FORESTRY OUTLOOK STUDY FOR AFRICA

SUBREGIONAL REPORT
SOUTHERN AFRICA

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AFRICAN DEVELOPMENT BANK
EUROPEAN COMMISSION
FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

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Foreword

This report, which examines the long term prospects of forests and forestry in Southern Africa, is one of the five subregional reports prepared as part of the Forestry Outlook Study for Africa (FOSA). Southern Africa has a number of unique features stemming from its specific ecological, economic, socio-cultural and historical setting. It has demonstrated what could be done to develop a vibrant forest industry even in a situation of limited natural resources. As the subregion adapts to the emerging changes, the forestry situation is bound to be influenced directly and indirectly by the global, regional and country level developments. This report provides an account of the current situation, the driving forces and what is likely to happen upto the year 2020 if the present tendencies persist. Further, the report also outlines what may be done to improve the situation, especially in the context of the pervasive problems of poverty and environmental degradation facing the countries in the subregion.

Considering the enormous diversity within Southern Africa, there will be obvious differences in the development of the forest sector between countries. FOSA has attempted to capture this diversity and to provide an indication of the changing opportunities and challenges. The subregional and regional overview provided by FOSA would help to strengthen the knowledge base of the national forest programmes.

While the FOSA provides an insight into the potentials and challenges and indicates the different options, it also has a broader purpose of stimulating discussion on the future of forests and forestry, providing an indication of the long term changes and how the countries and the different stakeholders could take advantage of their strengths and overcome the weaknesses. What is important is to look at FOSA as a process, enabling to raise the appropriate questions and to seek the answers based on a critical analysis of the situation, current and emerging, in the larger context. FAO in partnership with the countries and other organizations will continue to strive to support this process taking advantage of the insights provided by FOSA.

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Abbreviations

ADB	African Development Bank
CAMPFIRE	Communal Area Management Program for Indigenous Resources
CBD	Convention on Biological Diversity
CCD	Convention to Combat Desertification
CDM	Clean Development Mechanism
CIFOR	Center for International Forestry Research
COMESA	Common Market for Eastern and Southern Africa
ECA	Economic Commission for Africa
FAO	Food and Agriculture Organization of the UN
FOSA	Forestry Outlook Study for Africa
GDP	Gross Domestic Product
HIV/AIDS	Human Immuno Deficiency Virus / Acquired Immune Deficiency Syndrome
ILO	International Labour Organization
NEPAD	New Partnership for Africa's Development
NGO	Non-Governmental Organization
NWFP	Non-Wood Forest Product
SADC	Southern African Development Community
SACU	Southern African Customs Union
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNEP	United Nations Environment Programme
UNDP	United Nations Development Programme
WTTC	World Travel and Tourism Council

Executive summary

The Southern Africa subregion comprises of Angola, Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Zambia and Zimbabwe. A key feature of the subregion is the high inter- and intracountry variation in economic, social and institutional conditions, and this is reflected in the forest sector, with a highly-developed forest-based industry coexisting with a predominantly subsistence-focused informal sector. This report offers an overview of the long-term trends in forests and wildlife in Southern Africa and outlines the strategies and options for increasing their contribution to sustainable development in view of emerging economic, social, institutional and technological changes.

CURRENT SITUATION

Southern African forestry is characterized by a number of contrasting features, which means that it is hard to make generalizations for the subregion. The situation in South Africa is unique and should be treated separately for the purposes of analysis. The forest and forestry situation in each country reflect the overall state of social and economic development in that country. Some of the features that need to be taken into account are as follows:

- while there is a very well-developed wood industry based on high-quality plantations in South Africa, Swaziland and to some extent Zimbabwe, in most other countries forests and forest industries are poorly developed. Indigenous forests are poorly managed, and although no reliable statistics are available they are certainly being overexploited;
- in most countries, except South Africa and Swaziland, deforestation is continuing, because of the expansion of agriculture and other related land uses. Several countries, particularly Zambia, have a very high rate of deforestation;
- plantation forestry is well developed in South Africa and to some extent in Zimbabwe and Swaziland. In most other countries weak institutional arrangements, low investment and the absence of links with the processing sector have undermined the performance of plantations;
- Southern Africa has a unique advantage in its network of national parks and game reserves, which is an integral component of the fast-growing tourism industry. Conflicts will intensify in the future, however, and considerable efforts will be needed to resolve them. Local participation in the management of national parks and game reserves will remain an important option and should be systematically pursued;
- increasing water scarcity will draw attention to the role of forests and trees. In several countries, there will be an urgent need to improve watershed management and this will require a re examination of the role of forests and trees in regulation of water yield.

DRIVING FORCES

The last two decades have seen major social and political changes and upheavals in Southern Africa. Although a number of problems will persist, there are also opportunities as the countries consolidate their progress and face new challenges. The main driving forces that need to be taken into account include the following:

- although Southern Africa as a whole is economically better off than other subregions, there are wide differences in income between the different countries, with South Africa, the largest economy, accounting for most of the GDP. In view of the strong links between South Africa and other countries in the subregion, the performance of the latter is to some extent dependent on South Africa's economic performance;
- income distribution is highly unequal and there is widespread poverty. In most countries the poorest 10 percent of the population receive under 2 percent of the income, while the richest 10 percent receive over 40 percent. Low income levels and wide disparity have led to a high incidence of poverty;.
- in view of the low income and poor growth of the formal sector, there is increasing dependence on the informal sector. Although no quantitative data are available, dependence of people on the informal sector is high and is expected to rise;
- the population is expected to grow from 113 million to over 150 million between 2000 and 2020;

- a key concern for all the countries in the subregion is the very high incidence of HIV/AIDS. In some of the countries almost a third of the adult population between the age of 15 and 50 has been infected; Social and economic fallout from the high infection rates and the deaths of a large number of people will have a significant impact on forests and forestry;
- landownership and reform is a politically and socially very sensitive issue and is a cause of conflict, with the potential to derail the development process. Changes in one country could have significant ripple effects in adjoining countries;
- in comparison with other subregions, Southern Africa is more open and well integrated with the regional and global economies, largely through South Africa. A number of regional and subregional organizations are supporting the process of regional integration.

While several of the problems may persist, opportunities are also emerging to promote all-round social and economic development. There has been significant progress in the democratization of government, especially through decentralization. Policies and legislation have facilitated community participation. Southern Africa is rich in resources and technical capacity. There are also considerable opportunities to mobilize investment from within the subregion, and the increasing economic integration could strengthen these. Southern Africa probably has prospects of faster development than the other subregions of Africa, although this will depend on a number of factors, particularly the deepening and broadening of democratization and wider empowerment of the people.

IMPLICATIONS

Taking the above driving forces and the various possible scenarios into account, the general trends evident from the study are as follows:

- forest cover is expected to decline more or less at the same rate as in the previous decade on account of continued dependence on land and limited opportunities for diversification. Ongoing land reforms in some countries, although necessary, could exacerbate the situation;
- forests and woodlands constituted as national parks and game reserves will be afforded some incidental protection, but most woodlands outside protected areas will continue to be exploited unsustainably. Despite some ongoing efforts, sustainable management is unlikely to find wider application, especially in view of a growing demand for woodfuel as well as timber for construction and other uses;
- the forest plantation sector is well developed in Southern Africa, especially South Africa, Swaziland and Zimbabwe, and most of this is under private ownership. With the private sector taking the lead, there is likely to be a further expansion of plantations, especially to countries such as Mozambique and Zambia where water is not a limiting factor and there are ongoing efforts to improve transport infrastructure. Much of the plantation expansion will be industry-driven, largely to enhance the global competitiveness of existing industries;
- while the stock of trees on communal land is expected to decline, this will be partly compensated by planting on farms undertaken through outgrower schemes under industry-farmer partnership arrangements. With increasing local demand, there are opportunities for broadening such arrangements to link a range of wood processing industries with farm forestry;
- wood will continue to be the most important source of energy for most households, at least in the near future, although there are prospects of some switching, depending on the progress of ongoing efforts to tap alternative energy resources;
- Southern Africa will maintain its lead position in the wood industries and is expected to enhance its competitiveness through improved technology and especially through strategic alliances with other global players. This will be largely driven by South African companies;
- there is unlikely to be any problem in the supply of forest products, especially in view of the existing processing capacity of the subregion and liberalization policies enabling free movement of goods across the countries. Effective demand will be limited by the low purchasing power of the majority of the population. Ongoing efforts to resolve the conflicts in Angola and the Democratic Republic of the Congo is expected to have a positive impact on enhancing supplies of wood and wood products;
- demand for non-wood forest products, in particular medicinal plants, is expected to increase, especially as a result of urbanization and continued reliance on

traditional medical systems. This, coupled with increasing global demand, could result in depletion of the stocks available from easily accessible areas. Although this may result in domestication and commercial cultivation of some important items, availability to subsistence consumers is unlikely to improve;

- wildlife is one of the unique assets of Southern Africa and will continue to be an important element in the growing tourism industry. With a growing population and a rising demand for land, the scope for expanding the area of national parks and game reserves is limited. The resolution of conflicts in wildlife management requires increased participation by local communities, ensuring that they are able to reap economic benefits;
- water scarcity is expected to worsen on account of the increasing domestic, agricultural and industrial demand. This will be particularly critical for Botswana, Namibia and South Africa, while countries such as Mozambique will continue to experience floods of increasing frequency and severity. These will necessitate closer cooperation between countries in watershed management, and the role of forests and trees in regulating water yields will require closer scrutiny.

PRIORITIES

Future development strategies need to address the extreme dualism characteristic of the subregion, where highly developed modern segments of the economy coexist with poorly developed, low-income segments. Poverty and deprivation are further exacerbated by problems such as the high incidence of HIV/AIDS. Considering the high dependence of the poor on natural resources, especially forests, forestry priorities in the next two decades will be:

- poverty alleviation; and
- reversing the environmental degradation to improve the livelihoods, especially those of the more vulnerable sections of society.

The priority areas of action will include:

- strengthening the informal sector by improving access to information, especially on emerging market opportunities, trade channels and technology;
- improving the legal and institutional framework for community management of resources; specifically this will require support to improve transparency, access to information and the capacity to manage community enterprises; and
- supporting small farmers in the adoption of integrated land use, to reduce economic and ecological vulnerability;
- strengthening the framework for the transparent operation of market forces;
- revitalizing the public sector to play a facilitating role and to provide a level playing field for all actors; and
- improving regional and subregional collaboration in areas of research, education, training and management of critical ecosystems, especially to address problems like desertification, watershed degradation and poaching of wildlife.

Chapter 1

Introduction

BACKGROUND

The Forestry Outlook Study for Africa (FOSA) has been undertaken as part of the ongoing effort of the FAO to provide a regional perspective of the future developments in the forestry sector. Endorsed by the African Forestry and Wildlife Commission and the Near East Forestry Commission, FOSA aims to identify emerging opportunities and constraints in enhancing the contribution of forestry to sustainable development. As globalization accelerates economic integration, it is essential to develop appropriate responses to the rapidly changing environment. It is in this context that the Forestry Outlook Study for Africa was undertaken in partnership with the African countries and international, regional and sub-regional organizations. This report on Southern Africa is one of six reports produced as part of FOSA.

OBJECTIVES

The primary objective of FOSA is to provide a long-term outlook (with 2020 as the horizon) for development of the forest sector in Africa in the context of wider economic, social, institutional and technological changes. FOSA will analyse the trends and driving forces shaping the sector during the next two decades. Based on this analysis, it will then identify the broad strategies and options available to increase forestry's contribution to sustainable development. FOSA is designed to complement African countries' other forest-related strategic planning initiatives, including their national forest programmes.

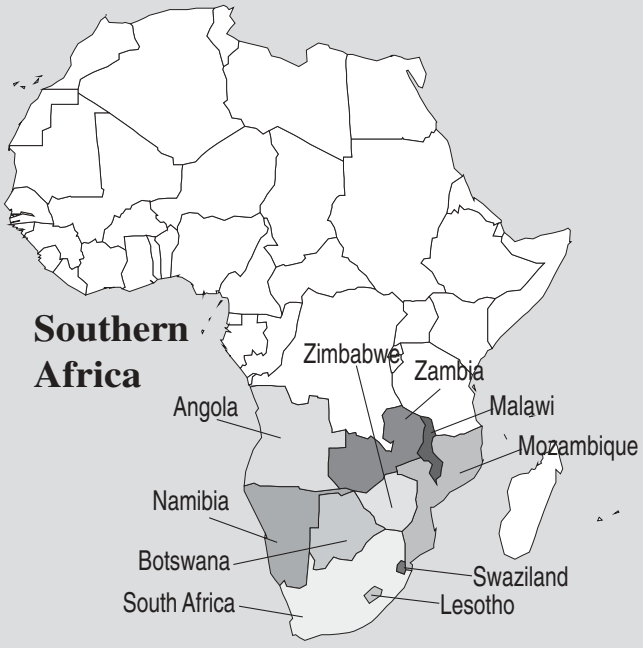
In addition to helping to discern the long-term potential of the sector, FOSA also lays considerable stress on the study process, especially ensuring the involvement of all the key African stakeholders. Involvement in the process will help to improve African capacity for forest-related strategic planning, while wide-ranging consultations aim at developing a shared vision of what could be done to realize the full potential of the forest sector.

The main products of FOSA consist of five subregional reports outlining the long-term potential and challenges of the forest sector in each of the subregions, and a regional report providing an overview of the regional situation, which places African forests and forestry in the global context and indicates strategies to increase forestry's contribution to sustainable development. The present report deals with the Southern Africa subregion (see Box 1 for a list of countries in the subregion).

BOX 1

SOUTHERN AFRICA SUBREGION

For the purposes of FOSA, the following countries constitute the Southern Africa subregion: Angola, Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Zambia, Zimbabwe.



FOSA PROCESS

FOSA was undertaken as a highly participatory initiative involving all the countries and key organizations in the subregion. To facilitate the provision of country inputs, each country nominated a national focal point, who produced a FOSA country paper with the help of a working group. Subregional meetings were held at the beginning to plan the FOSA process and later to review the main findings of the

country reports[1]. A baseline study on population, income and forest resources prepared by the African Development Bank (African Development Bank, 2000) provided background information on critical demographic, economic and social parameters.

A forestry expert from the subregion, functioned as a focal point for refining the country reports as well as for developing an initial draft subregional report[2]. (see Chihambakwe, 2001) Based on the Global Forest Supply Model, FAO developed estimates of production and consumption of wood and wood products (see Rytkönen, 2001). FAO also undertook a review of the available data on woodfuel consumption and developed estimates of future woodfuel consumption (Broadhead *et al*., 2001). The African Development Bank, through the Swedish Trust Fund, contracted ORGUT Consulting AB of Sweden to prepare two thematic papers, one on the main factors affecting forestry and the other on key issues in forestry (African Development Bank, 2001a and 2001b). The draft of these reports was presented and discussed during a regional technical review meeting held in Addis Ababa in September 2001. A revised version of the subregional report that amalgamated the various inputs were presented to the African Forestry and Wildlife Commission during its thirteenth session held at Libreville, Gabon in March 2002. This final version of the report incorporates the comments and suggestions from the members of the African Forestry and Wildlife Commission and others who reviewed the draft report.

The FOSA regional and subregional reports have been drawn up with input and support from several organizations. The European Commission-supported project on data-collection and analysis provided critical background information. Links were established with the United Nations Environment Programme in order to establish synergy with the ongoing Global and Africa Environment Outlook studies, focusing particularly on scenario development. The World Bank commissioned a study on institutional issues, covering aspects such as decentralization, community participation, privatization, corruption and illegal activities. The Center for International Forestry Research contributed a paper on science and technology issues, focusing on research priorities and the capacity for undertaking research. FAO undertook a questionnaire-based survey to elicit the views of civil society in the region regarding forests and forestry. An advisory group consisting of African experts provided the necessary guidance for the study[3]. Further, FAO established an internal advisory committee to oversee progress and provide technical guidance.

STRUCTURE OF THE REPORT

The key features of forests and wildlife in Southern Africa are described in chapter 2. Chapter 3 outlines the driving forces influencing the forest sector, with the emphasis being laid on how forestry is affected by what happens outside the sector and the implications for the future. Considering the impact of factors outside the sector, chapter 4 indicates the possible scenarios or chains of events that may emerge in Africa in the next two decades. Some of these could be mere extensions of present trajectories, while others represent significant shifts in the pattern of development. The implications of these scenarios for forests and forestry during the next two decades, are discussed in chapter 5. Chapter 6 focuses on what options and strategies are available to improve the unfavourable situation and steer the sector towards a more desirable future. An overview of the conclusions and recommendations is given in chapter 7.

[1] An initial planning meeting of the FOSA focal points and key partners was held in Lusaka from 31 March to 1 April 2000 in conjunction with the twelfth session of the African Forestry and Wildlife Commission. A second subregional review meeting was held in Pretoria from 17 to 19 January 2001 to discuss the draft country outlook papers and work out the approach for developing the subregional report.

[2] Efforts in the Southern Africa subregion were coordinated by Mike Chihambakwe, whose report forms the basis of this subregional report.

[3] The FOSA Expert Advisory Group included Agnes Odijide (Chairperson), Hennie Coetzee (Vice Chairperson), Madeline Cisse, Fousaba Banahane, John Kaboggoza and Hassan Osman Abdel Nour.

Chapter 2

Forests and wildlife in Southern Africa: Trends and current situation

The importance of forests and wildlife to the Southern African economies, and more particularly to the livelihood of rural communities in the subregion, is well documented. A wide range of products and services is provided by forests, with the relative importance of this varying depending on country and location. An assessment of the overall state of resources and the availability of goods and services is an important starting point for analysing the long-term prospects of change. This chapter attempts to provide an overview of the general trends and current resource situation, including the availability of goods and services.

STATE OF FOREST RESOURCES AND THEIR MANAGEMENT

Forest cover and changes therein

Forest cover in the subregion is estimated at approximately 183 million ha or about 31 percent of the land area. Table 1 gives the distribution of forest cover in the various countries of the subregion. As can be seen, the situation varies enormously from country to country: Angola has a forest cover of 56 percent of its land area, while Lesotho, South Africa and Namibia are the least forested countries. Much of the forest is distributed in the northern belt of the subregion, extending from Angola to Mozambique and including Malawi, Zambia and Zimbabwe. Inaccessibility and the insecurity caused by civil wars have been important factors contributing to the high proportion of forest in countries such as Angola and Mozambique.

With increasing population and other pressures, the area under forests is on the decline. Forests in Southern Africa shrank from 199.4 million ha in 1990 to 183.1 million ha in 2000 (see Table 2). This corresponds to an annual deforestation rate of 1.62 million ha, accounting for 31 percent of the continent's forest cover loss. Zambia, for example, has one of the highest rates of deforestation, losing about 851 000 ha per year, accounting for half the deforestation in the entire subregion. Other countries with high rates of deforestation include Zimbabwe, Angola and Botswana. South Africa has a very low rate of forest cover loss - just 8 000 ha per year - while Swaziland has a net increase of 6 000 ha per year.

The main reasons for deforestation remain the same throughout Africa: the expansion of agriculture and an increased demand for forest products, particularly close to rapidly expanding urban areas and fires[4]. In Malawi, the reasons for deforestation are uncontrolled felling for woodfuel to cure tobacco in the smallholder and estate sectors, the opening up of new gardens and farming areas, the extraction of woodfuel for commercial purposes, infrastructure development and shifting cultivation[5]. These trends are likely to persist

TABLE 1
Forest cover in Southern Africa in 2000

Country	Total land area	Total forest	% of land area	Total forest plantation
	(000 ha)	(000 ha)	(%)	(000 ha)
Angola	124 670	69 756	56.0	141
Botswana	56 673	12 427	21.9	1
Lesotho	3 035	14	0.5	14
Malawi	9 408	2 562	27.2	112
Mozambique	79 409	30 601	39.0	50
Namibia	82 329	8 040	9.8	0
South Africa	121 758	8 917	7.3	1 554
Swaziland	1 720	522	30.3	161
Zambia	74 339	31 246	42.0	75
Zimbabwe	38 685	19 040	49.2	141
Total Southern Africa	**591 336**	**183 125**	**31.0**	**2 173**

Source: FAO, 2001a.

TABLE 2
Forest cover loss in Southern Africa – 1990 - 2000

Country	Forest area		Annual change
	1990	2000	
	(000 ha)	(000 ha)	(000 ha)
Angola	70 998	69 756	-124
Botswana	13 611	12 427	-118
Lesotho	14	14	NS
Malawi	3 269	2 562	-71
Mozambique	31 238	30 601	-64
Namibia	8,774	8 040	-73
South Africa	8 997	8 917	-8
Swaziland	464	522	6
Zambia	39 755	31 246	-851
Zimbabwe	22 239	19 040	-320
Total Southern Africa	**199 359**	**183 125**	**-1 623**

Source: FAO, 2001a.

[4] During the year 2000, an estimated 186 000 ha of woodland were destroyed by fire.

[5] Wood demand for tobacco curing is particularly high from the large tobacco estates. There are, however, indications of a decline in tobacco cultivation on account of the decline in market demand.

BOX 2

NATURAL FOREST TYPES IN THE SUBREGION

Miombo woodlands form the most extensive vegetation type in the areas north of the Limpopo River. *Brachystegia*, *Julbernadea* and *Isoberlinia* trees dominate this type.

Zambesi teak forests are found in the western parts of Zimbabwe and Zambia, extending into northern Botswana, northeastern Namibia and some parts of southeastern Angola. The major species is *Baikiae plyrijuga*. This forest type is sometimes called "Kalahari forest".

Mopane woodlands are found in drier lower areas and are associated with sodic soils. The main species is *Coleospermum mopane*. Mopane woodlands are often associated with other major vegetation types, such as Miombo woodlands.

Montane forests are found in pockets in high-altitude/high-rainfall areas in Malawi, Mozambique, Zambia and Zimbabwe.

Mangrove forests are found along the coastline in Mozambique and Angola. Although small in area, these forests are an important type because of their protective role along coastlines. Their habitat function is very important because of their high species diversity.

as long as land continues to be the main source of income and technological improvements in agriculture are slow (see the subsection on agricultural development in chapter 3). Deforestation is further exacerbated in countries where land distribution is highly unequal and the majority of the people occupy unproductive marginal land, on which, with the current levels of technology, higher production may be obtained only through extensification.

Management of natural forests

Natural forests account for about 181 million ha and consist of a range of formations, with Miombo woodlands being the largest and most widespread, although very little attention has been paid to their systematic management. The proportion of natural forests under management plans is negligible. These forests play an important role in the provision of woodfuel, non-wood forest products, poles, shelter, fodder and environmental services.

Only limited areas of natural forests and woodlands in the subregion have been untouched by human activities and these are largely found in national parks and protected areas. Only Angola, Mozambique and Zambia have relatively large extent of natural forests outside conservation and protection areas. These

BOX 3

STATUS OF MANAGEMENT OF NATURAL FORESTS IN NAMIBIA

Today, the majority of natural woodlands, which occupy about 20 percent of the total land area, are neither protected by law as forest ecosystems, nor under sustainable management. Over the last few years starting from 1995, efforts have been made to declare areas of community forest reserves, which will be managed in collaboration with community groups who will manage and utilize them in a controlled manner.

(Kojwang, 2000)

forests and woodlands play only a minor role in industrial roundwood production, while their degraded state and increasing pressures for other uses mean that this is likely to remain the case in the coming 20 years. These woodlands will continue to form the major source of woodfuel, as well as a variety of non-wood forest products, and also to provide environmental services and a refuge for wildlife. These also form reserve land for the expansion of agriculture.

The majority of these forests and woodlands consist of slow-growing species, with annual increments of about 1-2 m^3 per hectare. In most countries they are subjected to selective cutting based on a system of licenses and concessions. With the exception of Mozambique and probably Angola, exploitation is in excess of the sustainable yield, as is evident from the periodic lowering of the exploitable diameter. In the case of Zimbabwe, for example, this has been reduced from 40 cm to 35 cm and then to 25 cm. There is increasing pressure on the few "commercial" species. Harvesting in most cases is on the increase, particularly to increase income to the central and local governments.

BOX 4

FOREST FIRES IN SOUTHERN AFRICA

Owing to a climate characterized, in most of the subregion, by pronounced wet and dry seasons, high temperatures, low air humidity and frequent droughts, the vegetation consists of open to relatively closed-canopy deciduous forests, thickets or shrubs with an abundant grass layer. The long dry season, the loss of tree foliage and the accumulation of abundant dry material on the ground from leaf litter, dry grass and fallen dead branches create optimal conditions for intensive fires each year from May to October. In Mozambique for instance, 40 percent of the country is burnt every year and more than 80 percent of the area affected is forested.

(FAO, 2001a)

Hardwood timber processing (excepting eucalyptus timber) is poorly developed in many of the countries and capacity utilization is low. In the case of the sawmilling industry in Mozambique, for example, capacity utilization is only 35 percent of total installed capacity. Most timber is exported in log form to the Far East and South Africa. Exports of wood from Mozambique between 1995 and 2000 show an increase in volume, with a large increase in the proportion of sawn timber in 1998.

Forest plantations

Southern Africa currently has about 2.2 million ha of forest plantations, accounting for almost 28 percent of total African plantations. Almost two-thirds of this (about 1.5 million ha) are in South Africa, while Angola, Malawi, Swaziland and Zimbabwe also have sizeable plantations (see Table 3).

Most of these plantations were established for the production of industrial roundwood and in some cases woodfuel. Only in the case of South Africa, Swaziland and Zimbabwe plantation programme is strongly linked to industrial utilization. Limited markets and accessibility undermined the industrial use of Malawi's plantations, while civil war affected the management of plantations in Angola and Mozambique.

An important factor that has affected plantation management in Southern Africa is ownership. In Zimbabwe about 58 percent of plantations are under private ownership, while in South Africa and Swaziland the share of the private sector is 72 percent and 100 percent respectively. In contrast, plantations in Malawi and Zambia are almost entirely under government ownership, which has a significant impact on the quality of management, productivity and links to the processing sector. Currently there is a lot of discussion on privatizing these plantations, with implications for management, including social, economic and environmental consequences.

In South Africa softwood plantations of mainly *Pinus* species covers 53 percent of the plantation area and the other 47 percent are hardwood plantations of mainly *Eucalyptus spp*. Wood production from South African plantations in 1997/98 is estimated at 18.6 million m^3. Over the past 10 years there has been a steady growth of yield from plantations. However, the mean annual

BOX 5

PLANTATIONS IN ZIMBABWE

Plantations in Zimbabwe are dominated by softwood, with pine plantations accounting for 72 percent of the plantation area. Hardwood species, such as *eucalyptus* and wattle, cover 15 and 12 percent of the area. The plantations are mainly managed to produce industrial roundwood. About 70 percent are managed for sawlog production, 14 percent for pulpwood production, 7 percent for woodboard raw material and 9 percent for poles. Through improved plantation management and the use of fast-growing, high-yield superior seedlings for replanting, Zimbabwe can considerably increase the annual yield from these plantations. The country has a plan that covers the period up to the year 2020 and is intended to involve communal and/or resettled farmers in the production of industrial roundwood on a contract basis with industry through outgrower schemes. This plan gives Zimbabwe the potential for development of its forest industry in order to meet its domestic demand and also for some expansion of its exports to countries in the subregion and/or other international markets.

TABLE 3

Plantation forestry in Southern Africa

Country	Total forest plantations	Annual planting rate	Plantation area by species group						
			Acacia	*Eucalyptus*	*Tectona*	Other hardwoods	*Pinus*	Other softwoods	Unspecified
	(000 ha)	(000 ha)	(000 ha)	(000 ha)	(000 ha)	(000 ha)	(000 ha)	(000 ha)	(000 ha)
Angola	141	0.1	1	113		1	21	4	-
Botswana	1	0.0		1					
Lesotho	14	2	-	7			6		1
Malawi	112	2		26	3	9	74	-	-
Mozambique	50	1		20	-	-	26	4	-
Namibia	0.3	-	-	0.3	-	-	-	-	-
South Africa	1 554	12	109	606	-	16	824	-	-
Swaziland	161	-	25	33	-	-	102		
Zambia	75	2	-	15	-	-	60	-	-
Zimbabwe	141	2	21	13	-	6	94	7	-
Total Southern Africa	**2 249**	**21**	**155**	**834**	**3**	**32**	**1207**	**15**	**11**

Source: FAO, 2001a.

increment has remained at about 12 to 13 m^3 per hectare. Wood harvests are well within long-term sustainable yields. Current level of harvests is less than sustainable annual yields, largely because many plantations have yet to come into full production. Through improved management of the plantations and replanting with fast-growing, high-yield clonal seedlings, the mean annual increment could be increased by about 40 percent by 2025.

Further expansion of plantations in Southern Africa (especially South Africa) is limited by availability of suitable land[6] and, more important, the impact on water supplies. Most future expansion is expected to take place where land and water are not limiting factors and where issues such as land tenure or ownership are less problematic. Preliminary investigations have been made to build development corridors involving Angola, Mozambique, Zambia and Zimbabwe, focusing primarily on the development of infrastructure to improve accessibility (see Box 6). Once this takes place, there will be some potential for expanding the plantation programme to these countries[7].

Although Southern Africa has several advantages with regard to developing a strong plantation-based forest industry, this will depend critically on improving accessibility and developing a strong support system (including research) and a viable and competitive processing sector. In view of emerging free trade and the growth of highly productive plantations in other parts of the world, Southern Africa will have to enhance its comparative advantages by investing in research and management as well as in infrastructure development. Current level of annual planting is only about 21,000 hectares, an insignificant fraction of the annual rate of deforestation.

Certification

The growing awareness of tropical deforestation has led to increased consumer pressure to certify wood products as regards their origin, especially whether they are obtained from sustainably managed areas. Certification of plantations and natural forests has become necessary in order to retain markets, especially in Europe and the United States (see Box 7). Southern Africa is the only African subregion where certification has found wide application. Indeed, the continent's entire 974 000 ha of certified plantations lie in Southern Africa, distributed in South Africa, Zimbabwe and Swaziland, with South Africa having the largest area.

BOX 6

ACCESSIBILITY AND PLANTATION EXPANSION

Although there is a reasonable road network in some countries, access to some plantations is difficult during the wet season. Because of the high cost of transport, plantations far away from markets and ports have become economically unviable in the light of competition from cheap imports. Despite this limitation, there is scope to expand plantations in countries such as Mozambique, Angola and Zambia. Where land is limiting large-scale expansion of plantations, small and medium outgrowers have taken the opportunities and are now significant suppliers of industrial wood in South Africa.

(African Development Bank, 2001a)

BOX 7

GENESIS OF PLANTATION CERTIFICATION IN SOUTH AFRICA

Certification in South Africa was prompted by requests from UK retailers, such as the leading UK Do-it-yourself (DIY) retailer B&Q, for certified timber. These retailers are important customers of sawn timber from South Africa. The biggest single spur for certification was the decision of Mondi's single biggest sawn timber customer to request FSC certification. Requests from other British firms, as well as German and United States retailers followed.

In addition to these direct requests, South African timber products exporters operate in a highly competitive low cost DIY and housewares market. The South African manufacturers were aware that FSC was positively regarded in this market segment, and were keen to be able to use FSC certification to differentiate themselves from competitors (both within and outside South Africa). The pressure to become FSC certified intensified considerably once significant volumes of certified pine products became available from Poland.

(Goldblatt, 2001)

[6] Exotic timber plantations demand high rainfall and fertile soils, and thus face stiff competition for the limited land with other crops such as tea and coffee.

[7] Preliminary spatial development initiative studies have been prepared, focusing on forest investment opportunities in respect of the Beira-Harare Corridor, the Beira-Blantyre Corridor and the Lobito Corridor. These studies provide a preliminary indication of the infrastructure facilities and existing land use, including the current state of forest plantations and the potential for expanding these plantations, taking into account the feasibility for industrial utilization or export.

Trees outside forests

Although trees form an integral component of many farming systems, especially under agroforestry and silvipastoral systems, very little information is available as to their extent and overall contribution to wood production. (see Box 8 for a definition of trees outside forests.) The extent to which trees are integrated into farming systems varies from system to system, depending on the agro-ecological and socio-economic conditions. Trees are often left standing during the process of land clearing for subsistence cultivation and later play an important role in meeting woodfuel needs or providing a cash income.

In many countries in the subregion, governments, NGOs and forest industries have launched programmes that promote tree planting outside forests. These efforts are intended to reduce pressure on natural forests and woodlands, increase woodfuel production, enhance environmental values and protection, and increase food production through the planting of food-yielding and multipurpose trees (African Development Bank, 2001a). These programmes and activities could offset some of the negative effects, such as loss of natural forests, and take pressure off the remaining forests in some areas. The involvement of industries, especially through the provision of support for outgrower schemes, is largely aimed at diversifying the source of raw materials.

In terms of the long-term outlook, the key issue relates to the changing role of trees outside forests. In several countries, as forest area shrinks, there has been an increased interest in planting trees on farms and other land outside forests, and there are several instances where trees outside forests have become a major source of wood supplies.

In the context of Southern Africa, trees outside forests can be broadly divided into (a) trees on private land and freehold land and (b) trees on communal land. Trees on private land are generally better protected and it is in such areas that there have been efforts to raise woodlots under outgrower schemes. In South Africa, Zimbabwe and Namibia, for example, there are very large private holdings with intact vegetation. The future of these would, however, depend on the perceptions and objectives of individual owners and, more important, government policies, especially those relating to land reforms and land restitution. The fast-tracking of land reform in Zimbabwe and the occupation of large farms could significantly alter land use, resulting in the removal of trees to make space for cultivation or to provide a quick return. If the process of reform is carefully planned and implemented, there are, however, opportunities to promote conservation of existing growth and to undertake further planting.

Considering the uncertainty of tenure, all the indications are that trees on communal land could decline further in response to a number of factors, especially agricultural expansion and the production of fuelwood and charcoal.

BOX 8

TREES OUTSIDE FORESTS

FAO has defined trees outside forests as "trees and tree systems occupying lands other than those defined as forests and other wooded lands". Such trees can be found in the following land use systems:

- trees in urban and peri-urban areas;
- trees associated with permanent crops, agroforestry systems;
- trees associated with annual crops, agroforestry systems;
- trees associated with pastures, silvipastoral systems;
- trees along line features in the environment, such as property borders, roads, railways, fields, canals and creeks;
- tree groups that do not comply with the area requirements of the forest definition;
- trees on uncultivated/unmanaged land (parts of savannah land, mountainous regions, peat land, etc.);
- windbreak plantations;
- trees planted around schools;
- homestead plantings; and
- live fencing.

SUPPLY OF WOOD AND NON-WOOD PRODUCTS

Woodfuel and its significance in energy consumption

Although most Southern African countries are relatively better off economically than most of the other sub-Saharan countries and have access to commercial fuels, woodfuel still continues to be the most important source of household energy. It is the primary source of energy across the subregion, except in South Africa[8].

Total woodfuel consumption in the subregion in 2000 is estimated at 84 million m^3 (see Table 4) or approximately 78 percent of total roundwood

[8] In South Africa, where the share of woodfuel is only 23 percent, the government is implementing a long-term electrification programme throughout the country, providing cheap electricity even in rural areas.

TABLE 4
Estimated woodfuel consumption in 2000

Country	Consumption
	(000 m^3)
Angola	3 740
Botswana	745
Lesotho	2 754
Malawi	6 131
Mozambique	31 278
Namibia	872
South Africa	21 183
Swaziland	947
Zambia	8 773
Zimbabwe	7 894
Total Southern Africa	**84 316**

Source: Broadhead *et al.*, 2001.

consumption. If South Africa's production (about 70 percent of the subregional total) is excluded, almost 90 percent of roundwood production is used as woodfuel. As indicated in Table 3, there is no significant gap between production and consumption.

Woodfuel is likely to remain the most important source of domestic energy on account of population growth, low incomes and the limited availability and accessibility of alternative energy sources[9]. Efforts to tap other sources of energy, especially electricity from the Congo and oil in Angola, are under way, but there are constraints on their wider availability and use[10]. Even in urban areas, woodfuel will continue to be a major source of energy, especially for low-income households.

Natural forests and woodlands (especially under communal ownership) is the most important source of woodfuel, although it is also obtained from woodlots and trees outside forests. Some plantations have been established to meet urban woodfuel demand in cities such as Blantyre, Lilongwe, Harare and Gaborone, but they are far from adequate to meet the growing demand. More important, the poor economic returns from these plantations have limited the scope for expansion and intensive management.

Urban forests and plantations are now facing stiff competition with food production even in areas where forests have survived in the past. The recent price hikes for paraffin and electricity in Zimbabwe and Malawi have caused increased clearing of both peri-urban natural forests and plantations. This trend is likely to continue as unemployment and the cost of living continue to rise.

The majority of the rural population will continue to rely on woodfuel as their main source of energy and the demand for woodfuel is expected to grow in most countries. Alternative sources of energy such as electricity, petroleum products and coal are unlikely to find a wider use, mostly because of their limited affordability. Some fuel-switching may take place among the urban population, thus reducing the use of woodfuel, particularly when charcoal has to be procured from increasingly distant sources, making it more expensive.

BOX 9
ZIMBABWE REFORESTATION

In Zimbabwe the Forestry Commission in collaboration with various government departments and NGOs have been carrying out re-afforestation programmes since 1983, but nevertheless results have not been successful in relieving the pressure on forests and securing woodfuel supplies in the region. The reasons for this have been numerous and include lack of clarity of land use policies, insecure tenure, conflicting stakeholder interests and poor silvicultural information which has resulted in water stress, termite damage and poor post establishment protection.

(African Development Bank, 2001a)

BOX 10
SCOPE FOR THE USE OF ALTERNATIVE ENERGY

Studies have shown that other conventional energy sources like electricity, petroleum products and coal are not widely used because they are not affordable and/or accessible. In several countries the consumption of woodfuel has increased due to increasing prices of petroleum products, electricity and electrical appliances. In Malawi the proportion of woodfuel used in rural households has increased from 90 percent to 94 percent on account of this. Angola is so far the only oil producing country in the subregion. However the price of petroleum products in the country makes it impossible for the poor rural population to use these products.

(African Development Bank, 2001b)

Industrial roundwood and its processing

With an estimated industrial roundwood production of 24 million m^3 in 2000, Southern Africa accounted for about 35 percent of regional production, with almost 68 percent of this being produced in South Africa. Other major producers are Swaziland and Zimbabwe where, as is also the case in South Africa, this is entirely

[9] In Malawi, the share of woodfuel in total household energy has increased from 90 to 94 percent in recent years.

[10] Botswana has recently been making efforts to popularize the use of coal in order to reduce the demand for woodfuel and thereby minimize the pressure on natural woodland. Success has so far been modest as a result of many factors - cultural and technological (lack of access to stoves), as well as financial (even with heavy subsidies).

attributable to the well-developed state of plantations in these countries. Zambia, Mozambique and Angola are also leading industrial roundwood producers, but most of the production comes from indigenous forests. Table 5 gives an indication of the significance of the Southern African forest industry in the regional context.

TABLE 5
Southern African forest-based industry in the regional context

Product	Production in 2000	Consumption in 2000	Southern African share of production	Lead Southern African producers
Industrial roundwood (million m^3)	23.97	23.61	34.9%	South Africa, Swaziland and Zimbabwe
Sawnwood (million m^3)	2.22	2.47	28.9%	South Africa, Zambia and Zimbabwe
Wood-based panels (million m^3)	0.603	0.597	29.3%	South Africa, Malawi and Zambia
Plywood (million m^3)	0.070	0.071	10.2%	South Africa, Mozambique and Angola
Fibreboard (million m^3)	0.150	0.154	65.2%	South Africa
Woodpulp (tonnes)	2.351	1.464	87.5%	South Africa, Swaziland and Zimbabwe
Paper and paper board (tonnes)	2.125	1.892	72.9%	South Africa and Zimbabwe
Newsprint (tonnes)	0.345	0.201	93.8%	South Africa, Zimbabwe
Printing and writing paper (tonnes)	0.515	0.672	78.3%	South Africa

Source: FAOSTAT.

Southern Africa (particularly South Africa) is the foremost African producer of all the items, except for plywood, veneer and sawnwood. As the degree of value addition increases, the proportion produced by Southern Africa increases substantially, in stark contrast to the situation in other subregions and countries. The current situation in the subregion with regard to wood-based industries is indicated below.

Forest-based industries in the subregion are concentrated in a few countries, with South Africa playing a key role (see Box 11). Other countries with a well-developed industrial sector include Zimbabwe (sawmills, boardmills, pulp and papermills), Zambia (sawmills, boardmills) and Swaziland (sawmills, boardmills, one pulpmill).

At present forest-industry operations in Zimbabwe are affected by the uncertain political environment.

BOX 11
THE SOUTH AFRICAN FOREST INDUSTRY - AN OVERVIEW

South Africa has a well-established forest industry, which has emerged as a significant player in the global market despite a relatively small wood resource base. In recent years it has consolidated its position and enhanced its competitiveness through mergers and acquisitions. Comparing the forestry sector of South Africa with that of New Zealand shows that they are almost identical concerning forested area, annual harvests, output, export earnings, employment, and contribution to GDP. The South African forest and forest products sector accounts for about 2 percent of the GDP and ranks in the top five non-mineral exporters. Direct employment and indirect employment in the forest industry sector is estimated at 135 000, mostly in the rural areas. The forest product sector is the fourth largest manufacturing sector in the country.

(African Development Bank, 2001a)

There is considerable scope for expansion of the industry, especially in view of the favourable raw-material supply situation and the existence of professional and technical skills. The sawmilling industry has adopted certification requirements as an important means of maintaining its market in Europe. The country does not have the necessary raw-material base to expand production of board, pulp and paper for export.

Zambia's sawmilling industry is largely dependent on wood from natural woodlands and there is scope for the expansion of plantations, although infrastructure will remain a major constraint. Swaziland has a small but well-established sawmilling and board industry based on raw material from forest plantations, which also provide wood to a pulpmill with an annual production capacity of 217 000 tonnes. However, the pulpmill is expected to cease production by 2020 on account of obsolescence. This may lead to changes in the structure of the forest industry in Swaziland and provide opportunities for the establishment of new processing units or the export of industrial roundwood to South Africa or other countries.

Botswana, Lesotho and Namibia have no primary forest industry, largely on account of the poor resource base. Botswana imposed a ban on all timber operations in 1992. Lesotho's resource base is far from adequate to support any large-scale industrial development; nor is this a priority in view of other concerns such as protecting watersheds and increasing water yields. Angola did have a developed forest industry, but this

BOX 12

THE PITSAWING INDUSTRY IN MALAWI

An important feature of the sawmilling sector of Malawi is the preponderance of informal or pit sawing operations. These operations are spread amongst all industrial plantations. There are also numerous pit sawyers on both private and customary land forests, who depend on forests and trees for their livelihoods. It is estimated that the pit sawyers and mobile sawmillers produce more than 17 580 m^3 of sawnwood annually out of 80 000 m^3 log intake (DFID, 2000) The value of the output is estimated at US $1.5 million.

There is an increasing trend in the number of pitsawing operations over the years. This trend is going to continue to increase because of potential pit sawing that can be done both in plantations and on farm. The demand for timber is on the increase in response to increasing population and demand for timber products. For example, there is a growing construction industry, growing furniture demand and growing demand for coffins in the light of AIDS pandemic.

(Kainja, 2001)

has more or less come to a standstill on account of the civil war. With the end of the civil war, there is potential for the reviving the forest industry in Angola.

Malawi has a small primary wood-processing industry consisting of a few smaller sawmills complemented by a few boardmills and some furniture factories. An important feature in the sawmilling sector in Malawi is the dominance of pitsawing, which takes place largely in the informal sector (see Box 12). Intense population pressure limits the scope for the expansion of industrial plantations. Although there is potential for improving the efficiency of utilization and increasing recovery rates, economic and institutional constraints limit technological improvements.

Mozambique also has a small primary wood-processing industry, consisting of a few small sawmills, a boardmill and a mill processing recycled paper. The country exports industrial roundwood to South Africa and in recent years to China and other Asian markets. However, establishment of a viable industry depends on sustainable management of its natural forests - and efforts in this direction are inadequate on account of a number of constraints.

Trade in wood products

Southern Africa is a major importer as well as an exporter of forest products. Over the past 10 years Southern Africa's share in total African forest product exports has steadily increased. In 2000 the value of Southern African forest product exports stood at US$940 million or about 37 percent of the African total. South Africa, Swaziland and Zimbabwe are the largest forest product exporting countries, with South Africa accounting for about 88 percent of subregional exports (FAOSTAT), a substantial proportion of the country's share being value-added items, especially woodpulp. In recent years, Mozambique's wood exports have seen a significant increase.

Southern Africa also imports a substantial quantity of forest products. In 2000, it imported forest products worth about US$548 million, or about 19 percent of the value of total African wood product imports. Here again, South Africa is the leading importer, accounting for about 89 percent of the Southern African total. Zimbabwe is another important importer, but its share in 2000 was just about 5.5 percent of the value of subregional imports. Sawnwood is the most important item imported by the subregion.

The South African strategy of forest industrial development demonstrates what can be accomplished even in a forest-deficit situation and how from a position of being a net importer a country can become a net exporter if a competitive forest-based industry is developed and nurtured. (see Box 13). The most important items exported from South Africa are wood pulp and paper and paper board, both high value added items. The main imports are sawnwood and printing and writing paper. In general the net trade surplus in the forest sector is on account of the high proportion of exports of value-added items. Most countries in Africa tend to adopt a strategy of exporting low value-added items and importing high value-added products, resulting in a high trade deficit.

BOX 13

FROM DEFICIT TO SURPLUS: THE STORY OF THE SOUTH AFRICAN FOREST INDUSTRY

Up until 1984, South Africa was a net importer of forest products. Since then the trade surplus has been growing. Between 1992 and 1999 the forest product trade surplus increased from R923 million to almost R3.4 billion in nominal terms. This represents an increase of 267.7 percent or an annualized compound growth rate of 20.4 percent. By comparison the total of South African trade surplus increased by a modest 4.5 percent per annum over this period.

In US$ terms the forest product trade surplus increased by 71.6 percent during 1992 and 1999 or by a compound growth rate of 8.0 percent.

(Madula and Simelane, 2001)

Non-wood forest products

Non-wood forest products play an important role in the livelihood of people in Southern Africa by providing a range of products for subsistence consumption and trade. Medicinal plants, exudates, forage, bee products, edible plants and bushmeat are some of the main items in this category[11]. Since these items are produced and traded largely in the informal sector, there are few reliable statistics on trends in production, consumption and trade. The high incidence of poverty and the limited access to products and services from the formal sector has increased the reliance on non-wood forest products for a large number of people, especially the poor, and dependence on these products is expected to persist over the next 20 years. There is also a growing international trade in a number of products, including medicinal plants.

Among the various non-wood forest products, medicinal plants deserve special attention, particularly in view of their importance in traditional healing[12]. The annual trade in medicinal plants in South Africa is estimated at about US$60 million. Zambian annual exports of medicinal plants are estimated at US$4.4 million (FAO, 2000). Increasing urbanization and the inadequacy of conventional medical facilities have resulted in a growing demand for traditional healing, in turn increasing the demand for medicinal plants (Cunningham, 1997).

Another important non-wood forest product is bushmeat, which forms an important source of protein for many rural communities (see Box 14). There is also a growing demand for bushmeat in urban areas, resulting in more organized hunting and consequent depletion.

The main problems with non-wood forest product conservation and utilization will be:

- depletion of resources, largely as a result of uncontrolled exploitation;
- limited efforts to domesticate and cultivate commonly used items;
- very limited efforts at value addition and at improvements in traditional techniques; and
- a lack of understanding of markets, especially of emerging opportunities, prices, etc., and the changing demand-and-supply situation.

There is growing evidence of an increasing trade in some of the products[13]. The main priorities are ensuring that local communities are able to benefit fully from this and that it does not lead to resource depletion. Increased value addition through processing, quality control and improved packaging are some of the other key issues concerning the utilization of non-wood forest products. In view of the inevitable resource depletion, there is also a strong case for domestication and more organized production of certain items. However, it has to be ensured that benefits from domestication and more organized cultivation accrue to rural communities and that such efforts do not result in the boom-and-bust cycles typical of a number of products, increasing the vulnerability of those involved in production and processing.

BOX 14

SOME SALIENT FEATURES OF BUSHMEAT PRODUCTION IN EAST AND SOUTHERN AFRICA

- Over 100 species were recorded in the East and Southern Africa bushmeat trade.
- Over 76 percent of inhabitants in the 13 survey areas utilized bushmeat at least every few days.
- Bushmeat production is no longer a subsistence-based activity; rural agriculturists, pastoralists and urban dwellers are now relying on bushmeat.
- Protected areas are now facing increased pressure owing to hunting for the bushmeat trade.
- Throughout the countries surveyed, all rural areas use bushmeat because it is much cheaper than alternative domestic items. In urban areas the situation is just the opposite and bushmeat prices are high as the trade caters to the consumption of high-income households.

(Barnett, 2001)

WILDLIFE AND TOURISM

Southern African forests and woodlands support a large population of wildlife, especially large game, thus providing the subregion with a unique advantage. Substantial efforts have been made to conserve and manage the resources through the establishment of a network of protected areas. Currently the extent of protected areas is about 10.4 percent of the land area (see Table 6). In some of the countries the total area under wildlife reserves and protected areas is almost 30 percent of the land area. The vast stretches of national

[11] Some of the main non-wood forest products are oils, nuts, insects, worms, roots, fruits, thatch grass, bamboo, palm fronds, honey, mushrooms and cane.

[12] In 1997 South Africa had some 27 million consumers of traditional medicines and over 100 000 traditional healers.

[13] There is a substantial local and subregional trade in ornamental flowers, plants, shrubs and leaves. Certain medicinal plants from Mozambique, for example, are sold in South African markets.

TABLE 6
Extent of protected areas in Southern Africa

Country	Protected area in 1997	
	(000 ha)	Percentage of land
Angola	8 181	3.4
Botswana	10 499	18.5
Lesotho	680	22.4
Malawi	1 058	11.2
Mozambique	6 979	8.9
Namibia	11 216	13.6
South Africa	6 645	5.4
Swaziland	60	3.4
Zambia	22 650	30.4
Zimbabwe	4 997	12.9
Total Southern Africa	**72 965**	**10.4**

Source: UN, 2003.

BOX 15
CAMPFIRE IN ZIMBABWE

One of the most promising interventions so far is the inception of the Communal Area Management Program for Indigenous Resources (CAMPFIRE) in Zimbabwe. Today 33 of the country's 55 rural district councils are participating in this programme.

As a result of CAMPFIRE, communities now perceive wildlife as a valuable asset and not merely as something posing a threat to life, property, crops and domestic stock. On average, CAMPFIRE projects in Zimbabwe generate over US$500 000 annually, 90 percent of which have in the past come from hunting, although the income from ecotourism is now forming an increasing share. In addition to income directly accruing to participating households, local communities have used revenue to establish schools, grinding mills, electric fences and sales depots.

parks and their wildlife have facilitated the development of a booming tourism industry. Especially South Africa has become a major destination for international tourism, despite a temporary decline immediately following the terrorist attacks of 11 September 2001 in the United States. Southern Africa has the necessary infrastructure and a well-developed system with significant private-sector involvement and this is expected to play a key role in the development of wildlife-based tourism. Political stability and the overall perception of security will be the main concerns with regard to the development of wildlife-based tourism.

Commercial viability and long-term sustainability are key issues in the management of wildlife reserves. Considering the fact that most wildlife reserves in both the public and private sectors have been established by excluding local communities, many of the parks have become socially unsustainable. Increasing community participation and the development of appropriate systems for benefit sharing are thus critical to the success of wildlife management in most countries in Southern Africa.

There are several examples of community participation initiatives in Southern Africa. The Community-based Natural Resource Management Programme has been in place for over 10 years in Botswana. By channelling benefits directly to the communities living with wildlife, it provides incentives for conservation, and this has generated considerable local awareness of the need to conserve wildlife (see Czudek, 2001). The Communal Area Management Program for Indigenous Resources (CAMPFIRE) in Zimbabwe (see Box 15) represents another major participatory approach and provides valuable lessons. These efforts of course are not problem-free requiring continued efforts to refine institutional arrangements, especially to improve the capacity of local communities to manage the resources sustainability and to enhance the share of benefits accruing to them. .

Hitherto most efforts to protect wildlife and other biodiversity have focused on the establishment and management of protected areas. Two options available to widen the scope of protection are (a) to increase the extent of the protected-area system to cover all important biomes and (b) to integrate biodiversity protection into all land uses. The scope for both options is limited in the Southern African context: increasing land-use pressure will limit the scope for expansion of protected areas, while integrating conservation into all land uses would require fundamental changes in the way land is used, including the crops grown and the technology adopted - and such changes are unlikely to take place in the next two decades. Improved management of existing parks would seem to be the key option for the foreseeable future.

Growing subregional collaboration, especially through the establishment of transfrontier conservation areas by linking existing national parks and game reserves is a key development in the management of protected areas.(see Box 16) Apart from providing unbroken habitats, such efforts also improve coordination, especially in protection from poaching and in habitat management. The Peace

BOX 16

KGALAGADI TRANSFRONTIER PARK

The Kgalagadi Transfrontier Park established jointly by Botswana and South Africa in 1999 is the first transfrontier park in Africa. The whole area is monitored by the Kgalagadi Transfrontier Park Foundation; a joint management agency implements some activities jointly, while others are carried out independently by parks management agencies in each country.

(van der Linde *et al.,* 2001)

Parks Foundation, a leading non-governmental organization supporting the establishment and management of transfrontier parks, has identified seven additional clusters for transfrontier conservation.

One of the important benefits from wildlife is the supply of bushmeat, which has a critical role in the food security of the inhabitants. Bushmeat is obtained legally through ranching, farming, cropping/culling, licensed hunting or problem-animal control initiatives, or through illegal hunting. Some countries have developed a well-organized game ranching industry (see Box 17), although recent efforts to implement land reforms may have some impact on land-extensice game ranching. Bushmeat hunting and use were perceived as subsistence activities in the past, undertaken by traditional hunter-gatherer societies. However, the increasing population, acute poverty and widespread unemployment in the region are increasing reliance on natural resources such as bushmeat, contributing significantly to a higher standard of living. There is also a substantial increase in the trade in bushmeat, particularly to meet the growing urban consumption.

BOX 17

GAME RANCHING IN ZIMBABWE

Zimbabwe's game ranching industry is by far the most developed due to conducive wildlife ownership and land tenure policies that support active investment in the industry. In Zimbabwe, the onus to manage wildlife is firmly in the hands of land holders who oblige because of the livelihood they can make through such consumptive wildlife uses as meat production. The result is a substantial game ranching (over 500 ranches) farming (over 700 ostrich, 45 crocodile farms) and cropping industry on Zimbabwe's large-scale commercial farms as well as communal land areas.

(TRAFFIC, 2000)

SERVICE FUNCTIONS OF FORESTS: WATER AND FORESTS

With a substantial proportion of the subregion lying in the dry zone, there is a clear recognition of the link between land use and water. South Africa is one country that has initiated far-reaching measures in support of water conservation. The country's 1998 National Water Act is a key piece of legislation, stressing the public nature of water resources and laying down that there shall be no private ownership, only the right or authorization to use water. Elected catchment authorities will manage water use in defined areas. Some components of the act, especially those relating to rainfall levies, tend to have a negative impact on forestry, especially as regards the extension of forest plantations. Water issues will thus dominate the expansion of plantation forestry in South Africa, as well as in some of the adjoining countries.

With increasing damage from floods, especially in Mozambique, watershed protection has become a critical issue in the Zambezi River basin. This will also be important in ensuring supplies of water for agriculture as well as power generation, particularly in Lesotho. Protection of the Lake Malawi watershed is receiving some attention, especially as problems such as declining fish populations become evident.

In all these cases, future scenarios will depend on how conflicts between alternative uses - and more particularly upstream and downstream needs - are resolved. People upstream will have to refrain from certain land uses that will accelerate erosion and undermine certain types of water-dependent activity. Integrated approaches will have to be worked out, detailing how costs and benefits are to be shared in an equitable manner.

SUMMARY OF THE CURRENT SITUATION

Southern African forestry is characterized by a number of contrasting situations, which means that it is hard to make generalizations for the subregion. The situation in South Africa is unique and should be treated separately for the purposes of analysis. The forest and forestry situation in each country reflects the overall state of social and economic development in that country. Some of the features that need to be taken into account are as follows:

- while there is a very well-developed wood industry based on plantations in South Africa, Swaziland and to some extent Zimbabwe, in most other countries forests and forest industries are poorly

developed. Indigenous forests are poorly managed, and although no reliable statistics are available, they are certainly being overexploited;

- in most countries, except South Africa and Swaziland, deforestation is continuing as a result of the expansion of agriculture and other related land uses. Zambia has the highest rate of deforestation with an annual forest cover loss of about 850 000 ha;
- plantation forestry is well developed in South Africa and to some extent in Zimbabwe and Swaziland. In most other countries the type of ownership, low investment and the absence of links with the processing sector have undermined the performance of plantations;
- Southern Africa has a unique advantage in its network of national parks and game reserves, which is an integral component of the fast-growing tourism industry. Conflicts will intensify in the future, however, and considerable efforts will be needed in order to resolve them. Local participation in the management of national parks and game reserves will remain an important option and should be systematically pursued;
- increasing water scarcity will draw attention to the role of forests and trees. In several countries, there will be an urgent need to adjust and refine watershed management and this will require considerable study.

Chapter 3

Some critical change drivers

What happens to forests and forestry will be largely determined by what happens outside the sector, which makes it imperative to identify these factors and assess their collective direct and indirect impacts. For convenience of discussion, the main change factors have been grouped as (a) political, social and institutional, (b) demographic, (c) economic, (d) technological and (e) environmental. Changes in these factors, past and probable future, are described below. However, it must be emphasized that they affect the sector collectively, and overall changes in forests and forestry will depend on the relative strength and intensity of these drivers.

POLITICAL, SOCIAL AND INSTITUTIONAL FACTORS

One of the important positive developments in recent years is the wider acceptance of democratic processes in the political set-up of most countries. Despite some teething problems and distortions in the process, there are indications that democracy is taking root and that ballot boxes are becoming the means of changing governments, making them directly accountable to the people. The most notable change in this regard has been in South Africa, where the apartheid regime was replaced by a democratically elected government. These changes have helped to review the role of governments, while appropriate changes in policies have stressed wider popular participation. An important outcome of all these changes is the devolution of administrative responsibility to local levels through decentralization. Community participation in resource management is another area that is receiving increasing attention. There has also been increased emphasis on private-sector involvement, with governments transferring some of the responsibilities for providing goods and services to the private sector, often out of compulsion to reduce public sector spending.

Within the forest sector, these changes have resulted in the revision of forest policies and legislation. Key areas of change that will have a bearing on forests and forestry include:

- decentralization and community participation;
- land reforms;
- the ongoing process of privatization in forestry as well as other sectors; and
- the resolution of conflicts and civil wars.

In addition, major policy changes with regard to land tenure and ownership also have an impact on forests and forestry. In the Southern African context, ongoing land reforms aimed at correcting certain historical injustices are the most critical as far as forests and forestry are concerned. Details of these changes are outlined briefly below.

Decentralization and community participation

Throughout the subregion, far-reaching changes in government are taking place, empowering local bodies and communities to manage resources through a process of decentralization and devolution of administrative powers and responsibilities. Customary ownership of land is receiving legal recognition. Mozambique's land reform law of 1997, for example, recognized customary land rights over local resources, including extensive forests. Similarly, Namibia's 1998 land policy recognized the rights of local communities to woodland resources. The creation of new state or regional forests will be taken up only if the objective of creating such forests cannot be accomplished through the establishment of communal forests.

Although there is a clear trend towards decentralization and the involvement of local communities, with supporting legislation being enacted in a number of countries, it may take some time before such decentralized management systems are up and running. In many cases problems will become evident only when the process starts. There may also be situations where participatory approaches are not totally successful, largely because due attention has not been given to all the aspects of institutionalizing the process. Confronted by failures, there could be calls to revert to the earlier arrangements of centralized control and management. Although the progress of decentralization may be slow and chequered, all the indications are that participatory approaches will find wider adoption in the management of natural resources including forests and woodlands.

BOX 18

FEATURES OF LAND REFORMS IN ZIMBABWE, SOUTH AFRICA, ZAMBIA AND BOTSWANA

Country	Types of reform	Features
Zimbabwe	Redistribution	Government compulsorily acquires land, with compensation, for distribution to selected beneficiaries Government, with limited beneficiary contribution, provides most of the infrastructure
South Africa	Restitution Redistribution Tenure reform	Compensation for expropriated land Cash land grant allowing individuals to select partners Negotiated land acquisition Flexible tenure arrangements determined by beneficiaries
Zambia	Tenure changes	Introduction of leasehold
Botswana	Administration of land	Reduced individual and state ownership of land Increased locally accountable ownership in the form of tribal land Local accountability comes from administering land allocation via land boards

(ZERO, 1998)

Land reforms

Another important development in recent years is the effort to reform landownership, particularly to remedy the inequities created by land appropriation under colonial rule. In almost all countries, landownership is very unequal[14] and land reform is thus a priority in most countries. However, the process of change has not been smooth, as is seen in Zimbabwe, which has been affected by violence and related problems. Land redistribution will have an impact on the forest sector, since much of the land will be used for agricultural purposes.

The countries of the subregion have been following various strategies to implement land reform, and some features of these reforms are given in Box 18. The success of the reforms will depend not only on the political will but also on the degree of awareness and farmer participation and the provision of support services to farmers to encourage them to adopt balanced land use. The institutional capacity to follow through the entire process of reform, including the provision of post-reform support to farmers, is often absent. Failure to resolve land-use conflicts amicably could have serious social and economic repercussions.

Privatization

The private sector is well-developed in Southern African forestry and consists of a wide range of actors, from large multinational companies to small-scale operators such as sawmill owners and those managing woodlots under outgrower schemes. Traditionally, the private sector is well developed in wood harvesting and processing. Forest-plantation management is another area in which the private sector in Southern Africa has been particularly active (see Box 19). In countries such as South Africa and Swaziland most of the forest plantations are owned by the private sector, while in Zimbabwe almost half of these plantations are under private ownership. There is also a rapidly growing interest in woodlot establishment by landowners under outgrower schemes.

While there could be some initial bottlenecks, all the indications are that private-sector participation will become more widely accepted in the next two decades. Privatization has led to some improvements in the management of plantations, including technological advances. The private sector has also been involved in the management of national parks and game reserves, and there are several private parks in South Africa and Zimbabwe. In countries like South Africa the private sector provides substantial support for research and undertakes its own research or funds research to address specific problems.

In the Southern African context, it is important to take into account the strengths of the South African private sector and its potential for supporting forestry in other countries. Regional and subregional integration efforts are expected to pave the way for South African private-sector investment within the subregion as well as in other subregions. The precise area of investment will depend on how the South African private sector perceives the future. While forestry, especially plantations, could be an important area, this will be largely dependent on the perception of risks and opportunities in comparison with other alternatives.

Thus there are all the indications of the emergence of a strong private sector of large corporate investors,

[14] In Namibia, 44 percent of the land is under large farms owned by 6 500 farmers, with an average farm size of 5 800 ha, while 70 percent of the population occupy 43 percent of the country, which is mostly marginal land with very limited scope for intensive agriculture. In Zimbabwe, 4 500 commercial farmers own 39 million ha, or 32 percent of the country's area, which is inherently more productive.

BOX 19

FOREST PLANTATION PRIVATIZATION IN SOUTH AFRICA

South Africa's new forest policy (Government of South Africa, 1996) calls for radical changes in the way forests are viewed and managed. Central to this is a fundamental shift in the perception of appropriate responsibility for managing commercial forests from the public to the private sector. Achieving this in practice requires government to withdraw from managing plantations and to transfer the function to the private sector in order to achieve a range of anticipated efficiency gains and cost savings. This policy change - one that mirrors a wider national programme of economic reform and liberalization - is in large part driven by a number of factors common to the worldwide trend towards plantation privatization. Specifically:

- a recognition that government is poorly suited to managing commercial plantations; the initial rationale for government to undertake this function has passed and it should be left to the private sector, which is better suited to the task and has shown itself capable and willing to do so;
- a belief that privatization offers opportunities to attract investment and expertise needed to revitalize assets which often suffer from chronic under-investment; investment decisions in publicly-owned plantations often reflect wider public expenditure considerations which follow their own cycle rather than the needs of a forest enterprise;
- a fiscal imperative to reduce the burden of subsidizing inefficient (relative to the private sector) government plantations; and
- a recognition that continuing to undertake a commercial function potentially conflicts with the performance of government's regulatory role

(Foy, 2001)

BOX 20

LAND REDISTRIBUTION IN SOUTHERN AFRICA: MORE DECENTRALIZATION AND DEMOCRATIZATION, OR DECENTRALIZATION AND FEWER BENEFITS FOR THE POOR?

Land redistribution has been a central plank in land policy in Malawi, Zimbabwe, Namibia and South Africa for some time. However, recent trends are having a significant impact on rural land use and livelihoods in Southern Africa as a whole. Whilst the land distribution programme in Malawi targets large, foreign-owned estates for resettlement of the landless poor, in South Africa and Namibia (where an aversion has developed to the State-led programmes of the apartheid past) existing property rights have been protected in recent constitutions, which is hoped will promote investment and provide for demand-driven land reform (whereby landowners are encouraged to offer farms for sale voluntarily, and buyers from South Africa are encouraged by grants).

Inadequate administrative capacity has so far hindered progress in improving racially skewed landownership, which means that its impact on the rural poor has yet to be fully felt. Skill shortages and poor interagency coordination are further constraints, particularly in the light of institutional erosion and change.

In Namibia, deteriorating economic conditions are likely to increase the number of farms available for redistribution. In the present economic climate, extensive, low-input approaches seem to be a compelling option, calling into question the wisdom of fencing and privatizing rangelands.

(Adams and Howell, 2001)

primarily based in South Africa, with several other medium to small investors in most other countries. A major constraint will be the absence of a strong policy and legal framework facilitating the effective functioning of the private sector and providing a level playing field. Specific attention needs to be paid to dealing with social and environmental aspects of forestry development.

Resolving civil strife and conflicts

In comparison with the situation a decade ago, there are positive indications of improved political stability and the resolution of conflicts. However, there are still lingering problems that undermine progress. Until very recently Angola was the centre of one of Africa's long-standing conflicts. An end to this has opened up opportunities to improve the management of its vast forest resources. A number of countries in the subregion are directly and indirectly involved in the conflicts in the Democratic Republic of the Congo. The recent peace accord, if implemented effectively, will have a significant impact on the forest sector, especially by way of improving investment and trade. Fallouts from the conflicts and civil strife include the following:

- the displacement of a large number of people has had both a direct and an indirect impact on resources (including forests). The concentration of refugees has resulted in a great deal of pressure being exerted on local resources; for example, a highly localized demand for land for cultivation, woodfuel and other non-wood products. Such effects have been severe in western Zambia,

southern Malawi and the Beira Corridor in Mozambique;
- the extensive laying of antipersonnel mines in Angola and Mozambique has made large areas unsuitable for agriculture and other land uses. This has resulted in the concentration of people in urban centres and other mine-free areas, thus depleting forest resources in adjoining areas;
- in a number of countries large tracts of forests cannot be put under any kind of management and are often out of bounds for security reasons.

Internal problems, especially related to land reforms in Zimbabwe with its potential repercussions on adjoining countries, have recently contributed to considerable uncertainty. Apart from the direct link between land reforms and forestry, the manner in which the problem is resolved will have a significant impact on the development process in several countries in the subregion.

DEMOGRAPHIC CHANGES

Undoubtedly demographic factors have an overwhelming direct and indirect influence on forests. Population growth, urbanization and changes in land dependency are important determinants shaping forests and forestry in Southern Africa.

Population growth

Southern Africa currently has a population of about 113 million (see Table 7), accounting for about 14 percent of the population of Africa. Between 1980 and 2000, the population grew by about 44 million and by 2020 a further increase of 37 million, resulting in a total of 150 million, is expected. Considering the much higher growth rates in other subregions and the anticipated effect of HIV/AIDS, Southern Africa's proportion of Africa's population is expected to decline to about 12.7 percent. Although the growth rate is lower than that of other subregions, the fact remains that the increase will affect forests and wildlife directly and indirectly.

TABLE 7
Population of the subregions of Africa

Subregion	1980	1990	2000	2010	2020
	(million)	(million)	(million)	(million)	(million)
North Africa	108.6	140.2	170.4	208.8	239.0
East Africa	104.5	141.2	182.1	230.0	289.0
Southern Africa	**69.5**	**89.7**	**113.4**	**128.7**	**150.2**
Central Africa	54.4	73.6	97.9	127.0	163.8
West Africa	132.2	177.8	234.0	277.6	344.0
Total Africa	**469.2**	**622.5**	**797.8**	**972.1**	**1 186.0**

Source: Figures for 1980, 1990 and 2000 from World Bank, 2002. Projections for 2010 and 2020 from African Development Bank, 2000.

TABLE 8
Size and density of population in Southern Africa

Country	Population 2000	Density 2000	Annual rate of change 1995–2000
	(million)	(inhab./km^2)	(%)
Angola	12.7	10	3.3
Botswana	1.6	3	1.9
Lesotho	2.2	73	2.2
Malawi	11.0	117	2.5
Mozambique	17.6	22	2.5
Namibia	1.7	2	2.3
South Africa	42.9	35	1.5
Swaziland	1.0	59	2.9
Zambia	10.1	14	2.3
Zimbabwe	12.6	32	1.4
Total Southern Africa	**113.4**	**19**	**2.4**

Source: World Bank, 2002.

As shown in Table 8, there are significant differences between countries as to the size of the population, its density, annual growth rate and the proportion of rural population.

With about 43 million inhabitants, South Africa has the highest population in the subregion. Several countries, for example Botswana, Namibia and Swaziland, have a population of less than 2 million, indicating the small size of the markets and the attendant limitations in taking advantage of the scale economies characteristic of modern forest-product processing firms. Another demographic feature is the variation in population density, which ranges from 2 per km^2 in Namibia to 113 per km^2 in Malawi. Other countries with a high population density are Lesotho (70 inhabitants per km^2) and Swaziland (57 inhabitants per km^2). Population density variation gives a rough indication of the extent of pressure on resources, although it is important to take into account the land productivity differences resulting from climatic and edaphic conditions. The population growth rate in the subregion is highest in Angola, with 3.3 percent, and lowest in South Africa and Zimbabwe, with 1.5 and 1.4 percent respectively.

Urbanization

Though currently the population in the large majority of countries is rural[15], migration[16] and high fertility rates will lead to significant growth in the urban population in the next two decades, with consequences for land use

[15] Malawi has the highest percentage of rural population. South Africa is the exception with a rural population accounting for 46 percent of its total.
[16] Principal labour flows in the subregion have been directed to South Africa and to a lesser extent Zambia. With the worsening economic situation in Zimbabwe, there is considerable migration out of the country. Remittances from the largely male migrant population have become an important source of income in the countries of origin.

BOX 21

MALAWI - REVERSE FUEL-SWITCHING

In urban and semi-urban areas, high tariff of electricity by ESCOM and price hike in electrical appliances is another contributing factor, as many people cannot afford to use electric power, hence there is lack of appropriate alternative technologies to substitute firewood and charcoal. Only 2 percent of the population is now using electricity (NSO, 2000). There is a decline from 4 percent and corresponds to the increase in woodfuel dependence.

(Kainja, 2001)

and forestry in terms of demand for forest products and services. The urban population in Southern Africa in 2000 is estimated at about 41 percent, but is expected to reach over 52 percent by 2020. South Africa will be the most urbanized country with almost 70 percent of the population living in urban areas. Botswana will also become a highly urbanized society. At the other extreme will be Malawi where the urban population will account for about 24 percent of the population.

Urbanization has a number of direct and indirect effects on forests and forestry. Most studies indicate an increasing demand for construction timber. The demand for woodfuel will, however, depend on availability and access to commercial fuels. In the absence of improved access to such fuels, woodfuel - especially charcoal - will remain the main source of energy and the switch from firewood to charcoal often increases the pressure on sources of supply (see Box 21). Peri-urban areas will come under increasing pressure, especially to meet the increasing demand for biomass energy, but also for agricultural land to meet the growing demand for food. In addition to meeting the demand for various forest products, improving the urban environment will have to be addressed and forestry will be called on to play an important role here.

Another indirect effect of urbanization on forestry will be through the increasing demand for water. In most cases urban water supplies are already in a crisis situation. The function of forests in regulating water supplies is becoming increasingly recognized and the safeguarding of sources of urban water supplies has already become an important consideration in protecting forests.

Impact of HIV/AIDS

Another key factor that will have direct and indirect effects on forestry is the HIV/AIDS pandemic. Southern Africa is characterized by a very high rate of HIV/AIDS infection and in some countries almost a third of the adult population between the ages of 15 and 50 is affected[17]. Some of the specific consequences will include:

- a drastic reduction in the productivity of all sectors, including agriculture, as HIV/AIDS primarily affects the most active working population; in Zimbabwe, for example, output from communal agriculture has fallen by 50 percent over the past five years (UNAIDS, 2000);
- the depletion of household capital as families have to take care of the sick, incurring high expenditure, including the cost of funerals;
- declining industrial productivity on account of the cost of finding replacements for skilled workers affected by HIV/AIDS;
- the inability of governments to invest, as a substantial proportion of the budget is taken up with the provision of health care; and
- an erosion of accumulated knowledge capital (in families as well as institutions), arresting and reversing progress.

A recent UN World Population Prospectus study estimates a drastic reduction in life expectancy[18]. Coping with HIV/AIDS will strain the resources of all sectors, including households, governments and industries, and will have a significant effect on forests and forestry. However, no assessment has yet been made of the effect of HIV/AIDS on forests and forestry. The estimated reduction in the number of agricultural labourers by about 17 million by 2020 (FAO, 2001b), is bound to have an effect in terms of changes in land use, availability of labour for forestry operations, etc. More important, AIDS is already reducing the number of professional and technical staff in all sectors, including forestry. Some of the large wood-industry units are implementing an HIV/AIDS policy, focusing on creating the necessary awareness and investing in preventive and control measures.

Change in age structure

With about 43 percent of the population below the age of 15, Southern Africa has a very young population. In the next two decades these young people will become

[17] The current rate of infection in the adult population in the subregion varies from 13.2 percent in Mozambique to as high as 36 percent in Botswana. South Africa has the highest number of HIV/AIDS-infected persons in the subregion.

[18] In South Africa, for example, life expectancy is expected to fall from 69 to 42 years on account of AIDS. In the case of Botswana the reduction will be from 73 to 43 years.

adults and their perceptions and attitudes will have an overwhelming impact on the utilization of resources. There will be an increasing demand for employment and this young generation will have different expectations of life. More of the educated youngsters are likely to seek employment opportunities in urban centres. The demand for housing is expected to increase and, depending on the availability and affordability of alternatives, the demand for wood and other materials used in construction is also expected to rise.

Migration and other population movements

Migration and mobility have always played an important role in the survival strategy of many groups in Africa. There is substantial migration of labour within the subregion, from countries with limited opportunities to those with high perceived employment opportunities. The principal labour flows have been directed to South Africa and to a lesser extent Zimbabwe and Zambia (see Box 22). With the migration of adult males to urban centres and mining areas in search of jobs, many rural households are headed by women. This has important repercussions for the intensity of land use and consequently for forestry. More important, it also imposes constraints on the labour supply for forestry activities.

BOX 22

MIGRATION TO SOUTH AFRICA - CRITICAL ISSUES

A recent report on migration in Southern Africa indicates the emerging situation in the subregion. Many Southern African economies have become dependent on South Africa as a source of employment for the growing population. South Africa's economy has been a magnet to many unemployed people in the surrounding countries. Since the dismantling of the apartheid system, the flow of legal and illegal migrants has increased markedly. Remittances by migrant workers is a major source of income for neighbouring economies.

While the interests of migrants (legal and illegal) have in the past been met without adversely affecting the perceived interests of South Africans, increased immigration following the dismantling of apartheid coincided with heightened expectations among locals, worsening economic conditions and increasing levels of unemployment. Many South Africans have hitherto identified illegal migration as one of the greatest challenges facing the society at present and in the future. This has resulted in less support for the idea of free movement of people in the subregion, as envisaged under the Draft Protocol on the Free Movement of Persons in the SADC Countries 1996.

(Roux, 2000)

In general, migration is a result of differing perceptions of employment opportunities. With the overall poor performance of the agricultural sector and limited opportunities in rural areas, there seems to be no alternative to migration. The recent decline in the mining industries has, however, altered the situation. In some cases, for example Swaziland and Lesotho, some of the migrants are returning as employment in the formal sector declines. Social tensions are on the increase, especially as employment opportunities shrink and conflicts between immigrants and the local population increase.

Consequences of demographic changes

Although population growth in Southern Africa is expected to be slower than that of other subregions, it will continue to strain resources. The overall impact, which will depend on the combined effect of several factors, is expected to be as follows:

- agricultural frontiers are likely to expand at the expense of forests and woodlands;
- urbanization is expected to alter the pattern of demand for woodfuel. While there are opportunities for replacement with commercial wood energy, such fuel-switching will be income- and access-dependent. If woodfuel continues to be the main source of energy, increased urban demand will require more wood for the production of charcoal. Another effect of urbanization will be the increased demand for construction material. More important, the increased demand for urban water supplies will have a bearing on forest management;
- the high level of HIV/AIDS infection will have significant impacts on forestry. Most important, HIV/AIDS will reduce the ability of households and governments to allocate resources for tree growing and forest management. It has also reduced the number of technical and professional forestry staff. Changes in land use on account of HIV/AIDS (from labour-intensive to uses demanding less labour, with increased use of products collected from the wild) will have direct and indirect effects on forests. There are also situations when agricultural fallow periods have been increased or cultivation has been abandoned, allowing the regrowth of wild vegetation;
- the changing age structure is expected to alter attitudes and perceptions, and there is a likelihood that the demand placed on forests and forestry could change significantly.

ECONOMIC CHANGES

Gross domestic product and its change

In comparison with other subregions in Africa, Southern Africa is in a better situation as regards gross domestic product (GDP) as well as per capita income.

TABLE 9
Southern Africa – GDP and per capita income

Country	GDP at current prices in 2000	Gross per capita income in 1991	Gross per capita income in 2000
	(million US$)	(US$)	(US$)
Angola	6 647	920	240
Botswana	6 330	3 080	3 300
Lesotho	1 122	590	540
Malawi	1 739	230	170
Mozambique	3 380	170	210
Namibia	4 230	2.070	2 050
South Africa	170 568	3 050	3 020
Swaziland	1 543	1 210	1 290
Zambia	3 959	400	300
Zimbabwe	7 838	920	480
Southern Africa	**207 356**	**1568**	**1398**
Africa	**595 002**	**692**	**671**

Source: World Bank, 2002.

Table 9 gives details of GDP and the change in per capita income for the subregion:

In 2000 Southern Africa accounted for about 35 percent of the African GDP, although it has only about 14 percent of the continent's population. Interestingly, this is entirely attributable to South Africa, which accounted for 82 percent of the subregional GDP although it has only 38 percent of the population. The subregion clearly has a high variability with regard to economic conditions, with some of the poorest (Angola, Malawi and Mozambique) and richest (Botswana and South Africa) countries in Africa. The uneven distribution of income among the countries in the subregion is further reflected in the enormous differences in per capita income. Angola, Malawi,Mozambique and Zambia have per capita incomes less than US$1 per day, while Botswana and South Africa have per capita incomes about fifteen times greater.

Income growth is a key determinant of future demand for all products, including wood and wood products, as also is the ability to invest in forest conservation and management. Apart from the low income levels (with a substantial proportion of people living in countries with a per capita income of under US$500), in most countries in Southern Africa the growth rate of per capita income has tended to be low or sometimes even negative (see Box 23). The per capita income for the subregion as a whole declined between 1991 and 2000.

BOX 23

GROWTH RATES OF GDP IN SOUTHERN AFRICA

During the period 1990-2000 the GDP growth rates of Southern African countries ranged from -0.4 percent in Zimbabwe to 5.8 percent in Mozambique. In the case of South Africa, with the highest population and the largest economy, it was only 1.7 percent. There are a number of countries where GDP growth rates have been less than population growth rates, resulting in a decline in the per capita income.

(World Bank, 2002)

Although some countries, such as Mozambique, have registered impressive growth rates, considering the low base figures, the high growth rates do not translate into a significant increase in absolute values. Furthermore, several countries have witnessed a decline in per capita GDP.

The overall situation of a low GDP and uneven distribution indicates the limitations that the forest sector has to face in terms of investment as well as demand for forest products. Low per capita incomes implies a limited domestic demand, thus undermining the prospects for investment to produce goods and services for domestic consumption. The low incomes of governments and households also limit investment capacity. With other critical priorities such as combating HIV/AIDS, households and governments are compelled to use their limited resources for improving health and education. Strong direct links between the South African economy and the rest of the region, particularly the neighbouring countries of Botswana, Namibia, Lesotho and Swaziland, make the former's performance a critical element in the overall economic development of the subregion.

Income distribution and poverty

Apart from the wide variations in income and its growth rates, another key aspect of most countries is the inequitable distribution of income and the resulting poverty. A number of countries, particularly Lesotho, Namibia, South Africa and Zimbabwe, have a Gini index exceeding 50, indicating a highly unequal distribution of income. This is primarily the outcome of a historical pattern of development (including land policies under colonial regimes) and the slow progress in implementing pro-poor growth strategies. Low and inequitable distribution of income is reflected in the high proportion of those below the poverty line and the low values for human development indicators such as life expectancy, literacy and infant mortality.

BOX 24

TRENDS IN POVERTY IN LESOTHO

An update of the exercise in 1994 concluded that the situation is deteriorating rapidly. Household incomes are falling as a result of retrenchment from the mines of RSA (Republic of South Africa) and to a lesser extent as a consequence of the implementation of the SAP, while agricultural production has continued its persistent long-term decline. The prognosis is equally bleak:

- without major improvements in agricultural productivity, per capita agricultural production will continue to decline;
- retrenchment from the mines in RSA seems to result in an impoverished rural population, with reduced access to its traditional coping strategy of migrant labour; with estimates indicating that each migrant supports himself and at least five dependents, the effects on household incomes is self-evident;
- the domestic economy is unlikely to grow at a pace necessary to employ any more than 10 000 to 12 000 of the estimated 41 000 joining the labour force every year.

(Maile, 2001)

Poverty is acute in rural areas and is on the increase in urban areas. In Zimbabwe 62 percent of the country's households are poor, with 46 percent of these living in absolute poverty. Malawi and Lesotho remain among the poorest countries, with over 60 percent of the population living below the poverty line. In South Africa 45 percent of the people are poor and in Zambia income of 68 percent of the population is below the subsistence needs.

The consequences of this for forestry include:

- continued dependence on natural resources such as forests and woodlands, which provide a number of goods and services to poor people and act as a critical resource during natural calamities such as floods and drought;
- growth of the informal sector dependent on forests, especially the collection of fuelwood, the production of charcoal and pitsawing to meet the demand from rapidly growing urban centres; and
- a limited ability to invest in resource conservation and management, especially in view of low incomes and uncertain land tenure.

Most countries are in the process of implementing poverty alleviation strategies, although results in this regard have so far tended to be unsatisfactory. Poverty and inequity will remain a major issue of social tension in most countries in Southern Africa.

BOX 25

SWAZILAND - A UNIQUE SITUATION

Among the Southern African countries, Swaziland is unique in that during the period 1990-2000, there was a net increase of 58 000 ha in forest cover and about 30 percent of the land area is currently covered by forests. Although Swaziland has a high population density (over 57 inhabitants per km2), it has a highly diversified economy and a relatively high per capita income (about US$1 360 in 1999). It has a high literacy rate (over 75 percent). Although Swaziland is predominantly rural, every household has a wage-earner, employed in the industrial or service sectors. Employment in the organized sector is a key concern, especially on account of the changing demand. This sectoral shift is probably the main factor in the improvement in forest cover.

Sectoral shifts in income and employment

The share of agriculture in GDP varies from around 30 percent in Malawi and Mozambique to 1.9 percent in Botswana and 16 percent in Zambia. However, the percentage of the population engaged in agriculture is substantially higher, reflecting the low productivity and consequently low income of those dependent on agriculture. Economic growth in some of the countries has relied on the development of extractive industries - minerals, precious stones and, as in the case of Angola recently, oil. However, these are yet to result in significant structural shifts in the economy. On the contrary, they have led to enclavist development, benefiting only a small segment of the population. The majority of the people has thus not been able to share the benefits of the development of the extractive sectors, remaining poor and highly dependent on land for their livelihood.

The low growth rates of the economy and declining employment prospects in the industrial and service sectors are of great concern for most countries. Even countries that have developed a strong industrial base, for example South Africa, are facing serious problems on account of low growth rates. The decline in industry and mining (in view of the declining prices of copper and other minerals) and changing skill requirements are likely to encourage some reverse migration to rural areas.

Agricultural development

Agriculture in the subregion is marked by a strong dualism:

- a large subsistence sector (including shifting cultivation) concentrated in communal or tribal areas, generally low-investment, low-productivity,

or on poor land with little irrigation and highly prone to degradation[19]; and

- a well-organized commercial farm sector (mainly found in Malawi, Namibia, South Africa and Zimbabwe) on freehold or leased land with good access to markets and inputs.

The subsistence sector is characterized by soil impoverishment and declining productivity, undermining the performance of agriculture, the mainstay of livelihood for the majority of the population. Although shifting cultivation under long fallow cycles is sustainable and less damaging to the environment, short-fallow shifting cultivation is not so. Shifting cultivation is a major cause of the high forest-cover reduction in countries such as Zambia.

The scope for further expansion of agriculture is fairly limited, except in Angola, Mozambique and Zambia. With increasing urbanization the pressure on land in peri-urban areas for cultivation is increasing. This is particularly so in the context of migration to urban areas and the low income from urban employment. In recent years, there has been significant migration of commercial farmers from Zimbabwe to Mozambique on account of uncertainties in Zimbabwe. There has also been some growth of commercial farms, resulting in forest clearing in Mozambique. Increased demand for agricultural land is also common in other areas where population is concentrated, such as along transport routes and around rural service centres and refugee camps. This is likely to have significant consequences for remaining natural forests land and protected areas.

The future prospects of agricultural development will depend on the success of intensification efforts and ongoing land reforms. Livestock raising is a major use of land throughout the subregion and in many countries an essential part of the subsistence farming system. Botswana, Namibia, South Africa and Zimbabwe have a well-developed commercial livestock sector. Meat exports are of considerable importance for the economies of the subregion, although the potential for exports could change in the context of changing trade patterns, especially that of new trading arrangements, including meat imports to South Africa. Poor grazing land and a high incidence of livestock disease limit future prospects of livestock production in many of the countries in the subregion. Overstocking on grazing land has resulted in bush encroachment and severe erosion in many areas.

Agriculture and animal husbandry in Southern Africa have to face two challenges, namely that of improving productivity, especially in the subsistence sector, and that of ensuring a comparative advantage in the context of increased trade. Most subsistence farms are on marginal land, an outcome of the policy of land appropriation during the colonial period. With most of the population concentrated on marginal land and the absence of any technological advances in subsistence farming, land degradation is bound to remain a critical problem. With a more liberalized trade regime in the pipeline and the new bilateral agreement between South Africa and the European Union, there could be significant changes in the direction of trade, and existing relations between countries are likely to be redefined.

Growth of the informal sector

Southern Africa has a vibrant informal sector based on forests and woodlands, with activities such as pitsawing, charcoal production, collection of non-wood forest products, and bushmeat production and trade. Considering the limited opportunities for employment in the formal sector, the informal forest sector will continue to be of critical importance in most Southern African countries (see Box 26). Most forestry activities - especially the collection and processing of forest products - will continue to be in the informal sector, as the main actors are unlikely to be integrated into the formal economy. In the absence of access to technical and financial support, they will continue to operate under a low-investment regime, with its attendant problems of resource depletion.

The limited prospects for growth of formal sector employment[20] would imply continued growth of the

BOX 26

INFORMAL SECTOR EMPLOYMENT

The recent publication of the ILO on Key indicators of the labour market provides useful information on the role of the informal sector. In 17 of the economies (including 9 from sub-Saharan Africa) for which information is available, employment in the informal sector accounts for more than 50 percent of total employment in the corresponding branches of the economy. The highest shares of informal sector employment were in sub-Saharan economies.

(ILO, 2001)

[19] It has been estimated that less than 10 percent of potential land is under irrigation.

[20] Although official figures from the Central Statistics Office in Zimbabwe still quote an unemployment figure of 6 percent, it is widely believed that it is around 60 percent of the country's employable population. Similarly, Angola's official unemployment figure is given as 19 percent and that of South Africa as 5.4 percent (1998), whereas the real figures are estimated to be as high as 40 to 50 percent. The trend is similar in most of the countries.

informal sector. However, by the very nature of the activities, they seldom receive any technical or financial support and function under a low-investment, low-productivity regime, most often resulting in resource degradation. Uncertainty relating to resource ownership further compounds the problem.

Economic liberalization and the impact of globalization

In comparison with other subregions in Africa, Southern Africa has probably the most open economy, with strong links to the global economy, largely attributable to the developed state of industry, infrastructure and services in South Africa. Almost all the countries have implemented wide-ranging economic reforms, liberalizing trade and investment and removing trade barriers as part of the structural adjustment programme. Results of this have been mixed (see Box 27).

In general, South Africa remains the main conduit for global links for most other countries in the subregion, largely as a result of its historical ties with these countries. Most of the latter are highly dependent on exports (especially minerals, oil and cash crops) and the substantial South African investment in them forms the backbone of these strong links. For example, forest plantations in Swaziland are owned by South African industry.

Southern Africa is one subregion that has made substantial efforts to promote subregional integration. Most important of these is the Southern African Development Community (SADC) and the Southern African Customs Union (SACU). As regards regional integration, the recently established African Union could have a far-reaching influence on economic, political and social development in Africa and the subregion. Another institutional arrangement is the Common Market for Eastern and Southern Africa (COMESA), comprising 20 countries, and already a number of countries have opted to be part of a free trade zone under COMESA. Barriers to trade within and between different subregions are being removed, although the full benefit of this will depend on a number of other factors, including the condition of infrastructure (see Box 28).

Benefits of subregional and regional integration and globalization are yet to percolate to the lower levels and benefit the majority of the people. By and large, the

BOX 27

ECONOMIC REFORM IN ZIMBABWE

Since 1991, Zimbabwe has been attempting to liberalize its economy through the Economic Structural Adjustment Programme (1991-1995) and the Zimbabwe Programme of Reform for Economic and Social Transformation (1996-1999). The seven major policy objectives of these economic reform programmes were:

- trade and investment liberalization;
- removal of trade restrictions;
- deregulation of financial and labour markets;
- removal of price controls;
- attainment of a 5 percent annual growth in GDP;
- reduction in the national budget deficit; and
- reform of the public enterprises and the rationalization of civil service.

While the first four objectives were largely met, the last three have been more difficult to achieve, due to a number of problems. These include persistent droughts, government's assumption of parastatal debts, delayed disbursement of external financial support for the reform programmes and increased expenditure on issues such as AIDS pandemic. Furthermore, the economic structural adjustment programmes have put considerable pressure on biological resources as more people turn to them in response to declining real incomes due to fiscal and monetary policy changes. Most of the key macro-economic indicators in the economy have performed badly between 1995 and 1999. Key features include a shrinking GDP, reduced growth of the dominant productive sectors namely agriculture, manufacturing, mining and tourism; a growing external debt burden; and high inflation.

(Shumba *et al.*, 2001)

BOX 28

LESOTHO - VULNERABILITY TO CHANGING TRADE ARRANGEMENTS

The country's revenue base continues to depend disproportionately on customs revenue. For the past ten years customs receipts (including grants) have accounted, on average, for 54 percent of total government revenue, and have financed 78 percent of recurrent expenditures. Economic dependence on customs revenue is likely to be significantly affected by a number of events currently taking place in the world economy, including the outcome of the negotiations on the SACU Agreement, the European Union/South African Free Trade Agreement, the negotiations of a Post-Lome relationship with the EU, the ratification and implementation of the SADC Trade Protocol and the anticipated next round of World Trade Organization negotiations.

(Maile, 2001)

poor with no assets or skills have been marginalized. An exception to this is Botswana, which has enjoyed good social and economic development over the past two decades. In some cases the opening up of economies to global competition has resulted in cheaper imports, undermining local production and employment.

Similar problems have emerged in the ongoing efforts at subregional collaboration. For example, in spite of a clear vision for regional economic integration, SADC still faces several problems. Besides the security issues, there is still confusion with regard to the recently signed SADC Free Trade Area Agreement. This is caused by the existence of several trade agreements such as COMESA and SACU. Nine countries in Southern and Eastern Africa have also recently signed a free trade area agreement, and three of these are from the SADC grouping. The South Africa-European Union trade agreement is likely to have a negative effect on both the SADC and SACU trade arrangements.

Countries in the subregion have strong ties with South Africa as a market for raw materials or as a source of finished goods. However, the small size of the markets (arising particularly from low incomes) in other countries in the subregion (as well as in other subregions) limits the scope for increased trade between South Africa and other countries in the subregion and elsewhere in Africa, the more so since a substantial proportion of trade is in high value-added items. Most of South Africa's trade, including that in forest products, is therefore directed to countries outside Africa. The volatility of the global economy is often transferred to other countries in the subregion through South Africa, and any decline in the economic performance of South Africa and fluctuations in the exchange rate of the rand tend to have a significant effect on other countries in the subregion. As South Africa develops new trade relations with other countries and trading blocks and redefines its relationship with its neighbours, the forest and forest industry situation is expected to undergo changes.

SADC has made systematic efforts to strengthen subregional cooperation in all the key sectors relevant to member countries. Forestry has been a priority area for SADC support, spearheaded through the SADC Forestry Sector Coordination Unit. A major initiative in this framework is the SADC Forest Sector Policy and Development Strategy, which was developed in line with the SADC treaty and the Regional Policy and Strategy for Food, Agriculture and Natural Resources. However, it has not been immune from SADC's problems, which have to date retarded its smooth implementation. These include:

- continuing political turmoils in some of the countries;
- the problems of meeting targets and objectives in key areas such as development of the free trade area;
- national policies that have often overridden regional interests; and
- political differences within and among states.

The SADC management has recently been reorganized, bringing the various sectoral coordination units under the direct management of the secretariat in Gaborone. This is expected to bring about significant changes in the way the various sectors function and in their effectiveness.

ENVIRONMENTAL CHANGES

Growing awareness of environmental issues

As discussed in the regional overview report, African economic development is taking place at a time of increased awareness of environmental issues, necessitating appropriate efforts to overcome some of the adverse effects of human interventions. Conventions on biodiversity, desertification, climate change and the international trade in endangered species are impacting resource management and their impact is expected to become more pronounced in the coming years. Although most governments are signatories to these conventions, the ability to comply with them varies and is sometimes wholly lacking. Nonetheless, the commitment to comply with the conventions will increasingly require appropriate changes in the forest sector, as is already evident. More important, there has been a clear recognition of the forward and backward linkages between poverty and environmental degradation. All this will have an important effect on the forest sector during the next two decades[21].

At the national, regional and global level, the following issues have become critical, necessitating

[21] In all countries, governments (and increasingly the private sector) have set aside considerable areas as national parks, wildlife reserves and sanctuaries, and forest and nature reserves. In Botswana, Zimbabwe and South Africa, legislation has been harmonized between the various sectors and the ministries in charge of the environment, and in many countries environmental impact assessment is now an important aspect of planning on major development projects.

BOX 29

WATER STRESS IN THE ZAMBESI RIVER BASIN

According to projections, Malawi will experience absolute water scarcity by 2025, while Mozambique, Tanzania and Zimbabwe will be water stressed. The remaining basin states will have water quality and dry season problems.

(SARDC/IMERCSA, 2000)

appropriate changes in natural resource management practices:

- loss of biodiversity;
- degradation of watersheds and changes in stream flow in the face of a rapidly growing demand for water (see Box 29);
- desertification and land degradation; and
- the environmental impact of forestry and other land use practices and the need to make them more environment-friendly.

One of the most important responses to the loss of biodiversity has been the establishment of protected areas. Almost all the countries in Southern Africa have a network of national parks and game reserves aimed at protecting the rich wildlife that has become an important asset in view of the rapidly growing tourism industry. Ongoing efforts to improve the management of watersheds and prevent land degradation (or rehabilitate degraded areas) are discussed later in this report. Almost all countries have drawn up environmental acts, making provision for detailed assessment of the environmental impact of development projects. All these now affect, and will continue to affect, decisions on land use, including forestry.

TECHNOLOGICAL CHANGES

General situation with regard to technological changes

In comparison with the other subregions of Africa, Southern Africa has made considerable progress with regard to the development and application of technology in resource management, as is seen in some of the main sectors, for example agriculture (especially cash crops), information and communication, and processing. However, it is important to bear in mind that the subregional lead in science and technology is largely due to one country - South Africa - whereas the capacity for developing a strong technology base does not exist in most other countries. Countries such as South Africa, and to some extent Zimbabwe, have a reasonably developed science and technology capacity, whereas this capacity barely exists in any of the other countries.

Another key feature of the state of technology in the subregion is the high degree of dualism as regards the application of technology. Commercial farms, intensively managed with high inputs and using high-productivity technology, exist alongside low-input subsistence agriculture. To a great extent, technology development and adaptation are linked to the interests of the various stakeholders, with much of it thus being driven by the private sector and focused on a limited number of crops/industries/processes. Unless this situation changes and technology is widely accessible, dualism will continue to persist with its possible negative effects.

Changes in forestry science and technology

The situation with regard to forestry science and technology will more or less parallel the situation in other sectors. There has been considerable progress as regards technology in processing and in forest plantations, especially in South Africa. This has mainly been a result of the strong links between the private sector and research organizations and the interest of the private sector in adapting technology from elsewhere. The South African forest industry is thus in the forefront of innovation. Similarly the plantation sector has also been making considerable advances in tree improvement and the refinement of management techniques, resulting in increased yields.

However, a large chunk of forestry has been left out of the process of technological development. There has been practically no research-based refinement of the management of indigenous forests. Traditional industries such as pitsawing and other sawmilling continue without any improvements in technology. Most forestry research organizations in the Southern African countries, except South Africa, are in a state of neglect and unable to undertake research that is meaningful in addressing the various problems.

During the next two decades, technological changes are certainly expected to accelerate further. Biotechnology may find increasing application in improving the productivity of commercial plantations. New processing techniques are emerging, drastically reducing the material and energy input requirements. It is hard to assess the implications of such changes at this stage, but the following are some of the possible consequences:

- many of the technological changes will be absorbed and adopted by the private sector, whereas the rate

of absorption will remain low in activities/ segments managed by governments.
- the ability of the modern sector to provide employment to the large number of unemployed is expected to decline as more sophisticated technology with a low labour to capital ratio is widely adopted;
- materials technology, including recycling, would reduce the use of raw materials, which may have an impact by reducing wood requirements.

AN OVERVIEW OF CHANGE DRIVERS

The last two decades have seen major social and political changes and upheavals in Southern Africa. Although certain problems will persist, new opportunities are emerging as the countries consolidate their progress and face new challenges. The following are some of the main driving forces that need to be taken into account in assessing the future of the forest sector.

- although Southern Africa is as a whole economically better off than other subregions, there are wide differences in income between the different countries, with South Africa, the largest economy, accounting for most of the GDP. In view of the strong links between South Africa and other countries in the subregion, the performance of the other countries is to some extent dependent on South Africa's economic performance;
- income distribution is highly unequal and there is widespread poverty. In most countries the poorest 10 percent of the population receive under 2 percent of the income, while the richest 10 percent receive over 40 percent. Low income levels and this wide disparity have led to a high incidence of poverty;
- in view of the low income and poor growth of the formal sector, there is increasing dependence on the informal sector. Although no quantitative data are available, dependence of people on the informal sector is expected to rise;
- the population is expected to grow from 113 million to over 150 million between 2000 and 2020;
- a key concern for all the countries in the subregion is the very high incidence of HIV/AIDS. In some of the countries almost a third of the adult population between the age of 15 and 50 has been infected. The social and economic fallout from the high infection rates and the deaths of a large number of people will have a significant effect on forests and forestry;
- landreform is politically and socially a very sensitive issue and a cause of conflict, with the potential to derail the development process. Changes in one country could have significant ripple effects in other countries;
- in comparison with other subregions, Southern Africa is more open and well integrated with the regional and global economies, largely through South Africa. A number of regional and subregional organizations are supporting the process of regional integration.

While several problems may persist, opportunities are also emerging to promote all-round social and economic development. There has been significant progress in the democratization of government, especially through decentralization, and policies and legislation have facilitated community participation. Southern Africa is rich in resources and technical capacity. There are also considerable opportunities to mobilize investment from within the subregion, and the increasing economic integration could strengthen these. Southern Africa probably has prospects of faster development than the other subregions of Africa, although this will depend on a number of factors, particularly the deepening and broadening of democratization and wider empowerment of the people.

Chapter 4

Alternative scenarios

As discussed in chapter 3 several factors affect the development of forests and forestry in Southern Africa. Southern Africa has a strong industrial base with the potential to benefit from the expansion of global trade. The network of protected areas, both in the public and private sectors, contribue to the growth of a flourishing tourism industry. However, it has a host of social problems arising from the very unequal distribution of income, high poverty levels, concentration of landownership, etc. Taken together, all these factors create new opportunities as well as constraints. Whether the opportunities will be taken advantage of and the constraints overcome, will largely depend on the perception of the key actors and their ability to pursue appropriate options. In other words, empowerment of the various actors and their responses to the opportunities and constraints are fundamental to the future of forests and forestry (and for that matter all other areas), and this will depend to a large extent on the overall economic, social, political and institutional setting.

APPROACH TO DEFINING SCENARIOS

FOSA aims to provide an indication of how the sector is likely to develop up to 2020. Long-term outlook exercises have in the past been based largely on econometric modeling, but scenario planning has more recently emerged as an important tool to assess future options and strategies, as well as to understand how the various driving forces can lead to a variety of outcomes. A scenario is defined as a chain of events and outcomes linking driving forces and actors. The approach to defining the scenarios has been discussed in the regional report. Considering that the forest sector will continue to witness important policy and institutional changes that alter the behaviour of various actors, it was agreed to draw up scenarios taking into account the overall institutional environment.

Government or the public sector has historically played a dominant role in forestry, and in many countries most forests are under government control, with government policies and legislation affecting the various actions and outcomes, although in recent years this has been undergoing changes. Since government actions impact the behaviour of key actors, it was considered necessary to examine the future direction of changes within the framework of the public sector dominance scenario.In the Southern African context, there have been significant efforts to involve the private sector and to ensure that the market mechanism plays a dominant role in resource allocation decisions. A number of functions that were previously under the public sector have been transferred to the private sector. To examine the emerging pattern of such developments, especially in the context of economic liberalization, another scenario, namely market forces was identified.

As in other subregions of Africa, a significant proportion of forestry activities in Southern Africa lies outside the public sector or market forces scenarios. An effort is made to grasp the dynamics of these multitude of activities by treating them as a separate scenario, namely the informal sector. In many countries, however, resource-use conflicts have become very serious, and often the response of those who currently benefit is to protect their interests by adopting a fortress approach. The implications of this, as well as ways of getting out of it, are indicated in the section fortress scenario. In many cases the political and social changes of recent years have led to discussions of how to develop a more stable social and economic set-up. Some efforts have already been made through decentralization and the promotion of community participation. The New Partnership for Africa's Development (NEPAD) is a major initiative in the direction of an "African renaissance", and the hence this is treated as a separate scenario namely the Great Transition.

A general indication of the issues involved in the different scenarios is given below.

PUBLIC SECTOR DOMINANCE

As discussed earlier, the public sector has been the dominant player in forestry and other land uses for a long time, influencing decisions at all levels from policy-making to implementation. In most countries, forest land was gazetted and legislative measures were aimed at excluding the use of forests and woodlands by

others. Evidently the effectiveness of this has varied widely. In assessing the future development of forestry in Southern Africa, an important issue is how the various driving forces will influence the public sector and in the process affect the behaviour of the different actors. Evolution of the public sector could follow three distinct paths, namely:

- continuation of past approaches under which the public sector retains its control over all aspects of forestry with very little space for other actors to function;
- an overall decline in the capacity of the public sector (see Box 30), especially in view of reduced budgetary support; there is a decline in human resources as well as in the ability of forest agencies to carry out many of the functions they traditionally performed, stemming in part from the changing demand for products and services on account of the diversification of stakeholders; and
- a redefinition of the role of the public sector, identifying areas in which it can play a key role, supporting it in those areas and leaving other responsibilities to those who have comparative advantages.

In the Southern African situation, all three developments - and often a combination of them - are observed. Where the role of other players is not well defined or recognized and the private sector is weak, the public sector still maintains its dominance. There are also situations where the public sector is weakening, with roles being redefined in some cases and forestry organizations gaining some strength to fulfil their new responsibilities.

Most countries are likely to pass through an initial phase of declining capacity of the public sector during which it is neither able to fulfil its traditional roles, nor meet its new responsibilities. Specifically this could result in:

- a decline in human resources, including quality standards;
- an inability to fulfil its mandate on account of a shortage of financial and human resources;

BOX 30

INSTITUTIONAL ISSUES IN FOREST MANAGEMENT IN MOZAMBIQUE

The National Directorate of Forestry and Wildlife (DNFFB) is the government institution responsible for implementing sector policy related to forestry and wildlife resources. Its basic mandate is to protect, develop and promote the sustainable use of the resource.

At the provincial level, Provincial Forestry and Wildlife Services (SPFFB) integrated within the Provincial Directorate of Agriculture and Fisheries (DPAP) under a dual subordination represent DNFFB. This system of dual subordination continues to generate a certain confusion regarding roles and responsibilities, resulting in slow and ineffective administrative processes and at times negative impacts on funding and the provision of materials for work.

The institution exercises a very important role in the management and use of resources. At present the government institutions face the following problems:

- DNFFB does not have the skills to exercise its mandate: to protect, conserve and develop the sustainable use of the resources; to define, coordinate and oversee forest and wildlife research programmes; and to promote training and drawing of professional value from the technical staff in the sector in coordination with other relevant institutions;
- DNFFB and SPFFBs do not have sufficient qualified staff for management, supervision and extension; and
- DNFFB and SPFFBs do not have the equipment, facilities or resources to be able to mobilize their staff for field activities.

(Cruz, 2000)

BOX 31

SOUTH AFRICA - NATIONAL FORESTRY ADVISORY COUNCIL

The National Forestry Advisory Council (NFAC) was established immediately after the promulgation of the National Forest Act of 1998 to advise the Minister on forestry issues. An important goal of the Council is 'to promote and impact upon the sustainable management of all forests'. The Council's primary vehicle for achieving this goal is the Committee for Sustainable Forest Management. Its main object at this point is to actively collaborate with the Department and guide it in formulating criteria, indicators and standards of sustainable forest management for South Africa.

Another important goal of the Council is 'to promote and impact upon the use of forests for recreational, environmental, educational, cultural and spiritual purposes'. The Council's primary agency for achieving this goal is the Committee on Forest Access.

The Committee on Forest Access provides advice on the use of a Trust Fund established under the National Forest Act of 1998.

(Madula and Simelane, 2001)

- a lack of capacity to facilitate the resolution of resource-use conflicts;
- low investment in public-goods research, with consequences for science and technology development;
- a situation in which the private sector and other players operate in an environment without any ground rules and often take advantage of the absence of a regulatory framework; and
- a public sector agency that fulfils the short-term objectives of those in power.

There are already some indications that the problem is being addressed. In a number of countries, sector reviews have been undertaken and efforts are under way to remedy the situation, but progress in this regard will largely depend on how the institutional changes are actually pursued. Several countries have taken initiatives to reform the forest sector and to develop a new organizational set-up specifically focusing on:

- redefinition of the functions of the public sector and, where a private sector has already developed, providing a supportive role;
- restructuring of public sector forest agencies in accordance with their new functions;
- development of a policy and legal framework that will provide a conducive framework for all other actors;
- improved revenue recovery through changes in fiscal policies;
- support to basic and applied research in order to develop essential knowledge required for sustainable forest management;
- increased public accountability of government agencies so that they serve the larger public interests and not the narrow short-term political objectives of the government in power; and
- a vigilant and active civil society that will provide necessary checks and balances to the functioning of the public sector.

Zimbabwe, for example, has initiated reforms to redefine the role of its Forestry Commission and to separate commercial and regulatory functions, although there is concern about the financial viability of the new institutional set-up (see Box 32). South Africa is in the process of privatizing the South African Forestry Company, including the transfer of 500 000 ha of plantations to private management.

The public sector dominance scenario thus indicates the constraints and opportunities for the forest sector. As such, there has been a weakening of public sector institutions, eroding their professional capacity and more important their responsibility to the public as a whole. Correcting this and enabling the public sector to play a more active facilitating function will be the general approach to improving the situation.

BOX 32

ECONOMIC VIABILITY OF ZIMBABWE'S FORESTRY COMMISSION

It has to be noted that the revenue base of the new Forestry Commission is quite limited. However, opportunities to strengthen the current revenue sources and to bring in additional ones were identified. They include: charging a levy to the forestry industry; establishing strategic business units within the authority; recovering costs from certain services rendered; tapping into financing windows of forestry-related international conventions and agreements (e.g Kyoto Protocol) to which Zimbabwe is a signatory; offering a consultancy service and leasing land to the Forestry Company of Zimbabwe.

(Shumba *et al.*, 2000)

MARKET FORCES

Under the market forces scenario, the main actors are consumers and producers, whose interaction in the market place results in decisions on the allocation and use of resources. However, in most situations markets are imperfect, and often the market forces scenario implies a significant growth of the private-sector producer and much less empowerment of the consumer. The market forces scenario has been in operation in forestry and allied sectors in Southern Africa for a long time. In the forest sector, it covers the following areas in particular:

- logging of natural forests and the trade in forest products: in almost all countries in Southern Africa, the harvesting of wood and wood products (except a substantial proportion of woodfuel) has been under the private sector for a long time; investment in machinery and human resources is largely dependent on the length of logging concessions and the perceived net benefits that the logging companies/contractors perceive;
- forest plantation management: the management of most forest plantations, especially those grown for industrial purposes, is increasingly being transferred to the private sector, which, in South Africa, Swaziland and Zimbabwe, has also been in the forefront in establishing industrial plantations linked to processing facilities; in addition, there are

a large number of small-scale tree farms, often established under outgrower schemes supported by the forest industries;
- trade in non-wood forest products: although a substantial proportion of the collection of these products takes place in the informal sector, the role of market forces is on the increase, especially on account of the growing demand for ethnic foods, industrial products such as gums, resins and tannins, and medicinal plants;
- wildlife management: in Southern Africa there are several game reserves under private ownership (see Box 33) and these are heavily dependent on tourism for their survival; in many cases wildlife conservation is found to be more economically viable and sustainable than livestock ranching on the same land, provided current trends in the growth of tourism continue and the ranches are sufficiently large.

The major constraints with regard to the strengthening of market forces are:
- the poorly developed state of the indigenous private sector, especially limited investment, which is partly due to poor access to investment funds and the inadequacy of entrepreneurial skills;
- the unfavourable institutional framework, including a maze of rules and regulations that often increase the transaction costs as well as giving rise to uncertainty; and
- the absence of a legal framework to provide a level playing field to all the actors, thus increasing the arbitrariness of decisions.

Within the market forces scenario there are a variety of possibilities, each of them tending to have its own effects on forests and forestry. The market forces scenario could develop in two possible directions, as described below.

Narrowly focused growth of the private sector

This situation develops when there is no level playing field and the institutional and legal framework for the operation of market forces is weak. Much of the power is vested in the large private sector and the other half of the market forces equation, namely the consumers, tends to be very weak. Especially with mergers and acquisitions, private monopolies emerge. Economic liberalization in the context of a weak domestic private sector increases the role of the international private sector, the operations of which are often difficult for governments to monitor and regulate. A substantial proportion of profits is often repatriated and not reinvested in the country. As the process continues, the following problems emerge:
- marginalization of a large number of people because of their inability to pay for goods and services; this seems to be the case with several forest industries in Southern Africa, which are compelled to seek export markets in view of a low domestic demand stemming from low purchasing power;
- poor working conditions and security of employment for labour, as a result of poorly developed labour laws;
- mounting environmental problems - depletion of resources, environmental pollution, etc. - especially when market forces are unable to take externalities into account and when the ability of governments to implement regulations is weak; and
- technological development entirely focused on increasing the competitive advantages of investors, while areas critical to the well-being of the people are neglected.

In several countries in Southern Africa such a scenario of private-sector growth could emerge and

BOX 33

PRIVATE PROTECTED AREAS IN SOUTHERN AFRICA

According to a 1996 study, Namibia, South Africa, Zambia and Zimbabwe together have about 4 200 protected areas extending over 9.5 million ha. Most of these are in South Africa, where private protected areas account for about 6.8 percent of the land area, exceeding the extent of the legally protected areas under public management. Zimbabwe has about 6 500 km^2 of private protected areas, which account for 1.7 percent of the total land area. The status of private protected areas in Zimbabwe is changing rapidly on account of ongoing land reforms.

(Watkins *et al.*, 1996)

BOX 34

ECONOMIC SIGNIFICANCE OF SMALL GROWER SCHEMES IN SOUTH AFRICA

Collectively, the economic activity created in terms of jobs, the investment made by sponsoring organizations and the income generated by small grower development schemes is immense. The direct benefits that will follow (e.g. development of support services, retail outlets, etc.) as well as general empowerment and upliftment and poverty alleviation of the communities involved have to be given due cognisance .... In short, small grower schemes have to be viewed by both the forestry industry and DWAF as critically important and must be accorded absolute priority by all.

(Edwards, 2000)

persist for a long time, unless governments and the public as a whole are able to perceive the problems and steer development into a more acceptable path in which the private sector takes a lead role in social and economic development as described below.

Private-sector support for social and economic development

However, the market forces scenario could develop in a different direction, with the private sector being defined more broadly and including small-scale industrial units and tree growers. Experience in this regard already exists in the form of a large number of industries, including furniture making, handicrafts and, more important, landowners raising woodlots under outgrower schemes. The alternative scenario could include:

- a network of small-scale industries catering to the demand for diverse products produced competitively and efficiently, with many of these industries catering to niche markets inside and outside the countries;
- a large number of landowners managing small woodlots on their farms, often collectively organizing procurement of inputs and marketing products through tree growers' cooperatives or associations;
- an information system that provides backup for small-scale enterprises, enabling timely access to information on markets, prices, emerging markets, etc.; and
- a research and development support system that will address the specific technology needs of small enterprises, often supported through sponsored research programmes.

However, if the market forces scenario is to develop in this direction, substantial efforts will be needed to create an enabling environment. And this will be an important role of the public sector.

INFORMAL SECTOR

There are a number of activities that fall outside the public sector and market forces scenarios, and these could be grouped under the broad category of the informal sector. They include a variety of activities requiring very little investment and skills. Some of the important informal sector activities include the collection of woodfuel, the illegal production, transport and sale of charcoal, pitsawing, the collection of non-wood forest products, unauthorized hunting and the trade in animals and animal products. Until recently, informal sector activities were considered temporary and were undertaken during the waiting period before more formal-sector employment was found. Increasingly, informal activities have become more permanent and there is often a reverse shift from formal to informal employment. Market reforms have tended to accelerate the growth of the informal sector in almost all the countries in the subregion. The closure of companies has resulted in unemployment exceeding 50 percent in many countries, and as a result people, both skilled and unskilled, are resorting to informal and sometimes "illegal" activities in order to survive.

Being a residual category, several activities are lumped together as "informal". At one extreme are those that are entirely subsistence-oriented. Forest-dwelling communities collect a variety of products and use them directly. At the other end of the spectrum are those activities that are undertaken by unorganized labour, although the products move through a system of intermediaries and eventually end up in markets, sometimes outside the country in question. Two key features of the informal sector are very low investment and the fact that the depletion threshold for many products is reached when a large number of people is involved. Those who collect the products for subsistence are aware of the issue of depletion and have developed mechanisms to avoid overexploitation. However, these fail to be effective in the context of market pressures. In most cases development and expansion of markets results in intense exploitation and eventual depletion.

The two key issues relating to the informal sector scenario are hence:

- sustainability of the informal sector activities; and
- contribution to the livelihood of people.

Depending on the above two factors, the informal sector could evolve over time in two broad directions:

- overexploitation of resources, in due course undermining the contribution to the livelihood of those involved in the activities; in most cases those involved in the collection and processing of products - both wood and non-wood - are subject to exploitation and seldom benefit from the activities other than in the form of subsistence wages; and
- sustainable production combined with an increased contribution to the livelihood of the people.

Left to itself, the informal sector will develop along the first path. Eventually this may result in conflicts with other scenarios, especially those of the public sector and market forces, as is evident from some

already existing problems, such as illegal felling and poaching. On the other hand, a change towards sustainability and an increasing contribution to livelihoods would require direct and indirect intervention. This is discussed in the section on strategies and options.

FORTRESS SCENARIO

The three previous scenarios - public sector, market forces and informal sector dominance - interact with one another, and each has the potential to evolve in totally opposite directions depending on the actions of the various actors. As they expand in response to the increasing effect of some of the driving forces - population growth, income inequity and poverty - there could be conflicts between the informal and formal sectors, especially in the form of illegal felling, poaching, encroachment, etc. Responses to such developments often take the form of stringent protection measures, leading in turn to a fortress scenario. In the Southern African context, the fortress scenario is fairly clear in the case of certain game reserves and national parks where stringent protection measures are adopted against organized poaching.

In the forestry context the fortress scenario is often a reflection of the general decline in the social and economic situation leading to the over-all insecurity felt in the day-to-day lives of the people. Failure to address social and economic inequities finds expression in increased crime and consequent responses, with private security services becoming the fastest-growing sector. While a fortress approach may be necessary in some specific circumstances and as a short-term measure, it cannot be sustained in the long term. The increased costs of providing security and insurance against theft and damage reduce profits and undermine investment. The extreme situation of the fortress dominance scenario leads to the collapse of all formal arrangements.

Reversing the fortress scenario requires addressing the deficiencies of the core scenarios - public sector, market forces and informal sector dominance - so that nobody is marginalized in the process of development. In a way, correcting the deficiencies of the three scenarios is the starting point for the emergence of the Great Transition scenario.

THE GREAT TRANSITION

In the context of Africa, and in particular Southern Africa, the desire for more fundamental change, or "the Great Transition", finds expression in efforts such as NEPAD, "the New African Initiative" or such earlier versions as the OMEGA plan and the Millenium Partnership for the African Recovery Programme. These initiatives envisage an African renaissance driven by Africans, strengthening the basic foundations of development by deepening the democratic process, upholding human rights, improving governance and public accountability, and addressing critical issues such as human resource development, especially education and health and environmental protection. Another key element of NEPAD is the high priority given to quicker regional and subregional integration in order to overcome the difficulties of market fragmentation and facilitate the pooling of resources to realize economies of scale.

How does FOSA take cognizance of the underlying principles of NEPAD and define a scenario for the forest sector? Several ongoing efforts, although sometimes fragmented, are paving the way for the Great Transition, providing they are integrated and carried forward to their logical conclusion. Correcting some of the defects of current scenarios (public sector dominance, market forces and informal sector) and preventing the emergence of the fortress dominance scenario are the initial stages of the Great Transition.

Some of the countries of the subregion are in the process of implementing appropriate policy and institutional reforms. These include an early settlement of land issues, increased participation of local communities in resource management, and decentralization of government. Pro-poor policies and increased government investment in human resource development could help countries to take advantage of the emerging opportunities of globalization, although in recent years the capacity of governments to support human development, including dealing with HIV/AIDS, has been reduced considerably on account of the economic slow-down.

In the forest sector the early steps towards the Great Transition typically include the following:

- the increased emphasis on participatory approaches in resource management has led to policy and legal changes by several countries to strengthen community participation. Although the extent of forest area currently under community management is still low, it is expected to grow considerably during the next two decades. However, it remains to be seen whether this can be sustainable in the face of the growing poverty

affecting the region, which could in the early stages impair the ability to implement sustainable forest management;
- although transferring responsibility for resource management to local communities is an important step, several other factors will influence its further development. In the Southern African situation communities are often given responsibility for managing low-productivity, degraded areas requiring substantial institutional, organizational, financial and technical skills, and while some communities may be able to implement participatory approaches effectively, others may not;
- government efforts to improve participatory approaches are often supported by NGOs and civil society, and the role of civil society depends largely on the overall political environment;
- forestry and other natural resource projects will increasingly be subjected to environmental, economic and social scrutiny at the local level, resulting in corrective measures;
- considerable emphasis is being given to the adoption of sustainable management and all the countries have in principle accepted the need to strengthen efforts towards achieving this. Although there is wider awareness of the criteria and indicators for sustainable forest management, their actual application requires the fulfilment of a number of conditions. Certification of forests has been attempted on a limited scale, largely focusing on plantations. Governments may be hampered in implementing policies because of resource constraints, while the private sector will be largely guided by profitability considerations.

Some of the constraints that could slow down the process of the Great Transition include the following:
- effective policy reform and implementation would require a strong, democratically functioning government, a proactive civil society and a well-informed public. This situation exists only in a few countries in the subregion. Considering the low income from forests, the resources available to implement corrective policies and strategies are likely to remain limited. This would imply that apart from some efforts to increase the role of communities, policy reforms may not be able to bring about any significant reduction in the negative effects of the market forces dominance scenario;
- although most countries in the subregion are signatories to the various international conventions and processes that have a bearing on forests and forestry, implementation remains very weak. Many policy reforms are initiated at the instance of donors, but they fall apart when such support ceases.

Notwithstanding such problems, the pursuit of the Great Transition could lead to the following outcomes, although attainment of these may sometimes be later than the FOSA horizon of 2020:
- conservation and management of forest and tree resources will be well integrated into the overall policies of economic development and this will be reflected in the formulation and implementation of policies in other sectors;
- although markets would continue to play an important role in resource-use decisions, corrective measures would be built into the system, underpinning environmental and equity considerations;
- local initiatives and innovations would be encouraged, improving traditional knowledge and facilitating the development of appropriate management practices;
- civil society and local community organizations would play a lead role in managing resources and improving conflict-resolution mechanisms. Community management would become more widespread and involve not only the transfer of management responsibilities, but also systematic support to strengthen the capacity of the communities to manage resources sustainably;
- the ground rules for sustainable management would be well understood, and at all levels there would be adequate checks and balances to ensure compliance;
- the role of the informal sector, which has been neglected hitherto, would be fully recognized, and rather than suppressing it as illegal, efforts would be initiated to improve its effectiveness. Support to improve technology and skills would help to make them more efficient, as well as improving the livelihood of those who depend on them. Eventually most informal activities would be brought under more transparent and formal systems;
- the feeling of alienation characteristic of the total domination of market forces as well as government control would disappear, and society at all levels would see the strong links between social well-being and the sustained production of

goods and services from forests and other natural resources. The social, cultural, aesthetic and spiritual dimensions of forests would receive adequate recognition at all levels and not be seen as secondary to economic values;

- through concerted action by governments, NGOs, the private sector, community groups and civil society, information technology would develop in such a way as to meet the needs of the poorer sections of society, thus enabling them to take resource management into a more sustainable path. With improved access to information, individuals and communities would be able to take advantage of emerging opportunities and avoid some of the negative outcomes.

Understandably, accomplishing the Great Transition has a number of constraints, especially because of opposition from those benefiting from current inequitable arrangements. However, as countries strengthen democratic processes and civil society plays a lead role in facilitating the changes, the transition becomes attainable.

SCENARIOS - THE IMMEDIATE FUTURE

In the real-world situation, we may see a development scenario that combines some of the elements of all five scenarios. In the Southern African situation, the market forces scenario is expected to become more prominent in the next two decades. Critical to the immediate future is how governments and society as a whole address some of the deep-rooted social and economic problems. Certain recent developments, especially those relating to land reforms, have increased social tensions, significantly affecting short-term economic prospects and thus undermining investment. Poverty and deprivation persist and the "fortress scenario" situation is in the ascendance. While the subregion's potential as growth centre of a new Africa is recognised, the threats are equally serious and the opportunities in forestry will be determined by these larger developments. Chapter 6 discusses what is likely to happen if the "business-as-usual" situation persists under which the public sector, market forces and the informal sector co-exist with all their positive and negative tendencies.

Chapter 5

The forest sector in the next two decades

Considering the driving forces, the current situation of forests and wildlife in the subregion and the prevailing and probable scenarios, it is important to consider what is likely to happen up to 2020 and what are the options available to overcome some of the current and anticipated problems. The subregion currently has a very high rate of deforestation, stemming from a variety of factors. At the same time, it has the most developed forest plantation sector, supporting a globally competitive forest industry. Although Southern Africa is one of the relatively rich subregions of Africa, economic growth in the past has been enclavist, resulting in the coexistence of prosperity for the few and poverty and deprivation for the vast majority. The potentials and constraints in the development of forestry in the subregion needs to be assessed in this context.

SOME KEY QUESTIONS

The future of forestry development in Southern Africa during the next two decades could be examined in relation to specific issues that are important now or likely to become critical in the future. Some of the more pertinent issues/questions are indicated below:

- In view of the effect of various driving forces and the various possible scenarios, what will be the situation with regard to forest cover in Southern Africa? Is there a likelihood that the current high level of forest-cover loss will continue ?
- The proportion of natural forests under sustainable management is fairly negligible at present. What are the possibilities for wider application of the principles of sustainable forest management to the subregion's indigenous forests?
- The subregion has one of the most developed plantation sectors. What are the future prospects for expanding these plantations, including qualitative improvement, especially through the application of productivity-enhancing technology?
- What is the scope for expanding tree cultivation outside forests, especially taking into account some of the successes of outgrower schemes? What will happen to tree growing on communal land where tenure conditions are still uncertain?
- Southern Africa has several non-wood forest products, including medicinal plants, that are traded globally. Could this emerge as a growth area increasing the contribution of forestry to sustainable development? And what needs to be done to realize the potential?
- What will be the trend as regards the supply and demand of wood and wood products? What is the potential for replicating the success of wood industry development in South Africa in other countries in the subregion?
- For the subregion as a whole, wood is still the most important source of household energy and most wood is used for meeting energy needs. Is this situation likely to change in the next two decades?
- Southern Africa has one of the most developed tourism industries in Africa and wildlife is a key attraction. What are the prospects of further growth of wildlife-based tourism in the subregion and how could local communities benefit from this? What lessons have been learned from ongoing community participation initiatives?
- Water availability has become a critical issue in some of the countries in the subregion. What is the role of forests and trees in altering water supplies?
- How could forestry address the pervasive poverty of the subregion? What could be its most effective role in this regard?

In the subsections below an attempt is made to address some of the above questions.

THE OUTLOOK FOR FOREST RESOURCES

Forest cover changes

Between 1990 and 2000, Southern Africa witnessed the highest rate of deforestation in the whole of Africa, with an annual loss of 1.62 million ha of forest cover, or about 31 percent of the loss for the whole of Africa. Zambia and Zimbabwe account for almost 70 percent of the subregion's forest loss. Several factors have contributed to this, the most important being the expansion of agriculture, including shifting cultivation and unregulated logging to meet the increasing demand for wood and other products. Much of the problem stems from poor economic growth and increasing

poverty. All the indications are that the situation is unlikely to improve and that deforestation may persist at the same rate as between 1990 and 2000 because of the following factors:

- the overall growth of economies is expected to remain low, considering the low levels of savings and investment. Employment in the non-agricultural sector is unlikely to expand significantly. This would imply that most people will continue to rely upon land and the increase in population will have a direct effect on forests;
- several countries are in the process of implementing land reforms. Many of the large farms under freehold title are woodlands, and, for example in Zimbabwe, a number of landowners have left large areas uncultivated, sometimes establishing private game reserves. The land reforms being pursued in countries such as Zimbabwe could significantly reduce forest cover when the redistributed land is cleared and cultivated;
- most of the natural forests and woodlands is located in Angola, Zambia, Zimbabwe and Mozambique. On the whole, management of natural forests is very weak, especially on account of the poor institutional capacities in these countries. Angola, Mozambique and Zambia have extensive forest areas with a potential for agricultural expansion. All the indications are that population growth and economic liberalization could result in the expansion of agriculture - especially large scale commercial farms - in these countries with its consequent impact on forest cover. The current situation in Zimbabwe has already led to farmers moving to Mozambique and establishing large farms.

The unique situation in Swaziland, where forest cover has increased in the last 10 years, gives some indication of what could happen under favourable conditions. Between 1990 and 2000 the forest cover in Swaziland has increased at an annual rate of about 6 000 ha. Although Swaziland is still largely rural and has a high population density in comparison with other Southern African countries, this improvement can be attributed to:

- diversification of the economy through the development of other sectors, with most people finding employment in the industrial or service sectors;
- higher literacy and education resulting in a high priority being assigned to employment in non-agricultural sectors;
- investment in the manufacturing and service sectors, largely from outside; and
- high per capita income.

It has to be seen how the Swaziland economy adapts to the globalization process and is able to take advantage of emerging opportunities, especially in the context of a growing population.

The HIV/AIDS epidemic will be another critical factor that will have a direct and indirect bearing on the forest cover although the precise nature of the overall impact is hard to assess. As agricultural intensification options are reduced, increased demand for food and other products is likely to be met through extensive cultivation with low labour requirements. Low-input agriculture, especially shifting cultivation may remain an important option, especially when intensive, high-input agriculture is beyond the capacity of households. Increasingly fire will become an important tool for forest clearance. At the same time there are also instances of farmers increasing the fallow period and abandoning cultivation, permitting recolonization by wild growth (see Box 35). Considering the multitude of factors affecting forest cover changes, it is hard to give an indication of the future rate of deforestation. As no major changes are expected in the fundamentals, it is quite likely that deforestation will continue at more or less the current rate, so that by 2020 the forest cover can be expected to have shrunk to about 168 million ha.

BOX 35

POSSIBLE EFFECTS OF HIV/AIDS ON LAND USE AND FORESTRY

As HIV/AIDS-affected households reduce cultivated land areas, more remote fields are left fallow and revert to bush (Barnett and Haslwimmer, 1995). Another study from Tanzania reported that large farms inherited by young orphans were rapidly degenerating into bush because of the lack of care; the community typically would manage such farms, but traditional community organizations are breaking down because of the shortage of labour.

(Barany *et al.*, 2001)

Management of natural forests

In almost all the countries where the forest sector is well developed, most of the attention is focused on plantations, largely because plantation management is well integrated with the processing sector, and in most cases they are privately owned. In general the management of indigenous forests is neglected, except in national parks and game reserves where the

emphasis is on providing protection from illegal logging and poaching. In the case of indigenous forests, the predominant scenarios are those of public sector dominance and informal sector. Under these two scenarios and in the context of the key driving forces - population growth, low incomes (especially in the countries and areas where most of the natural forests are located), increasing demand for woodfuel and other products, limited scope for diversification and the inability of governments and communities to invest in improved management - all the indications are that natural forests will continue to be exploited under a low-investment regime and that sustainable forest management is unlikely to find wide application. This will be particularly so in view of:

- increasing pressure on low-income forest-rich countries such as Zambia and Mozambique to increase their income by taking advantage of the growing demand from markets inside and outside Africa;
- the weak technical and financial capacity of the public sector to regulate the actions of concession-holders; and
- the limited capacity of community-based management systems to adopt sustainable forest management on a large scale.

In the above circumstances, much of the natural forests is likely to be exploited with the objective of maximizing short-term profits, with private-sector concession-holders playing the dominant role. The prospects of wider application of sustainable forest management therefore do not seem very bright. At the most, natural forests in game reserves will be protected and small areas under community management will be brought under some kind of sustainable management. Most of the remaining natural forests are likely to be exploited without much consideration for sustainability, resulting in severe degradation over the next 20 years.

BOX 36

MOZAMBIQUE - ESTIMATED LOSS OF NATURAL FORESTS

The total area of natural forests in the country is expected to decline from 62 million ha in 1994 to 59.5 million ha in 2020. A total of 2.5 million ha will be lost, mainly by conversion to agricultural land, forest degradation and infrastructure development. Consequently, there will be changes in forest available for supplying commercial timber. Also with the opening of new roads and use of new harvesting technology, some currently inaccessible areas of undisturbed forest are expected to be exploited.

(Cruz, 2000)

Forest plantations

The forest plantation sector in Southern Africa, especially South Africa, Swaziland and Zimbabwe, is well developed, largely because it is well integrated with the processing sector and because most of the plantations are in the private sector where management objectives are clearly defined. Further expansion of plantations will be largely guided by the perception of the industries. Especially since the major players have globalized their operations through mergers and acquisitions, future plantation development, as well as the establishment of processing facilities, will be based on considerations of comparative advantage, taking into account the cost of raw materials delivered at the port or factory gate.

The key areas of development in the forest plantation sector include:

- substantial technological improvement, especially through wider application of tree improvement techniques to increase productivity; and
- improvement in management practices, in particular nutrient management, integrated pest management and improved techniques for fire protection.

The sluggish demand and the increasing global supplies of wood, especially from plantations in Asia and Latin America, will make the industries extremely cautious about future plantation expansion. Also they will be very choosy about sites and the emphasis will be on acquiring very productive areas where there are no major constraints on growth. This will also be an important consideration in acquiring public sector plantations. Much of the expansion of plantations during the next two decades is likely to take place along the development corridors - Beira-Blantyre and Beira-Harare and possibly Lobito if the security situation in Angola and the Democratic Republic of the Congo improves - whose potential has been the object of some preliminary assessment.

Trees outside forests

In the Southern African context trees outside forests can broadly be grouped as (a) trees growing on communal land (that is not forests) and (b) woodlots established on private land. The position with regard to tree management in these two different cases is indicated below:

- the pattern of use of tree growth on communal land will be determed by the tendencies in the informal sector. As population increases, the demand for wood and other products is expected to increase significantly. Further, a substantial number of people will seek self-employment through the collection of woodfuel, charcoal production, pitsawing, etc., most of which will be undertaken unsustainably. Communal land will also support a number of other informal sector activities, including subsistence cultivation, adversely affecting tree growing. All the indications are that trees on communal land are likely to decline due to overexploitation, especially in the context of weak institutional arrangements to manage them, including existing land and tree tenure;
- tree growing on private land is already well established in countries such as South Africa and Zimbabwe under outgrower schemes. This largely operates within the framework of the market forces scenario and depends on the raw material demand from industries and the attractiveness to landowners of establishing and managing plantations on the basis of contractual arrangements with industries (see Box 37). The scheme has undoubtedly created an important income-generating opportunity for marginal areas[22]. Those with larger landholdings have made substantial financial gains. However, as in the case of any partnership, a number of problems have emerged in these arrangements. The fact that tree cultivation is narrowly focused limits the flexibility available to the growers. The contract is often a one-sided document with no input from individual growers and the power imbalances between the contracting parties have undermined effective participation of tree growers in decision-making. The out-grower schemes often foster an enormous dependence of farmers on the wood industries. In view of the large expansion of plantations globally and the anticipated increase in wood supplies during the next two decades, it is important to consider the effect of substantial price reductions on outgrowers. Outgrower schemes reduce the risks and uncertainties for large industries (which are to some extent passed on to the farmers), while at the same time enhancing the social image of the industries.

BOX 37

OUTGROWER SCHEMES IN KWAZULU-NATAL, SOUTH AFRICA

Major players in the pulp and paper industry in South Africa, namely SAPPI and Mondi, have supported a flourishing outgrower scheme, especially in Kwazulu-Natal province. By 1999 there were more than 12 500 small growers who have established *Eucalyptus* woodlots extending over an area of nearly 27 000 ha. In 1999, outgrowers in Kwazulu-Natal delivered over 200 000 tonnes of wood to industry.

The companies find the schemes attractive, because there is no need to invest in developing company forests. This also helps them to avoid conflicts in the management of plantations, especially in the context of land policies left over from apartheid South Africa.

(IIED, 2000)

[22] An important institutional arrangement to support outgrowers is the various tree growers' cooperatives or unions, such as the South African Timber Growers' Association, which has members of the communities on its board and assists the members in marketing and the management of plantations. Outgrowers also supply wood for export as woodchips and are involved in honey production.

THE OUTLOOK FOR PRODUCTS AND SERVICES

The subregion is relatively rich and, despite the reduction in forest cover, is therefore unlikely to face any serious problems with regard to the supply of wood products, except possibly localized shortages of woodfuel, especially in urban areas. In the case of high-income countries such as South Africa, a well-developed forest and forest industry sector exists. All the indications are that the supply of wood from plantations will increase during the coming years, largely due to technological improvements. Being a major producer of almost all wood products, South Africa may not have any difficulties in meeting future increases in demand.

The main limiting factor is the low level of demand, partly on account of the low disposable income of the majority of the people. In the case of forest-poor countries such as Botswana and Namibia, the size of the market is small, while a relatively high income enables them to import most of the wood and wood products required (from South Africa or elsewhere). Lesotho has a small market on account of its low population, and continues to depend on imports from South Africa. Swaziland will be largely self-reliant on account of its low population and high forest cover, including extensive plantations. Its relatively higher income provides flexibility to resort to imports if required.

Angola, Mozambique, Zambia and Zimbabwe are better endowed with forests, which are being depleted

rapidly. Considering the extensive resources and the low demand (on account of low incomes), domestic supply is adequate to meet the overall demand. The Malawi situation is also somewhat similar, although the extent of resources is limited and population pressure is stronger. The overall trend as regards the various products is discussed below.

Woodfuel

Table 10 provides the estimates of woodfuel consumption (including charcoal) in the subregion, largely on the basis of extrapolation from past trends:

TABLE 10
Woodfuel consumption in Southern Africa 2000–2020

Country	2000	2010	2020
	(000 m^3)	(000 m^3)	(000 m^3)
Angola	3 740	4 835	6 113
Botswana	745	818	840
Lesotho	2 754	2 993	3 211
Malawi	6 131	6 864	7 884
Mozambique	31 278	41 649	54 379
Namibia	872	941	1 011
South Africa	21 183	20 734	19 710
Swaziland	947	1 151	1 310
Zambia	8 773	10 351	11 908
Zimbabwe	7 894	8 709	9 424
Total Southern Africa	**84 316**	**99 046**	**115 788**

Source: Broadhead *et al.*,2001.

As can be seen from the table, the consumption of woodfuel is expected to increase significantly, although it is important to take into account probable short- and long-term changes. Except in the case of South Africa, where electricity is the main source of household energy, woodfuel is likely to remain the most important source of household energy. Most of the production and distribution of woodfuel takes place in the informal sector and this scenario will remain strong, especially in the absence of significant expansion of the formal sector. Future developments will depend on:

- population changes, including urbanization;
- changes in the income of consumers, enabling them to switch to improved fuels; and
- the availability of alternative fuels.

While there is some certainty regarding population growth, including urbanization, there are difficulties in predicting changes in income and the availability of alternative fuels. Streamlining the pricing of electricity in a number of countries - as a consequence of privatization - has led to reverse-switching with increases in woodfuel use. Further, as incomes rise, there is some switching from wood to charcoal, resulting in a net increase in wood requirements (taking into account conversion losses).

Increased replacement with commercial fuels requires an increase in supplies and a reduction in prices. Namibia and Mozambique are in the process of developing their oil and gas supplies (see Box 38) and this will have an effect on regional woodfuel consumption, especially considering the fact that Mozambique with its large population is a major consumer of woodfuel. However, it is important to take note of the fact that fuel-switching will depend not only on availability, but also on the ability of households to meet the costs of commercial fuel supplies, including that of the devices required. Unless specific efforts are made to cut the fixed and recurring costs involved in the use of commercial fuels, fuel-switching is unlikely to be significant.

On the whole the following conclusions can be drawn from the available information:

- woodfuel will continue to be the most important source of household energy, except in South Africa where most of the household demand for energy is met from electricity or LPG;
- charcoal will remain an important source of

BOX 38

SOME EMERGING ENERGY ALTERNATIVES IN LESOTHO, NAMIBIA AND BOTSWANA

In 1998, Lesotho, which is rich in water resources, commissioned a 72-megawatt hydroelectric plant under the Lesotho Highlands Water Project. This meets a major part of the electricity needs of Lesotho and has reduced dependence on expensive coal-based power imported from South Africa.

Namibia is planning a second hydroelectric power plant on the Kuanene River on its northwestern border with Angola. This will increase power supplies to the densely populated northern part of the country and help in industrialization. Namibia is also undertaking feasibility studies on wind energy along its western coast, with the power generated to be fed into the national grid.

The largest natural gas field in the subregion has been discovered in southern Namibia and its exploitation is expected to become a reality in the next two decades.

Botswana has recently embarked on a programme to promote coal as a substitute for woodfuel. Although this is yet to spread on account of several factors, in due course it is expected to become more widespread.

(African Development Bank, 2001b)

household energy, especially in urban areas. In view of the dominance of informal collection, there will be continued depletion of woodlands close to urban centres;
- there may be some replacement with gas and kerosene, especially in the case of Namibia and Mozambique, and coal in the case of Botswana;
- although there will be substantial technological progress with regard to other renewable energy sources such as solar and wind power, the scale of their adoption will remain limited and is unlikely to make a significant impact on woodfuel consumption.

Industrial wood and wood products

As discussed in chapter 2, Southern Africa is probably the most advanced African subregion in terms of wood industries, largely as a result of the highly developed state of industrial processing in South Africa and to a limited extent in Swaziland and Zimbabwe. The industrial scene is largely dominated by the private sector, although the public and informal sectors are also involved. The projected trends in the production of industrial roundwood and selected wood products are indicated in Table 11.

The following conclusions can be drawn from Table 11:
- the production of industrial roundwood and other products will continue to increase in Southern Africa;
- Southern Africa will continue its dominance as regards production of most of the value-added items, especially newsprint, and printing and writing paper.

This situation is entirely due to the predominance in the subregion of the well-established South African forest industry. In comparison with other countries in the subregion - as also in the rest of Africa - the South African forest industry has the following comparative advantages:
- a well-developed industrial infrastructure;
- a global reach for investment, technology and markets;
- a high degree of entrepreneurship attributable to the predominance of the private sector; and
- availability of wood raw material because of large area of intensively managed plantations.

All the indications are that Southern Africa will maintain its predominant position in the production of industrial wood products, largely because of the highly organized state of the South African wood industry. And precisely because of the absence in other countries of the advantages listed above - as well as the differences in the political and economic situation - , industry in the rest of the subregion is unlikely to develop in the same way as in South Africa during the next two decades.

TABLE 11
Trends in the production of wood and wood products

Products	2000	2010	2020
Industrial roundwood ($000\ m^3$)	23 976 (35%)	28 291 (36%)	32 262 (36%)
Sawnwood ($000\ m^3$)	2 221 (28%)	2 386 (29%)	2 528 (30%)
Panel products ($000\ m^3$)	603 (29%)	706 (30%)	914 (33%)
Printing and writing paper (000 tonnes)	515 (78%)	881 (78%)	1 289 (80%)
Newsprint (000 tonnes)	345 (94%)	658 (93%)	1 010 (94%)

Source: FAO, 2002; Rytkönen, 2001.
Note: Figures in parenthesis indicate the share of Southern Africa in total African production. The figures for 2000 are actuals.

Non-wood forest products

The production and utilization of non-wood forest products will continue to take place largely in the informal sector, with a substantial proportion used for subsistence consumption. However, the rapid urbanization and increasing trade opportunities will enhance the importance of market forces in shaping the developments in the NWFP sector. The opportunities and threats in this regard are indicated below:
- there will be a rapid growth of markets for a variety of products, especially traditional items used as food and medicine. While demand for some of the items consumed or used is likely to fall (as a number of non-wood forest products are regarded as inferior goods), several others that are culturally important will continue to be in demand. Often niche markets will emerge for items of ethnic food and cultural artifacts. There is also an emerging global market for natural products such as gums, resins, medicinal plants and plant extracts;
- the major threats to taking advantage of these opportunities are: (a) if the collection of the products continues to be in the informal sector with no investment in management, the resources will be rapidly depleted; and (b) a substantial proportion of the benefits from increased trade will accrue to intermediaries.

The scenarios outlined as regards the South African non-wood forest products sector (see Box 39) are more or less applicable to the entire subregion.Addressing

BOX 39

SCENARIOS WITH REGARD TO DEVELOPMENT OF THE MEDICINAL PLANT INDUSTRY IN SOUTH AFRICA

Based on an in-depth study of medicinal plant use in Kwazulu-Natal in South Africa, Mander has identified the potential future scenarios for the medicinal plant industry:

The study identified three potential scenarios which could develop depending on the actions of key role players in the markets. The possible scenarios are as follows:

Scenario 1 - No intervention - the continuation of status quo - where there is limited investment in promoting the supply of popular plants to the current market players. Consequently, large commercial interests are likely to cultivate high-value plants and trade processed products, while most of the current market players continue to compete for a decreasing share in a declining stock of popular plants. A narrow range of species will be cultivated, processed and distributed for the upper end of the market with a small number of large business interests benefiting. Biodiversity and healthcare would be negatively impacted.

Scenario 2 - Industry driven intervention - collaboration between progressive and current market players and skilled business interests - is likely to offer larger benefits to large intermediate companies and to a limited number of market players. Cultivation, processing and distribution would occur for the middle and upper end of the market. Small-scale traders and gatherers are likely to continue to trade in wild plants, but supply is likely to decline as consumption of cheap products continues at the lower end of the market. Biodiversity and healthcare would be negatively impacted.

Scenario 3 - Collaborative intervention - collaboration between current market players, government and business interests - could see the development of a wide range of processed products from simple rural products to sophisticated industrial products. Numerous market players could develop a range of different quality products for a wide range of consumers, with different prices suited to the consumers' budgets. Such a scenario is likely to promote the growth of the industry and promote development at a broad scale. Investment in resource management is also likely in this scenario. Health could also benefit.

The most likely scenario to develop without market interventions is number 2, where big business enters the market and leads market development to suit its own objectives. Current investments by both government and big business are supporting the development of this scenario. Furthermore, current legislation supports the corporate sector by excluding the less developed market players from producing more commercialized indigenous plant products. The costs of this scenario will be borne largely by the current consumers who will lose access to basic consumer goods through price increases and scarcity, and market players will lose access to trade products.

(Mander, 1998)

the problem of resource depletion would require systematic efforts to domesticate the species and undertake cultivation, as well as to sustainably manage forests and woodlands. Research and development will also have to be increased, taking advantage of traditional knowledge of plants and other products. More particularly, market studies need to be undertaken, including assessment of long-term market potential, prices, processing technology, etc. With improvements in information and communication technology, there is an opportunity to link producers with markets, especially by making information on markets and prices widely available. With the emergence of health-conscious consumers willing to pay higher prices for natural products, the potential is substantial.

Large-scale commercial cultivation of selected items is a distinct option to meet the increasing demand and more particularly to ensure stability of supplies. No doubt this would help to ensure sustainability and avoid depletion, but in all probability it would cut traditional suppliers out of the market. In a way it would promote a strong dualism in the non-wood forest product sector (as has happened with a number of other products), with a well-organized, high-input commercialized production catering to high-income global markets and a traditional, subsistence system catering to low-income local markets.

If the current trends persist, the long-term prospects for non-wood forest products are not encouraging, inasmuch as the choices are limited and any choice would imply some limitations unless specific efforts are made to address the concerns of sustainability and equity.

Wildlife: the long-term potential

As discussed in chapter 2, wildlife is one of the most important natural resources in Southern Africa. Institutional arrangements for the management of wildlife can be broadly grouped as (a) public sector

management of national parks and game reserves, (b) private-sector management of parks owned by individuals and (c) community-based management. Most of the national parks and game reserves are under public sector management, although the private sector is also a major player in South Africa, Zimbabwe, Botswana, Namibia and even Zambia. Most private parks are on large ranches, where owners have left a portion of unused land intact. In recent years substantial efforts have been made to promote community-based approaches, for example the CAMPFIRE programme in Zimbabwe discussed earlier (see chapter 2). As in the case of other land uses, the long-term prospects for wildlife management will ultimately depend on economic considerations. With a growing population, there will be increasing conflicts and the long-term viability of wildlife management will depend on:

- the costs and benefits - direct and indirect - involved in wildlife management;
- how benefits are shared between the various actors; and
- mechanisms for resolving conflicts between different land uses.

The main sources of income and benefits are fees and local expenditure by visitors, including charges for safari hunting, photography, etc., and bushmeat obtained through various culling programmes. It is important to consider the prospects of a significant increase in these benefits over the next two decades.

- income from wildlife-based tourism will depend on the ability of an area to attract tourists, which is largely based on the attributes of the area, including accessibility and on-site facilities, as well as the willingness and ability of tourists to pay for the experience and services. The travel and tourism industry is emerging as a critical sector in the subregion, accounting for US$6.1 billion in 1999 or about 3.7 percent of the GDP - and this is expected to grow at an annual rate of 5.9 percent during the next 10 years. (WTTC, 1999). In the SADC countries travel and tourism employed about 3.8 million people in 1999. The World Tourism Organization has estimated the number of visitors to Southern Africa in 2000 as 8.1 million, most visitors originating from Europe, the United States and Asia. The number of visitors from within Africa is very small, and although this figure may rise as disposable income increases, regional tourism will still remain a small component in the next two decades;
- the proportion of tourism accounted for by wildlife parks and reserves is primarily related to access, especially infrastructure, and how it is packaged and offered to visitors. South Africa has been doing extremely well in taking advantage of its national parks and game reserves, and a substantial proportion of visitors to the country visit them. Botswana and Namibia are also attracting considerable numbers of tourists partly on the basis of their wildlife resources. While most countries have a variety of attractions, the weakness of infrastructure and the lack of a support system limit scope for the expansion of tourism. Considering the high absorption capacity of the sites in well-developed areas in South Africa, the share of visitors and consequent income accruing to those with lesser-known facilities are unlikely to increase substantially in the foreseeable future;
- even if it is assumed that the number of visitors to the national parks and game reserves increases at the same rate as general tourism[23], it is unlikely to result in a substantial increase in the number of visitors or in income. Most publicly managed parks are unable to generate a surplus income, while private parks are able to earn a profit by catering to niche markets, as well as on account of the

BOX 40

THE CURRENT AND EMERGING SITUATION IN THE MANAGEMENT OF NATIONAL PARKS

The current and emerging situation with regard to management of wildlife in Southern Africa can be summarized as follows:

- the declining capacity of the public sector, especially in view of reduced resource availability as a result of the implementation of structural adjustment programmes;
- the inability of many national parks and game reserves to generate the income required for maintenance and upkeep; and
- increasing conflicts as a result of population growth.

Many government parks are unable to meet expenses, especially in the context of increasing poaching. Furthermore, although there are many national parks and game reserves, only a few of the more famous ones attract large numbers of visitors.

[23] The World Tourism Organization estimated the growth rate of tourists to the SADC subregion as 5.4 percent over the next 10 years. The terrorist attacks on 11 September 2001 in the United States and subsequent events had some immediate adverse effects, there are indications of recovery in the recent months.

extensive land any one individual holds. A recent study on income from CAMPFIRE shows that the per household income varies from Z$23 to Z$248 (Conyers, 2001). Such low incomes are unlikely to provide sufficient financial incentive to protect and manage wildlife resources sustainably.

Irrespective of the institutional arrangement, income from wildlife-based tourism is therefore unlikely to be high, especially in the lesser-known areas. Even the well-established South African National Parks system is able to recover only 80 percent of its budget from tourism (Eagles, 2001). The proportion is likely to be much less in the case of other parks, including those under community-based management programmes. Many households living in the vicinity of national parks and game reserves, however, have to bear the costs of wildlife-inflicted damage to life and property. This being the case, even if wildlife-based tourism grows at a rate of over 5 percent, the income generated will not be significant enough to make a difference to the livelihood of the people, except in a very few cases. This would suggest the need to integrate management of wildlife with other uses, such as the collection and processing of non-wood forest products, regulated bushmeat production and agriculture.

However, if protecting the wildlife is considered as a "public good", then resources have to be found to improve the management of parks and game reserves irrespective of whether the effort is economically viable or not. Institutional arrangements such as private-sector involvement, including community management, should then be seen as an effort to minimize public costs and to ensure that conservation objectives are accomplished with limited public funds. Some of the issues to be considered in this regard are the following:

- most privatization and private-sector involvement has focused on the more profitable components of wildlife management, especially tourism, and been reluctant to undertake less profitable activities, including dealing with conflicts between people and wildlife and other public-goods activities such as ecosystem research;
- many private parks have a colonial legacy of land appropriation and their viability stems from the very high land to person ratio. Land reforms under consideration in several countries could alter the situation, making private parks less viable.

In short, wildlife management in Southern Africa faces the same kind of difficult conditions as wildlife management in other subregions and as forests in general. With population growth and the absence of viable alternative sources of income, it is unrealistic to expect any significant improvement in wildlife management. Continuing deforestation will mean a widespread reduction in wildlife habitat. Governments will not be able to increase investment significantly on account of low income and the urgency of tackling other major issues such as HIV/AIDS.

Forests and water

Southern Africa is one of the subregions most vulnerable to water stress, and all the studies indicate a worsening of the situation, particularly in Botswana, Namibia and South Africa. The Zambezi River basin is identified as a potential area for water-related conflicts. With growing urbanization, water-related problems are expected to worsen. This will be particularly the case for Namibia, which is the driest country south of the Sahel[24]. Namibia's proposal to tap 17 million m^3 of water yearly from the Okawango River has caused concern in Botswana, which fears significant environmental damage to the Okawango delta, with adverse effects on tourism. South Africa has a very stringent water act that stipulates payment of water charges even for plantations.

This would suggest the need for concerted efforts to conserve water and rationalize its use, including water-pricing and the reallocation of water among the various water-using sectors. The links between forests and water have to be considered in this context. There could be two broad situations, depending on precipitation and topographical features, and they would require different approaches with regard to the role of trees:

- in most of the dry areas, such as Namibia and parts of Botswana, Lesotho and South Africa, there is a need to minimize evapo-transpiration, which would limit the scope for plantation expansion, especially of high-productivity species (in other words, species requiring more water) such as *Eucalyptus spp*. Careful environmental impact assessment will also be needed of proposals relating to the establishment of forest-based industries such as pulp and paper;
- there are other areas, however, especially in the Zambezi River basin, with high precipitation resulting in run-off and erosion. Much of the problem stems from inappropriate land use,

[24] About 98 percent of Namibia is classified as arid or semi-arid.

including the clearing of natural forests and shifting cultivation. Major consequences of this are the high level of siltation in lakes (especially in Malawi) and the increasing frequency and severity of floods (for example, the successive floods in Mozambique). In these areas the role of forestry in watershed protection, especially in regulating flows and arresting soil erosion, will be significant.

SADC has already formulated a Protocol on Shared Watercourse Systems in its region, outlining the responsibilities and obligations of the member states. All this would imply careful consideration of the impact of various land use options and how they are likely to affect the forest-water relationship. The most difficult step will be getting the various initiatives up and running. Considering the current levels of income and poverty, gaining wide acceptance for the right kind of land use is a key issue. With the increasing dominance of market forces, watershed protection would require strong legislation to ensure compliance. Resource transfers will also be required from downstream beneficiaries of improved management to those upstream, or in some cases those upstream will have to compensate those suffering from floods downstream. Developing institutional arrangements for internalising the costs and benefits of externalities will be critical. The South African Water Act is a pointer to how such issues are being addressed. Either there will have to be significant public sector intervention with an elaborate mechanism for ensuring compliance, or alternatively market forces will have to be given a free reign to evolve an acceptable system of water use. Both have their advantages and disadvantages. Whatever be the emerging scenario, the water-forests linkage will remain a critical issue in all the countries in the subregion.

FORESTRY AND POVERTY ALLEVIATION

As societies develop economically and technologically, the dependence on forests and woodlands for goods declines, while environmental, cultural and recreational values become more relevant. However, for many societies still in the early stages of transition, forests are important for their contribution to material well-being. In Southern Africa, this is all the more critical in view of the high incidence of poverty. Part of the problem stems from the enclavist development that has resulted in the growth of a small segment of the economy with the rest lagging behind. In Southern Africa rural poverty is particularly severe, and this has contributed to widespread migration from the countryside to urban areas, thus adding to urban poverty. The loss of the most active members of population due to migration and, recently, HIV/AIDS has accentuated rural poverty.

As discussed earlier, the dependence of the rural poor on natural resources, including forests and wildlife, is very high. This is particularly the case with smallholder families on communal land and with pastoralists, who rely on woodlands for a range of products and income. The combination of population growth, low economic growth rates, limited opportunities in other sectors and problems such as HIV/AIDS would result in an increasing incidence of poverty. This being so, forestry will have to address the problem of poverty and ensure that forestry activities integrate poverty alleviation as a key objective. Specifically this would imply:

- focusing on the production of basic-needs goods required by the rural and urban poor whose purchasing power is very limited;
- increasing the income that accrues to the poor and will facilitate access to basic-needs goods and services; and
- reducing vulnerability to economic and environmental changes.

In accomplishing the above, the most relevant scenario now is that of the informal sector, largely because of the inadequacies of the public sector dominance and market forces scenarios. However, in its current state the informal sector may be unable to deal with the situation in the long term, particularly because of its inability to bring about technological changes or to mobilize investment for improved management of resources. Ongoing efforts at participatory management indicate the potential as well as the constraints, and the experience of these should be built on in order to address some of the limitations. The functioning of the public sector and of market forces needs to be improved to encourage integration of the informal sector, increasing its capacity to improve resource management and to ensure equitable distribution of benefits. Access to credit, technology and information will be very critical in addressing the problems of poverty.

All the indications are that the forest sector will have to respond to the increasing dependence of the poor on forest resources. In a way this will be a major dilemma confronting forestry, as the long term solution to poverty largely rests with the developments in other sectors, whereas in the short term forest sector will

have to address poverty on account of the failure of other sectors. The key question would hence be whether forestry will be in a position to address a problem that could not be addressed by other sectors like agricultute, manufacturing and services.

SUMMARY OF IMPLICATIONS

As can be seen, the driving forces and the consequent responses of the various actors will have a significant effect on forests and forestry in the next two decades. A questionnaire survey of stakeholders representing the different segments of society provide a less optimistic perception of the future situation (see Box: 41).

The most important of the emerging trends taking into account the scenarios and driving forces are the following:

- Southern Africa will continue to witness a high rate of deforestation, largely stemming from the clearing of land for agriculture and the unsustainable logging of natural forests. Most of the countries that still have extensive natural forests and woodlands are not in a position to implement sustainable forest management, notwithstanding the recognition of its importance. The overall reduction in the capacity of the public sector has undermined the ability to adopt sustainable forest management. Further, a substantial proportion of resource use takes place in the informal sector, which again has constraints on adopting sustainable forest management;
- however, Southern Africa has a flourishing forest industry sector, primarily based in South Africa. Development of forest industries is dominated by the private sector, and will be guided by global changes in supply and demand. In other words, the modern forest industry sector in Southern Africa is more integrated with the global economy, and its future development will be guided by what happens at the global level. As income in Southern Africa improves, the forest industry sector will be in a position to meet most of the demand for wood and wood products from within the subregion. The wood processing industry has been able to involve farmers in growing trees under outgrower schemes. While this has increased economic opportunities for small farmers, it has also increased their vulnerability to externally induced changes;
- wildlife is a critical resource for Southern Africa, forming the backbone of the rapidly growing tourism industry. However, it is important to take into account the limitations of wildlife management as a source of income through tourism or bushmeat production, especially in view of conflicts with other land uses. The capacity of the public sector is being eroded, while there are limitations on the expansion of the private sector, especially on account of the problem of land tenure. If wildlife is to be conserved and managed for its "public-goods" value, public sector investment must be stepped up. Communal management could supplement this effort by increasing the income of local communities. This would suggest the need for a strong partnership between communities, the private sector and the public sector in order to derive both public goods and private goods from wildlife management;
- considering the high incidence of poverty, forestry will have to integrate poverty alleviation into all its activities. This will basically mean placing greater emphasis on increasing the production of goods and services required by the poor, supporting activities that will increase the income of the poor and focusing on activities that will help to reduce economic and environmental vulnerability.

BOX 41

SOUTHERN AFRICANS' VIEW OF THEIR FORESTS

A survey was conducted within the framework of the FOSA exercise in order to collect information on the views of a wide range of players (government agencies, universities, various institutions, international agencies, non-governmental organizations and the general public) with interests in forests and the forest sector. A questionnaire was drawn up, with 717 copies being distributed in Southern Africa. The response rate was about 10 percent, with no answers from Angola or Botswana and few from Lesotho or South Africa.

FORESTS TODAY

Most respondents consider the management of forests as the primary responsibility of governments and to some extent the private sector. Perceptions on the adequacy of supply of goods and services are mixed, with 33% considering the situation satisfactory and 39 percent holding the opposite view. Timber supplies are however seen as a key problem in Lesotho and Namibia. Answers - with the exception of those from South Africa and Namibia - consider that efforts to protect watersheds are ineffective, while most Zimbabweans (69%) expressed dissatisfaction over the current level of biodiversity conservation efforts. With regard to the state of forests, deforestation is commonly reported, as seen in a loss of forest area and cover, and an overexploitation of forest products. Answers from some of the respondents also highlighted the problems of soil erosion, desertification and the inefficiency of reforestation activities.

The main causes of deforestation and degradation are given as wood cutting (for timber and woodfuel) and the lack of sustainable forest management, although encroachment, shifting cultivation, grazing, illegal activities and corruption are also mentioned. The critical factors affecting the state of forests are widely recognized as being population growth, poverty and energy needs, with urbanization also being mentioned, particularly in Lesotho, Malawi and Zambia.

THE FUTURE OF THE FOREST SECTOR

Some improvements in the present situation of the forest sector are expected. Answers from Namibia, South Africa, Swaziland and Zambia see tree planting (by farmers and local communities) and participatory management as positive efforts. In South Africa and Zambia, improvement will also depend on technological changes in wood processing.

Nevertheless, for most respondents the future outlook for the forest sector is pessimistic, with the majority of the answers (67 percent) forecasting a further forest cover reduction and degradation due to weak institutional arrangements and the inadequacy of efforts to implement sustainable forest management. Loss of biodiversity, water scarcity, desertification and an overall decline in the value of forests are expected to remain foremost problems in the future also.

A reversal of this pessimistic situation is considered possible, but would require progress on:

- forest resource management, in the framework of a participatory approach and agroforestry activities;
- a conservation policy, with the registration of new protected areas;
- intensification of forest plantation; and
- extension work on environmental issues, as well as technical training.

Substantial efforts are also needed to:

- ensure political and institutional involvement;
- fight against corruption and illegal cutting;
- develop energy alternatives to woodfuel.

Success in these is expected to conserve forest and woodland resources and to boost forest industries and ecotourism activities. However, some answers from South Africa, Mozambique and Zambia stress the need for the forest sector to have competent and qualified professionals - at a time, however, when HIV/AIDS is having severely undermining human resources.

Chapter 6

Priorities and strategies

The discussion in the earlier chapters provides an overview of the change drivers, the various scenarios and their implications for forests and forestry. A broad indication of the direction in which forestry is likely to evolve was also given. Many of the limitations pointed out stem from the failure to empower the key actors and to increase the freedom of choice. The present chapter attempts to formulate a broad strategy to foster wider stakeholder participation in order to increase forestry's contribution to sustainable development. The aim here is mainly to remedy the deficiencies of current scenarios and facilitate a shift to the Great Transition.

The enormous diversity of conditions inside and outside the forest sector in the Southern African countries, however, makes it difficult to identify a framework for forestry development applicable to all countries in the next two decades, and this is compounded by the uncertainties of externally driven changes. The relatively high degree of globalization of Southern African economies increases the opportunities and threats from changes that are beyond the control of the countries.

Southern Africa is a subregion of contrasts and there are potentials and constraints in taking advantage of the various situations. Essentially the social and economic situation is characterized by extreme dualism, largely an outcome of the colonial past, as well as the increasing impact of globalization. A strategy for development, including that of the forest sector, should be built on the strengths in order to address the weaknesses. Some of the strengths and correlative weaknesses of the subregion are indicated below:

- Southern Africa has witnessed significant social and political changes during the past 10 years. Democratic systems of government are taking root and the need for the devolution of power to the grassroots level has been widely recognized. Almost all governments are in the process of rectifying some of the historical problems connected with land distribution. However, there are also uncertainties in the political and social transition, which could arrest or even reverse progress;
- Southern Africa is economically the most developed subregion in sub-Saharan Africa. The per capita incomes of countries such as Botswana, Namibia and South Africa are fairly high, but there are also extremely poor countries such as Angola, Malawi and Mozambique. Such dualism exists even within countries; for example, in spite of South Africa's high per capita income, almost 45 percent of the population are below the poverty line;
- the subregion is well integrated with the global economy, largely because of the trade links between South Africa and the developed-country markets of Europe and the United States. However, the subregion also has a large subsistence sector functioning in relative isolation and less integrated with the rest of the economy;
- in technological terms, Southern Africa is far ahead of other African subregions, with a significant capacity to develop and adopt technology. There are segments of economic activities that adopt world-class technology, especially in countries such as South Africa. On the other hand, there is a sizeable segment of activities in all sectors - agriculture, animal husbandry, forestry, industry, etc. - where there have been very few technological advances. Productivity, employment and income are highly susceptible to climatic fluctuations;
- by virtue of its high income and openness, Southern Africa is in a better position to mobilize investment. Entrepreneurial capacities are well developed. This is particularly so in the case of South Africa, which has become an important source of foreign direct investment for a number of African countries. However, there are several countries and several sectors within the economies with a limited ability to increase investment and take advantage of entrepreneurial capacities;
- the Southern Africa subregion has a well-developed institutional framework for subregional cooperation in the form of SADC, while other frameworks such as COMESA and SACU have also facilitated and strengthened subregional cooperation. However, the ability to take advantage of such institutional arrangements varies considerably.

It is in the above context that strategies have to be

formulated and actions initiated in the forest sector to address the larger social and economic development issues.

PRIORITIES FOR THE FOREST SECTOR

The main priorities identified at the regional level - poverty alleviation and environmental protection - are also valid for the Southern Africa subregion. Although the subregion is economically more developed, the enclave-type development centred on commercial farms, mines and modern industries has benefited a small segment of the society, and the high incidence of poverty and deprivation stemming from such dualistic development has increased social tensions. This has also been one of the main causes of environmental degradation: with an increasing population in the subsistence sector eking out a living with low investment, land degradation has become very critical. Water scarcity is already acute and is expected to worsen over the next two decades, adversely affecting economic and social progress in a number of countries. And most countries in the subregion are highly susceptible to droughts and famines, as is being experienced at present. The main areas of action in the context of the above two priorities are indicated below.

Poverty alleviation

Considering the existence of well-developed segments in all sectors, there are opportunities for spreading the benefits widely to address poverty. Since markets are better developed and are likely to expand during the next two decades, the main priority in poverty alleviation will be to improve employment and income opportunities for the poor. Production of basic-needs goods such as woodfuel, medicinal plants, poles, fencing materials and fodder will also be important in view of their contribution to the livelihood of rural households. Options available for increasing income opportunities are discussed below.

Strengthening the informal sector

As discussed in chapter 3, there are several activities that lie in the informal sector, outside the scope of market forces and the public sector. Included in this category are small-scale enterprises such as charcoal production, pitsawing, the collection of and trade in non-wood forest products, handicrafts and small-scale furniture production. Although many of the informal sector activities are likely to continue to meet the needs of low-income groups, and hence limit the income they can generate, there are emerging opportunities for improvement. The emphasis should be on making sure that informal activities are not a trap and on increasing the opportunities available by encouraging entrepreneurship, innovation and access to support facilities such as credit and market information. The increased integration of Southern Africa, internally and externally, provides an opportunity to improve the efficiency and effectiveness of the informal sector.

One of the major informal sector activities is the collection and processing of non-wood forest products, especially medicinal plants, and trade in these items. While much of the collection takes place in the informal sector, the trade, both within and between countries, is on the increase. Considering the fact that traditional healing will remain an important segment of health care, support needs to be provided to improve the collection, cultivation, processing and trade of medicinal plants. Areas requiring particular attention include the improvement of access to information on markets, trading channels and prices, and the streamlining of collection, especially through the involvement of community-based organizations.

Strengthening participatory approaches at the community level

Community or group ownership of resources, including forests and grazing land, is gaining legal recognition. Southern African countries also have considerable experience in participatory approaches to resource management, including wildlife. However, policy and legal changes are often focused on the devolution of certain responsibilities without any concomitant strengthening of institutions; and left to themselves, with limited powers and inherent weaknesses, there is a danger that many community initiatives may fail. Community-focused efforts are often implemented under donor initiatives, which are not sustained once the external support ceases. There is hence a strong case for long-term support for institution-building at the community level, not just for natural resource management, but to deal with all other development issues in an integrated manner. Specifically this would involve:

- strengthening of the legal framework for the functioning of community-based organizations;
- transfer of all key responsibilities for resource management to local community organizations, but laying down ground rules to guarantee

transparency in resource management (including ensuring sustainability);
- assistance to community-based organizations to develop a widely acceptable framework for conflict resolution and to ensure adherence to this framework; and
- support for technological improvement in resource management through public sector research, taking advantage of traditional knowledge where relevant.

Support to small farmers

Several countries in Southern Africa are in the process of implementing land reforms, partly to correct inequities arising from past land appropriations, but also as part of a broader social and economic policy to promote rural development. With the recent slowdown of industrial growth, the pressure on land is increasing as unemployed people take up agriculture. To ensure that land reforms accomplish the objective of improving the livelihood of farmers, appropriate land use practices will need to be supported, including tree growing as one of the options. In many cases, the land being distributed includes privately owned game reserves. Without adequate support - institutional, technical and financial - there is a likelihood that unsustainable practices will be adopted, starting with the clearing of tree growth. With appropriate support, there is scope for developing a balanced land use, taking full advantage of the assets represented by plant and animal wildlife. Much of the emphasis of such support would be placed on:

- developing an appropriate institutional framework to facilitate access to know-how and information on appropriate land uses and to help in making informed choices; and
- strengthening local-level organizations for cooperative management of resources such as wildlife, especially when the size of individual holdings is small.

Existing outgrower schemes based on industry-landowner partnerships provide an indication of the potential for tree growing on farms. However, it is important to visualize the problems of such arrangements and to ensure that:

- landowners are fully involved in decision-making and are not just passive partners;
- the vulnerability of tree growers to global market changes - especially declining prices and the reduction in demand for products such as pulpwood - is reduced and their options increased through improved access to information; and
- links between tree farmers and small-scale processing enterprises - especially furniture production, joinery, etc. - are increased in order to provide alternative end uses and markets.

With the increasing involvement of farmers in tree growing, issues such as certification will emerge as important, especially to improve market access. Existing certification systems will have to be adapted to enable them to be applied to small-scale tree growers.

Environmental protection

The most important environmental issues in the Southern African context are:

- watershed protection and conservation specifically to increase water availability and address the problem of floods;
- prevention of land degradation, especially on communal/customary land as well as on individual farms; and
- biodiversity conservation.

Issues such as desertification will also be important, especially in countries such as Botswana and Namibia. Key issues to be dealt with under each of the above are indicated below.

Watershed protection

Water has already become as a critical resource in the development of the subregion and much of the emphasis will be on understanding the consequences of alternative land uses for water consumption and water yields. Only South Africa has a comprehensive water policy and legal framework that take into account the. Importance of water and how land use has to be adapted to protect and increase water yields. The main issues involved in watershed protection will be (a) technical and (b) policy and institutional aspects.

The main technical issue concerned with forests and water yields will be that of understanding forest-water links and how the presence or absence of forests and trees will alter the duration and volume of downstream water yields. There are several misconceptions regarding links between forests and water yields and these need to be identified and addressed.

Policies and institutional arrangements for protecting watersheds and equitably sharing the benefits of watershed management will be even more critical than the technical aspects. Under these policies and arrangements, those in the uplands will be required to

make appropriate changes in land use in order to ensure downstream benefits, with a mechanism for equitably sharing costs and benefits.

Arresting land degradation

Southern Africa is highly susceptible to land degradation, especially on less productive communal land, which is subject to intense pressures. Arresting degradation requires an integrated approach to land use, with trees and other vegetation forming an integral part of land use. The main priority will be to integrate tree growing as a key component of land use, taking due account of its links with other land uses. Within forestry, specific attention needs to be paid to ensure implementation of sustainable management practices, especially in the case of the Miombo woodlands.

Desertification control is a major priority that will have to be addressed particularly by Namibia and Botswana.

Biodiversity protection

Protecting biodiversity, including the rich wildlife, will be another priority area for Southern Africa. While the extensive national parks and game reserves will be the major focal point of biodiversity protection efforts, there is a need to involve local communities in order to improve efficiency and participation. The main issues relating to biodiversity conservation are largely institutional and less technical.

STRATEGIES

Obviously much of the thrust in accomplishing the objectives indicated above will concern the strengthening of various institutional arrangements, focusing particularly on the following aspects.

Strengthening the framework for the transparent operation of market forces

One of the positive aspects of Southern Africa is the existence of a vibrant private sector, although it is at present confined to South Africa and a few other countries. As the economies in the subregion become more integrated, market forces are expected to become the main driving force of change. In many countries, the legal framework for the effective operation of market forces does not yet exist. In the forest sector, this will mean streamlining the valuation system and developing mechanisms to boost competition and prevent the emergence of monopolies.

A revitalized public sector

With the private sector - including farmers, communities and small enterprises - emerging as key players in fulfilling productive functions, the role of the public sector needs to be redefined. Currently, the main focus is on downsizing government agencies, essentially as part of the effort to reduce public expenditure, and it is assumed that the emerging private sector will be able to take over most of the functions earlier carried out by the public sector. However, this is unlikely to happen, especially with regard to public-goods functions, which lie outside the scope of market mechanisms. There is therefore an urgent need to develop an effective public sector with the necessary technical and managerial capacity to:

- provide the policy and legal framework for the effective functioning of market forces;
- resolve conflicts; and
- assess long-term trends and define strategies and plans in response to emerging changes.

Strengthening civil society organizations

The active involvement of civil society organizations in issues relating to forest and environment is critical to the accomplishment of the Great Transition. The strength of a democratic system depends on how these organizations are able to play a corrective role and on ensuring that the larger interests of society are not undermined by partisan actions. Both the public and private sectors need to operate in a transparent environment, and the role of civil society organizations is critical here. In order to increase the involvement of civil society, an appropriate environment must be created through:

- recognition of the role of civil society;
- provision of the necessary legal framework facilitating its activities; and
- recognition of the freedom of information, ensuring that all relevant information is accessible to civil society organizations.

Further, civil society organizations need to be fully involved in the process of formulating national forest programmes, including policies and legislation affecting forest and other natural resource management.

Regional and subregional cooperation

As the countries in the subregion become more integrated, the institutional arrangements for subregional collaboration will require improvement.

Within the forest sector some efforts have already been made under the SADC Forestry Sector Coordination Unit. Recent changes in the SADC structure provide new opportunities for increasing formal and informal collaboration between the forest sectors of the various countries, as well as between forestry and other sectors. Opportunities exist in such areas as:

- research, education and training;
- the development of regional resource monitoring;
- the addressing of transfrontier problems, especially watershed management, illegal logging and the poaching of wildlife.

Chapter 7

Summary and conclusions

KEY FINDINGS

Southern Africa is in the midst of rapid political, social and economic transition and the situation now is significantly different from that of ten or twenty years ago. The pace of change is expected to accelerate during the next two decades and this will have important effects on forests and wildlife in the subregion. Some of the main findings of the study are summarized below:

- all the countries in the subregion are undergoing significant political, social and institutional changes. Although some uncertainties and conflicts persist, democratic systems of government are growing stronger and there is an increasing stress on decentralization and the devolution of administrative responsibilities. Participatory approaches in resource management are becoming widely accepted, although there is still a lingering resistance to pushing the reform process further;
- during the next two decades the population is expected to grow by about 37 million. The effect of this on forest resources, however, will depend on the growth of the economies and on the extent to which structural changes result in a reduced dependence on land;
- although the subregion has some of the richest countries in Africa, there are considerable inter- and intracountry differences in income, and poverty is widespread. This has been exacerbated by the high incidence of HIV/AIDS;
- Southern Africa as a whole is marked by extreme dualism in all aspects of its economies. A well organized, technologically advanced, commercial segment exists side by side with an impoverished, unorganized, low-productivity and largely subsistence segment in all sectors, including agriculture, animal husbandry, industry and forestry. This points to opportunities as well as constraints in the future development of forests and wildlife in the subregion;
- with the persistence of poverty, deforestation is expected to continue at more or less the same rate as in the decade 1990-2000;
- woodfuel is expected to remain the most important source of household energy. Although there will be some switching, the scale of use of commercial fuels is unlikely to be significant, mainly as a result of low incomes;
- plantation forestry will continue to expand, largely in response to the changing global supply-and-demand situation, and will be spearheaded by industry. Much of the effort is likely to be focused on improving the productivity of existing plantations. There will also be some limited expansion which will take place in countries where constraints such as accessibility, water supplies, land availability and more particularly security of investment are less problematic. There may also be some expansion of tree planting under out-grower schemes;
- the modest increase in the demand for various products could easily be met from the existing and projected capacity of the industry in the subregion. There are no major supply-side constraints as the industry is in a position to respond to any increase in demand. However, consumption in most countries is likely to remain low on account of the low purchasing power;
- wildlife is an important and unique asset for the subregion and there is considerable potential for increasing its contribution to social and economic development. However, there will be increasing conflicts, especially in view of population growth and the need to expand agriculture and animal husbandry. Community-based management needs to be refined and improved ensuring its widespread adoption;
- considering the worsening water crisis as well as the increasing frequency and severity of floods in the subregion, watershed management will become a key concern. The links between forests and water will require closer scrutiny in order to develop appropriate responses.

PRIORITIES

In view of widespread poverty, the continued high dependence of the poor on forest resources and the long-term consequences of this in terms of

environmental degradation, the main priorities in the forest sector in most of Southern Africa will be:

- poverty alleviation; and
- reversing environmental degradation in order to improve livelihoods, especially those of the more vulnerable sections of society.

The primary areas of action will include:

- strengthening of the informal sector by improving access to information, especially regarding emerging market opportunities, trade channels and technology;
- improvements in the legal and institutional framework for community management of resources; this will specifically require support in order to improve transparency, access to information and the capacity to manage community enterprises; and
- support to small farmers in adopting integrated land uses, especially in order to reduce economic and ecological vulnerability; farmers involved in outgrower schemes will in particular require institutional arrangements to increase their role in decision-making and to diversify their markets.

FOSA FOLLOW-UP

The FOSA adopted a highly participatory approach involving all the countries and other stakeholders to articulate a broad perception of current and probable future state of forests and forestry in Africa. While the regional overview report gives an account of the continent-wide situation, the subregional reports outline specific features of each of the five subregions. More than providing an indication of what is likely to happen and what needs to be done, the value of FOSA stems from raising key questions and facilitating a rethinking on forestry development in the larger political, economic and social context. As events unfold changing the opportunities and constraints, the FOSA findings need to be revisited and refined to strengthen the formulation and implementation of national forest programmes. Specifically this would involve the following:

- refine the country outlook papers taking into account the broad framework provided by the FOSA regional and subregional reports;
- use the country outlook papers and the regional and subregional FOSA reports to improve the formulation and implementation of national forest programmes;
- strengthen the country capacity in strategic planning; and
- establish a mechanism for regular review of developments in all the key sectors, assess their impact on forests and forestry and refine the forestry development scenarios.

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