Africa

The African continent (Figure 1), consisting of 58 countries and areas (see Annex), contains highly diverse ecosystems. The continent accounts for 14 percent of the global population. The region's 635 million hectares of forests account for 21.4 percent of its land area. The Congo Basin hosts the second-largest contiguous block of tropical forest (Figure 2).

DRIVERS OF CHANGE

Demographics

Africa's population grew from 472 million in 1980 to 943 million in 2006 and is expected to rise to 1.2 billion by 2020 (Figure 3). Although the annual growth rate is declining (from 2.5 percent between 1990 and 2000 to a projected 2.1 percent between 2010 and 2020), the increase in absolute numbers implies further pressure on its resources.

Africa is urbanizing rapidly. By 2020, about 48 percent of the total population will be urban. However, with the exception of most of Northern Africa, Africa will remain largely rural in the next decade and beyond. The rural population is projected to increase by 94 million between 2005 and 2020.

HIV/AIDS will continue to affect the human and financial resources of a number of countries (Box 1).

Economy

In 2006, Africa accounted for about 2.3 percent of global GDP. Since 2000, the overall economic situation has improved. GDP growth rates have risen from 2.3 percent on average between 1990 and 1999 to more than 5 percent since 2000, reaching 6.2 percent in 2007 (IMF, 2008). High growth rates are likely to persist in the medium term (Figure 4). However, despite increased GDP growth, the per capita income growth rate remains low because of population growth (except in South Africa).

Low domestic savings and investments, uneven growth and skewed distribution of income remain concerns. Recent growth spurts are partly a consequence of the high prices of oil and other primary commodities.

FIGURE 1 Subregional breakdown used in this report

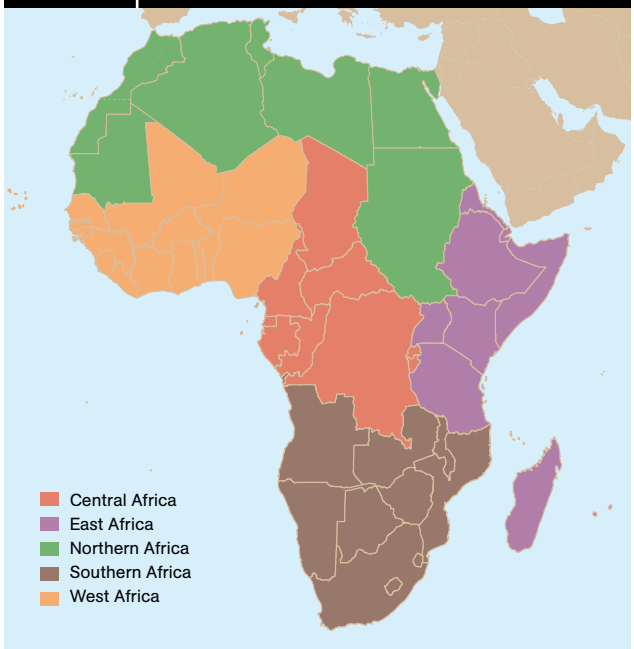
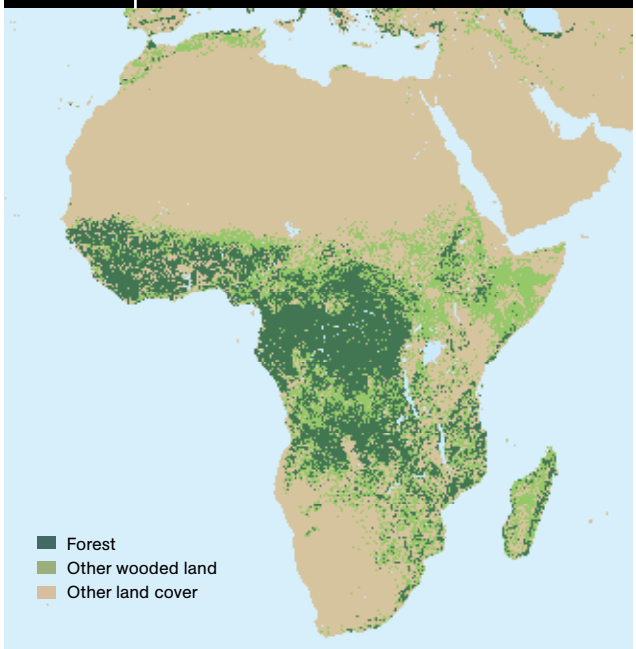
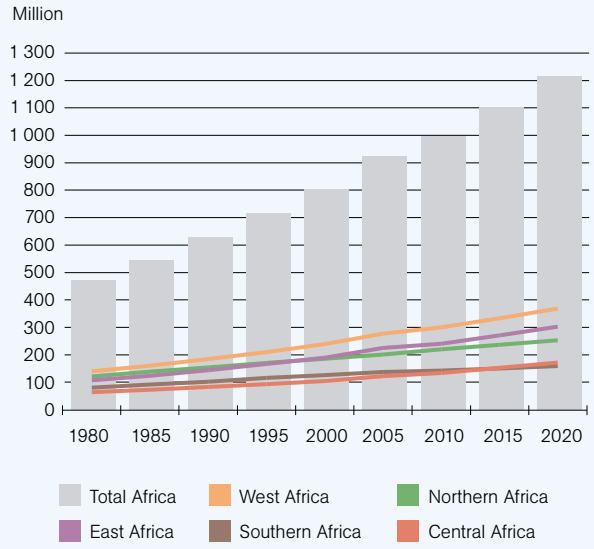


FIGURE 2 Extent of forest resources



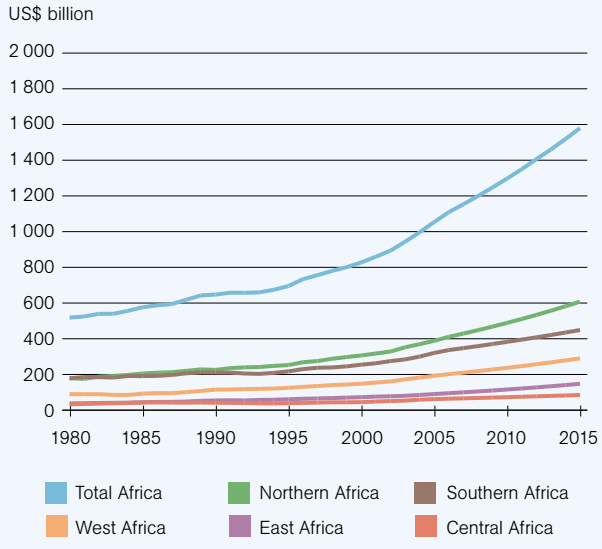
NOTE: See Annex Table 1 for list of countries and areas by subregion.

FIGURE 3 Population



SOURCE: UN, 2008a.

FIGURE 4 Gross domestic product



SOURCES: Based on UN, 2008b; World Bank, 2007a.

BOX 1 Impacts of HIV/AIDS

- Drastic decline in resources – human and financial – leaving less for long-term investments
- Increased dependence on forest products, especially those that are easy to collect
- Loss of traditional knowledge
- Shortage of skilled and unskilled labour – undermining forestry by affecting all key sectors such as wood industries, research, education, training, extension and forest administration
- Increased costs to industry on account of absenteeism and higher bills for treatment
- Reduced public-sector investment in forestry, as most governments will have to devote more of their budgets to health care and combating HIV/AIDS

SOURCE: FAO, 2003a.

Agriculture's share in gross value added has declined, from about 20 percent in the 1990s to 15 percent in 2006. However, agriculture is vital for livelihoods; it accounted for 70 percent of rural employment in 2005. Per capita productivity of agriculture is extremely low in comparison with other regions, and declining agricultural income has enhanced dependence on off-farm employment, including collection of fuelwood and NWFPs and production of charcoal.

Much of Africa's economic growth since 2000 has been driven by exports of primary commodities to the emerging Asian economies, and this is likely to continue. Africa's industries face major challenges, especially from increasing competition in domestic and global markets. Participation in global markets is expected to remain uneven because of limitations in policy and institutional frameworks, infrastructure, human resource development, the investment climate and competitiveness. African markets remain small and fragmented, although mechanisms for regional and subregional integration such as the

TABLE 1
Forest area: extent and change

Subregion	Area (1 000 ha)			Annual change (1 000 ha)		Annual change rate (%)	
	1990	2000	2005	1990–2000	2000–2005	1990–2000	2000–2005
Central Africa	248 538	239 433	236 070	–910	–673	–0.37	–0.28
East Africa	88 974	80 965	77 109	–801	–771	–0.94	–0.97
Northern Africa	84 790	79 526	76 805	–526	–544	–0.64	–0.69
Southern Africa	188 402	176 884	171 116	–1 152	–1 154	–0.63	–0.66
West Africa	88 656	78 805	74 312	–985	–899	–1.17	–1.17
Total Africa	**699 361**	**655 613**	**635 412**	**–4 375**	**–4 040**	**–0.64**	**–0.62**
World	**4 077 291**	**3 988 610**	**3 952 025**	**–8 868**	**–7 317**	**–0.22**	**–0.18**

NOTE: Data presented are subject to rounding.
SOURCE: FAO, 2006a.

Economic Community of West African States (ECOWAS) and the Southern African Development Community (SADC) are beginning to bear fruit.

Policies and institutions

Civil society's demand for transparency and good governance is bringing about fundamental changes in Africa. Decentralization of authority and participatory approaches to resource management are finding wider acceptance. However, conflicts undermine social and economic development in a number of countries.

Community involvement in natural resource management has a long history in Africa, and policy and legal changes in recent years have helped to accelerate devolution. However, forestry faces some enduring institutional difficulties such as:

- poor intersectoral linkages, with high-priority sectors such as agriculture, mining, industrial development and energy effectively having a greater impact on forests than forest policy;
- inconsistencies in laws governing the environment and those governing investments;
- poor governance and corruption in some countries;
- land tenure uncertainties, weak legal frameworks and other hindrances to the development of a competitive private sector;
- declining capacity of public forestry agencies, including research, education, training and extension.

Science and technology

With the exception of South Africa and some countries in Northern Africa, science and technology development in the region has been relatively slow, largely because of:

- low investments in science education and in research;
- the high share of economic activities remaining in the informal domain, which curbs interest to invest in innovations;
- a failure to develop and use Africa's strong base of traditional knowledge to deal with modern problems.

Furthermore, research and systematic enquiry do not tend to be fully mainstreamed in development planning and policy-making.

However, mobile communications and the Internet are improving access to information.

The forest sector reflects the general situation. Substantial efforts are required to revamp the institutional framework to strengthen the science and technology base of forestry. Otherwise, major breakthroughs are likely to bypass the African forest sector or at best will benefit only a small segment of the population.

OVERALL SCENARIO

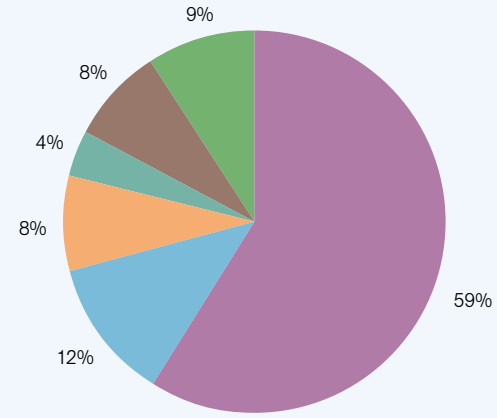
Political and institutional developments will have the greatest influence on the forestry outlook and are the most uncertain (FAO, 2003a). A major transition – one that would favour balanced and equitable natural resource management – would depend on: improved efficiency and accountability in the public sector; greater inclusiveness, competitiveness and transparency in market institutions; and an informal sector (i.e. arrangements outside the public and market domains) that provides livelihood opportunities for the poor, especially where these are lacking in the formal sector. While improvements are being made in this direction, substantial efforts would be needed to effect a real turnaround before 2020. In most cases, a continuation along the current development path – a "business as usual" scenario – appears more likely.

OUTLOOK

Forest area

Although Africa holds only 16 percent of the global forest area, from 2000 to 2005 it lost about 4 million hectares of forests annually, close to one-third of the area deforested globally (Table 1). Most forest loss is taking place in countries with a relatively large forest area. To date, conversion to small-scale permanent agriculture has

FIGURE 5 Direct causes of forest area changes in tropical African countries, 1990–2000



[a] Includes livestock and clearing for industrial tree plantations.

SOURCE: FAO, 2001.

been the main contributor to forest loss (Figure 5), but investment in large-scale agriculture could become a major driver of deforestation in the future.

Forest loss is likely to continue at current rates. The growing demand for, and rising price of, food and energy will exacerbate the situation, especially as increased investments in infrastructure open up new areas. Climate change will also have an impact. Increasing frequency of droughts, declining water supplies and floods strain coping mechanisms at the local and national levels and undermine efforts to manage forests sustainably.

By subregion, the following picture is likely:

- An improvement in the economic situation in Northern Africa could help to reduce the pressure on land and reverse past trends of forest clearance, particularly in the Sudan. However, external investments in large-scale agriculture in response to high food prices could have a negative impact on forests.
- In East and Southern Africa, high population densities and high land dependence coupled with land-use conflicts and limited opportunities for economic diversification are likely to reduce forest area further.
- In Central Africa, low population densities, large expanses of land and improved accessibility may favour forest clearance for commercial and subsistence agriculture. Improved marketability of less-commercial species may lead to intensive unsustainable logging, especially in the context of weak policies and institutions.
- In West Africa, rapidly growing urban demand for woodfuel and increasing agricultural demand is likely to result in continued reduction in forest cover.

Forest management

Natural forests continue to be the main source of wood supplies. The International Tropical Timber Organization (ITTO, 2006) found that only about 6 percent of the natural tropical production forests in the permanent forest estate of its ten African member countries were sustainably managed. Reduced-impact logging and harvesting codes are yet to find wide application, and investment in regeneration of logged areas is minimal.

Global concern about sourcing wood from sustainably managed areas is encouraging the adoption of certification in Africa. However, the extent of certification remains low because of the high transaction costs (Box 2).

Given the likelihood of a "business as usual" scenario, progress in implementing sustainable forest management is expected to be slow, primarily because of:

- the generally unfavourable investment climate;
- severe institutional, financial and technical constraints hindering forestry administrations' ability to manage logging concessions, which have often expanded so fast that governments cannot enforce rules and regulations and fully recover potential income;
- illegal activities and corruption;
- policies and institutional, technical and economic hurdles limiting wider adoption of community-based forest management, and a tendency to transfer only degraded forests to local communities, which lack the investment capacity to rehabilitate them.

All of the above favour unsustainable exploitation. Depending on how community capacity is built up, some progress in sustainable forest management is expected in the savannah woodlands, especially in East and Southern Africa, although it may be hindered by low returns from these forests.

With an estimated 14.8 million hectares of planted forests (FAO, 2006b), Africa accounts for only about 5 percent of the

BOX 2 Forest certification in Africa

Of the 306 million hectares of certified forests in the world (June 2007), Africa accounts for about 3 million hectares (about 1 percent). Most of Africa's certified forests are planted forests, and about half are in South Africa.

SOURCE: ITTO, 2008.

global total. Of this, about 3 million hectares were planted for protection and the rest for production of wood and non-wood forest products (e.g. gum arabic). Most of Africa's wood is produced from natural forests; investments in planted forests have occurred mainly in countries with relatively low forest cover (Algeria, Morocco, Nigeria, South Africa and the Sudan). Average annual planting in Africa from 1990 to 2005 was estimated at about 70 000 ha, less than 2 percent of the global planting rate. In several countries, planted forest area has declined in recent years.

With the exception of South Africa, most planted forests are established and managed by public forestry agencies. Expansion of forest planting and intensive management for production will largely depend on plantation profitability as perceived by the private sector, taking into account the global demand for wood products. Realization of the potential in some of the countries requires significant improvements in the policy and institutional framework, including landownership.

Growing demand for wood has encouraged farm planting in most countries, and trees outside forests have become an increasingly important source of timber and fuelwood (Box 3). This trend is expected to intensify in the coming years. The potential of farm planting to supply industrial roundwood and the constraints in obtaining land for large-scale planted forests have encouraged industries to enter into partnership with communities, for example in South Africa. Improved tenure and supportive legislation could considerably boost tree planting on farms, as is already happening in many countries (e.g. Ghana, Kenya and Uganda).

BOX 3 Trees outside forests

Trees grown on homestead farms, in woodlots and on communal lands are an important source of wood and other products. In humid-zone West African countries, such as Burundi, Rwanda and Uganda in particular, trees grown in home gardens meet most household needs for fuelwood and timber. In many cash-crop systems, trees are grown for shade and eventually provide wood – an example is *Grevillea robusta* in tea plantations in Kenya. In the Sudan, *Acacia senegal*, the source of gum arabic, is largely grown in agroforestry systems, although some mechanized farms have also undertaken its cultivation on a larger scale in recent years.

SOURCE: FAO, 2003a.

Wood products: production, consumption and trade

Africa produced 19 percent of global roundwood in 2006. Roundwood production increased slightly between 1995 and 2006, from 568 to 658 million cubic metres, roughly corresponding to the proportion of area under forests. However, woodfuel accounts for about 90 percent of roundwood production. The higher is the degree of processing, the lower is the share of Africa's contribution. Thus, while Africa accounts for more than one-quarter of global woodfuel production, its share in other wood products is very low (Table 2).

South Africa produced about 20 percent of Africa's industrial roundwood in 2006, largely from planted forests. Nigeria produced another 13 percent.

In view of the limited extent of forests and their low productivity, Northern Africa produces less than 6 percent of Africa's industrial roundwood and, hence, is highly dependent on imports.

In recent years, production of industrial roundwood from natural forests has declined in most West African countries and increased in Central African countries (Cameroon, the Democratic Republic of the Congo and Gabon) as large concessions have been awarded.

Some countries have imposed restrictions on the export of logs in order to encourage domestic processing, but this has not necessarily had the intended result of value addition. At best, it has led to some investments in preliminary processing.

Gross value added increased from about US$12 billion in 2000 to US$14 billion in 2006 (Figure 6). Increases have been entirely in roundwood production; value addition in wood processing and pulp and paper has stagnated.

TABLE 2
Wood product output, 2006

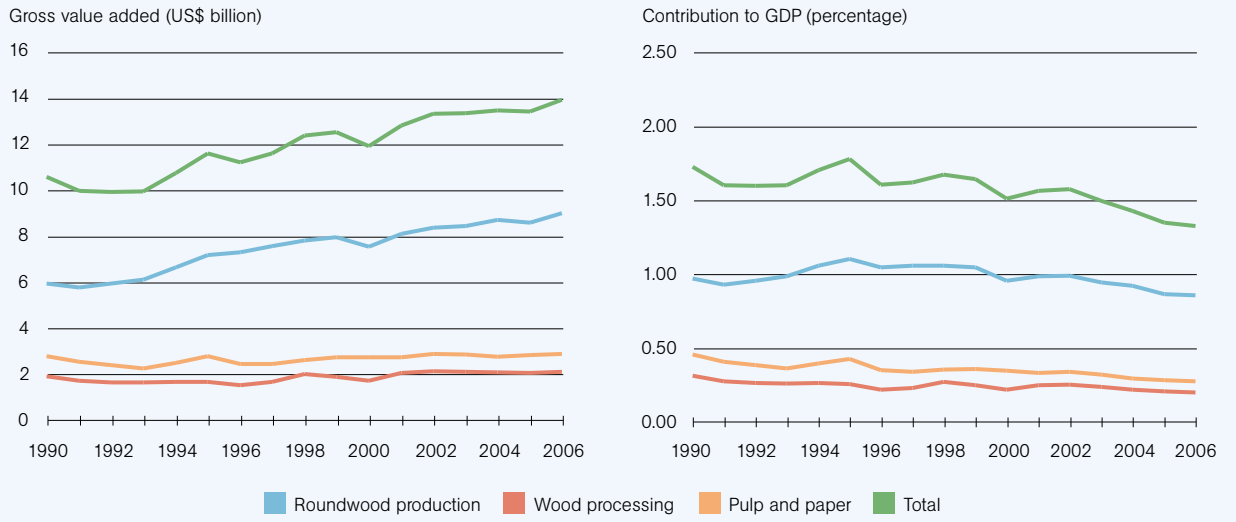
Product	Global	Africa	Share (%)
Industrial roundwood *(million m³)*	1 635	69.0	4
Sawnwood *(million m³)*	424	8.3	2
Wood-based panels *(million m³)*	262	2.5	1
Pulp for paper *(million tonnes)*	195	3.9	2
Paper and paperboard *(million tonnes)*	364	2.9	1
Woodfuel *(million m³)*	1 871	589.0	46

SOURCE: FAO, 2008a.

Industrial roundwood production is expected to grow in the next two decades (Table 3), and some of the subregional shifts will become more pronounced. Southern Africa's share of industrial roundwood production (which is primarily attributed to South Africa) is expected to rise, considering potential increases in logging (especially in Angola and Mozambique). Marginal increases are expected in West Africa and Northern Africa; a decline is expected in East Africa. Central Africa is emerging as a major producer of industrial roundwood. Realizing the potential demand will depend on increases in income and overall social and economic development.

Africa's share in the global wood products trade is extremely low (Table 4) and is geared to the production of low-value-added items (with the exception of South Africa). Intraregional trade in wood products is also low. Between 1980 and 2006, Africa's total wood products exports increased from US$1.6 billion to US$4 billion, while its share of the global total (now in excess of US$200 billion) declined. Realizing Africa's potential in the wood products industry depends on the creation of a favourable policy and institutional environment and on improving competitiveness.

FIGURE 6 Value added in the forestry sector



NOTE: The changes in value added are the changes in real value (i.e. adjusted for inflation).
SOURCE: FAO, 2008b.

TABLE 3
Production and consumption of wood products

Year	Industrial roundwood (million m^3)		Sawnwood (million m^3)		Wood-based panels (million m^3)		Paper and paperboard (million tonnes)	
	Production	Consumption	Production	Consumption	Production	Consumption	Production	Consumption
2000	69	64	8	11	2	2	4	5
2005	72	68	9	12	3	3	5	7
2010	81	77	10	15	3	4	7	10
2020	93	88	11	19	4	4	9	14

SOURCE: FAO, 2008c.

TABLE 4
Africa's share of trade in wood products, 2006

Product	Imports as % of global import value	Exports as % of global export value	Imports as % of quantity consumed in Africa	Exports as % of quantity produced in Africa
Industrial roundwood	0.7	8.4	1.0	6.0
Sawnwood	3.3	3.0	45.0	23.0
Wood-based panels	1.4	1.9	45.0	37.0
Pulp for paper	0.8	1.0	26.0	36.0
Paper and paperboard	2.5	0.6	51.0	12.0

SOURCE: FAO, 2008a.

Woodfuel

Traditional energy sources (mainly biomass) dominate the energy sector, especially in sub-Saharan Africa, where only 7.5 percent of the rural population has access to electricity (World Energy Council, 2005). As household incomes and investment in appropriate alternatives remain low, wood is likely to remain an important energy source in Africa in the coming decades (FAO, 2008d). Forecasts made in 2001 suggested a 34-percent increase in woodfuel consumption from 2000 to 2020 (Figure 7). However, the rise in fuel prices in the past two years suggests that this increase is likely to be even greater. The share of woodfuel in the total energy supply is likely to decline, but the absolute number of people dependent on wood energy is predicted to grow (FAO, 2008d).

Although woodfuel supply and demand are balanced at the aggregate level, there are areas of acute deficit, resulting in unsustainable removals, particularly around urban centres. Most countries have attempted to boost supply through improved management of forests and woodlands and the establishment of woodfuel plantations, and to reduce demand by promoting more-efficient cooking devices and alternative fuels.

Global interest in biofuels as a result of rising fossil fuel prices has increased investments in biofuel development, for example through the planting of *Jatropha* species. It is uncertain whether these investments will provide a long-term solution to Africa's energy problems, and there are growing concerns about adverse implications for food security.

Non-wood forest products

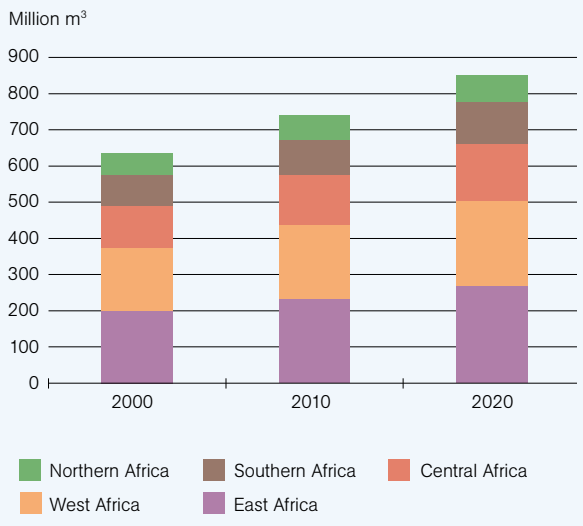
African NWFPs (gums and resins, honey and beeswax, dying and tanning materials, bamboo and rattan, bushmeat, fodder and a considerable number of medicinal plants) are largely used for subsistence and traded informally. Thus, their livelihood contribution and local significance exceed that which may be apparent from official statistics (Shackleton, Shanley and Ndoye, 2007).

With increased opportunities for local, regional and international trade, the NWFP sector in Africa is undergoing perceptible changes. African governments are increasingly developing policies and legislation aimed at formalizing NWFP value chains. Of particular significance is the emergence of markets for "ethnic foods", medicinal plants and natural or organic goods, such as honey, beeswax and shea butter (Box 4). Several products that are traded nationally and internationally straddle the informal and formal sectors. For example, collection from the wild may remain in the informal sector, while processing and trade are in the formal sector.

In view of the wide range of products and end uses, it is difficult to make a widely applicable forecast, but the outlook is likely to include:

- subsistence consumption of most products with little attention to management of the resources;
- overexploitation and depletion of some wild resources collected for commercial products;
- further pressure on bushmeat resources as a result of increased population;
- domestication and commercial cultivation and processing of a small number of products by entrepreneurs or local communities;

FIGURE 7 Woodfuel consumption



SOURCE: FAO, 2003b.

BOX 4 Shea-butter-based cosmetic products

Cosmetics such as oils, creams and dyes represent one of the fastest-emerging global markets for non-wood forest products. Shea butter, derived from the fruit of the shea tree (*Butyrospermum parkii* or *Vitellaria paradoxa*) and commonly known as karité, is one of the most popular ingredients in skin care today. The shea tree is found only in Africa's Sahel belt, and it is estimated that 3 million rural African women are involved in the export of shea products, which were valued at US$100 million for 2007–2008. In Burkina Faso, karité is the second-largest export item after cotton, and several projects are focusing on developing the sector. For example, Burkina Faso's Project Karité organizes local women's associations that collect and process shea nuts and karité for international markets. As the women run their own operations, activities typically comply with "fair trade" conditions. In addition, most of the small village enterprises supported by TREE AID in Burkina Faso are based on karité.

SOURCES: FAO, 2007a; USAID, 2008.

- growing demand from niche markets for certified and fair-trade products (Welford and Le Breton, 2008).

Environmental services of forests

Under a "business as usual" scenario, forest biodiversity loss is likely to continue. Efforts to reverse the situation should build on the successes of community management initiatives such as the Communal Areas Management Programme for Indigenous Resources (CAMPFIRE) in Zimbabwe (Frost and Bond, 2008). Biodiversity conservation also needs to be addressed outside protected areas and integrated into key economic activities.

Protected areas currently cover about 320 million hectares (11 percent of the region's land area), but Africa's investment and staffing in park management remain the lowest in the world. Major challenges to protected area management include increasing human–wildlife conflict (FAO, 2008e) and resource-use conflicts, which often worsen in the event of drought. In Kenya, the United Republic of Tanzania and Zimbabwe, among others, local communities are involved in managing protected areas or tourism facilities for a share of the income. Leasing of protected areas for management has not yet taken hold in Africa.

Climate change will have significant impacts on African economies and on the forest sector. The Clean Development Mechanism (CDM) of the Kyoto Protocol and recent initiatives for reducing emissions from deforestation and forest degradation (REDD) open up new funding opportunities. Hitherto, Africa has not benefited much from the CDM or voluntary carbon markets (Box 5), suggesting that vigorous efforts are needed to address the inadequate technical capacity and policy and institutional constraints if the region is to be able to take advantage of REDD.

Acute water scarcity affects both rural and urban areas in several African countries, and it is expected to worsen as demand increases. Poor watershed management has resulted in heavy siltation and diminished storage capacity in many reservoirs. Fragmented responsibilities and conflicting uses are the main constraints in watershed management, especially for the several transboundary watersheds in the region. The main challenges are to adopt integrated land use and to develop institutional arrangements linking upstream land users and downstream water users.

Interest in a market approach for provision of watershed services is just beginning to grow. The region has only two programmes of payment for environmental services (PES) involving watersheds, both in South Africa, and neither is strictly market-based as they depend on general tax revenue. Several other initiatives are in the planning stage. The main challenges for such schemes are users' inability to pay for watershed services, high transaction costs and institutional deficiencies (Dillaha *et al.*, 2007).

BOX 5 Carbon markets in Africa: an overview

- Global total registered Clean Development Mechanism (CDM) projects to 30 April 2008: 1 068
- CDM projects in Africa: 25 (2.3 percent of the total), most in South Africa (where institutional capacity is relatively well developed)
- Approved afforestation/reforestation projects in Africa: none (in the world: one [in China])
- Africa's share in voluntary carbon markets: 2 percent of the volume transacted in 2007, with the highest-priced credits because of high transaction costs
- Africa's share in voluntary carbon markets in land use, land-use change and forestry in 2007: 5 percent of the global total

SOURCE: Hamilton *et al.*, 2008.

Desertification and land degradation affect most African countries and are expected to worsen with climate change, grazing expansion and increasing pressure to cultivate marginal lands. Trees planted in windbreaks and shelterbelts protect agricultural land and infrastructure. Addressing desertification and land degradation requires an integrated approach to agriculture, animal husbandry and forestry – as adopted in regional and subregional projects such as the Green Wall for the Sahara Initiative (see UNU, 2007) and the TerrAfrica partnership (TerrAfrica, 2006). Almost all countries in the region are signatories to the United Nations Convention to Combat Desertification (UNCCD) and have developed national action plans (often with external support). However, economic and institutional constraints limit the ability of governments, the private sector and communities to address the challenges systematically.

Nature-based tourism and emerging private-sector-led and community-based ecotourism initiatives, primarily centred on protected areas, make a significant contribution to African economies. The rich wildlife is a major source of income and employment. Africa has considerable potential to take advantage of growth in global tourism. However, the overall trend of continued deforestation and forest degradation implies a diminishing supply of forest-derived environmental services. Whether increasing awareness of the environmental services provided by African forests will influence their conservation depends on the costs involved.

SUMMARY

The forest situation in Africa presents enormous challenges, reflecting the larger constraints of low income, weak policies and inadequately developed institutions. Success stories exist but remain isolated because of fundamental economic and institutional weaknesses. Obstacles include:

- high dependence on land and natural resources and scant investment in development of human resources, skills and infrastructure;
- the low level of value addition in the economy, including the forest sector;
- the vastness of the informal sector, stemming from the weaknesses in the public sector and market mechanisms.

Focusing on the unique products and services required locally and globally and strengthening local institutions can be important ways of addressing forest resource depletion. Such efforts should build on successful experience with locally based sustainable resource management integrating agriculture, animal husbandry and forestry, and take advantage of local knowledge. The growing demand for environmental services – especially biodiversity and carbon sequestration – provides a particular opportunity for Africa.