efficient land use, regardless of the achievable productivity levels (Katerere et al. 1993). Indeed, land distribution has achieved increased production, but this has also led to reduced woodland resources in the previously underused commercial farms. These policies have not taken into account the opportunity costs of such actions.

Zimbabwe has prepared a National Conservation strategy modelled on the IUCN's World Conservation Strategy, and a new Environmental Management Act is currently being debated. The latter does take into account the success of the CAMPFIRE programme in allowing local communities to manage and profit from wildlife. However, it focuses on the RDCs as the appropriate authority, rather than the user communities (Mohamed-Katerere *et al.* 1998 in Luckert *et al.* in prep.).

Zimbabwe was one of the first countries in Africa to adopt a policy of conservation by utilisation on private lands. While this created incentive for private farmers to manage woodland areas for wildlife, it largely ignored the interests of the African farmers in communal lands. The problem, however, is more than one of transition from domesticated livestock to wildlife, but is a question of changing the whole structure of governance.

SECTION III:
Literature Consulted

22 REFERENCES

Adger, W. and Grohs, F., 1994, 'Aggregate estimate of environmental degradation for Zimbabwe: does sustainable national income ensure sustainability?', *Ecological Economics* 11: 93-104

Ainslee, A., Kepe, T., Cinderby, S, & Petse, T. 1996. Progress report: rural livelihoods and local level management of natural resources in the Peddie District. 1-85. Johannesburg, Land and Agricultural Policy Centre. Working Paper 42.

Alden Wily, L. and Mbaya, S., 2000, *Land, People and Forests in Eastern and Southern Africa at the Beginning of the 21st Century: The Impact of Land Relations on the Role of Communities in Forest Future*, Thematic Study on Economic Aspects of Community Involvement in Sustainable Forest Management, prepared for IUCN Eastern Africa Regional Office, Nairobi

Arnold, J.E.M. 1998. *Managing forests as common property*. FAO Forestry Paper 136. 67pp.

Ashley, C. & Garland, E. 1994. Promoting community-based tourism development. 1-37. Windhoek, Directorate of Environment Affairs, Ministry of Environment and Tourism. Research Discussion Paper No. 4.

Ashley, C. 1995. Tourism, communities, and the potential impacts on local incomes and conservation. 1-43. Windhoek, Directorate of Environmental Affairs, Ministry of Environment and Tourism. Research Discussion Paper No. 10.

Asrat, A. and Emerton, L., 1998, *Eritrea Biodiversity: Economic Assesment*, Department of Environment, Ministry of Land, Water and Environment, Government of Eritrea, Asmara.

Barnes, J. I & de Jager, J. L. V. 1996. Economic and financial incentives for wildlife use on private land in Namibia and the implications for policy.

Barrow, E., P. Bergin, M. Infield and P. Lembuya, 1994, Community Conservation: Lessons from Benefit Sharing in East Africa.

Barrow, E., Kangwana, K. and Berger, D., 1996, 'The role of the African Wildlife Foundation in the evolution of community conservation practice and policy in Kenya', *Community Conservation Discussion Paper* No. 10, African Wildlife Foundation, Nairobi

Barrow, E., Clarke, J., Grundy, I., Kamugisha, J. and Tessema, Y., 2000, *Whose Power? Whose Responsibilities? Analysis of Stakeholder Involvement in Forestry Management in Eastern and Southern Africa*, Thematic Study on Economic Aspects of Community Involvement in Sustainable Forest Management, prepared for IUCN Eastern Africa Regional Office, Nairobi

Bass, S., Mayers, J., Ahmed, J., Filer, C., Khare, A., Kotey, N. A., Nhira, C., & Watson, V. 1997. Policies affecting forests and people: ten elements that work. 1-8. Conference paper: 15th Commonwealth Forestry Conference, 12-17 May 1997.

Bethlehem, L., Smit, W. & Keet, S. 1998. Forestry issues in the Eastern Cape. Unpublished document.

Bird, C., Clarke, J., Moyo, J., Moyo, J. M., Nyakunu, P., & Thomas, S. 1992. Was Mrs Mutendi only joking? Access to timber in Zimbabwe's communal areas. 1-20. Harare, IIED. Wildlife and Development Series No. 6.

Bishop, J., 1995, *The Economics of Soil Degradation: An Illustration of the Change in Productivity Approach to Valuation in Mali and Malawi*. London Environmental Economics Centre,

International Institute for Environment and Development and University College London, LEEC paper 95-02.

Bjorkman, M. 1999. Forestry accounts for Namibia: the value of timber and firewood in the Namibian economy. 1-43. MSc thesis, University of Umea.

Bojo, J. 1993. Economic valuation of indigenous woodlands. In P.N. Bradley & K. McNamara (Eds.), *Living with trees: policies for forestry management in Zimbabwe* (pp. 227-242). Washington, D.C.: The World Bank.

Bowen, M. R. 1989, Forestry Research in Somalia. Ministry of Livestock, Forestry and Range. National Range Agency. Working paper no. 16.

Brush, B. S. and D. Stabinsky (eds.), 1996, *Valuing Local Knowledge: Indigenous People and the Intellectual Property Rights.* Island Press.

Business Management Services. 1998. Institutional and financial schemes for community participation in forest management (of Namibia-Finland Forestry Programme, Community Forestry Component). 1-38. Windhoek, Business Management Services.

Campbell, B., Byron, N., Hobane, P., Madzudz, E., Matose, F. & Wily, L. 2000. Moving to local control of woodland resources – can CAMPFIRE go beyond the mega-fauna? Unpublished manuscript.

Campbell, B., Chikandiwa, F., Nobane, N., & Remme, H. 1997. Forestry activities and extension in the Communal Lands of Zimbabwe. Unpublished report.

Campbell, B., Clarke, J., Luckert, M., Matose, F., Musvoto, C., & Scoones, I. 1995. Local-Level Economic Valuation of Savanna Woodland Resources: Village Cases from Zimbabwe. vol. 3: 2, i-87. Sustainable Agriculture Programme of the International Institute for Environment and Development.

Chenje, M. & Johnson, P. 1994. *State of the environment in southern Africa.* SARDC/IUCN/SADC. 331 pp.

Child, B. 1996. The practice and principles of community-based wildlife management in Zimbabwe: the CAMPFIRE programme. *Biodiversity and Conservation*, 5, 369-398.

Child, G. 1996. The role of community-based wild resource management in Zimbabwe. *Biodiversity and Conservation*, 5, 355-367.

Christie, S. & Gandar, M. 1995. Commercial and social forestry. 1-86. Johannesburg, Land and Agricultural Policy Centre. Working Paper 18.

Clarke, J. 1991. *Forestry as a component of participatory rural development: lessons and challenges drawn from the Zimbabwean experience*. Paper presented to the conference: "African Agroforesry: emphasis on Southern Africa" held in Nelspruit, South Africa, 19-22 August 1991.

Clarke, J. M. & Foy, T. J. 1997. The Role of the Forestry Industry in Rural Development and Land Reform in South Africa. 1-10.

Conroy, C. 1996. Socio-economic aspects of Mopane use in Omusati Region, Namibia. 1-62. Windhoek, Directorate of Forestry, Ministry of Environment and Tourism. Forestry Publication No. 6.

Crowards, T., 1996, 'Natural resource accounting: a case study of Zimbabwe', *Environmental and Resource Economics* 7:213-241

Davies, G. & Wynberg, R. 1996. Indigenous plant resources in South Africa. 1-52. Johannesburg, Land and Agricultural Policy Centre. Policy Paper 21.

Davies, R., 1993, *Cost Benefit Analysis of Pilansberg National Park*, Thesis submitted for

Masters Degree, Graduate School of Business Leadership, University of South Africa

Dembe, E. and Bergin, P., 1996, 'Defining the 'conservation' in community conservation: strategic planning in Tanzania National Parks', *Community Conservation Discussion Paper* No. 5, African Wildlife Foundation, Nairobi

Desert Research Foundation of Namibia. 1997. Community based management of the Okongo Community Forest: Report on socio-econoimc survey inthe vicinty of the Okongo Community Forest. 1-28. Windhoek, Directorate of Forestry, Ministry of Environment and Tourism.

Dewees, P. A. 1992. Household Economy, Trees and Woodland Resources in Communal Areas of Zimbabwe. 1-86.

DFID, 1997, African Rainforests and the Conservation of Biodiversity Proceedings of the Limbe Conference: 17-24 January, 1997.

Directorate of Forestry. Namibia Forestry Strategic Plan. 1-55. 1996. Windhoek, Directorate of Forestry, Ministry of Environment and Tourism.

DWAF. 1996 Sustainable forest development in South Africa: the policy of the Government of National Unity. 1-30.. Pretoria, Department of Water Affairs and Forestry.

DWAF. 1997. South Africa's National Forestry Action Programme. 1-148. Pretoria, Department of Water Affairs and Forestry, South Africa.

EFAP, 1994, *Ethiopian Forestry Action Program (EFAP): Volume II – The Challenge for Development.* Ministry of Natural Resources Development and Environmental Protection – Transitional Government of Ethiopia.

Emerton, L., 1998a, *Mount Kenya: The Economics of Community Conservation*, Community Conservation in Africa Paper No. 6, Institute for Development Policy and Management, University of Manchester, ISBN 1 90072894X, also published as Evaluating Eden Discussion Paper EE DP 04, International Institute for Environment and Development, London, London, 20 pp.

Emerton, L. and Asrat, A., 1998, *Eritrea Biodiversity: Economic Assessment*, Department of Environment, Ministry of Land, Water and Environment, Asmara

Emerton, L., and Mfunda, I., 1999, *Making Wildlife Economically Viable for Communities Living Around the Western Serengeti, Tanzania*, IIED, London and IUCN Eastern Africa Regional Office, Nairobi)

Emerton, L., N. Ndugire and C. Bokea, 1998, The Costs of Environmental Degradation to the Kenyan Economy: A Review of the Literature. A Report Prepared for the World Bank.

Emerton, L. 1999a, *Community-Based Incentives for Nature Conservation*. IUCN Eastern Africa Regional Office, Nairobi 43 pp.

FAO, 1999, *State of the World's Forests*, Food and Agriculture Organisation, Rome

Furfey, R. N. 1988, Fuelwood Development for Energy in Sudan: A survey of women's attitudes toward forestry and fuelwood in eight rural villages in Eastern Sudan.

Gathaara, G. 1999, *Aerial Survey of the Destruction of Mt. Kenya, Imenti and Ngare Ndare Forest Reserves.* Kenya Wildlife Service, Nairobi - Kenya

Geldenhuys, C. J. 1996. *Past, present and future forest management in the southern African region with special emphasis on the northern regions of Namibia*. 1-43. Windhoek, Directorate of Forestry, Ministry of Environment and Tourism. Forestry Publication No. 5.

Girot, P. O. 1998. Feasibility for collaborative management schemes in forest conservation areas in Namibia. 1-74. Windhoek, Directorate of Forestry, Ministry of Environment and Tourism.

Gordon, I. And Ayiemba, W., 2000, 'Harnessing butterfly biodiversity for improving livelihoods and forest conservation: the Kipepeo project', Paper presented at *First Eastern and Southern Africa Regional Biodiversity Forum*, Mombasa

Granholm, H. 1990, Identification and formulation of participatory forestry projects. Proceedings of the First Regional Workshop of the Training Programme on Planning and Management of Participatory Forestry Projects.

Grundy, I. 1996. Woodland Management Strategies: Possibilities for income generated from communally-owned indigenous woodland in Chaereka Wad, Muzarabani District, Zimbabwe. RP1/7/96, 3-28.

Grundy, I., Turpie, J., Jagger, P., Witkowski, E., Guambe, I., Semwayo, D., & Solomon, A. (in press). Implications of co-management for benefits from natural resources for rural households in north-western Zimbabwe. *Ecological Economics*.

Howard, G. and Emerton, L., 1999,

Ham, C. 1999. Investigation into ownership and management options for woodlots in the former homelands. 1-22. Stellenbosch, University of Stellenbosch.

Hughes, G. R. & Steenkamp, T. I. 1995. The value of protected areas to South Africa. 1-12. Unpublished report.

IUCN. 1992. *Angola: environment status quo assessment report*. 1-255. IUCN Regional Office for Southern Africa, Harare.

Jones, B. T. B. 1995. Wildlife management, utilisation and tourism in communal areas: benefits to communities and improved resource management. 1-19. Windhoek, Directorate of Environmental Affairs, Ministry of Environment and Tourism. Research Discussion Paper No. 5.

Kamugisha, J. R., Z. A. Ogutu and M. Stahl, 1997, Parks and People – Conservation and Livelihoods at the Crossroads. Regional Soil Conservation Unit/SIDA.

Kapungwe, E., 1996, Management and Utilisation of Wildlife Resources in Forestry Areas of Central, Copperbelt and Luapula Provinces, Zambia, Publication No. 4, Provincial Forestry Action Programme, Ndola

Katerere, Y., Moyo, S., & Mujakachi, L. 1993. The national context: land, agriculture and structural adjustment, and the Forestry Commission. In P.N. Bradley & K. McNamara (Eds.), *Living with trees: policies for forestry management in Zimbabwe* (pp. 11-28). Washington, D.C.: The World Bank.

Kessy, H,C. F. and Mallya, S. B. 1999, General information on the present status of forestry and forest resources in Tanzania. Paper presented during the KEFRI-JICA Regional Social Forestry Training Course.

Kigenyi, F., Mugabe, J. and Gondo, P., *Community Involvement in Forestry Management in Eastern and Southern Africca: Analysis of Policies and Institutions*, Thematic Study on Economic Aspects of Community Involvement in Sustainable Forest Management, prepared for IUCN Eastern Africa Regional Office, Nairobi

Kruger, F. 1998. *Defining an appropriate institutional role for government in the afforestation of communally owned land*. 1-18. Unpublished report. Consultative meeting on Forestry development on communally owned land.

Krugmann, H., 2000, 'International Trade in Devil's Claw from Namibia: A Review of Activities, Trends, Opportunities and Threats', Paper presented at *First Eastern and Southern Africa Regional Biodiversity Forum*, Mombasa

La Franchi, C. 1996. *Small-scale and subsistence use of natural resources in Namibian communal areas*. 1-81.

Lewis, F. & Mander, M. 1999. *Utilisation and development plan for the Ntendeka Wilderness Area.* 1-61.

Lewis, F., Mander, M., & Whynne, A. 1999. *Ongoye Forest Reserve: tourism development potential and opportunities*. 1-38. Pietermaritzburg, Report to KwaZulu-Natal Tourism Authority & Uthungulu Regional Council.

Luckert, M., Madondo, A., Matose, F., Nemarundwe, N., Sithole, B., Campbell, B., & de Jong, W. (in prep). Challenges to proponents of CPR systems - despairing voices from the social forests of Zimbabwe. Unpublished, 1-17.

Lynam, T. J. P., Campbell, B. M., & Vermeulen, S. J. 1994. Contingent valuation of multipurpose tree resources in the smallholder farming sector, Zimbabwe. Studies in environmental economics and development. 8, 1-20.

Matose, F., Mudhara, M., & Mushove, P. 1997. The woodcraft industry of the Bulawayo-Victoria Falls road. 1-14. Harare, Institute of Environmental Studies. IES Working Paper 2.

Matose, F.M. 1991. *Villagers as woodland managers: their own initiatives in woodland management*. Paper presented to the Forest Reseach Centre Seminar, "Forestry Research Advances in Zimbabwe" 26-30 August 1990, held in Mutare, Zimbabwe.

McGregor, J. (1995). Gathered produce in Zimbabwe's communal areas; changing resource availability and use. *Ecology of Food and Nutrition*, 33, 163-193.

McNamara, K. 1993. Key policy issues. In P.N. Bradley & K. McNamara (Eds.), *Living with trees: policies for forestry management in Zimbabwe* (pp. 1-10). Washington, D.C.: The World Bank.

Meijerink, G. W. 1997. Incentives for tree growing and managing forests sustainably: More than just carrots and sticks. W-140, 7-84.

Meintjies, H. 1995. Trends in natural resource management: policy and practice in southern Africa. 1-49. Johannesburg, Land and Agricultural Policy Centre. Working Paper 22.

MENR, 1994, *Kenya Forestry Master Plan*, Ministry of Environment and Natural Resources, Nairobi

Mogaka, H. 1999, *Economic Analysis of Forest Resource Values to Local Communities in Kenya: Comparative study cases of Kakamega and Ntugi-Kijege forest reserves*. PhD Thesis, University of Strathclyde

Mogaka, H.., 2000, *Economic and Financial Incentives for Enhanced CIFM*, Thematic Study on Economic Aspects of Community Involvement in Sustainable Forest Management, prepared for IUCN Eastern Africa Regional Office, Nairobi

Mugah, J. O., B. N. Chikamai, S. S. Mbiru and E. Casadei (eds) 1997, *Conservation, Management and Utilisation of Plant Gums, Resins and Essential Oils.* Proceedings of a Regional Conference for Africa held in Nairobi, Kenya 6-10 October 1997.

Muir, K., Bojö, J. and Cunliffe, R., 1996, 'Economic policy, wildlife and land use in Zimbabwe', in Bojö, J. (Ed) *The Economics of Wildlife: Case Studies from Ghana, Kenya, Namibia and Zimbabwe*, World Bank, Washington DC

Mupanda, E. 1996, Towards Collaborative Forest Management in the Conservation of Uganda's Rainforest.

Murombedzi, J. 1990. Communal land tenure and common property resource management: an evaluation of the potential for sustainable common property resource management in Zimbabwe's communal areas. 1-51. Harare, Centre for Applied Social Sciences, University of Harare.

Mushove, P. T. 1992. Can wildlife utilisation alone sustain forest operations on Gwayi/Mbenbesi Forests? 1-10. Unpublished report.

Mushove, P. T. 1992. Fifty-five years of timber commercialisation in Tsholotsho communal land: 1937 - 1992 review.

Mwau, G., 1996, *Wildlife Utilisation Study: Report No. 2, Economic Analysis*, Kenya Wildlife Service and African Wildlife Foundation, Nairobi

National Academy Press, 1992, Conserving biodiversity: A research agenda for development agencies. A Report of a Panel of the Board on Science and Technology for International Development. U.S National Research Council.

NEMA, 1999, *Uganda Biodiversity: Economic Assessment*, National Environment Management Authority, Kampala

Norse, D. & Saigal, T. 1993. National economic cost of soil erosion in Zimbabwe. In: Munasinghe, M. (ed.). Environmental economics and natural resource management in developing countries. The World Bank. Pp 229-241.

OECD, 1999, *Handbook of Incentive Measures for biodiversity: Design and Implementation.* Organisation for Economic Co-operation and Development.

Ollikainen, T. 1991. Study on wood consumption in Namibia. 1-19. Windhoek, Directorate of Forestry, Ministry of Environment and Tourism. Forestry Publication No. 1.

Pearce, D. W. 1990, *An Economic Approach to Saving the Tropical Forests.* London Environmental Economics Centre, International Institute for Environment and Development and University College London, LEEC paper 90-06.

Perrings, C., Gilbert, A., Pearce, D. and Harrison, A., 1989, *Natural Resource Accounts for Botswana: Environmental Accounting for a Natural Resource-Based Economy*. London Environmental Economics Centre, International Institute for Environment and Development and University College London, LEEC paper 89-11.

PFAP, 1998a, *The Policy and Legal Framework to Forest Management in Central, Copperbelt and Luapula Provinces, Zambia*, Provincial Forestry Action Programme, Forestry Department, Ministry of Environment and Natural Resources, Ndola 26 pp.

PFAP, 1998b, *Environmental Economics Aspects of Forests in Central, Copperbelt and Luapula Provinces, Zambia*, Provincial Forestry Action Programme, Forestry Department, Ministry of Environment and Natural Resources, Ndola 53 pp.

PFAP, 1998c, *Summary of the Local Market Value of Forests in Central, Copperbelt and Luapula Provinces, Zambia*, Provincial Forestry Action Programme, Forestry Department, Ministry of Environment and Natural Resources, Ndola 43 pp.

Pietrowicz, P. 1999. Community forestry in north-eastern Namibia: Planning of the pilot phase 1999-2001. 1-23. Windhoek, Directorate of Forestry, Ministry of Environment and Tourism.

Poffenberger, M. 1997. Communities and forest management: a report of the IUCN Working Group on Community Involvement in Forest Management. IUCN.

Richards, P. 1980, Community Environmental Knowledge in Africa Rural Development, in: *Indigenous Knowledge Systems and Development.* University Press of America, Washington, DC, USA, pp181-194.

SADC 1996. *SADC Policy and strategy for environment and sustainable development: toward equity-led growth and sustainable development in Southern Africa*. Southern African Development Community: Environment and Land Management Sector. 56pp.

Salinas, C., Mwanyangapo, M., & Shiweda, F. 1998. Management of forest resources in the Uukwaluudhi, Uukolonkadhi and Ongandjera tribal areas, Omusati Region. 1-32. Outapi, Directorate of Forestry, Ministry of Environment and Tourism.

Scoones, I. & Matose, F. 1993. Local woodland management: constraints and opportunities for sustainable resource use. In P.N. Bradley & K. McNamara (Eds.), *Living with trees: policies for forestry management in Zimbabwe* (pp. 157-198). Washington, D.C.: The World Bank.

Shackleton, C. M. & Shackleton, S. E. 1997. The Use and Potential for Commercialisation of Veld Products in the Bushbuckridge Area. 1-104. DANCED.

Shackleton, C.M. & Mander, M. (in press). The value of resources used in woodlands. In Anonymous*The South African Forestry Handbook* (pp. 1-15).

Shackleton, C.M. & Scholes, R.J. (in press). The management and use of woodlands. In Anonymous*The South African Forestry Handbook* (pp. 1-14).

Shackleton, C.M. 1993. Fuelwood harvesting and sustainable utilisation in a communla grazing land and protected area of the Eastern Transvaal lowveld. *Biological Conservation*, 63, 247-254.

Shackleton, C.M., Hassan, R., de Wit, M., Shackleton, S.E., & Beukman, R. (in press). The contribution of natural woodlands and forests to national income and economic welfare. In R. Hassan (Ed.), *Accounting for stock and flow values of woody land resources: methods and results from South Africa* (pp. 1-29). EENESA.

Shackleton, S., von Maltitz, G. & Evans, J. 1998. *Factors, conditions and criteria for the successsful management of natural resources held under a common property regime: a South African perspective*. Programme for Land and Agrarian Studies, University of the Western Cape. 58pp.

Shechambo, F., 1999, 'Macroeconomic policy incentives and disincentives for biodiversity conservation: the case of structural adjustment in Tanzania', paper presented at workshop on *Economic Incentives for Biodiversity Conservation in Eastern Africa*, Nairobi

Sibanda, B.M.C. & Omwega, A.K. 1996. Some reflections on conservation, sustainable develoment and equitable sharing of benefits from wildlife in Africa: the case of Kenya and Zimbabwe. *South African Journal of Wildlife Research*, 26, 175-181.

Simons, G., 2000, *CIFM Economic Review: Malawi, Zambia, Botswana and Mozambique*, Thematic Study on Economic Aspects of Community Involvement in Sustainable Forest Management, prepared for IUCN Eastern Africa Regional Office, Nairobi

Stahl, M, 1990, Constraints to Environmental Rehabilitation Through People's Participation in the Northern Ethiopian Highlands. Discussion Paper – United Nations Research Institute for Social Development.

Sudan, 1993/94, A Country Profile

Tesfay, T. 1997, The Present Status of forests in Ethiopia.

Government of the United Republic of Tanzania, 1998, *The Wildlife Policy of Tanzania.* Ministry of Natural Resources and Tourism.

Government of the United Republic of Tanzania, 1998, The Wildlife Policy of Tanzania. Ministry of Natural Resources and Tourism.

Tikologo Trust. 1999. Extension of the community forestry and extension development project in central north Namibia. 1-22. DANCED.

Government of Ethiopia, 1989, Conservation of Biological Diversity. Transition Government of Ethiopia, Addis Ababa

Tsilavirany, L., Rabarison, H. and Rambotiana, R., 2000 'There is no development without conservation and no conservation without development: experiences of private industry's investment in cinnamon in Madagascar', Paper presented at *First Eastern and Southern Africa Regional Biodiversity Forum*, Mombasa

Turner, R. K., D. Pearce and I. Bateman, 1994, *Environmental Economics: An Elementary Introduction.* Harvester Wheatsheaf, UK.

Turpie, J., 2000, *Economic and Financial Incentives for CIFM in Angola, Namibia, South Africa and Zimbabwe*, Thematic Study on Economic Aspects of Community Involvement in Sustainable Forest Management, prepared for IUCN Eastern Africa Regional Office, Nairobi

UNEP, 1992, *Convention on Biological Diversity*. United Nations Environment Programme, Nairobi.

Vorhies, F., 1996, *Making Community Conservation Economically Attractive*, Community Conservation Discussion Paper No.9, African Wildlife Foundation, Nairobi

Wells, M., 1996, 'The economic and social role of protected areas in the new South Africa', Paper presented at Workshop on *Economic Policies and the Environment in South Africa*, Johannesburg

World Bank, 1986, Forestry Sector Review in Sudan. World Bank, Washington DC