



A report prepared for the project

Lessons Learnt on Sustainable Forest Management in Africa

WHAT SHAPES FORESTRY IN AFRICA?

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What shapes forestry in Africa?

by

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CONTENTS

1.0 INTRODUCTION	3
2.0 KEY ISSUES IN AFRICAN FORESTRY	3
2.1 LOSS OF FOREST COVER	3
2.2 LAND DEGRADATION, DESERTIFICATION AND DECLINE IN WATERSHED VALUES.....	4
2.3. LOSS OF BIODIVERSITY	5
3.0 SOCIETY-FOREST INTERACTIONS: THE LARGER CONTEXT	5
4.0 FACTORS IMPACTING AFRICAN FORESTS	7
4.1 DEMOGRAPHIC CHANGES	7
4.1.1 <i>Population growth</i>	7
4.1.2 <i>Urbanisation</i>	8
4.1.3 <i>Impact of HIV/AIDS</i>	9
4.2 MACRO-ECONOMIC FACTORS	10
4.2.1 <i>Income and its growth</i>	10
4.2.2 <i>Income distribution and poverty</i>	10
4.2.3 <i>Dominance of the informal sector</i>	11
4.2.4 <i>Sectoral shifts in African economies</i>	11
4.2.5 <i>Impact of globalisation</i>	12
4.2.6 <i>Structural Adjustment Programmes (SAPs)</i>	13
4.2.7 <i>Emergence of regional and sub-regional groupings</i>	13
4.2.8 <i>Trade policy</i>	14
4.3 IMPACT OF POLICIES IN OTHER SECTORS ON FORESTS AND FORESTRY	14
4.3.1 <i>Land use: Forestry vs. agriculture</i>	15
4.3.2 <i>Land tenure and land reforms</i>	16
4.4 POLITICAL AND INSTITUTIONAL CHANGES	17
4.4.1 <i>Decentralisation</i>	17
4.4.2 <i>Private sector</i>	19
4.4.3 <i>Increasing civil society involvement</i>	20
4.4.4 <i>Wars, conflicts and the refugee crisis in Africa</i>	21
4.4.5 <i>Governance, corruption and illegal activities</i>	23
4.5. TECHNOLOGICAL CHANGES	24
4.6 GROWING AWARENESS OF ENVIRONMENTAL ISSUES.....	25
5.0 FORESTRY IN THE GOVERNMENTAL STRUCTURE	28
5.1. PLACEMENT OF FORESTRY IN GOVERNMENT MINISTRIES	28
5.2. FOREST POLICIES IN AFRICA	28
6.0 PRODUCTION AND CONSUMPTION OF FOREST PRODUCTS	29
7.0 SUMMARY AND CONCLUSION	30
REFERENCES	32

1.0 INTRODUCTION

As elsewhere in the world, the relationship between society and nature in Africa is not static and evolves over time in response to the larger changes, both exogenous and endogenous. It is in this context that one needs to analyse the development of forests and forestry in Africa and identify how a more balanced relationship can be facilitated. Throughout the history of human civilisation, people have used forests and trees for a variety of purposes – economic, social, environmental, cultural and spiritual – and, as a society evolves over time, the relative importance of the different uses changes. This would imply that what is appropriate at a given point in time may cease to be so as circumstances change.

In recent years, the external and internal changes have been rather rapid with their attendant consequences on forests and forestry in Africa. In the context of learning from past and current experiences of forestry interventions and drawing relevant lessons, it is important to understand what is really driving the development of the forest sector. This paper is aimed at assessing some of these factors and provides an indication of how forests and forestry are evolving in the larger social, economic, political and environmental context. Section 2 summarises some of the key issues relating to African forestry. Section 3 outlines the larger context of society-forest interactions. The key factors that impact forests and forestry are outlined in section 4, while section 5 provides an overview of the status of forestry in the governmental structure. An overview of production and consumption of forest products in Africa is given in section 6. Section 7 summarises the overall effect of these and what could be expected in the coming years.

2.0 KEY ISSUES IN AFRICAN FORESTRY

In the larger context of adoption of sustainable forest management in Africa, several issues have caught the attention of national and international stakeholders. The foremost of these are:

- Continued loss of forests - which, according to the available information, is the highest in comparison with other regions - and its effect on availability of forest products.
- Degradation of forest land, thus undermining their economic and ecological functions, including causing desertification and decline in watershed values, which in turn affects other economic activities like agriculture.
- Loss of biodiversity, the consequences of which are yet not fully understood.

2.1 Loss of forest cover

The total forest cover in Africa is estimated at 650 million ha accounting for 21.8% of the land area and 16.8% of global forest cover. The forests in Africa are unevenly distributed with most of the forests in Central Africa (37%) (*Table 1*). The agro-ecological conditions even within sub-regions are quite varied ranging from arid and semi arid to high rainfall zones.

Table 1: Forest cover in Africa's sub regions

Sub region	Land area (mill. ha)	Forest area (mill. ha)	Forest area (%)
North Africa	941.1	68.2	7.2
East Africa	411.1	85.6	20.8
Southern Africa	591.1	183.1	31.0
Central Africa	551.5	240.7	43.6
West Africa	505.3	72.2	14.3
Total Africa	2 978.4	649.9	21.8

Source: *FAO, 2003a*

In addition to land that is classified as forests, there are vast tree resources outside forests in Africa. Some of the traditional land use systems, especially the agroforestry parklands in West Africa and the home gardens in the humid zones provide a wide variety of wood and wood products. For example, *Grevillea robusta* grown as an agroforestry tree on farm boundaries and in plantations in Kenya has been a major source of fuelwood and timber. Increasing local demand for wood has encouraged the establishment of private woodlots, which are emerging as important sources of wood supply.

Between 1990 and 2000, high rates of deforestation led to a loss of 53 million ha of forest in Africa. It accounted for 56% of the world's forests cover loss, with three countries (Sudan, Zambia and the DRC) accounting for almost 44% of the forest cover loss in Africa. The highest losses in acreage were recorded in countries such as the DRC, Cameroon, Angola, Nigeria, Sudan, Zambia and Zimbabwe (Table 2). The causes of deforestation vary from country to country. In the more populous states, such as Nigeria, human population pressures have put a tremendous strain on the forests, especially due to clearance of forests for agricultural expansion, while logging and production of wood, including woodfuel, are important causes of degradation in others.

Table 2: Deforestation rates for selected countries

Country	Total forest (2000) (1000ha)	Forest change (1990- 2000) (1000ha)	Annual rate of change (1990-2000) (%)
Angola	69,756	-124	-0.2
Côte d'Ivoire	7,117	-265	-3.1
Dem. Rep. of Congo	135,207	-532	-0.4
Cameroon	23,858	-222	-0.9
Ghana	6,335	-120	-1.7
Madagascar	11,727	-117	-0.9
Nigeria	13,517	-398	-2.6
Rwanda	307	-15	-3.9
Burundi	94	-15	-9.0
Sudan	61,627	-959	-1.4
Togo	510	-21	-3.4
Zambia	31,246	-851	-2.4
Zimbabwe	19,040	-320	-1.5

(Source *FAO, 2003b*)

Although countries with large forest cover, such as Angola, Cameroon and the Democratic Republic of Congo, have relatively low annual rates of deforestation, most of the countries with low forest cover, such as Rwanda, Burundi and Togo, have very high rates of annual deforestation. Burundi, with one of the lowest forest covers in Africa had the highest annual rate of deforestation between 1990 and 2000. Only one country in Africa (Gambia) reported an annual growth in forest cover of 1% in the period 1990 to 2000.

2.2 Land degradation, desertification and decline in watershed values

Arresting land degradation, mitigating the effects of desertification and watershed protection are some of the important functions of African forests and woodlands. Intensification of agriculture requires measures to protect watersheds and

arrest land degradation. Since water is a key resource, the role of forests and trees in altering evapo-transpiration and infiltration and thus affecting down-stream water availability must be fully understood. Watershed degradation is affecting agriculture in most African river basins. In fact, water stress and water scarcity have already become major problems facing several sub-Saharan countries. Many urban areas are facing acute water and power scarcity, stemming partly from siltation and reduced storage capacity of reservoirs in addition to the burgeoning demand. Many irrigation schemes are facing severe problems on account of reduced storage capacity resulting from siltation.

2.3. Loss of biodiversity

African forests are rich in biodiversity, although information on its long term potential is scanty or at best fragmented. Although all sub-Saharan countries are signatories to the Convention on Biological Diversity, their capacity to protect and manage biodiversity remains very limited. The key problems in protecting biodiversity are:

- The concept of “biodiversity conservation” is not integrated into all economic activities and in particular land use. Most countries lack the capacity to effectively implement biodiversity conservation measures on account of a variety of factors.
- Biodiversity conservation efforts are most often focused on protected areas and large tracts of land outside protected areas seldom receive any attention. In the context of resource constraints, even protected areas are not effectively managed.
- The long term economic potential of biodiversity conservation is little understood. Also, the ability to invest in systematically building up the knowledge base and transforming that knowledge to economic benefits is limited. While there is substantial indigenous knowledge, efforts to systematically nurture and improve it are lacking.

3.0 SOCIETY-FOREST INTERACTIONS: THE LARGER CONTEXT

The issues listed above are not unique to Africa and they have been experienced by other regions during the process of social and economic development. Every society develops appropriate responses and it is in this context that we need to consider the lessons learnt and how those lessons provides feed-back into the system to refine the relationship.

For convenience of analysis, factors that impact forests and forestry could be broadly grouped into external and internal to the forest sector. When external pressures are strong and the internal mechanisms to cope with them are inadequate, one could witness a decline in the sector. On the other hand, a well developed sector with strong institutional capacity is able to influence the external factors, thus helping to expand the role of the sector or at least mitigate the negative impacts stemming from outside. However, it is important to bear in mind the strong linkage between external and internal factors, and that an overall unfavourable external environment most often undermines the capacity of the sector to respond effectively.

Understanding the changing role of forests and forestry requires a broader analysis of the state of society as defined by the key features like production, consumption and the state technology employed. Broadly speaking, societies could be grouped into four broad categories (see *Nair, 2004*): forest dependent communities, agrarian societies, industrial societies and post-industrial societies. As indicated in *Table 3*, the principal uses of forests and the production and consumption characteristics of these societies differ considerably.

Every country or region has differing proportions of people in the categories indicated above. In general, forest-dependent and agrarian societies dominate most countries in Africa, while the proportion of industrial and post-industrial segment is rather low. This is in sharp contrast to most developed countries, where post-industrial and industrial societies dominate. Resource use priorities therefore differ considerably, and often some of the conflicts stem from the efforts to apply concepts and approaches to resource use that are not seen as important from the perception of the dominant groups.

Table 3. Overview of different societies' linkages to forests

Type of society	Principal uses of forests	Production and consumption characteristics
Traditional forest dependent	To meet basic needs such as woodfuel, medicines, building material, etc. Limited capacity to drastically alter the forest environment	Almost entirely subsistence focused Communal production and shared consumption Production almost entirely dependent on natural factors. Preponderance of hunter-gatherer systems
Agrarian	Forests are viewed as space to expand agriculture and livestock, and as a source of low cost inputs for agriculture Utilisation of forests for woodfuel, fodder, medicines, bush meat, etc. The sale of products supplements the income of communities With settled communities, the service functions of forests, such as watershed protection and arresting land degradation, become important	Largely subsistence production Some surplus traded to procure industrial goods Land and labour are the key factors of production
Industrial	Forests used as sources of industrial raw materials Forests are a source of services such as clean water and recreation	A high proportion of goods and services produced are traded Large scale production and trade dependent on mass markets Capital and skilled labour are the main factors of production
Post-industrial	Forests are less important as a source of products and more important as a source of services, e.g. watershed protection, carbon sequestration, biodiversity conservation Cultural, environmental and aesthetic value gain priority	Shift from mass production to meeting needs of smaller markets Increased emphasis on customisation Information and knowledge become the critical inputs in production of goods and services Dematerialisation of production Emphasis on sustainability and multi-functionality

Source: *Nair, 2004*

A change in the proportion of different segments in society and changes in their perception of the use of forests will be the most fundamental factors in determining the future of forests. As the proportion of each segment of society changes, so does the nature of use of forests too. In a predominantly agrarian society, as in most countries in Africa, the linkage between agriculture and forestry is rather strong, and what happens to forests is largely determined by what happens to agriculture. As industrialisation progresses, forests have to cater to another array of needs, for example, supply of wood and non-wood forest products or minerals found in forests. On the other hand, the needs of a post-industrial society are somewhat different with environmental and cultural aspects becoming more important. Depending on the proportion of societies in the different categories, the pressures and conflicts on the use of forests become intense.

Changes from one level of society to the other can greatly influence the interactions of the society with forests. This is exemplified by the case of the Ogiek community in the Mau forests of Kenya and how the Mau forest has changed as a result of the introduction of the shamba system which has increased the agrarian society relative to the traditional forest dependent Ogiek.

Box 1. Changes in society and consequent changes in forest utilisation

“The Mau forest is the largest moist indigenous forest in East Africa covering 900 square km. The forest was first gazetted in 1932. Prior to this period, the forest was intact under the management of the Ogiek community, which by then numbered about 20,000 people. The Ogiek is a hunter-gatherer community of forest dwellers who depended on the forest for subsistence and shelter. Their main livelihood activities were collection of wild fruit, nuts, honey and hunting. The community divided the forest among their clans using natural features like valleys, rivers and hills as boundaries. Each clan then allocated a block to families.

In 1943 however, the government introduced the shamba system to facilitate the planting of plantations and growing food. As result of this opening up of the Mau forest, outside people other than the Ogiek were allowed into the forest to cultivate. The Ogiek were forced to settle by the government and to adopt farming. As result of this opening up and expansion of agrarian society into the Mau forest, other activities associated with agrarian societies such as the burning of charcoal for sale as fuelwood to generate surplus incomes, timber harvesting and livestock grazing have led to more of the forest being converted to agricultural farmland”.

(Ngece, 2003)

There are several factors that lead to societal transformation and these may be internal to the society (for example population growth, technological advancements) or external, largely due to contacts with other societies (which often may result in colonisation and conflicts or mutually beneficial interaction) , access to markets, external investments and access to new technologies. Impacts of these on African forests are outlined below.

4.0 FACTORS IMPACTING AFRICAN FORESTS

Within the framework of the larger society-forest interaction discussed earlier, several factors impact forests and forestry. These include demographic changes, overall performance of the economies (including their growth rates, distribution of income and poverty), technological changes, political, social and institutional developments. It has to be emphasised that no single factor is responsible for a change in the forestry situation. The impact of any one factor is dependent on others. For example, population growth need not necessarily lead to deforestation, and its effect will depend on the overall economic situation and factors like relative importance of the agriculture sector, the type of farming system and changes in agricultural technologies. A general indication of external factors impacting African forests and forestry are indicated below.

4.1 Demographic changes

4.1.1 Population growth

Between 1980 and 2000, the population of Africa grew from 469 million to 798 million and this is expected to reach about 1 186 million in 2020 (*World Bank, 2001*), making Africa the continent whose population is growing fastest. The average annual population increase in SSA is 3%. The growth rates vary between countries and regions from 2.5% to 3.8% (*Table 4*).

Table 4. Population changes in Africa (million)

Sub region	1980	1990	2000	2020
North Africa	108.6	140.2	170.4	239.0
East Africa	104.5	141.2	182.1	289.0
Southern Africa	69.5	89.7	113.4	150.2
Central Africa	54.4	73.6	97.9	163.8
West Africa	132.2	177.8	234.0	344.0
Total Africa	469.2	622.5	797.8	1 186.0

Source: *World Bank, 2002* in *FAO, 2003a*

These rapid changes in population have various implications for forests and forestry in Africa. Theoretically, population affects forests through:

- (a) changes in the number of families seeking land to cultivate;
- (b) population's indirect effects on labour markets;
- (c) demand for agricultural and forest products; and,
- (d) induced technological and institutional changes.

Other things remaining the same, population growth exerts substantial pressure on land and other natural resources, and has been an important factor contributing to deforestation and forest degradation, especially in a situation where land remains the primary source of livelihood and technological advancements in increasing productivity are slow. Forest land in SSA has been converted to agricultural uses at increasing rates. Between 1981 and 1990, such changes accounted for 25% of the changes in forest cover (*FAO, 2003a*) while between 1990 and 2000, 60% of the tropical forest areas cleared in Africa were converted into permanent agricultural smallholdings (*UNEP, 2002*).

The burgeoning population in most parts of Africa is contributing to increased desertification by the clearing of forests to pave way for farmland. An example is Ethiopia where, in the early 1900s, 40% of the country was covered by forests. Currently, only 4% of Ethiopia is forested. The population density in most SSA countries is also not evenly distributed and ranges from less than 5 people per square kilometre in desert areas to as many as 500 people per square kilometre. For some countries, the effects of population pressure on forests have not been felt; for example, in central Africa where most of the forests are very sparsely populated. Other countries, such as Burundi and Rwanda, have very high population densities and low forest cover. As marginal land has come under cultivation, particularly within semi-arid countries, pastoral agriculture has been pushed out further to the fringes. In many instances, farmers are forced to harvest forest products to feed their herds. Not only do these practices reduce Africa's forest resources, they also accelerate the process of desertification.

Population growth has also rendered traditional patterns of agriculture unsustainable. These include the practice in parts of Southern and Central Africa of shifting cultivation to reduced fallows and permanent settlements on newly cleared land. With little or no crop inputs like fertilisers such land loses its fertility, creating the necessity to excise more cropland from the forests, thus putting excessive strain on Africa's forest resources. In Madagascar and parts of Central Africa, slash-and-burn agricultural practices are also contributing to loss of forests.

4.1.2 Urbanisation

Another important demographic factor that has both direct and indirect impacts on forests is the distribution of population, particularly on account of urbanisation. Although Africa is still largely rural, with more than 60% of the population living in rural areas, the pace of urbanisation is gaining momentum. As population pressure grows in rural

areas and poverty levels rise, there is a perception that the urban areas provide more prospects for both employment and better living. Between 1990 and 2000, the urban population in Africa grew at an annual rate of 4.3%, much higher than the overall population growth. The trend is expected to continue with approximately 646 million people living in urban areas by the year 2020 compared to 302 million in the year 2000 (*UNFPA, 1999*).

The impact of urbanisation is extremely varied and the important implications on forests include:

- Increased demand for wood, especially woodfuel, resulting in overexploitation of forests and woodlands close to urban centres;
- Shift from fuelwood to charcoal, which requires higher wood input and thus accelerating forest clearance;
- Need to improve the urban environment, especially for green space.

One of the characteristic features of urbanisation in Africa and in other developing regions is the growth of mega-cities that often strain the infrastructure severely. A key concern in many countries is the provision of utilities, especially water and electricity. Many African cities are highly dependent on forested watersheds for drinking water as well as for power generation. Protecting the watershed values of forests in the vicinity of cities like Nairobi, will remain an important concern, especially in the context of demand for land and forest products.

4.1.3 Impact of HIV/AIDS

Another important factor that has direct and indirect impacts on forests and forestry is the HIV/AIDS pandemic. SSA is the region in the world most affected by HIV/AIDS. It is estimated that 26.6 million people are living with HIV/AIDS in Africa. In 2003 alone, the epidemic has claimed the lives of 2.3 million people from the continent (*United Nations, 2001*). Most of the affected people are young people between the ages of 15-24 years who comprise approximately 10 million of the total number affected. Almost three million are children under the age of 15.

Large variations exist between individual countries. In some countries, like Somalia and Gambia, the prevalence is under 2% of the adult population, whereas in South Africa and Zambia it is over 20%. The worst hit countries include Swaziland (38.6%), Botswana (37.5%), Zimbabwe (33.7%) and Lesotho (31.5%), all in Southern Africa. West Africa is relatively less affected, but the prevalence rates are going up. HIV infection in East Africa varies in adult prevalence rates of 1% in Somalia to about 15% in Kenya (*United Nations, 2001*). In Africa, AIDS is erasing decades of progress in improving life expectancy. Average life expectancy has gone down from 62 years to 47 years. Life expectancy is expected to reduce further to an average of 39 years by 2015 (*United Nations, 2001*).

At household levels, available labour is diverted from economic activities to caring for the sick, in addition to loss of labour from those that are affected. The reduction in labour is significantly reducing food production. It is leading to reductions in land area cultivated, changes in crop patterns, poor timing of cropping operations and decline in yields. A study in rural Burkina Faso estimated that 20% of families had reduced their agricultural work or abandoned their farms because of HIV/AIDS. As a result of this, incomes have fallen as surviving household members divert resources and time away from income generating activities. Studies in Botswana, Burkina Faso, Rwanda and Uganda have shown that AIDS will not only reverse efforts to reduce poverty but will also increase the proportion of people living in extreme poverty.

The impact of HIV/AIDS on forests and forestry varies depending on the circumstances. A Miombo woodland study on household responses to HIV/AIDS demonstrates the value of forests and changes in the way households use forest resources. Income from forests – especially through collection of timber and woodfuel - becomes critical to meet the increased costs of taking care of infected persons. In the study, households affected by HIV/AIDS were found to resort more to collection of firewood than unaffected households.

One of the direct impacts of HIV/AIDS is a diminution of labour supply thus undermining the ability to implement afforestation and reforestation and other tree planting programmes. Wood industries have been particularly hit by sickness and death of employees and the need to invest in increased health care and training. It is estimated that seven million agricultural workers in the 25 hardest hit countries have died from HIV/AIDS since the onset of the pandemic. Long periods of AIDS related illness are also reducing productivity. This has implications for the management of forests and forest resources. The loss of manpower will especially undermine technology advances in the forestry sector and forest industries.

Box 2. Interfaces between impact of HIV/AIDS and forestry

- *Household socio-economic impacts* - The potential roles of trees, natural woodlands, forests and agroforestry in contributing to livelihood responses to HIV/AIDS affected households-medicines, foods and income
 - *Structural impacts* - Use and management of forest resources,
 - *Macro-impacts* - Impact on the demand and supply of forest products
 - Transfer of knowledge about the sustainable use of forests and non-wood forest products to the next generation
- (FAO, 2003c)

Most of the continent's economic development goals depend on its ability to diversify the industrial base, attract foreign investment, and expand exports. AIDS is weakening economic activity by squeezing productivity, adding costs and therefore reducing investments into productive sectors of the economy. Governments especially will be forced to reduce budgetary allocations from productive sectors such as forestry and increase resources for healthcare. The transfer of knowledge to the next generation is also hampered by HIV/AIDS. Loss of high calibre staff in forestry institutions, reduced child enrolment in schools and the intergenerational gaps resulting from HIV/AIDS all threaten the transfer of knowledge on forestry issues.

4.2 Macro-economic factors

While demographic changes, especially population growth and urbanisation could have an impact on forests, it largely depends on the overall economic situation, in particular the size and growth rate of the economies and how income is distributed. More importantly, it is necessary to analyse economic diversification and the extent to which dependence on land declines, as has happened in a number of developed countries.

4.2.1 Income and its growth

Although Africa accounted for 13% of the world's population in 2000, its gross domestic product was under 2% of the global GDP. This significantly affects the purchasing power, savings and investments, growth rates and resources available to the people and the government. GDP growth rates have been very slow - about 2.5% during the 1980s and 2.6% during the 1990s. When the high population growth rate is taken into account, the per capita income growth rate during the last two decades remains extremely negligible and the overall performance of SSA is, with a few exceptions, very low.

Poor economic performance in SSA is the result of a combination of slow agricultural growth, rapid population increase and depletion and degradation of natural resources. These are associated with ineffective economic policies, weak and/or unstable institutions and, in some cases, also political instability. Agriculture will for the foreseeable future remain the mainstay of the majority of the people as well as the main potential engine for economic growth. *Gray and McPherson (2001)* underline the importance of agriculture as a component of wider reaching reform - they state "no African economy can promote or sustain growth without having policies that accelerate growth in the agricultural sector whilst they reorient activities towards the global economy and initiate export of labour-intensive manufactures".

4.2.2 Income distribution and poverty

Another important economic feature is the persistence of a highly skewed distribution of income. Although statistics on income distribution remains weak, according to available estimates the bottom 40% of the population has only 11% of the income, while the top 20% has a share of about 58% of the income. Low per capita income combined with a highly uneven income distribution leads to severe levels of poverty. According to the Economic

Commission of Africa, over 50% of Africans live on less than US\$ 1 per day (*ECA, 2001*). Even in a middle income country like South Africa with a per capita income of more than US\$ 3,000, around 45% of the population is estimated to live below the poverty line. All indications are that Africa may not be able to accomplish a number of the Millennium Development Goals (MDGs) and poverty and food insecurity are expected to persist. The implications of low income and poverty on the forest sector include:

High dependence on forests for a variety of products, especially woodfuel, non-wood forest products including medicinal plants, bush meat, etc. There is also a significant dependence on forests for informal employment, including woodfuel collection, charcoal burning, pit sawing, etc.

Low income implies limited purchasing power and consequently that the demand for high value products and services remain depressed. Internal markets for most processed products are small, which discourages investments, especially in industries whose viability is dependent on scale economies. This also results in high dependence on external markets and the survival of many forest industries depends on their access to highly competitive markets elsewhere.

Low income also affects the ability of governments and individuals to invest in sustainable management of resources. The more productive forests are exploited to generate income to meet the investment needs in other sectors, the more neglected are forests and woodlands which are economically less valuable. Inability of governments to allocate adequate internal resources also results in high dependence on external support with all its attendant uncertainties and more importantly, their long term sustainability.

4.2.3 Dominance of the informal sector

An important consequence of low incomes and widespread poverty is the preponderance of informal sector activities. A significant proportion of forestry activities are in the informal sector, especially as these – for example, charcoal production, pit-sawing, collection and trade of non-wood forest products – are less capital and skill intensive and entry to and exit from them are easy. Considering the poor growth of opportunities for formal sector employment, the informal sector is expected to grow. Some of the consequences of this on forests could be negative as indicated below.

Resource depletion is a major problem when the informal sector expands rapidly, especially when traditional community control has weakened. Most of those who operate in the informal sector do not own the resources and have no ability to exclude others and invest in improvement.

Productivity and income from most informal sector activities are low. Low levels of innovation and technology are major problems and the transient nature of the informal sector and the limited access to information on markets, prices, etc., undermines the capacity of those involved in enhancing income.

Given that the attainment of rapid industrial growth in Africa remains problematic, it appears important to pay greater attention to the small informal sector: to know with greater certainty the magnitude and distribution of benefits arising from this business, the human resources involved, the level of exploitation of natural resources required to support it, and the contribution to livelihoods and the economy at national, regional and local levels. Knowledge built upon improved information on how the sector functions and how it has performed in the past can be used to foster better performance in the future in a manner that could benefit multiple stakeholders as well as sustaining the forest resources (*Kowero et al., 2001*).

4.2.4 Sectoral shifts in African economies

While agriculture accounts for 70% of the employment in Africa, the share of agriculture in GDP has declined, from about 40% in the 1960s to about 21% in the 1990s. This reduction has not been matched by a growth in the manufacturing sector, as most of the value addition has come from services sectors. Limited industrialisation means continued dependence on land, most often involving low investment and low productivity agriculture. An important aspect of agricultural development which will have a direct bearing on forestry is how future increases in food production are achieved, and especially whether this takes place by cultivating new land or improving productivity on existing farm land. Past increases in agricultural production have largely been through bringing more land under cultivation. Increasing productivity will largely depend on a number of factors like improvements in agricultural technology, access to inputs, development of infrastructure, favourable land tenure and, most importantly, a stable

political and institutional environment. In these conditions are not in place, agriculture will remain a low investment/productivity sector, where increases in production will largely have to come from horizontal expansion of agriculture with its attendant consequences on forests and woodlands.

Thus, excepting a small number of countries, where sectors like manufacturing, mining and tourism have grown rapidly, most SSA countries are dependent on low input low productivity agriculture. Even in the case of countries that have been able to diversify their economies, especially through tapping minerals and petroleum, the majority of the people are excluded from the benefits and continue to depend on low input low output agriculture.

4.2.5 Impact of globalisation

As globalisation advances, Africa as a whole and the forestry sector face a number of opportunities and challenges. Economic liberalisation has led to cheaper imports, often undermining the domestic processing sector. Although exports of certain products have risen, increased imports have increased trade deficits, putting additional pressure on forest resources directly and indirectly.

Several constraints exist in taking full advantage of the opportunities provided by globalisation. These include fragmented markets, long distances to markets, poorly developed infrastructure and lack of human resources and skilled labour. In the forest sector, economic liberalisation has increased investment in logging and related activities. In view of resource constraints, the capacity of governments to manage and regulate such investments is limited undermining potential benefits.

Globalisation and economic reforms favour private sector initiatives. However, the modern private sector in forestry is very small and is hardly growing in many SSA countries. Globalisation tends to favour cross-border initiatives as well. But again, these appear to hold more potential for private sector investment. A purely market approach to resource allocation in the forestry sector may help to concentrate resources such as capital, land, access to information and technology in the hands of a few. For a long time urban elites have been pursuing policies of self interest that continue to disadvantage the rural sector, focusing mainly on urban and industrial sectors, sometimes at the expense of rural development. Apart from industrial forestry, not much else in forestry would be of much interest to the private sector – since much of the region's dry forests are in fact poorly endowed with industrial commodities, the forests would on the whole tend to be neglected. It is therefore necessary to evaluate how compliance to economic reforms and globalisation can be maintained while at the same time promoting the value of forest resources, their sustainable management, as well as their capacity to improve the welfare of rural communities.

On the other hand, globalisation has also attracted new capital flows from outside Africa and raised private sector investments, productivity and growth - although it is too early to say whether this will lead to sustained economic growth (*Fischer in Gray and McPherson, 2001*). The growth in telecommunications networks and the privatisation of state owned telecomm monopolies coupled with external investments by multinational corporations are a good example. Such an influx of capital and technology provides a stepping-stone to knowledge and service industries that do not rely on biological primary productivity. However, the cost of communication technologies in proportion to rural income puts them beyond the reach of the general population. Governments need to balance the need for non-restrictive policies to encourage investments with practical strategies to allow societies at large to participate gain a share of economic growth.

In order to benefit from the increased opportunities of globalisation, at least three issues or challenges must be faced. Firstly, to rise above small-scale petty production and engage in larger-scale manufacturing and trade requires a favourable investment climate to mobilise resources beyond the capacity of many SSA countries. Secondly, identification of appropriate mechanisms for sharing benefits between industrial concerns and rural communities so that local communities bordering forests can benefit from such investments, and thereby raising their share of benefits from the forests. A third challenge is to enhance value addition of forest products by strengthening processing at local levels and improvement of trade between the poor rural communities (who are sellers) and the richer (buying) segments of the society.

4.2.6 Structural Adjustment Programmes (SAPs)

Structural adjustment is part of a process of global restructuring based on increased reliance on market forces and a reduced role of the State in the economies. Structural adjustment has led to reduced public structures and state functions, and cuts in public employment. The impetus for restructuring in the public service has come from both internal and external sources: internally, the need to reduce costs and improve the functioning of the public service; externally, a climate of privatisation which requires the public sector to reduce its own role. The typical adjustments policies proposed under the structural adjustment programmes consist of:

- Cuts in public expenditure;
- Opening up to external and domestic competition;
- Price reforms;
- Measures to improve government delivery of infrastructure and social services; and,
- Development of institutions required by free market economy including privatisation of some state owned enterprises.

These adjustments policies have affected many sectors, including forestry, in different ways. Structural adjustments to reduce government salary expenditure may have been desirable from a fiscal viewpoint, but have resulted in a reduced capacity to carry out regulatory functions in key sectors like forestry. This has stemmed mainly from the lay off or retrenchment of key staff in the forestry sector and reduced budgets allocated to the sector. With impetus on participatory forest management, the staff and budget cuts mean that the institutional and technical support to sustainable forest management by communities is greatly reduced.

Another effect of this is that in countries with timber of export potential, the temptation to liquidate forest assets in order to reduce balance of payments is greater under the pressure of structural adjustment. To meet one of the major goals of structural adjustment programmes, i.e. ambitious targets for currency reserves and trade balances, countries often over-exploit their resources through unsustainable forestry, mining and agricultural practices that generate pollution and environmental destruction. By encouraging export-led exploitation of natural resources, structural adjustment policies have been blamed for failing to take into account environmental sustainability.

One of the outcomes of implementing SAPs is the devaluation of local currencies. This has reduced the export income in foreign currency, while significantly increasing the costs of imported goods and services. Notable, and influencing the forestry sector, has been the increase in prices of liquid gas. With increased prices, the incomes of a majority of the population has not increased proportionally especially among the many urban poor. As a result of this, there has been replacement of imported gas for household use by wood based fuels.

Box 3. Effects of currency devaluation (www.mongabay.com)

Devaluation of CFA in West Africa

In 1994, the CFA was devalued in response to the SAPs. The devaluation led to both positive and negative impacts. There was a decrease in the transformation rate and an increase in the sale of logs where the prices were established in CFA for export as well as changes in competitiveness between the main African producers of timber. In the short term, the devaluation encouraged an increase in unregulated logging and created difficulties in timber processing. One positive long-term impact was the establishment of a more efficient timber production based on economic imperatives.

4.2.7 Emergence of regional and sub-regional groupings

In the last few years, Africa has seen a growing number of regional organisations, groupings, networks and initiatives. Some of these include the Economic Commission for West African States (ECOWAS), East African Community (EAC), Southern Africa Development Community (SADC), the African Union (AU), New Partnership for African Development (NEPAD), Common Market for Eastern and Southern Africa (COMESA), the

Intergovernmental Authority on Development (IGAD), and the Economic Community for Central African States (ECCAS). Important forestry-relevant networks include FARA, AFORNET and FORNESSA. Some of these groupings have units or institutional arrangements dealing with forestry and environmental issues such as CORAF. At the continent level, the AU and ECA have natural resources departments while the African Development Bank has a special forestry unit.

There has been a lot of focus among these regional and sub regional organisations to achieve economic integration focusing on the reduction of duties and cooperation in such areas as power generation and distribution, water and infrastructure. There is great potential for forestry with effective regional integration especially for forest rich countries to supply forest poor countries with forest products. Other broader initiatives are also expected to have an impact on forestry, for example the construction of the West African Gas Pipeline (WAGP), which is expected to significantly reduce dependence on wood fuel in West Africa, while also clearing forests to give way to its construction.

These regional programmes have a role to play especially in addressing trans-boundary or public good/service issues, sharing information and experiences and providing cost effective approaches to research, education, training and industrial development. While providing new prominence and focus for environmental issues, these agencies and units face overwhelming and challenging tasks and responsibilities including low staff and budgets as well as potential conflicts of interest with respect to countries belonging to two or more of these groupings.

4.2.8 Trade policy

One trade policy that has been chosen by many countries is the restriction of the export of non-manufactured resource products such as logs. The objective is to assure that some manufacturing takes place before such products are exported. Some countries have combined saw milling with the export of logs. The effect of such policies has been tempered by the potential of the countries and the ability of the local industries to compete in wider markets. In countries where an industry exists that produce a product already with international demand, the lifting of trade barriers has had positive effects. On the other hand, in countries where trade policies have protected an industry from market forces, free trade has meant that the industry has to face competition from imports.

A feature of Africa's failure to take advantage of trade opportunities stems from the low level of processing. Almost 90% of the roundwood production in Africa is used as woodfuel and this would imply very limited efforts to add value through processing. Complex border controls and poor infrastructure often limits the scope for improving intra-regional trade of forest products, especially between wood producing regions and wood deficit regions. Much of the formal trade takes place between Africa and countries in other regions, especially Europe and Asia, and much less between countries within Africa.

4.3 Impact of policies in other sectors on forests and forestry

Government policies and development objectives can have a profound impact on forest management, often in unexpected ways. While policies in the forest sector shape results on the ground, those outside the sector can have an even greater impact. In the face of globalisation, these effects are no longer limited to national action. Policy-makers have shown growing interest in assessing the effects of external factors on the forest sector, and vice versa, based on the idea that a better understanding of the impact of changes across sectors can help reduce uncertainty, maximise synergies and minimise undesirable effects.

Currently, the debate on cross-sectoral linkages in forestry has tended to focus on those influencing deforestation in the tropics. However, many other important linkages affect a variety of forest functions. At the same time, the positive effects of forest policies on other sectors are often treated as external benefits rather than as part of a cross-sectoral dialogue. The multiple functions of forests and the positive effects of non-commodity outputs must therefore be carefully considered, both nationally and internationally. There are four main premises on cross-sectoral policy influences on forestry (*Broadhead, 2000*):

- External factors may have positive effects on forestry upon which it may be possible to enlarge.

- Forest policy may have positive effects on other areas that in turn will be conducive to the aims of sustainable forest management.
- Forestry policy may have negative effects on other areas that require rectification.
- Forestry may not constitute the most efficient use of specific land areas given other national needs.

Some examples of policies that may affect the forestry sector include public policies establishing institutional frameworks of a macro-economic nature, e.g. concerning privatisation, land use and tenure, infrastructure and trade. Public policies related to other sectors, e.g. fisheries, mining, agriculture, transport, energy, water, environment, technology, education, international development, etc., will also potentially affect forestry. On the other hand, forest policies will also affect other sectors of the economy and these effects can both be positive or negative.

Box 4. Interrelations between forest policies and other sector policies (*Broadhead, 2000*)

Faced with reduced government revenues and pressure from other SADC countries, Zimbabwe removed adopted macro-economic measures including the removal of subsidies on fossil fuels. The prices of these fuels rose sharply. As the poor urban and peri-urban dwellers could no longer afford kerosene for cooking and lighting, they were forced to use wood fuel. This had perverse effects on forests and trees around the major urban centres of Harare and Bulawayo. It resulted in increased rates of deforestation in local parks and peri-urban woodlands

In Mozambique, the government adopted a policy and legislation to support the rights of forest communities to manage woodlands and their products and also to impose taxes and levies. This has created a sense of ownership of resources and activities within the legislative control of the forest communities. It has prompted the government to pass regulations enabling communities to confirm land tenure. Thus a forestry inspired measure has had a wide impact on land use and land tenure.

4.3.1 Land use: Forestry vs. agriculture

The two dominant land use activities in Africa are forestry and agriculture, including animal husbandry. Forests and agriculture are integral parts of a land use 'continuum'. It is a complex model and one that varies between countries, regions and communities. There has been very little systematic work on the cross-sectoral linkages and the interactions in land use between forestry and agriculture in terms of policy and institutional issues. There is a good deal of anecdotal evidence and an increasing volume of analysis on the impact of policies on forestry and separately on agriculture, but there is very little work on how a policy and institutional framework can be established which provides for stable and sustainable land use, which promotes reasonable livelihoods and optimises the interactions.

The institutional arrangements for land systems management differ between countries. The responsibility for forests and forestry can be found in ministries of environment, agriculture, state, regional and provincial bodies, industry and wildlife. In most cases, very little inter-ministry coordination takes place. This is needed to promote and monitor sustainable development and improve an integrated approach to land management, and achieve a mutually supporting and reinforcing approach.

Many factors have led to interactions between forestry and agriculture. Population pressure has led to more conversion of forest land to agriculture. In some countries agricultural development has led to the establishment of large scale farms, ranches and irrigation systems resulting in forest clearance. Most of these interactions have been viewed to be negative. In a few cases, agricultural land has been converted to forests, especially private owned plantations.



Plate 1. Clearing forests for agriculture in Tanzania



Plate 2. Fragmentation of land for agriculture in Kenya

4.3.2 Land tenure and land reforms

According to *Scherr and White (2003)*, insecurities about forest tenure and restricted forests access are the most binding constraints to development and expansion of local business and conservation initiatives in Africa. Customary land tenure remains the most important system through which people manage and gain access to land and other natural resources in Africa. Governments have translated customary tenure to mean government trust land.

Land tenure systems have implications for the management of forest resources. Decentralisation and devolution of forest management to local authorities and local communities must be accompanied by commensurate rights for them to work. In Ethiopia, land tenure has been singled out as the single most important factor in natural resource management, environmental degradation and fire use. The country is currently losing about 200,000 ha of forest annually as a result of forest fires (*World Rainforest Movement, 2002*). The key, according to the Ethiopian Forest Authority, is to transfer the state rights on forest land to communities who will then have a greater incentive and responsibility to care for the land and the forests. Both smallholders and traditional land laws need to be considered in the management of incentives for better management of forests. Most governments in the region however have not had the political will to introduce land reform policies because of the politics of ethnicity and the complicated nature and sensitivity of land reform.

Box 5 Land tenure and forests in Tanzania (*FBD, 2000*)

The Tanzania 1999 Land Act and Village Act state that all land in Tanzania shall continue to be public land and remain vested in the president as trustee for and behalf of all citizens of Tanzania. The Acts provide for the use and occupation of land through the system of right of occupancy. The state grants right of occupancy under 3 categories; general land-administered by the commissioner of lands, reserved land-under statutory or other bodies and village land-administered by the village council.

Reform of land tenure systems is needed, but it must be based on a refined understanding of the socio-cultural conditions and local politics of individual countries. An improved land tenure system would bring about land security and could encourage investment in forests, promote higher land productivity and reduce the rate of secondary forest degradation. Land reform policies are necessary and timely, but will only be successful with a participatory approach to land tenure reform.

4.4 Political and institutional changes

Political and institutional changes in Africa fundamentally influence natural resource use. The last two decades have witnessed profound changes, and the shift towards more democratic governance is very much evident. The process of democratisation has enhanced the roles of several actors, especially communities, farmers, industries and, more importantly, civil society organisations. In forestry, the impact of these wider political and institutional reforms has been largely through:

- Decentralisation and devolution of administration and community participation in resource management;
- Private sector involvement – both large industries, farmers and small-holders – in managing forest and tree resources; and,
- Civil society organisations – especially national and international organisations – taking an active role in issues relating to forest and other natural resource management.

Of course, the pace of political and institutional changes is often uneven and in some cases conflicts and wars continue to afflict the situation with a number of negative consequences.

4.4.1 Decentralisation

National governments and international organisations are increasingly favouring decentralisation of authority and resources to local governments and communities as a means of fostering development. A World Bank study in 1999 estimated that more than 80 percent of all developing countries and countries with economies in transition were experimenting with some form of decentralisation (*Manor, 1999*). *Agarwal (2002)* estimates that about 60 of these countries are decentralising some aspect or other of natural resources management.

Under decentralisation, power is transferred from central governments to institutions and actors at lower levels of political and/or administrative authorities and to communities. There are several rationales for decentralization of resources; increased efficiency and equity in development activities, local institutions having a better understanding of local needs and aspirations; local institutions can be held more accountable to local populations.

Box 6. Examples of policies and legislation promoting decentralisation of forest management.

Decentralisation of forest management in Cameroon (*Oyono, 2002*)

In 1994, Cameroon passed a new legislation that divided forests into permanent (protected areas, council forests and forest concessions) and non permanent (community and private) forests. The Cameroon decentralisation model is built on three fundamentals:

- The potential of villages to create and manage community or village forests
- The potential for local governments to constitute and manage council forests
- The potential of village communities situated within or bordering logging sites to which they have traditional rights to have access to the profits generated from them through a decentralised forestry taxation system. This tax is shared between the central government, the state and the local councils on a ratio of 50:40:10. In addition, there is a village eco-tax made to the village as compensation for cutting rights.

Decentralisation of forest management in Tanzania (*Dallu, 2002*)

In 1998, the government of Tanzania approved a revised national forest policy with one of the main objectives being to create an enabling environment for the development of the forest sector by decentralizing responsibilities for forest management to local communities, district councils and promoting greater involvement in forestry of the private sector and civil society.

In 2002, a new Forest Act was enacted by parliament that provided procedures through which local communities and individuals can manage forests under the community based forest management approach.

In line with these decentralisation policies, many countries have amended their legislation to empower local authorities and lower government levels to manage natural resources (see examples in *Box 6*). The implementation of these policies and legislations has, however, been very slow partly because of a lack of political will causing reluctance by environmental ministries and central governments to transfer power to local authorities. Some of the countries with examples of devolved authority over natural resource (mainly forests and wildlife) management to local communities include Cameroon, Tanzania, Zimbabwe, Namibia, Botswana, Malawi and Uganda.

The results of these decentralisation systems have been mixed, with successes reported in some while others have disappointing results. It is important to note, however, that most of the analysis of decentralisation has focused more on the processes, and analysis of the outcomes and impacts on community livelihoods and forest management have only been generalised. This is illustrated by the following analysis of the decentralisation process in Cameroon.

Box 7. Perceived benefits of decentralisation

In Cameroon the decentralisation of the forest policy has empowered the local communities. This empowerment is, however, only symbolic since communities do not have a lot of voice in the management and use of revenue from the decentralised tax system. Decentralisation has improved the channels of communication between local communities and the technical services of the Ministry of Forests and created a dynamic interaction between all the actors in the forestry sector. The mere fact that decentralisation has been attempted in Cameroon not only in terms of legislation but also in practice is in itself an achievement.

Other reported benefits of decentralisation of forest management to communities include increased awareness of management issues, funding for local infrastructure, community organisational development, new alliances, political empowerment, greater visibility and technical and managerial capacity building at local council and community levels (*Conyers, 2002; Oyono, 2004; Shackleton et al., 2002*).

There are still many questions on the role of decentralisation, the key ones being whether it has worked for local people and whether it has led to more sustainable management of forests. Some studies of local people's perceptions of decentralisation indicate that devolution policies have yielded only limited benefits for them. Although local people have had increased access to consumptive resources from forests, the financial benefits have fallen short of expectations. In cases where there have been considerable financial returns, institutional mechanisms have not been in place to ensure equitable distribution of these resources to communities and communities have not been part of the decision making process on how to use these resources. The example of the CAMPFIRE project in Zimbabwe, where councils did not remit the 50% as required by law to the communities, illustrates this (*Conyers, 2002*). Central governments have also retained disproportionate shares of the revenue. For example, in Cameroon 50% of the revenues are retained by the central government, 40% by the local councils and only 10% to the communities (*Logo, 2003*).

Social problems such as the capture of benefits of decentralisation efforts by elite groups have been reported in some cases in Uganda, Zimbabwe, Mali and Senegal (*Larson, 2002; Muhereza, 2002; Mandondo and Mapedza, 2002; Oyono, 2002*). The absence of strong institutional structures at the local level has led to domination by local vested interests and decision-making processes being taken over by small elite groups. In a study of local council and community management committees in Cameroon, it was found that only 10% of committee members of the local community management committees had been elected through democratic competitive elections while 43% were self appointed, 20% were appointed by consensus and 27% by vertical co-option and statutory appointment (*Oyono, 2004*). This system of representation does not create institutions that defend the interests of the communities.

In Cameroon, *Oyono (2004)* argues that the decentralisation of forests has not had beneficial ecological benefits. The main reason for this is the absence of internal arrangements geared towards ecological sustainability. The primary concern of local councils and communities is to reap financial benefits from forests. Most of them are therefore in favour of rapid logging and the concept of sustainable management does not feature prominently. Most of the communities are signing contracts with timber companies to harvest timber for processing and export since this brings faster and higher financial results.

Box 8. Recommendations on democratic decentralisation of natural resource management

For decentralisation to work and lead to improvements in natural resource management, there have been recommendations of basic issues and principles that need to be taken into account. Some of these are;

1. **Work with local democratic institutions** and foster local accountability by a) working with and building on elected local governments where they exist, b) insisting on and encouraging their creation where they do not exist, c) encouraging electoral processes, d) applying multiple accountability measures to all institutions and making public decisions, e) assure accountability of local organisations, f) create opportunities for pluralistic decision making by establishing platforms for discussions, debate and planning, and g) support the building of democratic organisations that are representative, accountable and transparent.
2. **Transfer of sufficient and appropriate powers.** Governments, donors, NGOs and research community need to develop environmental subsidiary principles to guide the transfer of appropriate and sufficient powers to local authorities.
3. **Transfer powers as security rights.** To encourage local institutions and people to invest in new arrangements governments should use secure means to transfer powers to local authorities. Secure transfers can create the space for local people to engage their representatives more effectively. Transfers made as privileges subject the local communities to the whims of the allocating authorities and agencies. Governments should promote flexible approaches rather than tightly worded contractual agreements and create clearer property rights at local level.
4. **Support for equity and justice.** Central government interventions may be needed for redressing inequities and preventing the elite from capturing public decision-making processes. An enabling environment needs to be established for organizing representation, rights and recourse so that local people can demand government responsibility, equity and justice.
5. **Give decentralisation time.** It needs to be planned adequately. Aspects of management and its devolution need to be understood as well as the social and institutional issues within communities that can support decentralisation. After implementation, decentralisation needs to be given enough time to stabilise and bear fruit.
6. **Support local civic education.** Governments, donors, NGOs, local authorities need to play a greater role in informing the local communities, write laws in clear language, make these laws accessible and translate legal texts into local languages to encourage popular engagement and local government responsibility. It is critical for people to know their rights and responsibilities.
7. **Develop indicators for monitoring and evaluating** decentralisation and its outcomes. By developing and monitoring indicators of progress in decentralisation legislation, implementation and outcomes can be evaluated and provide needed feedback that could keep decentralisation initiatives on track and accompanying this with rigorous research.
8. **Build capacity** in technical skills, marketing, organisational development, communications and political mobilisation. Areas that need particular attention are those dealing with local inequalities and exploitative social relations, addressing inter community problems and opportunities, balance between sustainability and exploitation for financial gains.

Sources: *Ribot, 2003; Shackleton et al., 2002*

4.4.2 Private sector

One of the important institutional development in the recent years is the greater role assigned to the private sector. Forestry has historically been a largely public sector pursuit. Political and institutional changes are altering the situation, although the extent to which forestry has been commercialised and privatised varies. In many cases the task of managing production has been entrusted to parastatal bodies, but overall control still vests with the government. Inefficiency of parastatal bodies have often justified outright privatisation of plantations and wood processing.

In the decentralisation debate there has been an assumption that communities or community organisations will function as monolithic entities. Institutional analysis, however, highlights the conflicts that occur between social individualism and the collective action or collective entity that is the community or organisation. Decentralisation has focused more on the administrative transfer of responsibilities from the central government to local authorities and communities without much effort in understanding the institutional and social dynamics within these communities. In some cases, like Cameroon, the interests of women and the youth have been taken over by elites and older men. Women and the youth have not been involved in either the decision-making on the use of the forest resources or revenues (*Oyono, 2004*)

The bigger debate of whether decentralisation and devolution lead to sustainable management of African forests is still unanswered. In many cases there is little evidence to show this. This is mainly because the institutions to which governments have decentralised powers for managing forests do not always have the capacity and the resources. Even under centralised management, forestry institutions are extremely weak and decentralisation is not usually accompanied by strengthening the capacity of local institutions or communities. In some cases, governments do not want to let go. They have decentralised administrative aspects but not the political and fiscal aspects of forest management to local governments and communities. In such cases decentralisation has not necessarily led to improved management of the resources.

An important problem relating to private sector involvement in forestry is the absence of a thriving indigenous private sector. Logging, transport and processing is thus often dominated by foreign companies. Most private sector involvement is focused on areas or activities that yield immediate benefits, especially logging. An exception is the industry managed plantations, especially in Southern Africa, where there is a strong linkage between wood production and processing.

There are some indications of growth of the private sector in forestry. In particular in many countries (for example Kenya and Ghana) private farms and homesteads are becoming an important source of wood supply. Industry-community partnerships, especially through out-grower schemes, are becoming an important source of wood supply to industries. Unleashing the potential of private sector however depends on:

- Providing stable policy, institutional and legal frameworks and a level playing field;
- Removal of restrictive rules, especially relating to harvesting and transport of forest products; and,
- Removal of other market distorting measures like administrative price fixation.

Most countries in Africa have to go a long way to create a favourable policy and institutional framework to facilitate greater involvement of the private sector. Often conditions are such that unsustainable forest management becomes a low cost option and there are strong incentives not to adopt sustainable forest management.

4.4.3 Increasing civil society involvement

Civil society organisations, including national and international NGOs are increasingly influencing issues relating to natural resource management in Africa. The recent award of the Nobel peace price to the architect of the “Green Belt Movement” in Kenya highlights the global recognition of NGOs and in particular the strong linkages between world peace and environment. NGOs continue to play a major role in strengthening forestry through building the capacity of local communities to manage forests, building institutions, linking communities more with forestry departments, increased public awareness by disseminating values, principles, and information. They have helped finance organisations and studies to develop conservation and management strategies that can be used by local people in developing countries (see example in Box 9). NGOs have established partnerships with companies for the sustainable harvest of timber and have monitored these operations.

NGOs have essentially been playing the role of facilitators in bridging the gap between forest dependent communities and the forest departments catering so far primarily to sociological aspects of development projects. International organisations on the other hand have been instrumental in forestry research on the continent (see example in *Box 10*), promoting forestry education, institutional and capacity building.

Box 9. The World Wide Fund for Nature

The WWF was created in 1961 as a global conservation organisation, which has since then expanded to a network in over 90 countries. Within WWF's broad campaigns for global conservation, there is a sector devoted to forest issues called the "Forests for Life Programme." The programme uses a three pronged approach - protection, management, and restoration. The programme has been working to combat illegal logging and forest crime, conversion of forests to plantations, and climate change. The WWF currently spends US\$40 million each year on over 300 forestry projects and commits itself to high level of policy work. The WWF heavily contributed to the development of the Global Forest and Trade Network, an alliance of responsible NGOs and companies, to help create legal timber markets. Another WWF project, Forest Landscape Restoration (FLR), works to form partnerships with governments and private companies to work to improve water quality, connect forest fragments and create corridors for wildlife in several developing countries. WWF is also working with governments to identify economic and environmental implications of trade policies.

World Wide Fund for Nature, 2004

Box 10. CIFOR in Southern Africa

CIFOR is in this part of the world in response to concerns about social, environmental and economic consequences of forest loss and degradation. In addressing these issues, CIFOR operates through a series of decentralized partnerships with key institutions and/or individuals throughout the region. The nature and duration of these partnerships is determined by specific research problems being addressed. More specific reasons for working in this region include:

- The region's high ecological and biodiversity significance and exposure to rapid or sustained disturbance or clearance.
- Home to millions of people who depend on forests for their livelihoods and well-being. This emphasizes CIFOR's philosophy of seeking policies and technologies to ensure that full value of forests accrues to the poor people in the tropics.
- Despite the significant and varied forest resources in these countries, there is need for CIFOR to join national, regional and other international institutions in addressing the capabilities for this region to develop and manage the capacity for research and technology transfer, which are in themselves powerful tools for achieving sustainable management of forests.

CIFOR Regional Office for Eastern & Southern Africa

4.4.4 Wars, conflicts and the refugee crisis in Africa

More than any other continent, Africa has been affected by ethnic conflicts and wars with more than 20 civil wars since 1960. Conflicts in Africa have many roots - the ethnic, religious, cultural and linguistic diversity, and the colonial legacy that subdivided the continent with undue regard to this diversity. The struggle between different groups to control wealth and resources, as well as poverty, human rights violations by governments and the proliferation of arms in African countries, are other causes of conflict. Most of the civil strife in Africa is within countries but in some cases wars cross borders. Mechanisms for the control of these conflicts have been weak and this has led to some wars to persist for years. Wars and conflicts in Africa have caused untold economic, social and environmental changes. In conflict areas, food production has been difficult and at times impossible; the result being food shortages and famines. The conflicts have also resulted to millions of internally displaced persons and refugees on the continent.

The effects of wars and conflicts on forests and forestry can be described in two ways:

- *Direct effects of war.* Exploitation of forest resources by illegal logging and other associated practices has been reported in countries in conflict such the Democratic Republic of Congo and Liberia as well as extensive

uncontrolled mining in forest areas. In a few cases, there has been destruction of forests and trees by burning during conflicts using what is commonly referred to as the scorched earth policy.

- *Indirect effects of war.* During wars, food production is abandoned leading to reliance on nature and by extension forests. There is also a lack of systematic management of forests during wars due to displacements of both local populations and forest workers, diversion of resources to humanitarian operations and general instability. Displacement of large numbers of people as refugees also leads to natural resource degradation including the destruction of forests as found around refugee settlements.

The refugee crisis in Africa is largely an outcome of conflicts. At the end of 2000, there were 3.6 million refugees in Africa (UNHCR, 2001). In most cases, when refugees move to other countries, they are settled in fragile eco-systems thereby exerting considerable pressure on natural resources. It is true on one hand that large number of refugees may lead to environment degradation and especially when these refugees settle in fragile lands, in big numbers and for a long time. Activities of refugees cause serious environmental degradation (see *Box 11*). Such activities include the collection of shelter material, cutting of trees for firewood, hunting for game, and the conversion of woodlands to farming plots. In most cases, the concern of such refugees is their own survival and not the protection of the environment or of resources.

Specific initiatives in countries with large numbers of refugees, like Tanzania (see *Box 12*), have, however, reduced the amount of natural resource degradation and unsustainable use of forest resources.

There is awareness throughout the continent and within the international arena that for economic growth to be realised in Africa, these conflicts have to be resolved. There are initiatives from both within and outside the continent to resolve some of these conflicts. However, as long as the conflicts are present, the destruction of forests will continue.

Box 11. Refugees and environmental degradation (UNHCR, 2001; UNEP, 2000)

In the early 1990s an estimated 20 000 ha of woodlands were cut each year in Malawi to provide firewood and timber for camps hosting Mozambican refugees

In the Democratic Republic of Congo refugees were removing some 800 tonnes of timber and grass each day from a park. About 113 km² of the park were affected of which 71 km² were completely deforested

In December 1996, more than 600 000 refugees from Burundi and Rwanda were camped at in the Kagera region of Tanzania. They consumed more than 1,200 tonnes of firewood every day resulting in a total of 570 km² of forest land being affected, of which 167 km² were severely deforested. In Ngara District alone, refugees also put 15 000 ha of natural land into cultivation.

During the war in Sierra Leone and Liberia, 600 000 refugees fled to Guinea. In 2000, UNEP made an assessment of the impact of the refugees in Guinea on the environment. The report found that both rural and urban areas were impacted by the refugees. In the rural areas where the refugee camps were located, increased demand for food crops led to the conversion of natural land and forest areas for agriculture.

Box 12. Environmental management in refugee camps in Tanzania (UNHCR, 2001)

During the refugee crisis in Rwanda, about 600,000 refugees moved into the Kagera region (see also *Box 11*), Ngara district of Tanzania. Considerable damage was caused by refugees harvesting firewood, building poles and poaching. UNHCR and its local partners established a range of projects to improve the situation. These included the introduction of fuel saving stoves, marking of trees for protection around the camps, and producing tree seedlings.

A fully-fledged environmental programme was also initiated with refugees and the local people that included large scale firewood supply, tree seedling production, environmental education, agroforestry, and soil stabilisation. More than 1.5 million new trees were planted, improved cooking stoves were adopted by 85% of the refugees and wood harvesting was reduced by more than 60%.

4.4.5 Governance, corruption and illegal activities

An important consequence of weak democratic institutions is poor governance and the associated corruption and the proliferation of illegal activities in the forest sector, which undermines the economic viability of resource use. Some examples of illegal activities in the forest and forestry sector include illegal occupation of forest lands, illegal logging, illegal timber transport, trade and smuggling, transfer pricing and other illegal accounting practices and illegal forest processing. The forest and forest industry sector is more susceptible to illegalities and corruption for various reasons as indicated below:

- Forest activities often involve large areas and take place in remote places, far from public scrutiny, media and official controlling agencies.
- In forest rich countries, forest resources are valuable but timber volumes and quality are not always known with precision.
- Forest departments grant broad discretionary powers to local forestry officers.
- Government officers are frequently on low pay, unsupervised and oversee high value products over large areas.
- Large number of regulations and permits generate additional opportunities for corruption.
- Penalties for corruption are quite minimal compared to the gains from corruption.
- Forests are placed under different ministries, some of which lack full appreciation of the relevance of the resource, hence allocation of inadequate resources for its development and management.

Corruption in the forestry sector is a critical problem facing the sustainable management of forests resources. According to *FAO (2001)*, there is reason to believe that forest crime and corruption are serious problems that conspire against countries' efforts to establish systems of sustainable forest management. Although it has been more widely reported in forest rich countries (see *Box 13*), corruption and illegal activities are also widespread in forest poor countries such as Uganda (*Muhereza, 2003*).

Box 13. Corruption in Cameroonian Forests (*Kambeba, 2002*)

Corruption represents one of the greatest dangers to sustainable management of forests in Cameroon. The Centre for Environment and Development estimates that illegal timber accounted for about 45% of the country's total timber production in 2000. Conservatively estimated, the value of that illegal timber was about \$200 million. Almost three quarters of Cameroon's forests have either been logged or allocated as future logging concessions. By some estimates, logging at current rates will exhaust Cameroon's forests within the next 15 years.

The country has adopted two new anti-corruption measures - establishing the "independent forestry control observer" and the Commission for the Award of Forestry Exploitation Permits.

In addition to contributing to unsustainable management of forest resources, corruption deters and therefore reduces long-term investment in forest because of the risks involved in such corrupt environments. With decentralisation and community participation in forestry management, a new form of illegal activity characterised by extortion has become predominant. This involves forestry officials extorting money from local communities to allow them access to forests to collect firewood and other products even when such access has been granted to them by law (*FAO, 2001*).

There have been successful attempts to combat illegal activities and forestry corruption by streamlining policy and regulatory frameworks and involving other stakeholders such as the private sector, NGOs, and the public in such efforts (see example in *Box 14*).

Box 14. Efforts to deal with corruption in Ghana (FAO, 2001)

In the 1990s, Ghana faced a forestry crisis. With increased demands for timber from Asia, the country was faced with massive illegal extractions. The country tried the imposition of export taxes, export bans, and mandatory inspections of forest guards, logging permits and transport permits without much success.

The government then involved farmers, forest owners, industrial operators, transporters and others. The forest owners took the first initiative to support the government and others then joined in. As a result, logging was substantially reduced.

4.5. Technological changes

Technological advances have greatly improved the way forests are managed and utilised. These have led to improvements in wood processing, better adherence to environmental standards and improved productivity through the application of tree improvement and biotechnology. Also, there has been a significant increase in the number of species used. Developments of processing technologies have led to the increased use of non-wood forest products and increasingly the chemical and genetic characteristics are becoming more important than physical characteristics. Developments in information technology, transportation and biotechnology application to improve productivity have all in one way or another changed the forestry sector.

The extent to which Africa is adopting and benefiting from such technology is, however, varied (see *Box 15*). Most of the technological advancements have been reported in Southern Africa and within the private sector as opposed to the public sector.

Box 15. Application of biotechnology in forestry in South Africa and Kenya (FABI, 2003; ISAAA)

FABI (The Forestry and Agricultural Biotechnology Institute) was established in 1997, based on a recognition that the future of Forestry and Agriculture in South Africa will depend strongly on the incorporation of new technologies into these industries. Opportunities for forestry and agriculture that have emerged in recent times from the application of various biotechnologies are immense, and almost beyond imagination. The primary objectives of FABI are;

- To promote the broad field of plant biotechnology through an interdisciplinary approach and with close linkage to a wide range of academic departments.
- To undertake research of the highest possible calibre, while at the same time providing short and longer term benefits to the Forestry and Agricultural sectors of South Africa.
- To establish partnerships with Industries linked to Agriculture and Forestry, both nationally and internationally, to produce new and improved products and thus to promote competitive trading.
- To promote the education in the fields of Forestry and Agriculture.

There have been advances especially in the use of tissue culture technology for trees.

In Kenya, the International Service for the Acquisition of Agri-biotech Applications (ISAAA) has launched an ambitious project to increase the production of multipurpose trees through the use of tissue culture. The project is addressing the needs of the poorest, some of who spend much of their time collecting firewood, and is also strengthening the capacity of Kenya's R&D by integrating biotechnology with the conventional tree propagation methods already in use. Due to the improvements brought about by tissue culture (early maturity, vigorous growth, higher yields) the demand for trees has increased. The project had demands of 300,000 *Grevillea robusta* seedlings (Kenya's most popular multipurpose tree) between February and April 1997.

Despite the great social, economic and environmental diversity in countries of SSA, forestry research issues and advances are quite similar. This is partly influenced by historical facts relating to forest resource ownership and

management. In most countries, governments own and manage forest resources. Forestry research institutes in many countries are very tiny departments or units tucked under huge ministries or agricultural research organisations. Their visibility, much less their effectiveness in that position is barely significant, because of poor staffing and funding.

Efforts to restructure the forestry sector, and also allow for growth of some of its sections, saw research and development become components of government forestry departments. Forestry researchers (except in a few instances and countries), as well as their colleagues in development, continue to be on government payrolls irrespective of the amount and quality of, and demand for, their output. With time, these two sub-sectors have become so autonomous in some countries to the extent that many related institutions, like universities, rarely link their plans effectively with one another or with forestry developments.

The capacity to address present day forestry and related research problems is dispersed in several institutions and does not always reside in the traditional forestry research institutions and university forestry faculties and departments. There is a need in many countries to come up with strategies to consolidate and mobilise this capacity. At present, forestry institutions have demonstrated increased ability to interact with relevant national institutions, but the level of interaction between them and universities, where most of this capacity (human and equipment) resides, is low.

There are also problems of capacity mobilisation. Measures to reduce government spending as part of economic reforms have led to reduced or complete halting of staff employment in many government departments. In forestry research institutions the reforms continue to constrain recruitment of young researchers. Consequently, SSA is experiencing a serious imbalance between young and less experienced (but trainable researchers) on one hand, and well-trained and experienced researchers on the other. As the latter group gradually retires from forestry, moves to greener pastures or assumes more administrative responsibilities in and outside the sub-sector, there will be no adequate and suitable replacements. There is, therefore, an impending vacuum of forestry expertise.

Research, development and extension remain compartmentalised in many countries, and rarely does research feed into development and vice versa. For example, forestry research institutions in Central and West Africa allocate less than 10% of their budgets on interactions with user groups of their research results, while in the SADC countries few institutions allocate more than 20% of their budgets and staff time to extension activities. The universities are even weaker in this respect. And yet the universities have the bulk of qualified researchers. The low interaction with users of research results raises questions on the relevance of research undertaken by many research institutions in SSA, as well as how they identify and prioritise research programmes. Further, research institutions rarely have mandates to carry their results further, for example by wide dissemination to relevant stakeholders or mobilising resources and testing some of their findings on the ground or through processing. They rarely forge any meaningful business-oriented partnerships with potential stakeholders who might also carry their results further. The dilemma facing the SSA forestry sector is that of achieving effective linkages between research ‘suppliers’ and those whom the research results are intended to serve.

The re-alignment of African nations away from centrally planned economies, and with the state holding a major stake in forestry, to market economies with many government functions decentralised to the private sector and local communities creates another major challenge to forestry research institutions. The previous situation of an almost guaranteed funding of forestry research by government as well as employment of research professionals is fast disappearing. New stakeholders in forestry as well as new clients for research are emerging. There is a need to work out mechanisms to capture research demand and assign responsibilities to the various organisations involved. Participation of the private sector must be given space. A clear picture has yet to emerge as to how these stakeholders can be mobilised for effective research funding. In response to declining financial support for research and unattractive salary levels one can now witness how publicly-funded researchers attempt to supplement their incomes with consultancy contracts and, similarly, how institutional research agendas increasingly are driven by external funding, all of which raises the question of who researches for the poor local communities.

4.6 Growing awareness of environmental issues

Another important factor influencing the development of the forest sector is the greater awareness of the environmental functions of forests and the demand from certain segments of society to give priority to them. This has led to the following responses:

- Setting aside forests and woodlands exclusively to fulfil protective functions, for example national parks and other protected areas.
- Incorporation of environmental concerns in the management of forests and plantations, especially through the use of criteria and indicators for sustainable forest management and the system of certification.

These demands are particularly arising from a wide range of stakeholders, both national and global. With the increasing awareness of issues like climate change, there are also efforts to assess the potential of carbon sequestration, and the potential of African forests to provide such global public goods.

Undoubtedly the more widely known environmental function of African forests is as a refuge for the rich fauna and flora. One of the main strategies in this regard is the establishment of protected areas. The extent of protected area in Africa is about 210 million ha (*UNEP, 2001*).

Table: Protected areas in Africa

Region	Number of sites	Area (million ha)
Southern Africa	673	97.97
Eastern Africa	208	41.74
Central Africa	70	33.09
Western Africa	126	29.38
Northern Africa	56	7.91
Western Indian Ocean region	121	1.27
Total Africa	1254	210.76

Protected areas have played a significant role in:

- Ensuring the survival of large variety of species.
- Providing natural resources such as firewood, fodder and meat which can be sustainably harvested.
- Providing recreational space and generating funds through tourism.
- Providing valuable ecosystem services such as soil conservation, watershed protection, etc.

During the early days of forest management, policies were often based on protectionist approaches. These policies have continued in many African countries. From the beginning, there have been tensions between local inhabitants who have depended on harvesting natural products such as wood, meat and medicines from areas that have been appropriated for protected areas. Coupled with this is the human-wildlife conflict in areas adjacent to protected areas. An example is found in Kenya where efforts are under way to construct an electric fence around the Aberdare National Park to keep the animals in the parks and communities out of the park.

Box 16. Conservation policies - protecting the rhino population in the Aberdares.

The Aberdare National Park was created in 1950 to protect the forested slopes and moors of the Aberdare Mountains. The park has earned nearly Sh26 million in revenue every year for the past two decades. Some 62,000 tourists visit it every year.

Encompassing some 767 square km of uninhabited forest and moor-land, the Aberdare Mountain Range is the largest complete and natural eco-system left in Kenya today and is a perfect rhino habitat. The goal of the electric fence is to establish a high security, fenced and guarded 'sanctuary', both to protect local farmers from damage by rhino and elephant and, more importantly, to stop human encroachment and poaching within the forest habitat.

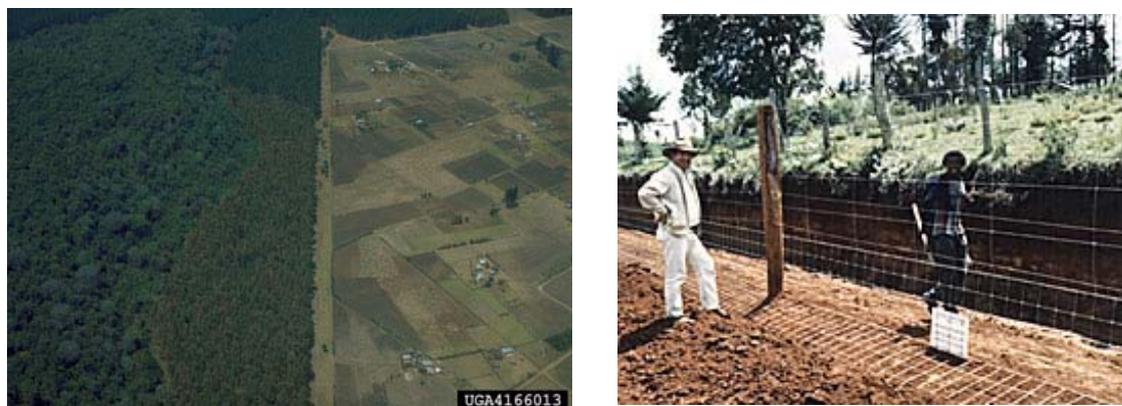


Plate 3. Protected area in Kenya and an electric fence around the Aberdare National Park.

Other key challenges in the management of protected areas are the low investments in park management in Africa and institutional arrangements for the management of these parks. Low numbers of inadequately trained and remunerated staff poses a big threat to the management of protected areas. Most of the protected areas in Africa are managed by parastatal organisations such as the South Africa National Parks Board and the Kenya Wildlife Services. These parastatals are today under increasing pressure to show profitability and may, in the long run, neglect less profitable activities and give more attention to commercially attractive options such as tourism. The effectiveness of protected areas is, however, being enhanced through recognising and encouraging new approaches, such as community based management through ensuring security of tenure for rural communities over their land and resources and providing training and technical assistance to rural people in the field of natural resource management.

One of the main income earners from protected areas has been tourism, which is one of the important contributors to GDP in Africa. Africa's share of global tourism has also increased, though with recent world security developments, it is difficult to predict what will happen in the future. With this growth and the trends in the management of protected areas, one of the key emergences will be the sharing of benefits with communities. This has already happened in some countries where communities are managing wildlife resources.

Box 17. The CAMPFIRE programme in Zimbabwe (Conyers, 2002)

One of Sub Saharan Africa's attempts to devolve control over wildlife management is the Communal Areas Management Programme for Indigenous Resources (CAMPFIRE) programme. The programme was conceived as a means of addressing the increasing conflicts between people and wildlife in the communal areas bordering national parks and other protected wildlife areas. The conceptualisation provided a win-win situation whereby local communities would benefit from wildlife and in turn they would be more inclined to conserve it. Because of this dual policy objective of conservation and community benefits the programme has attracted a lot of attention. CAMPFIRE has had a lot of positive benefits including increased awareness of wildlife issues by communities, funding of community development projects from revenues and acquisition of knowledge on wildlife management. CAMPFIRE has however not been without problems. It has been felt that the programme has not generated adequate incomes for the local communities to compensate for the wildlife damage. The institutional framework within which the programme has operated has not been well developed and issues of lack of financial transparency in the management of the programme have been raised. There is also debate on whether the programme has led to any impact on wildlife conservation.

5.0 FORESTRY IN THE GOVERNMENTAL STRUCTURE

Since public sector is the dominant player in forestry, it is important to consider the overall status of the sector in the governmental set up and how forestry is dealt with in national development plans and programmes.

5.1. Placement of forestry in government ministries

In most countries in Africa, forestry units and departments exist within other ministries. For example, in Cameroon, Zimbabwe and Kenya, forestry is found in ministries combined with environment, in Burkina Faso with water resources, in Ghana with science and technology, in Mozambique with agriculture and in Tanzania with tourism. In other countries it is combined with land, natural resources or fisheries. Over the past two decades, many countries have put in place a wide range of new laws and regulations. One unfortunate result of the commitment to strengthen environmental protection measures has been a significant fragmentation and duplication of authority and responsibilities. For example, in Zimbabwe ten different ministries administer an estimated 20 environment-related laws, while in Botswana eight ministries are responsible for applying 33 environmental laws (*SADC, 1998*). The situation is further complicated in countries such as South Africa where responsibilities are shared by central and regional authorities (*DEAT, 1996*).

5.2. Forest policies in Africa

Forest governance and forest policies have broadened in many countries to not only include concerns for forests as timber sources or land banks for development but to a concern for a wider range of forest goods and services and stakeholder needs. There is widespread consensus that sustainable forest management requires good policies. But what are good policies and how can they be put in practice?

Initial forest policies focused on timber as the main concern in forestry policy. The focus on environmental concerns, non-timber products and the roles of other stakeholders were not emphasised. Timber was seen as a vehicle to development and forestry was purely a matter of technical activities to be carried out without interactions with people, communities or other stakeholders. Later, policies started embracing the multifunctional and multi-stakeholder dimensions of forestry, thereby recognising other uses of forests and forest products and the many stakeholders with interests in forests. Current policies in many countries demonstrate a very clear shift in emphasis from previous ones. There are significant shifts from:

- Emphasis on management of plantations of exotic tree species to one on better management of natural forests.
- Centralised forest ownership and management to decentralised, devolved, and joint management and ownership.
- Forestry practice revolving around tree and forest management to forestry as rural development or as integrated land management.
- A heavily service oriented forestry practice to sustainable profitable forestry.
- Heavy emphasis on exports of industrial round wood to increased emphasis on meeting a myriad of domestic socio-economic and ecological needs.
- Forestry as largely a male activity to one that effectively incorporates women as partners.
- A very localised or national focus to a much broader one that even considers sustained production of international public goods.
- Policies that were out of tune with political and socio-economic realities of the time to ones that are in tandem with prevailing circumstances.
- Intra-sector oriented policies to ones involving or embracing many relevant sectors of the economy.

- A diffused or unclear environment for policy implementation to an enabling one that is very clear on many strategies to employ, including financial incentives, legal provisions, empowerment, rights, roles and responsibilities for major stakeholders (*Kowero et al., 2001*).

6.0 PRODUCTION AND CONSUMPTION OF FOREST PRODUCTS

Africa's forests produce a wide range of products including round wood, wood fuel, wood based panels and non-wood products among others. The forest industry in Africa operates mainly in the informal sector that lacks coherence and statistics making it difficult to have adequate and reliable information on total forest products, especially non-wood forest products and wood fuel.

The statistics for 2000 show that Africa accounted for 30% of global wood fuel supply, 1.8% of sawn wood, 1.1% of wood based panels, 0.7% of fibre board and 0.9% of paper and paper board (*FAO, 2003*). From these figures, it is clear that Africa has very little industrial capacity for its vast forest products. Most of the production of industrial round wood is in South Africa's plantations and from natural forests in West and Central Africa.

The consumption of round wood in Africa is greater than the global average while that of processed products such as printing and writing paper and wood based panels is almost ten times lower than the global average (*Table 2*). This would suggest substantial potential increases in demand, especially with increased growth of income.

Table 2. Per capita consumption of forest products in 2000

Product (m ³)	Africa	Asia	South America	North America	Europe	World
Round wood	0.876	0.281	0.972	1.589	0.783	0.554
Fuel wood	0.796	0.210	0.535	0.325	0.154	0.291
Industrial round wood	0.080	0.072	0.436	1.264	0.629	0.262
Sawn wood	0.013	0.019	0.074	0.386	0.165	0.070
Wood based panels	0.003	0.014	0.026	0.132	0.088	0.032
Printing paper (kg)	1.8	8.0	10.0	68.0	42.0	16.0

Source: *FAO, 2003a*

Woodfuel is the most important source of domestic energy in Africa. The production of fuel wood and charcoal accounts for over 90% of the wood harvested in Africa (*Outlaw-Gardner and Engelman, 1999*). At aggregated level, wood fuels share an estimated 60% to 86% of African primary energy consumption, except in North African countries and South Africa, where the wood fuel contribution is less significant. Moreover, wood fuel accounts for 90 to 98 % of residential energy consumption in most of SSA. The demand for fuel wood and charcoal is driven primarily by growing numbers of rural and urban poor, who depend on wood for their cooking and heating needs. The conventional view is that, as incomes rise, countries shift toward the use of commercial fuels, such as kerosene, natural gas, and other fossil fuels, and reduces their dependence on biomass. Yet, trends to date suggest otherwise - it appears that, even with economic development, wood fuel use may not necessarily decline significantly in SSA.

There is currently debate on the main sources of wood fuel, i.e. whether it comes primarily from natural forests, planted forests, trees/shrubs outside forests or trees on farm. Regional studies in Asia indicate that as much as two thirds of wood fuel worldwide probably comes from non-forest sources. Woodlands, roadside verges, and backyards

are alternative sources for collecting wood fuel; residues from logging, wood industries, and tree plantations; wood recovered from construction waste; and waste packaging supplement other non-forest sources (*RWEDP, 1997*).

The rate of tree planting for fuel wood is quite varied in Africa. The percentage of planted forests in Africa is quite low at 6.7% compared to 64.2% in Europe and 43.6% in the Americas. Within Africa, some countries have higher rates of forest tree planting than others. Mali has 39% of trees planted outside forests as agroforestry; Ethiopia has rates of forest tree planting of 2000 ha per year and Tunisia 14000 ha per year (*World Rain Forest Movement, 2002*). Despite this, there is now increased use of forests for fuelwood, especially around urban centres where there is increased demand for wood fuel and not enough land for on farm tree planting or forest planting.

In most of rural Africa, charcoal burning has also become an important income generating activity for the rural and urban poor and migrants as demand for fuel has increased in rural areas and small urban centres. This has increased the loss of forests.

7.0 SUMMARY AND CONCLUSION

The previous sections have highlighted various factors that have an effect on, or that shape, the forest sector in Africa. These range from demographic factors to institutional factors, climatic factors, societal factors and political factors. In Africa, because of the complexity of these many factors leading to economic, political and social difficulties, the forestry sector has had difficulties in achieving sustainable management. These obstacles affect the efficiency of both the forestry authorities and the wood industry in general. Although many countries in Africa have agreed on paper to conventions of biodiversity and forest preservation, principles of sustainable forest management are not applied in reality.

Due to the high dependence on forests for livelihoods and basic goods and services, such as wood fuel, fodder, non-wood forest products and as potential expansion land for agriculture, forest utilisation is maximised often without due regard to sustainability. This is compounded further by the exploitation of forests usually by large foreign companies holding concessions with undue regard for the sustainability of their practices.

Most governments lack the funds and technical know-how to implement sustainable forest projects. The dual problems of forestry institutions - the low budgetary allocations and loss of staff - hamper efforts to co-ordinate forestry activities in most African countries. Most funding for forestry projects comes from external sources making it difficult for countries to coordinate these projects to achieve sustainability.

The tremendous debt obligation of most countries in Africa is a great challenge to sustainable forest management. In many countries, the fastest and easiest way to service debt and interest payments is to exploit their natural resources. Equally challenging is poverty. A lot of forest cover is lost by subsistence activities on a local level by people who simply use the forests as a means of survival. Large commercial enterprises sometimes depend on forestland. Hundreds of thousands of hectares are sometimes destroyed to pave way for commercial agriculture, irrigation projects and infrastructure development such as roads and pipelines.

Logging is one of the best known causes of forest loss. In keeping up with demand for tropical wood products, logging companies have stepped up logging activities especially in poor developing countries. Although logging can be carried out in a sustainable manner, many countries in Africa give large concessions to companies which carry out their work for maximum economic benefits and little regard for sustainability. Most of these concessions are short term giving companies less incentives to conserve and use the forests sustainably. Corruption compounds the problem when government officials may be "persuaded" to accept that companies neglect basic principles of sustainable forestry, even if these are written into concession agreements.

Wars and conflicts have played their part in the destruction of forests in Africa. Although there have been positive results of wars on forests such as in Liberia where wealthy businessmen that previously exploited the forests ran away from the country, wars more often than not have negative consequences for sustainable forest management. The influx of refugees into often-fragile ecosystems, their dependence on forests for fuelwood and building material has had negative consequences for forests in some parts of Africa.

There are, however, also positive trends that are occurring in the forestry sector. The decentralisation of forest management, though it has its own problems, provides an opportunity for streamlining forest management,

distributing benefits and control of forests to the wider community and local authorities therefore proving incentives for these groups to sustainably manage forests.

Forest governance and forest policies have broadened in many countries to include concerns for the multiple uses of forests including environmental and hydrological concerns and the multiple stakeholders in the forestry sector.

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