



*A report prepared for the project*

## Lessons Learnt on Sustainable Forest Management in Africa

# AFRICAN FORESTS AND FORESTRY: AN OVERVIEW

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March 2004



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## **African Forests and Forestry: an overview**

**by**

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**(March 2004)**

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## INTRODUCTION

The global concern on the declining state of tropical forests and its impacts on societal welfare are also reflected in the discussions relating to African forests, especially in view of the rapid rate of forest loss in the region and its multifarious consequences. Loss of forest cover and degradation of land and forests in Africa are important topics discussed at the national, regional and global levels. International processes, especially the IPF/IFF and UNFF have drawn global attention to the need for adopting sustainable forest management. Historically, much of the emphasis of forest management has been on the production of wood and wood products. Increasing awareness of the importance of forests in the provision of global public goods, especially carbon sequestration and climate stabilisation, conservation of biological diversity and protection of watersheds has helped to focus attention on the need for wider adoption of sustainable management of forests and tree resources.

As in the case of other regions, the society–forest relationship in Africa also remains highly dynamic and there is a whole range of interventions resulting in multifarious outcomes with differing consequences on society and forests. While some of the interventions have led to “win-win” outcomes, others have been “lose-lose” situations. Experience from these interventions, spread over several countries, provides valuable lessons helping to fine-tune future efforts. It is in this context that the project “Lessons Learnt on Sustainable Forest Management in Africa” was initiated as a joint effort of the Royal Swedish Academy of Forestry and Agriculture, the African Forestry Research Network and the Food and Agriculture Organisation of the United Nations.

The main objective of the project, “SFM in Africa” for short, is to analyse successes and failures of past forestry interventions and to help to identify lessons that will be of wider relevance and possible adoption with appropriate modifications. This has been done by analysing case studies focused on two broad areas namely, (a) forest policy processes and institutions, and (b) management of forest resources. The main themes dealt with under these two broad areas are as follows:

### *Forest policy processes and institutions*

1. Forest administration
2. Community participation
3. African participation in international processes
4. Forest research and education

### *Forest resource management*

1. Management of humid tropical forests
2. Management of forest plantations
3. Production and trade of non-wood products
4. Forest management for environmental services, and
5. Forest-livestock interactions.

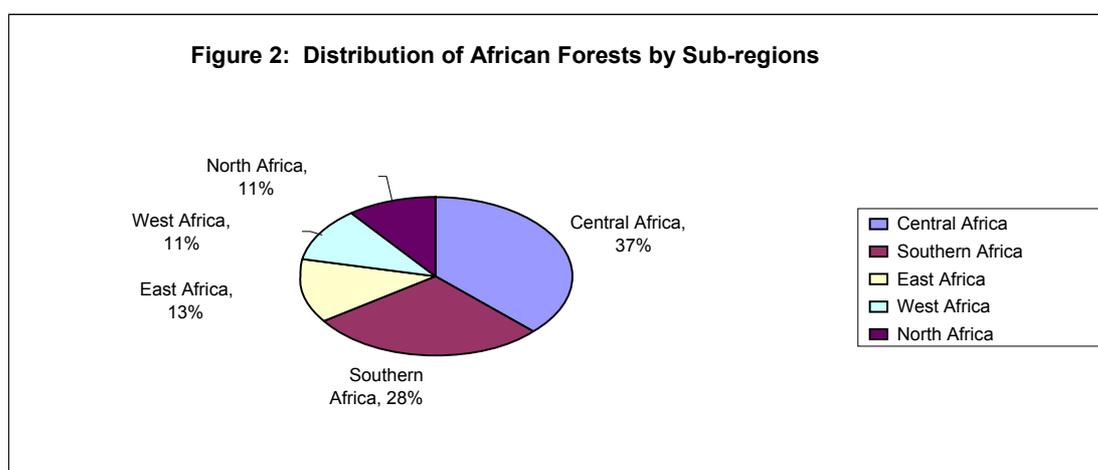
The main conclusions and lessons from these case studies will form the basis for a consolidated project document of which the following report will provide material for the introductory chapter on forests and forestry in Africa, and link the different studies.

Section 1 provides an overview of the state of forests, especially focusing on forest cover, distribution of forests and issues relating to production and productivity. Section 2 discusses the main issues relating to the production and utilisation of various goods and services from African forests. The impact of forestry in terms of its contribution to GDP and employment as well as in trade is discussed in section 3. Section 4 provides an overview of the political and institutional context of African forestry, particularly indicating the broad direction of change.

## 1.0 FOREST AND TREE RESOURCES: AN OVERVIEW

### 1.1 Extent and distribution of forests

Forests and woodlands cover an area of about 650 million hectares, or 21.8% of Africa's land area (FAO, 2001), representing about 17% of the world's forest area. An important feature is the uneven distribution of African forests and woodlands between the different sub-regions and countries (see *Figure 1*). The sub-regional distribution of forests is given in *Figure 2*<sup>1</sup>. Most of the forests in Africa are in Central and Southern Africa, while the proportion in West and North Africa is very limited. In terms of sub-regional forest cover, North Africa is the least forested with only about 7% of its land area classified as forests. On the other hand, Central Africa with 44% of the land under forests is the most forested sub-region.



As indicated in *Table 1*, eight countries accounting for about 16% of the land area of Africa has nearly 43% of the total African forests. All these countries have more than 50% of their land area under forests. At the other extreme are the 12 least forested countries with less than 5% of their land area under forests. Although these countries have over 30% of the land area of Africa, they only account for 1.5% of the total African forests. In terms of population distribution, the most densely populated countries are, not surprisingly, the least forested. For example, the most forested (accounting for about 43% of Africa's forests) account for about 11% of Africa's population. On the other hand the least forested countries (which accounts for about 1.5% of Africa's forests) supports about 26% of Africa's population. This uneven distribution creates significant imbalances in the demand and supply of forest goods and services and consequently the potentials and challenges as regards management of forest resources also differ.

### 1.2 Ecological features and productivity

Africa is characterised by extremely diverse ecological conditions, ranging from humid forests to deserts and from montane temperate forests to coastal mangrove swamps (FAO, 2003). Superimposed on this ecological diversity are varying degrees of human interactions, shaped by political and institutional arrangements, economic conditions, and social and cultural settings. These mixes of factors result in a dynamic landscape mosaic. African forests and woodlands form an integral part of this mosaic, but are undergoing continuous changes largely due to anthropogenic factors (FAO, 2003). A notable ecological niche worth mentioning in Africa is the Congo Basin, which is home to the second largest continuous block

<sup>1</sup> For the purpose of this document, the grouping of countries into sub-regions as adopted in the Forestry Outlook Study for Africa – FOSA (FAO, 2003) has been adopted.

of tropical rainforest in the world covering over 227.6 million hectares (FAO, 2001). This Central African region accounts for more than 60 percent of Africa's biodiversity and ranks first in Africa for many taxonomic groups in terms of species richness (Wilkie, 2001).

**Table 1: Distribution of forests in Africa**

Forest cover in %	Countries	Total forest ('000 ha)	% of total African forest	% of African population	% of total African land area
0-5	Algeria, Burundi, Comoros, Djibouti, Egypt, Ethiopia, Lesotho, Libyan Arab Jamahiriya, Mauritania, Niger, Tunisia, Western Sahara	9,597	1.5	25.7	30.4
6-10	Chad, Togo, South Africa, Saint Helena, Mauritius, Morocco, Namibia	33,202	5.1	10.8	12.8
11- 20	Eritrea, Nigeria, Rwanda, Sierra Leone, Somalia , Mali, Madagascar	48,892	7.5	21.0	11.9
21-30	Benin, Botswana, Burkina Faso, Cape Verde, Cote d'Ivoire, Ghana, Guinea, Kenya, Malawi, Reunion, Sao Tome & Principe, Sudan, Swaziland, Uganda	128,727	19.8	20.0	16.8
31-50	Central African Republic, Gambia, Liberia, Mozambique, Senegal, United Republic of Tanzania, Zambia, Zimbabwe	152,772	23.5	11.6	12.5
>50	Angola, Cameroon, Congo, Democratic Republic of Congo, Equatorial Guinea, Gabon, Guinea-Bissau, Seychelles	276,676	42.6	10.9	15.6
<b>Total Africa</b>		<b>649,866</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

Source: FAO, 2001.

Another key feature of the forest situation in Africa is the extreme variability of growing conditions and the consequent differences in biomass productivity. A major part of Africa is arid, so biomass productivity is very low. The differences in productivity have important implications for meeting demand for wood and other products and also for investment opportunities. In the Sahelian zone, woody biomass is as low as 4 tonnes per hectare, whereas in the tropical rain forests of Central Africa, it is as high as 200 tonnes per hectare. Moreover, the growth rate of the natural forest is quite low - about 1 to 1.5 m<sup>3</sup> of round wood per hectare per annum (Aruofor, 2000).

### **1.3 Forest cover change**

A key issue relating to forests and forestry in Africa is the rapid decline in forest cover as well as the degradation of what remains as a consequence of several factors. Between 1990 and 2000, Africa's forest cover loss has been estimated as about 53 million hectares, accounting for about 56 percent of the global forest loss. This accounts for an annual reduction of 0.8%, one of the highest rates globally. As shown in

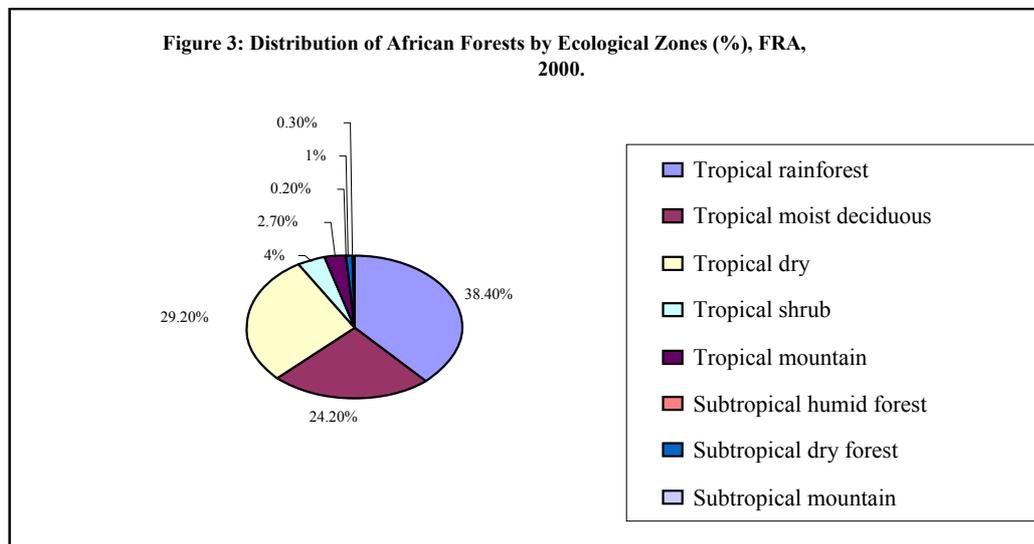
Table 2, there is considerable variation in net forest cover loss between the different sub-regions and countries in Africa. Most deforestation is accounted for by a small number of countries, often stemming from major shifts in policies or due to the inability to take effective steps to prevent forest encroachments. During the period 1990 and 2000, three countries, namely the Sudan, Zambia and the Democratic Republic of Congo accounted for almost 44 percent of Africa's forest cover reduction.

There have been several studies on the causes and consequences of deforestation in Africa. One of the most important causes is agriculture expansion. Between 1990 and 2000, African population has grown from 622 million to 798 million. Continued dependence on agriculture with very limited changes in technology has led to horizontal expansion of farming to meet the growing food demand. There are also other factors including logging, grazing, etc., which have contributed to forest degradation and depletion.

**Table 2: Forest cover change in Africa**

Subregion	Forest cover in 1990 (million ha)	Forest cover in 2000 (million ha)	Annual change (%)
North Africa	77.5	68.1	-0.94
East Africa	90.8	85.6	-0.52
Southern Africa	199.4	183.1	-1.62
Central Africa	250.1	240.7	-0.93
West Africa	84.7	72.2	-1.26
<b>Total Africa</b>	<b>702.5</b>	<b>649.9</b>	<b>-0.80</b>

Source: *FAO, 2003*.



#### **1.4 Natural forests and woodlands**

Of the 650 million ha of forests, about 98.8 percent is natural forests with the tropical moist forests and tropical dry forests forming the most important formations. *Figure 3* provides an indication of the different forest types. Africa's tropical forests represent 13 percent of the world's forest area and include rainforest, moist deciduous, dry and mountain forests, mainly in Central and West Africa. The subtropical forests are

primarily dry forest types, plus a minor extent of mountain forest, mainly in Northern, East and Southern Africa.

These forests have been subjected to differing degrees of interventions to fulfil a variety of objectives. Several models of resource use exist depending on the social, economic, political and institutional environment. Broadly two categories (with several variants) can be distinguished:

- In the case of tropical humid forests, productivity is high and most of these are under government ownership. However, in most cases the capacity to manage them sustainably is limited. Wood production is largely managed by private investors, in particular large concession holders. They also are critical in terms of their contribution to environmental services, especially conservation of biological diversity, watershed protection and climate change amelioration.
- The situation as regards the savannah woodlands (example the Miombo woodlands in Southern and Eastern Africa) is different. Although the productivity of these forests is low, they are subjected to intense human pressure, particularly due to the high population density. These forests provide a variety of products and services that are critical to the livelihood of local communities. The divergent demands from stakeholders contribute to the intensity of resource use conflicts. One of the major problems relating to these forests is ill-defined tenure, resulting in overexploitation. Increasingly, efforts are underway to transfer ownership and management to local communities and there are some notable successes in this regard.

#### **1.4 Forest plantations**

There are about 8 million ha are plantations in Africa, established with a variety of objectives including production of industrial roundwood, afforestation of degraded land, protection of the environment, increasing wood supplies, etc. Although globally there has been a perceptible shift towards sourcing of wood from plantations, in the case of Africa this is limited to a small number of countries, in particular South Africa, Swaziland, and Zimbabwe. Annual planting is estimated as about 194 000 ha, or 4.4% of the global planting rate. Some of the key features of plantation forestry (or planted forests) in Africa are as follows:

- Most plantations are in forest poor countries. For example, South Africa, Algeria, Nigeria, Sudan and Morocco account for about 52% of the plantations. Plantation programmes are rather insignificant in forest rich countries, especially as they depend on natural forests for most of the wood production and there is no incentive for establishing plantations in the context of easy availability of wood from natural forests;
- Plantations are established for several objectives. Industrial plantations account for about 42% of the total plantations and the rest are those raised for non-industrial purposes (41%) or where the objective is not clearly defined (17%).
- As in other tropical regions, the early phase of plantation development focused on high value hardwood species like Teak (*Tectona grandis*). Since the 1960s the emphasis has shifted to fast-growing species, especially eucalypts and pines grown primarily to meet the demand for industrial wood, particularly for the pulp and paper industry and wood fuel.
- The economic, social and environmental viability of forest plantations vary considerably. In a number of countries, plantations purportedly raised to provide raw material to industries remain neglected, largely due to the failure to develop the necessary processing capacity. On the other hand in countries like South Africa a globally competitive industry has developed entirely depending on plantations.
- Future expansion of industrial plantations in countries like South Africa – the foremost in plantation development - faces several problems, most notably the competing uses for water.

The report on plantations discusses the wide-ranging experience in Africa, outlines the opportunities and constraints and indicates the long term potential for plantation development.

### ***1.5 Trees outside forests***

In addition to the resources described above, extensive tree growth exists outside the forests – in farms, community lands, homesteads, etc. - catering to diverse needs of the population. Notwithstanding their importance, very limited information is available on the extent of these resources. In many cases trees form an integral part of the agro-ecosystem as in the case of the agroforestry parklands in West Africa. Broadly four categories of trees outside forests exist with differing dynamics.

- **Trees in communal lands.** Extensive, but most often scattered, tree growth exists on communal lands and there are several instances in which traditional systems of communal control have been effective in managing them sustainably. Largely these occur in situations where the population/resource ratio remains favourable. On the whole, as demand for products increase and alternative uses emerge, communal lands come under intense pressure resulting in the break down of traditional arrangements for resource management.
- **Trees in home gardens and other agricultural lands.** In several countries in Africa, particularly in the tropical humid belt, trees form an integral part of the farming system. Naturally growing trees are retained in the farms and often subjected to low intensity management to produce a range of products like wood fuel, fruits, gums, etc., often catering to subsistence needs and occasionally for sale to earn income. In general, these systems are relatively stable, especially in the context of well defined tenure situation.
- **Intensively managed woodlots.** In many countries land owners are taking up tree planting as a commercial activity in response to the increasing demand for wood and wood products. Especially when a ready market exists and when tenure and other policy and legal frameworks are favourable, such initiatives gain momentum. In fact, in some of the countries like Ghana and Kenya farm forestry is becoming an important source of wood supplies. This broad category of intensively managed woodlots include trees farmed by farmers based on their perception of demand and those cultivating trees with the support of forest industries, as in the case of the out-grower schemes in South Africa. All the indications are that such efforts are likely to expand, especially as land owners find tree-growing profitable alternative, especially in land with low opportunity costs.

Although there is considerable experience as regards the management of trees outside forests, this has received much less attention and the potential remain untapped. There is an urgent need to provide a better understanding of conditions that are necessary and sufficient to the success of such efforts.

## **2.0 BENEFITS FROM THE FOREST SECTOR**

In assessing the successes and challenges of interventions in the forest sector, it is important to consider the nature of goods and services derived from forests and how the different actors have intervened to enhance/alter the flow of these. Broadly, the goods and services obtained from forests can be grouped into the following:

- Wood and wood products, including woodfuel, industrial roundwood and the whole range of products derived from them.
- Non-wood forest products, which includes a wide range of items such as forest derived food, including bush meat, fruits and tubers, and other products like gums, resins, medicinal plants, aromatic plants, live animals and plants, etc.
- Environmental services such as conservation of biological diversity, climate amelioration, protection of watersheds, arresting desertification and land degradation, carbon sequestration, forest based tourism, etc.

The demand for the above goods and services vary depending on what socio-economic development stage the society is in. Local communities with low income often give high priority to meeting basic needs like woodfuel, medicinal plants, forest-derived foods, etc. In view of their resource limitations they employ low-input labour intensive technologies in production and processing. At the same time there has also been

an increase in demand for some of the products, especially in distant markets resulting in significant investments in logging and wood processing. Obviously, the technology employed for production for such markets tends to be capital and skill intensive. It is important to distinguish the different models of forest resource use and to assess their relevance – social, economic and environmental – to fulfil the objectives of management. An overview of issues relating to the production of various goods and services is given below.

## ***2.1 Production of wood and wood products***

One of the key features of the African forest sector is the very high share of woodfuel in the total wood produced and consumed. In 2000, Africa produced about 700 million m<sup>3</sup> of roundwood of which about 91% was used as fuel. *Table 3* below shows a comparison between Africa and other regions illustrating the differences in the level of consumption of different products.

**Table 3: Consumption of forest products in Africa in 2000 compared to other regions (m<sup>3</sup> per capita).**

<b>Product</b>	<b>Africa</b>	<b>Asia</b>	<b>S America</b>	<b>N America</b>	<b>Europe</b>	<b>World</b>
Roundwood	0.876	0.281	0.972	1.589	0.783	0.557
Fuelwood	0.796	0.210	0.535	0.325	0.154	0.291
Industrial roundwood	0.080	0.072	0.436	1.264	0.629	0.262
Sawnwood	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/writing paper (in kg)	2.0	8.0	11.0	68.0	40.0	16.0

Source: *FAO, 2002*

Although the above table is based on 2000 data, the situation has not changed in the recent years. Per capita roundwood consumption in Africa in 2000 was substantially greater than the global average and about three times that of Asia and higher than that of Europe. The main difference relates to the nature of wood products consumed. Almost 91% of the wood is consumed as fuel, whereas globally woodfuel accounts for about 53% of the consumption. Africa's consumption of processed products is much lower than other regions and this proportion declines sharply with increased degree of processing. Primarily this is a reflection of the low demand, largely reflecting the low purchasing power. A significant increase in the consumption of forest products, especially processed items could be expected in the event of a rapid economic growth. Some of the key issues relating to the production of wood and wood products and their trade are discussed below:

### **2.1.1 Woodfuel**

Fuelwood and charcoal accounted for about 91% of Africa's roundwood production in 2000. While the share of woodfuel in worldwide roundwood production has declined over time, this remains unchanged in the case of Africa and has sometimes even increased. Although woodfuel is the most important forest product for several countries, reliable statistics on its production, trade and consumption are not readily available. Most information is based on small scale consumption surveys. The dominance of the informal

sector makes it difficult to obtain reliable information on production and trade of woodfuel.

At an aggregate level the production and consumption of woodfuel is more or less in balance, although there are always pockets of deficit, especially in towns and villages far away from resources. This has often led to severe over exploitation and depletion, especially in the case of open-access resources with ill-defined property rights. The adverse effects of this have drawn global attention, especially in the context of the global energy crisis triggered by the increase in oil prices in the 1970s, resulting in a range of international responses to address the “rural energy crisis” or “fuelwood crisis” in Africa. Most of these interventions can be grouped into two broad categories namely, (a) those aimed to enhance the supplies and (b) those that attempted to reduce consumption either through enhancing energy efficiency or through encouraging substitution. A general indication of these interventions is given below:

- There have been substantial efforts to establish woodfuel plantations primarily through public sector investments, often supported by bilateral and multilateral agencies. While some of these plantations (for example in Ethiopia) have become important sources of woodfuel, there are also instances of failure on account of economic, policy and institutional factors. Getting all the necessary and sufficient conditions for success right has been extremely difficult. Consequently the share of woodfuel produced by plantations remains low, although no precise estimates are available. In general, most woodfuel is produced from natural woodlands with very limited investments in their management. Also a significant share of woodfuel comes from trees and other growth outside the forests. A key issue as regards woodfuel production is the absence of investments in management of the woodlands as a result of poorly developed markets. There are, however, some recent examples of farmers’ initiatives, especially in Niger.
- Demand reduction strategies have primarily focused on enhancing energy efficiency through the use of improved cook-stoves and encouraging substitution. Here again the performance of the different approaches have been patchy. Energy efficient stoves have found wider use in urban areas where woodfuel has to be purchased, whereas in rural areas with better access to woodfuel and other biomass, their impact have been rather marginal. There are also several other cultural and social aspects that impact the use of improved stoves. Substitution has focused on providing alternative fuels, especially kerosene, coal, electricity and liquefied petroleum gas (LPG). The effectiveness of such options is largely related to economic viability and more particularly ready availability of the alternatives. While several African countries have substantial fossil fuel resources, the access to these resources by rural poor people is often very limited. The main factors that determine substitution are relative prices of different fuels and the income of the households. In recent years, there are also a number of instances of reverse substitution. Market reforms and privatisation of energy supplies have increased the prices of commercial fuels resulting in a shift towards woodfuel, especially charcoal.

Notwithstanding these efforts, the woodfuel problem persists, although to some extent its importance in the agenda for donor support has diminished. Also, there has been a shift from technical interventions to those aimed to facilitate policy and institutional changes. Realisation that problems like woodfuel have to be handled at decentralised levels has led to efforts that enable the development of local markets and ensuring remunerative returns to those who grow woodfuel.

### **2.1.2 Industrial roundwood**

The production of industrial roundwood in Africa in 2000 is estimated as around 70 million m<sup>3</sup>, or less than 10% of the total roundwood production. Notwithstanding the weaknesses in data, two aspects are relevant in the context of industrial wood production:

- Imbalances in production in relation to population distribution; and
- Sub-regional shifts in production.

North Africa and most of East Africa face a wood-deficit largely on account of low productivity. As resource depletion continues and demand increases due to population growth, this situation is likely to worsen during the next two decades, increasing the dependence on imports. West Africa, once the lead industrial wood producing sub-region is expected to face a deficit, especially on account of the increasing

demand from some of the most populated countries, like Nigeria. Also the overall resource depletion arising from unsustainable management in the past influences the growing deficits. Central Africa and Southern Africa have already become the lead industrial roundwood producers, the former through a rapid expansion of logging of natural forests and the latter due to increased investments in plantations. It is thus important to assess the implications of industrial roundwood production through these two strategies, as also one of the emerging approaches, namely through farm planting.

**Industrial roundwood production from natural forests** has a long history and this is largely linked to the demand from external markets. Selective removal of high value species under shelter-wood systems were introduced nearly a century ago in several countries. Removal was limited to a small number of high value species and the low intensity harvesting at long intervals did not significantly affect the forests. However, several changes took place since the 1960s. While the intensity and scale of logging increased considerably in response to the increasing demand for wood, there were also other factors that undermined sustainability, especially on account of the increasing pressure on land for alternative uses. As access improved, there has been substantial diversion of forest land for alternative uses. This has been particularly the case with forests in several West African countries.

With the decline in wood supply and the increasing global demand for timber, Central Africa has become the new frontier for expansion of logging. There is considerable awareness of what may happen if the present trend persists and there are several ongoing efforts to improve the situation (see box). Whether these will succeed or not depends on the interplay of several factors - economic, political, institutional,

**Box: Forest concessions in DRC**

An example of some of the ongoing efforts to regulate logging is the adoption of the New Forest Code by the Democratic Republic of Congo. Since 2002, the DRC government has cancelled 163 concessions totalling 25 million hectares and declared a moratorium on the allocation of logging contracts pending the adoption of transparent procedures. As per the new Forest Code, 40% of the revenues will be redistributed to decentralised local bodies to support local infrastructural works.

Source: *World Bank, 2004a*

social and environmental. Learning lessons from the experience hitherto depends on how we are able to unravel the complexity of the various factors. There is a growing concern that the area under sustainable management remains very negligible in spite of efforts by various organisations in the past. There is also concern that income from such logging is not benefiting the majority of the people on account of poor governance and the widespread occurrence of illegal logging (*Contreras-Hermosilla, 2002*).

**Wood production from plantations** is increasingly becoming an important source of industrial wood supply, especially in countries where supply from natural forests is not available or has declined on account of past over exploitation. Globally, the share of plantations in industrial roundwood production has been estimated as about 30-35% and this is expected to increase, especially as more natural forests are taken out of production for environmental reasons and the technologies for industrial processing improve further.

However, it is difficult to provide an indication of the share of plantations in industrial roundwood production in Africa. As indicated earlier, about 42% of the plantations have been established specifically to produce industrial wood. For some countries, like South Africa, plantations account for most of the industrial wood production, enabling the emergence of a strong forest industry based entirely on plantations. Several countries have initiated plantation programmes to compensate for a declining wood supply from natural forests. As in the case of wood production from natural forests, several factors – economic, technological, social, policy, legal, institutional and environmental – impact the role of plantations in industrial roundwood production.

Several models of industrial plantations exist in Africa, with varying institutional arrangements for management. In general, private sector management linked to industrial processing (for example in South Africa and Swaziland) seems to have performed better than most government managed efforts. Plantations managed by industries have been able to respond effectively to market demands and have brought about significant improvements in plantation management, especially through better application of technological developments. On the other hand plantations managed by forestry departments suffer from a host of problems, including low levels of investments in management and the absence of strong linkages with the

processing sector. Some changes are noted in the case of those under more autonomous bodies with flexibility and independence in operations.

Wood produced through *tree growing on farms and other land* is emerging as an important source of industrial wood, especially as supply from traditional sources decline. Little information is, however, available on the extent of production from farms. Two broad models for farm-based industrial wood production predominate:

- In the first instance, land-owners are undertaking tree planting in response to increasing local demand for wood as reflected in higher prices. More importantly, this takes place in favourable policy environments, especially when impediments in growing, felling and transport of wood are removed. Often such tree planting is undertaken by absentee owners as a means of holding on to the land with minimal investments. The long term viability of this thus depends on policies and legislation including those relating to land reforms and the opportunity cost of land.
- The second type of farm tree planting is done by land-holders taking advantage of the support provided by industries as in the case of out-grower schemes in South Africa. More than the technical support, the industry provides an assured market by way of buy-back arrangements. As regards industry, this is a convenient arrangement, especially because it helps to reduce their direct involvement in plantation management and to spread the risks arising from economic and political changes. As such the land-owners also benefit through increases in income, although the long term prospects are critically dependent on continued demand from industry and price stability. It is yet to be seen how the model performs in the context of increasing global competition, especially as some of the main industrial entities globalise their operations and switch production between countries and regions in response to changes in their perception of competitiveness and profitability. There is also concern about the negotiating power of the out-growers and often supply from out-growers is used to cushion the fluctuations in demand.

#### **BOX: WOOD PRODUCTION FROM FARMS IN KENYA**

Wood production from farmlands and settlements, according to Kenya's Forestry Master Plan (1994), consists of 73% woodfuel, 20% timber and 7% poles. The amount of woodfuel available in farmlands and settlements in 2000 is estimated at 9 m<sup>3</sup>/ha (or a total of about 82 million m<sup>3</sup>). The farmlands and settlements are expected to provide more wood for fuel attaining of 15 m<sup>3</sup>/ha or a total of 155 million m<sup>3</sup> by 2020. *Mbugua, 2001*

### **2.1.3 Wood based industries**

Although Africa has a wide range of wood processing industries, the extent of development of these industries is extremely varied. With the exception of a few countries, like South Africa, the overall development of wood based industries is poor and most of it is still focused on primary processing, especially sawmilling. The proportion of wood processed domestically remains very low and a significant share of wood cut continues to be exported. Also several countries import industrial roundwood to support domestic processing industry. Some of the key features of wood processing industries in Africa are outlined below:

About 25% of the industrial wood goes to the *sawmilling industry*. In 2000, Africa is estimated to have produced about 7.7 million m<sup>3</sup> of sawn wood. A wide range of production systems exists, ranging from pit-sawing via small scale mills with just one circular saw operating only part of the time to well organised large scale modern saw mills producing for the export markets. Each of them operates in distinct niches with their associated economic and institutional environment and the attendant challenges relating to raw material availability, production efficiency and profitability. Some of the main problems faced by the saw milling industry are:

- Uncertainty of log supplies, especially as resources from easily accessible areas are depleted and more of the natural forests are set aside as protected areas. There are several instances of extremely low

capacity utilisation, especially among the smaller mills.

- Uncertainty of future operation discourages investment in modernisation of saw mills. Most units have outdated machinery, resulting in low recovery rates and as the supply of large logs diminishes, the industry must use smaller dimension logs and this requires substantial changes in machinery.
- With economic liberalisation, most urban consumers may have access to cheaper imported sawn-wood as is already the case of North Africa. This may further reduce incentives to modernise existing saw mills.

In a number of countries, incentives for local processing has resulted in the rapid expansion of saw mills often resulting in over-exploitation of forests. In several countries there is increasing pressure from the saw milling industry to enhance wood supplies, often resulting in an increase in illegal logging.

The **wood based panel industry**, producing veneers, plywood and other panel products like fibreboard, is another important forest based industry in Africa. In 2000, the total production of wood-based panels in Africa was about 2.0 million m<sup>3</sup>, most of it being produced in Western and Southern Africa and to a limited extent in North and Central Africa. West and Central Africa are important exporters. On the other hand, North Africa's production accounts for only 40% of the consumption, making it a major importer. East Africa also imports a significant proportion of its demand, largely because of the low levels of domestic production. Some of the important features of the production of wood-based panels in Africa are:

- Veneer production facility exists in several countries and is particularly concentrated in West and Central Africa, largely producing for export. In some of the countries, veneers sometimes account for over 80% of the exports of wood based panels. Panel production in comparison with plywood production is a low-investment industry and is often resorted to as a means of circumventing log export bans.
- Production of more processed items like plywood, hardboard, fibreboard, etc., is limited to a smaller number of countries, especially in North and Southern Africa. This is largely related to a market demand and also to the more favourable investment climate in some of these countries.

Increasingly, production of wood based panels is facing competition from more efficient producers outside Africa, especially Asia. Further, new quality stipulations, as in the case of CE marking, will have an impact on plywood exports from Africa.

**Paper and paper board production** is confined to a small number of countries, particularly in Southern Africa (primarily South Africa) and North Africa. In fact, South Africa alone accounts for almost two-thirds of Africa's paper and paper board production. A small quantity of paper and paper board is produced in West and East Africa, while Central Africa produces none at all. As in the case of most other industries, pulp and paper production in Africa in general can be grouped into the following:

- In several countries, pulp and paper production is in the public sector and often these units have been established with the purported justification of attaining self-sufficiency in the production of paper on strategic reasons. Many of these units are old, use out-dated technology, causes considerable environmental pollution and survives largely on account of subsidised supply of wood and other raw material inputs. Often their role in providing employment is emphasised as a reason for continued government support.
- On the other hand, there are private sector units that have been able to compete efficiently in the global market, producing paper and other products efficiently making appropriate technological adaptation to make them competitive. Mergers and acquisitions have enabled them to operate in a global market environment. As they enhance their efficiency through technological improvement, their ability to create employment declines. Further, these are extremely capital intensive investments with very low capital/labour ratios.

These two diverse models have differing impacts on the economic, social and environmental conditions in the countries.

## ***2.2 Non-wood forest products***

African non-wood forest products (NWFPs) include a range of products, such as gums, resins, honey, beeswax, medicinal and aromatic plants, dyeing and tanning materials, bamboo, rattan, bushmeat, fodder and a variety of forest-derived food items including roots, tubers and fruits. Although NWFPs play a major role in the rural economy of Africa, information on their overall contribution is limited. The relative importance of NWFPs in Africa varies considerably. In general, they can be classified as those used for subsistence consumption and those that have been commercialised. Broadly, the systems or models of production and utilisation of NWFPs can be grouped as indicated below:

### **2.2.1 Subsistence production and use of NWFPs**

This is by far the most dominant form of NWFP production. Most local communities are dependent to some degree on NWFPs as food, medicines and for production of household arte-facts. There are several local studies that illustrate the extent of dependence of local communities on NWFPs. For example, according to a household survey in the South Province of Cameroon, they account for 44 percent of household income and, among them, bushmeat occupies an important position accounting for 31 percent of household income and often much more than what is obtained from cultivation of cash crops like cocoa (*van Dijk, 1999*). Most such products used in subsistence consumption are free-access resources, although in some cases there is some amount of community control that help to prevent over-exploitation. The survival of subsistence-focused NWFP production depends on:

- Low human population densities and thus, even if it is a free-access resource, that the demand and removals are low, enabling adequate regeneration.
- Community control and regulations in many societies imposes restrictions on the quantity, type of products/parts to be collected and seasons for collection. As long as such restrictions are adhered to regeneration normally takes place preventing depletion.

There are still large areas where the above conditions are fulfilled enabling adequate supplies of NWFPs to local communities. Communal sharing of products also helps to reduce over-exploitation. However, as internal and external factors bring about changes in the demand for products and affects the supplies, depletion ensues unless more systematic management is adopted.

### **2.2.2 Commercialisation of NWFPs**

Different models of commercial production of NWFPs exist and they evolve in response to market demand. Broadly, the following categories of commercial production can be distinguished:

- Products collected from the wild, largely catering to either (a) domestic markets or (b) external markets.
- Domestication to meet demands from (a) domestic markets or (b) external markets.

As more people move to the cities, a large market has emerged for several products which were originally used for local subsistence consumption. This has been particularly so in the case of several ethnic food items, bush meat and medicinal plants. The economic, social and environmental underpinnings of this process are completely different from subsistence production and consumption. The system is largely dominated by a network of intermediaries and most often the market driven extraction results in over-exploitation and depletion. This has been particularly the case of bushmeat, whose increasing demand has led to decimation of wildlife in certain areas. Increased demand for some of the medicinal plants has also led to their over-exploitation. Bushmeat, which was largely used locally, has become an important product traded illegally to meet the demand from those who have migrated to cities and other regions.

There are also several items that are produced more systematically to cater to domestic and external markets. Some of them, like Gum Arabic in Sudan and other countries, have a long history of production and trade and often the system of cultivation, collection and trade has become an integral part of the local economy. The scale and intensity of cultivation however varies considerably. In countries like Sudan,

*Acacia senegal* is grown under agroforestry systems providing employment and income especially during the non-agriculture seasons. However, there have been problems related to viability of this, largely stemming from drought and decline in production and consequently the end-users are switching over to more reliable substitutes. In recent years, there have been increasing efforts to undertake cultivation of *Acacia senegal* on a commercial scale by private investors. The overall social and economic impact of this is yet uncertain.

One of the major issues relating to NWFPs is the extent of processing. In general, most are exported as raw products and value-addition takes place outside Africa. This is the case even with a product like Gum Arabic, which has been traded for over a century and what is being done at the most is to produce spray-dried gum. An important constraint in value addition as regards many of the NWFPs, including medicinal plants, is that they primarily form ingredients in other products, often in small quantities. Unless such processing industry develops – as in the case of pharmaceuticals, soft drinks, etc. – a significant proportion of non-wood forest products will continue to be exported in unprocessed form.

There have been some recent initiatives to add value through processing in the case of items like shea butter and marketing them within and outside Africa. Such products that have a potential market, however, have to comply with increasingly stringent phyto-sanitary regulations in Europe and North America. Compliance to these would require substantial investments in improving the processing technologies, packaging and certification.

## **2.3 Environmental services**

African forests are sometimes more valuable for the environmental services they provide, although in the absence of a system for valuation and their inclusion in national economic accounting, there is often much less recognition of their overall contribution. The range of environmental services provided is extremely diverse and primarily depends on the ecological and socio-economic setting. The most important of these are (a) conservation of biological diversity, (b) protection of watersheds and regulation of water flow, (c) arresting desertification and land degradation, and (d) climate stabilisation through carbon sequestration and storage. Some of the issues relating to the provision of environmental services are discussed below.

### **2.3.1 Conservation of biological diversity**

The role of forests in the conservation of biological diversity is well recognised and the economic benefits that Africa gets from its national parks and other protected areas has helped to draw considerable attention to this aspect. In fact, wildlife is one of the most important and unique natural assets of Africa, significantly contributing to the economies through income from tourism. Africa also has a wealth of experience with alternative approaches to conservation and management of wildlife with varying results. Some of the issues relating to conservation of biological diversity in general and wildlife management in particular are discussed below:

**Extent of protected areas.** Sub-Saharan Africa has approximately 8.5% of its surface area as protected (UN, 2003). These areas include forests as well as other ecosystem types. The extent of area under protection varies among the countries and sub-regions with East Africa having of the highest proportion with more than 10% of its area protected. In response to increasing concerns about protection of biodiversity including wildlife several countries have expanded the extent of protected areas, although this in itself is not sufficient to attain the desired results. More often an increase in area is not matched by increased investments in protection and management and consequently many parks are often regarded as “paper parks”.

**Management of protected areas.** Although most park management is in the public sector, several models have been tested in recent years, especially to address the problems stemming from ineffective public sector management. These provide valuable lessons, especially on their appropriateness under differing economic, social and environmental conditions and also on their replicability elsewhere. A key issue of management relates to institutional arrangements and the amount of resources made available for management of protected areas. A study by the World Conservation Monitoring Centre shows that Africa’s

investment in park management is the lowest in the world (*James, 1999*). The number of staff assigned to manage protected areas is low, an average of 8 persons per 1000 km<sup>2</sup> in West and Central Africa, 36 per 1000 km<sup>2</sup> in Southern and Eastern Africa and 60 per 1000 km<sup>2</sup> in North Africa.

A recent approach to protected area management is the establishment of transboundary parks that has been adopted to address problems associated with continuous forest blocks separated by international political boundaries. This is believed to have a potential efficient economic return on investment in biodiversity conservation. Between 1990 and 2001, the number of Transboundary Conservation Areas (TBCAs) in the world has more than doubled, to 169 in 113 countries including 667 individual protected areas. In Africa alone, there were 35 TBCAs involving 34 countries and including 148 individual protected areas (*Zbicz, 2001*, cited by *Wilkie et al., 2001*). In terms of area, TBCAs cover large tracks of protected areas in Africa - for example, 53% of the total of over 350,000 km<sup>2</sup> of protected areas in Central Africa is TBCAs (*Wilkie et al., 2001*).

Institutional arrangements for managing protected areas include (a) management by government departments as in the case of Botswana, Malawi, Uganda and Zambia, Ethiopia and Sudan, (b) more autonomous parastatal organisations like in South Africa (South Africa National Parks Board) and Kenya (Kenya Wildlife Service), (c) privately managed parks existing in a number of countries like South Africa, Zimbabwe and Kenya, and (d) community management as being followed in a number of countries especially Zimbabwe, Zambia, Botswana, Kenya, etc. All these alternative arrangements have attempted to address the various problems relating to parks management in different ways. Their viability and long term sustainability depends on a number of factors, particularly how resource use conflicts are addressed and how resources are available to effectively manage them.

Much of the problem of parks management relates to the sharing of benefits and, in particular, how the local communities perceive the conflicts between people and wildlife. In several countries, conflicts between people/cattle and wildlife become severe, especially during dry seasons when availability of water and fodder supply declines considerably. There is an increasing realisation that protected area management cannot be effective unless local communities are fully involved and gain substantial economic benefits. Initiatives like the CAMPFIRE programme in Zimbabwe provide some very important lessons, although these initiatives are not in themselves perfect and need to evolve and adapt to changing circumstances.

While national parks and game reserves fulfil a number of biological, scientific, cultural and social functions, their long term viability in a resource-scarce situation depends on their economic viability. As elsewhere, tourism, and to some extent bushmeat, are probably the most important direct economic benefits from Africa's wildlife. A key to the development of wildlife based tourism is infrastructure and perceptions of safety and security. Differences in this regard between countries explain the varying performance. Within Africa most tourism-related benefits accrue to a small number of countries with South Africa becoming the most important destination. In countries with limited infrastructure, there may be some potential for "adventure tourism".

**Box: Bushmeat consumption in Central Africa: Emerging Issues**

In Central Africa over 1 million tonnes of bush meat is eaten each year – the equivalent of 4 million cattle. A hunter can make US\$ 300-1000 per year – more than the average house-hold income for the region and comparable to the salaries of those responsible for controlling bush-meat trade. As demand for bush meat increases, more people will be encouraged to become involved in the trade, increasing the pressure on wildlife populations, threatening the survival of rare species.

*CARPE, 2001*

Bushmeat is an important source of nutrition and income for a large number of people, especially in rural Africa. As discussed earlier, subsistence consumption in general has a limited impact on wildlife, whereas with increasing commercialisation, e.g. to meet urban and export demands, long-term sustainability is undermined (see Box). No reliable estimates are available on wildlife stocks and sustainable harvest levels.

Most bushmeat production, other than organised culling and trophy hunting, takes place in the informal sector. Ever-increasing public access, use of highly destructive technology and the rapid spread of arms and ammunition are increasing the toll on wildlife hunted for bushmeat. There are, however, success stories of conservation as in the case of the mountain gorillas in the Virunga mountains, largely because of the end of conflicts and the development of a lucrative eco-tourism industry.

**Protection of biodiversity outside protected areas.** Although most countries in Africa (except Liberia, Libya and Somalia) are signatories of the Convention on Biological Diversity, their capacity to implement the convention and to provide effective protection to biological diversity is rather limited. The main problems relating to biological diversity conservation include the following:

- The inability to integrate the principles of biodiversity in all development activities - when an economic advantage, even short term, is foreseen, conservation considerations are relegated to lower priorities and “development” precedes everything else.

#### BOX: THE SHRINKING OF LAKE CHAD

Lake Chad and the Chari-Logone river system that transports 90 percent of the run-off generated in the area's basin are important water resources for the local population as well as that of N'Djamena. The lake is shared by Chad, Cameroon, Nigeria and the Niger. The warming climate and increasing desertification in the surrounding Sahel region has dropped water levels far below the average dry season level of 10,000 km<sup>2</sup> to only 1350 km<sup>2</sup>. Moreover, irrigation demands increased four-fold between 1983 and 1994, accounting for 50% of the additional decrease in the size of the lake. Regional officials have noticed the dramatic effect the shrinking lake has on its surrounding inhabitants.

- Most biodiversity protection is concentrated in protected areas and large extents of land, although containing rich biodiversity, are completely neglected. In the present circumstances, when most governments are finding it difficult even to meet the expenses of parks management, allocating resources for biodiversity protection outside becomes almost impossible.

**Potential for bio-prospecting.** One of the important economic benefits from biodiversity conservation stems from its potential for providing new products. With the rich African biodiversity and the extensive use of plant and animal products based on local traditional knowledge, one would expect a substantial increase in bio-prospecting. The potential of this has not been fully understood, and it will become critical to address issues relating to intellectual property rights and the rights to traditional knowledge. A lot will depend on (a) potential benefits as seen by bio-prospectors, (b) the sharing of benefits by the different parties involved, e.g. governments, local communities and bio-prospecting companies, and (c) the bargaining power of the local communities, especially in benefiting from their traditional knowledge (the right of which is spelled out, albeit in a vague way, in the Convention on Biological Diversity).

### 2.3.2 Protection of watersheds

Watershed degradation is a major problem in several countries largely stemming from inappropriate farming practices that enhance soil erosion and reduce infiltration. There is increasing recognition of the importance of watershed management in enhancing food security in Africa and land and water management is identified as a key pillar of the agricultural strategy in the region. Currently, 14 countries in Africa are subject to water stress or water scarcity, and the number is expected to increase by another 11 by 2025 (UNEP, 2000). Many urban areas are already facing acute water and power scarcity partly on account of the decrease in storage capacity of reservoirs caused by heavy siltation.

The major issues relating to forest-water linkages relate to (a) the hydrological role of forests in altering the quantity, quality and stability of water flows, (b) its valuation and (c) development of systems for compensation for payment of watershed services, especially by downstream users who benefit from watershed protection by people in the uplands to ensure the continued availability of such services. All these are extremely site-specific. For example, in South Africa afforestation/reforestation is regarded as a stream-flow reduction activity requiring payment of water charges for obtaining a permit for afforestation.

On the other hand there are instances where Municipal authorities are prepared to pay for protecting water catchments as in the case of the Aberdare forests, one of the most important sources of water for Nairobi. Similarly the forest complex of the Fouta Djallon highlands of Guinea, sometimes called as the “water tower of West Africa” is a key element in maintaining the water flow of the Niger, Senegal and Gambia rivers

### **2.3.3 Control of desertification and land degradation**

Desertification and land degradation are key problems facing several countries in almost all sub-regions of Africa. Although there is no evidence of long-term expansion of the Sahara desert, the periodic fluxes in climatic conditions aggravate the situation, undermining productivity of crops and livestock. The whole issue of control of desertification and land degradation concerns wider adoption of integrated land use within the frame of a coherent land use policy. However, social, political, institutional and economic factors impede the adoption of an integrated land use.

Substantial work has been done in several countries trying to arrest desertification, especially through protecting agriculture and habitations from shifting sand dunes and crop loss through desiccation. Most countries are signatories to the Convention to Combat Desertification (CCD). As in the case of watershed protection, desertification control is a cross-cutting issue, encompassing all other land uses, especially rain-fed farming and animal husbandry. Within the forest sector, much of the emphasis has been on afforestation and more particularly establishing shelterbelts and windbreaks to protect farms and habitations. Establishing green belts around cities is also popular, especially as urban populations demand better environment.

As in the case of other interventions, the economic, social and technical viability are critical to the success of desertification and land degradation control measures. Many of the initiatives require substantial investments, often beyond the capacity of individuals and local communities. More importantly, the benefits are public goods and cannot be appropriated by individuals. This makes it all the more important to provide substantial public sector support. However, most often resources available limit the involvement of the public sector.

There are several lessons that can be learnt from the current efforts relating to control of desertification and arresting land degradation. Specifically, these include:

- The technical viability and appropriateness of the approach in relation to ecological, social and economic settings.
- Policy environment in which such initiatives have been implemented and to what extent existing land use policies have facilitated and impaired them.
- Institutional arrangements for control of desertification and their relative performance under differing circumstances.
- Social aspects, especially how different segments of society perceive the problem and how their reactions to them differ.

### **2.3.4 Climate stabilisation and carbon sequestration**

Global climate change arising largely from the increasing concentration of green-house gases is a major environmental issue. While Africa is not a contributor to global climate change in view of its low level consumption, climate instability will have a significant impact on Africa, especially by way of affecting agriculture production. Forests are the most important terrestrial ecosystems that play important roles in sequestering and storing carbon. However, the scope of the Clean Development Mechanism under the Kyoto Protocol is currently limited to afforestation and reforestation and does not include conservation and improved management of natural forests. It is in this context that the potentials and opportunities of carbon sequestering initiatives need to be considered.

As such, the experience of carbon sequestration through CDM projects in Africa is very limited. It is

critical to understand the conditions under which such initiatives could provide substantial benefits. Specifically, the following aspects need to be taken into account:

- Availability of land on a long term basis, especially in high productivity areas taking into account the opportunity cost of such lands. In general, a significant proportion of land in Africa is in the dry zones with low productivity and hence unlikely to attract financial support in competition with more productive areas elsewhere. In the case of land in the humid zone, alternative uses are probably more attractive, especially under the currently prevailing carbon prices.
- Economic viability will be of primary consideration in forestry options for CO<sub>2</sub> sequestration. This is particularly the case in the more densely populated humid regions where the opportunity cost of forestry tends to be high. Net benefits that those implementing carbon sequestering plantations will get is unlikely to be high, especially in the context of limited funds and the dominance of a few traders who will be able to drive down the prices of carbon. This would make investment in carbon plantations less attractive to farmers and communities. Furthermore, in situations of highly fragmented holdings, the transaction costs of carbon plantations could be substantial.

It is therefore important to consider the benefits that Africa could derive from the current arrangements and the long term potentials taking into account the changing energy scenario and the technology for power generation. It would appear that only when conservation and sustainable management are considered eligible for CDM support that Africa could really benefit from carbon-sequestration support.

### **3.0 OVERALL IMPACT OF THE FOREST SECTOR ON AFRICAN ECONOMIES**

What has been mentioned above is the range of products and services from the forest sector, broadly grouped into (a) wood and wood products, (b) non-wood forest products and (c) environmental services. While these products and services cater to the needs of local, national and global consumers, the process of production also generates benefits to the owners of the resources (which include governments, concession holders, local communities, farmers, etc.) and others involved in production by way of employment and income. Part of the income accrues to low income groups – especially forest dwelling communities, farmers and others involved in forest-based enterprises – providing livelihood and thus helping to alleviate poverty. In view of the low incomes and the large proportion of population below the poverty line, it is important to take cognisance of the role of forests in poverty alleviation. Some of the issues in this regard are discussed below.

#### ***3.1 Income and employment***

One major limitation in making a realistic estimate of the forest sector's contribution to income and employment is that official statistics exclude a large segment of production falling in the informal sector. Recently, an attempt was made to compile the official statistics on value added and employment in all countries. According to this the gross value added by the forest sector (excluding the furniture industry) in Africa in 2000 is estimated at about US\$ 7.7 billion or approximately 1.5% of the GDP. Concerning employment, the formal sector accounts for only 0.2% of the total work force.

It is important to bear in mind that the actual contribution of the forest sector is significantly higher than what is indicated by the statistics reported in the national income accounts. A significant proportion of the wood products are not traded. In fact, the informal sector provides a substantial proportion of goods and services and is the foremost source of employment and income. Activities such as wood collection, charcoal production, pit-sawing, collection and trade of non-wood forest products and small-scale furniture production, etc., are critical to the economies in terms of providing employment and income. A recent study by the International Labour Organisation (ILO) "guesstimates" that the forest based informal sector accounts for 34 percent of the employment in the sector globally. Considering that the formal sector is much less developed in Africa in comparison with other regions, the proportion of employment contributed

by the informal sector could be substantial, and much more than the worldwide estimate provided by ILO.

The current system of national accounts has several limitations in fully accounting for the contribution of the sector as indicated below:

- Under-valuation of several forest products and hence the actual contribution to GDP is not fully accounted.
- Incorrect classification of wood based industries, which in many countries are grouped under manufacturing and hence their contribution to GDP is not included under the forest sector (see Box); this is also the situation with regard to income from forest-based tourism.
- Market imperfections in respect of several forest based services results in non-inclusion of their contribution in the national income statistics. This is particularly the case with services like watershed protection, control of desertification, protection of biodiversity, etc.

**BOX: EMPLOYMENT IN THE INFORMAL SECTOR IN TOGO**

In the forest sector, the public sector has a total of 800 civil servants (2.4% of the public administration personnel). The private sector employs about 1000 salaried staff. The informal sector provides about 90,000 jobs based on wood trade and processing, and more than 70% are estimated to be held by women". (*Koffi, 2000*).

Unfortunately, the forest sector's ability to argue its case based on reliable information and systematic economic analysis has been limited. Very few forestry departments have trained economists and analysts monitoring the sector's contribution and in the context of competition from other sectors the case of forestry remains extremely weak.

**BOX: UGANDA – FOREST SECTOR'S CONTRIBUTION TO NATIONAL INCOME**

"Earlier statistics indicated that the forest sector contributed about 2% of GDP. It is important to note that this figure is calculated from the value of wood production at the "forest gate"- without value addition. Wood processing, transport and trade are important economic activities in the forest sector, and constitute much of the value in the sector, yet this value in official statistics is accounted in the GDP contribution of the Manufacturing, Transport & Communications and Wholesale and Retail Trade sectors". (*Government of Uganda, 2003*).

### ***3.2 Forestry and poverty alleviation***

An important issues relating to forestry in Africa is its current and potential roles in the alleviation of poverty. Most studies suggest a worsening of poverty in sub-Saharan Africa. In 1990, the number of people in absolute poverty – living on US\$ 1 or less per day – is estimated at 241 million. By 2000, their number has increased to 315 million and, if the present trends persist, this is projected to increase to 404 million by 2015 (see *World Bank, 2004b*). Also forests will have to play a role in enhancing the supply of essential goods and services required by the poor and in improving incomes through increased employment. All the more so in view of the fact that poverty is particularly serious among people living in rural areas adjoining forests, where the opportunities for alternate sources of income are limited, increasing the dependence on forests. The situation is becoming worse in many countries on account of the high incidence of HIV/AIDS undermining the household human and physical capital (see Box).

**BOX: DIRECT AND INDIRECT IMPACTS OF HIV/AIDS ON FORESTRY**

- Drastic decline in resources – human and financial – leaving less for long term investments such as tree-planting.
- Increased dependence on forest products that can be collected easily.
- Loss of traditional knowledge.
- Shortage of skilled and unskilled labour, undermining all aspects of forestry including wood industries, research, education, training, extension and forest administration.
- Reduction in disposable income and possible reduction in demand for forest products.
- Increased costs to industry on account of absenteeism and higher bills for treatment.
- Reduced public sector investment in forestry, as most governments will have to devote more budget funds to health care and combating HIV/AIDS.

*FAO, 2003*

While forests and forestry could play an important role in poverty alleviation, in the context of limited resources, it will be important to demonstrate the case for forestry in comparison with investments in other sectors. As such, forestry is still not mainstreamed into the PRSPs (Poverty Reduction Strategy Papers) in most countries. Other than making generalised statements on the potential of forestry in poverty alleviation, no systematic efforts have been made to present a strong case. Here again the main weakness stems from the absence of capacity to undertake thorough economic analysis and to provide objective assessment of the potentials and limitations.

### ***3.3 Forest products trade***

#### **3.3.1 Exports of forest products**

Export of forest products is an important source of income for a number of African countries, especially in Central, Southern and West Africa. Between 1980 and 2002, the value of African forest products exports increased from US\$ 1.6 billion to US\$ 2.9 billion.

**Table 4: Change in Africa's share in global exports in different years (in million US\$)\***

<b>Products</b>	<b>1980</b>	<b>1985</b>	<b>1990</b>	<b>1995</b>	<b>2000</b>	<b>2002</b>
<b>All forest products</b>	1,571 (2.8)	1,021 (2.0)	2,073 (2.0)	2,574 (1.7)	2,760 (1.9)	2,921 (2.2)
<b>Industrial roundwood</b>	924 (11.6)	401 (8.2)	952 (11.8)	719(7.9)	899 (10.7)	940 (12.3)
<b>Sawnwood</b>	207 (1.7)	145 (1.4)	430 (2.5)	562 (2.3)	699 (3.0)	596 (2.6)
<b>Wood-based panels</b>	134 (2.6)	87 (1.8)	237 (2.3)	234 (1.4)	268 (1.6)	313 (1.8)
<b>Wood pulp</b>	214 (2.2)	224 (2.8)	314 (2.0)	488 (2.1)	486 (2.3)	378 (2.4)
<b>Paper and paperboard</b>	79 (0.3)	157 (0.7)	85 (0.2)	428 (0.6)	237 (0.3)	353 (0.6)

\* Figures in parenthesis give Africa's share in the total global exports of each of the product.

Source: *FAOSTAT*

During the same period, global exports of forest products increased from about US\$ 57 billion to about US\$133 billion, registering a much faster growth rate. *Table 4* provides an indication of the change in export earnings for all forest products and for the major items during 1980 and 2002.

Although the absolute value of Africa's exports of forest products increased, its relative share declined from about 2.8% in 1980 to about 2.2% in 2002. Sawnwood is the only item to register an increase in absolute value as well as in the share of global exports. What is interesting is that most of the exports originate from 9 countries in West, Central and Southern Africa, which together accounts for nearly 90% of the African exports in value terms. While these countries dominate the export scene, there have been major shifts in the relative importance of the different regions and countries within this group as indicated below:

- West Africa's share has declined significantly from about 51% in 1980 to about 24% in 2000. There has been an absolute decline in export earnings from about US\$721 million to US\$ 596 million, largely due to the steep decline in exports from Côte d'Ivoire.
- Central Africa's share registered a significant increase (from 32% to 45%) in view of the rapid expansion of logging in these countries, especially during the last one decade.
- A key development in the region is the emergence of South Africa as the most important forest products exporting country in Africa. In 1980, it accounted for about 17% of the share of the group of 9 countries and this increased to 32% in 2000.

### **3.3.2 Imports of forest products**

African imports of forest products have also registered an increase between 1980 and 2002, from about US\$ 1.8 billion to US\$ 2.2 billion. As is the case of exports, Africa's share in global imports remains a modest 1.6% of the global value of imports. Two important features of forest products imports are:

- Paper and paper products account for a major share of the imports. In 2000, it accounted for 53% of the African import bill.
- As in the case of exports, a small number of countries – in North Africa (Algeria, Egypt, Morocco and Tunisia), West Africa (Nigeria, Côte d'Ivoire and Senegal) and Southern Africa (South Africa) accounts for most of the imports. Primarily, this stems from the poor resource situation of many of the countries in North Africa which import a large quantity of industrial roundwood and paper and paper board.

### **3.3.3 Issues in forest products trade**

Much of the trade of African forest products has evolved in response to the demand from Europe and, more recently, Asia with a substantial share of investment in logging and wood processing emanating from these regions. To an extent this has led to opportunistic exploitation of resources and, as in the case of other areas, Africa has not been able to develop a concerted policy to take advantage of the changing opportunities based on a clear understanding of its comparative advantages. Africa is a net exporter of primary products, especially industrial roundwood and sawnwood. Almost all countries, except South Africa, are dependent on imports to meet the demand for paper and paper products. Most formal trade of Africa is with countries outside the region and there is very limited intra-regional trade.

A number of conclusions can be drawn from the above analysis relating to the future prospects of forest products trade. Largely this relates to how Africa is able to compete efficiently with other tropical timber producers within the African market and other major regions, especially Europe, the traditional African market, and Asia, the emerging market. However, in view of a number of factors, Africa's competitive ability is rather limited at present.

An important issue related to the future prospects of trade of forest products from Africa is the dependence of Africa on its natural forests. Except South Africa, most exports are based on logging in natural forests.

There is a growing concern about the sustainability of this approach, especially in the absence of an appropriate policy and institutional framework and in view of the limited investment in management. Experience from a number of countries indicates that high rates of logging cannot be sustained for long and more so in the context of increasing land use conflicts. Important options available to African countries include:

- Focus on the production of high value quality timber in limited quantities focusing on niche markets.
- Give increased attention to the production of NWFPs and the provision of environmental services; the main problem however is that the markets for environmental services are poorly developed and there are limits to the extent of benefits from the provision of such services.
- Switch over to planted forests as has been done by countries like South Africa.

Another key issue relating to forest products trade is the extent of intra-African trade in forest products. Considering geographical differences in the production and consumption of forest products and in the product mix, opportunities for trade within Africa should be explored. However, studies reveal limited formal trade between the region's main producing and consuming countries. *Table 5* indicates trade flows of important exporter and importer countries and shows that most imports are from Western Europe, with an increasing share originating in Eastern Europe and Asia.

**Table 5: Main sources of African importers (in % of value of total imports in 2001)**

Country	Western Europe	Eastern Europe and Russia	Latin America	North America	Asia	Africa	Others
<b>Egypt</b>	29.4	17.6	2.3	9.1	15.2	NS	26.5
<b>Morocco</b>	36.1	4.5	6.6	3.9	0.4	NS	48.6
<b>Nigeria</b>	42.7	18.4	12.4	3.3	17.7	NS	7.8
<b>Tunisia</b>	69.8	9.1	NS	2.0	0.1	NS	20.7

The destination of African exports follows a similar pattern. For example, Belgium, Italy, France, Netherlands and United Kingdom together accounted for more than 57% of the value of Cameroon's exports in 2001. Other emerging export destinations include countries in Asia where China is particularly important for Gabon and Equatorial Guinea. Promoting intra-regional trade requires addressing several constraints relating to investments, infrastructure and institutional problems.

In the ultimate analysis, economic fundamentals will decide the direction of trade and the ability to compete in the global market place through the efficient production of goods and services. Most exporters would target countries that could pay a competitive and attractive price while importers would look for cheaper sources of supplies. As trade barriers decline, competition will intensify and, as already evident, the wood industry in Africa could even lose its domestic market share to imports.

#### **4.0 POLICY AND INSTITUTIONAL ISSUES**

Undoubtedly, the most important set of factors impacting forests and forestry is in the realm of policy and institutional changes, both within the forest sector itself and outside in other sectors and the economy as a whole. In fact, what is happening in forestry is largely determined by cross-sectoral issues, largely outside the realm of forestry. Of particular importance are the following:

- Decentralisation and devolution of administration and increased emphasis on community participation.
- Changes in forest administration, especially through the establishment of more autonomous boards and

commissions.

- Increased role for private sector in forestry production and processing. This has led to privatisation of public-owned commercial enterprises, including forest industries and plantations in many countries.
- Increasing role of civil society – especially national and international non-governmental organisations - in influencing forest resource management, particularly through their advocacy role and through direct involvement in forestry initiatives supporting community participation.
- Global changes, especially stemming from demands from the wider group of stakeholders concerning the provision of global public goods as reflected in various international arrangements including treaties and conventions.

All these changes are taking place against a backdrop of major political, social and economic changes, particularly the process of globalisation resulting in closer integration of the economies. And, as in the case of other regions, the differing impacts of globalisation is mirrored in the impact of the various changes even in the forest sector. Some of the issues relating to the ongoing changes in policies and institutions are summarised below.

#### ***4.1 Devolution and increased community participation***

Devolution of administrative responsibilities to sub-national entities and increased emphasis on community participation is one of the major policy and institutional changes in the forest sector. Some authors consider this as an important turning point in forestry, resulting in the emergence of a new era (*Alden Wily, 2000*). Participatory approaches have been under implementation in some countries for over two decades and continue to be a key area of international support. It is important to take stock of the situation, specifically addressing the following:

- To what extent have participatory approaches enhanced the welfare of the local communities and did they facilitate improved management of resources?
- Has there been real empowerment of the communities?
- What are the factors that influence the pace of the process and to what extent can it be influenced by the forest sector?

#### ***4.2 Reform of forest administration***

Another major line of institutional change relates to forest administration. Most countries have up to now had a highly centralised hierarchical forest administration primarily operating on the basis of an annual budget allocated by government. In the context of broader changes, there have been significant efforts to reform forest administrations with efforts being focused on the following:

- Decentralisation of forest administrations to provincial and local governments, transferring the responsibility of management to the local levels.
- Redefining the functions and restructuring forest administrations at national level. A number of countries have established more autonomous organisations, like forestry boards and commissions, providing substantial flexibility in their functioning, including financial independence. Further, the functions of central forest administrations have been redefined with stress being given to their role in providing broader policy, legal and strategic frameworks for other actors to operate.

Substantial experience exists in Africa in public sector reform, far from all being positive. There are instances where the capacity of public sector has declined significantly, while alternative institutional arrangements are yet to become effective. In general, there is a need to revitalise the forest administration in most countries. All indications are that, in the absence of a strong public sector providing an effective policy, legal and strategic framework, the functioning of other sectors also is undermined.

### ***4.3 Increased role for the private sector***

Parallel to the changes in public sector forest administrations, economic reforms have encouraged substantial private sector involvement in the forest sector. In most countries wood production and processing have been largely in the private sector. In addition to taking an increasing role in logging, processing and trade, the private sector is also playing an important role in managing forests, especially plantations. In a number of countries plantations established and managed by public sector organisations have been privatised. The wide range of situations of private sector involvement in Africa provides very useful lessons on what may work and when. In general, the development of the indigenous private sector remains weak and this has led to the domination of foreign companies, especially in areas like logging, processing and transport.

Increased private sector involvement is hampered by a number of factors, most importantly the absence of a favourable institutional and legal framework and a level playing field. Land tenure uncertainties, weak legal frameworks and other constraints hinder the development of free and fair markets. There is also increasing concern about equity aspects, especially in view of the low income and the absence of effective demand for several products.

### ***4.4 Emerging importance of civil society organisations***

As democratic systems take root and the general public become more conscious of their rights and responsibilities, civil society organisations are becoming important players in influencing decisions relating to natural resource management in general and forestry in particular. Issues like human rights and transparency are other concerns of civil society that have a direct bearing on forest resource use. Apart from creating public awareness, civil society organisations have spearheaded actions against illegal logging and trade of forest products, excision of public forests and corruption. In several cases, civil society action has compelled governments, logging companies and other actors to comply with the principles of sustainable forest management. With improved access to information and the emergence of a free media, public action through civil society organisations is expected to become more significant.

### ***4.5 Global concerns and international arrangements***

One important development in recent years is the widening of interest groups to include global stakeholders, who are particularly concerned about the implications of tropical deforestation. Social, ethical and environmental concerns are increasingly influencing global discussions on tropical forests and this is reflected in the various international fora including UNFF and its predecessor arrangements IPF and IFF, as also the CBD, CCD, CITES and CCC arrangements. Although inconclusive to date, particularly after the UNFF 5 meeting in May 2005, there have been considerable discussions on a legally binding agreement on forests.

In addition to the above, there are developments relating to trade that also have direct and indirect impacts on forests. Global and regional agreements on economic cooperation and trade are emerging that are redrawing the relationship between countries. Regional and sub-regional organisations in Africa are active in the field of forests, facilitating regional collaboration. Added to this are changes in the perception of economic development. These have impacted forestry primarily through:

- Changes in the policies of governments as influenced by the international agreements.
- Shifts in policies and approaches to development assistance by bilateral and multi-lateral organisations.

Forestry priorities have undergone major changes in the last two decades in response to the above. Forest plantation based development, including the necessary capacity building has been a major thrust of development assistance during the 1960s and 1970s. The 1980s witnessed a significant paradigm shift with social and environmental issues taking the centre-stage. Increasingly, forestry has to respond to new

concerns, including poverty alleviation, conservation of biological diversity and climate change issues. At the same time many of old problems still prevail. And society and foresters have to address a much more complex set of problems than a few decades ago, although the overall capacity of institutions – administration, education, research, extension, etc. – remains far from adequate.

## 5.0 CONCLUSION

This report provides an overview of some important issues facing African forests and forestry. Specifically, it outlines the resource situation, the range of benefits that society realises, the overall impact of forests on the economies and the policy and institutional arrangements that are in place and evolving to manage the resources. The interaction between society and forests in Africa is extremely dynamic. With the wide-ranging ecological, social and economic conditions and the long history of attempting different models of development, a wealth of information exists. Unfortunately, sufficient efforts to learn from this in a systematic manner have not been made. Every initiative, success or failure, if analysed dispassionately provides valuable lessons. It is precisely in this context that the present study “Lessons learnt on sustainable forest management in Africa” becomes topical, not only for Africa but for other regions.

The forestry situation in Africa varies significantly between and within countries. And in view of the differing economic, social and institutional environments, demands placed on forests and other natural resources differ considerably. There are also significant changes over time. In the next two decades forestry issues are expected to become more complex on account of the growth in population and the differences in the pace of economic development. In understanding the lessons from various interventions, it is important to take note of the underlying factors that have contributed to success or failure. The reports and case studies that are presented in the current project will provide more in-depth s of specific issues and topics. This would help us to provide some answers to some key questions, namely:

- What are the technical feasibility, economic viability and social acceptability of sustainable forest management in Africa?
- What are necessary and sufficient conditions to make sustainable forest management a viable option?
- How could the forest community help to accomplish that goal?
- What changes are required in the priorities and strategies of the forest sector?

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