CHAPTER 4

Integrating forestry

4.1. The current state of Africa's forests and forestry

4.1.1. Forests and trees

Forests and woodlands. Forests and woodlands occupy about 650 million ha or 22 percent of Africa's land area, and they form an integral part of African landscape. The functions that forests and trees fulfill, and the potential to augment their contribution vary depending on the ecological and socio-economic context. The Congo Basin is home to the second largest contiguous block of tropical rainforest in the world, covering over 228 million hectares[1]. In the densely populated humid zones of West and Central Africa, a substantial area of forest has been converted to cash-crop and subsistence cultivation. Vast tracts in Central Africa have low population densities and extensive forests. There are also vast areas of savannah woodlands, which are used for a variety of purposes, including conversion to rainfed agriculture.

Most countries, especially in Central, Southern and West Africa, have large tracts of natural forests and woodlands. The main issue concerning the use of these forests relates to the feasibility of implementing sustainable forest management. One of the key issues concerning African forestry is the high rate of deforestation. Between 1990 and 2000, Africa's forest cover loss was estimated at about 53 million ha. The rate of deforestation could be substantially reduced if more efforts were made to increase the area under sustainable management of forests. A host of issues – policy, legal, institutional, economic and social – must be addressed if sustainable forest management has to find wider application.

Planted forests. Plantations are established to intensively produce wood and other products to meet well-defined objectives. Africa has about 8 million ha of forest plantations and the annual planting rate is about 0.2 million ha. The objectives of plantation establishment include production of industrial roundwood, woodfuel and non-wood forest products. Also planting has been undertaken to enhance environmental benefits, especially for protection of watersheds and controlling desertification. Establishment of shelter belts and wind breaks is a common practice in many countries to reduce the adverse effects of dry winds on agricultural productivity. Some of the countries in North Africa have invested substantial resources to establish "green belts" especially around urban centres. Increasing demand for wood and wood products would require further investments in planted forests, especially as supplies from natural forests decline.

Trees grown on farms constitute a major source of wood and other products. This is particularly the case with home gardens in such humid-zone countries as Burundi, Rwanda, Uganda and several of the West African countries. Most household needs for woodfuel and timber are met from trees grown in home gardens. Many cash-crop systems also support trees, originally grown as shade for the main crop, but eventually becoming an important source of wood, as in the case of Grewillea robusta, grown on tea plantations in Kenya. In the Sudan, Acacia senegal, the source of gum arabic, is largely grown by farmers as part of agroforestry systems, although some large farms have also started cultivating this species on a commercial scale in recent years. A better integration of trees in farming systems and supporting existing systems like the agroforestry parklands is critical to the viability of rural livelihood.

4.1.2. Production, trade and consumption of forest products

Africa's roundwood production increased from 340 million m^3 in 1980 to 699 million m^3 in 2000, accounting for 20 percent of global roundwood production[2]. A distinctive feature of wood production in Africa is the low level of processing. About 90 percent of all roundwood is used as woodfuel. Industrial wood production in Africa currently accounts for about 10 percent of total roundwood production. Considerable variation exists among the different subregions, reflecting differences in ecological conditions, demands and processing capacities. Production of industrial roundwood in 2000 was estimated at about 69 million m^3. This is projected to increase to about 89 million m^3 by 2020 (see Table 5).

Between 1980 and 2000, Africa's exports of wood and wood products rose from US$1.6 billion to US$2.9 billion, compared to US$57 billion and US$143 billion for worldwide exports. Africa's share therefore declined from 2.8 to

[1] FAO, 2001. *Global Forest Resource Assessment 2000. Main Report.*

[2] FAO, 2002. *FAO Yearbook – Forest Products 2000.*

2.0 percent. Such a low share of Africa's exports is alarming, considering that the continent has about 17 percent of the world's forested area and 13 percent of its population. Increasing the share of African forest products exports faces a number of constraints, including tariff and non-tariff barriers.

Woodfuel is the most important source of energy for most of the rural households. But since most production and consumption take place in the informal sector, available statistics fail to reflect this reality. The share of woodfuel in worldwide roundwood production has declined over time, but in Africa the proportion of woodfuel has remained unchanged, and in some countries even increased. The predominance of wood and other biomass as a source of energy primarily stems from: (a) its low cost, making it accessible to low income consumers; and (b) its wider availability in comparison with other sources of energy.

An important factor that will have a bearing on woodfuel use is the pace of urbanisation. Africa is urbanising rapidly and this is expected to increase the demand for wood as a source of energy, especially on account of the increased use of charcoal. In many urban areas, charcoal remains the most important source of household energy. While this offers scope to make wood energy production more organised, in the absence of appropriate institutional arrangements, this could also accelerate resource depletion (see Table 6).

Non-wood forest products (NWFPs). African NWFPs include a range of products, such as gums and resins, honey and beeswax, medicinal and aromatic plants, dying and tanning materials, bamboo and rattan, bush-meat and fodder. Notwithstanding their important contribution to the livelihood of people, information on their overall contribution is incomplete at best, except for some of the commercially important products. For example, in certain areas of Ghana and Cameroon, non-wood forest products account for more than half of the household incomes. Bush-meat forms the major source of protein for a substantial number of people, especially in West and Central Africa. An increase in demand for non-wood products, coupled with lack of investment in management, has resulted in rapid resource depletion.

In addition to the large number of non-wood forest products that contribute to subsistence living, several have been commercialised and generate substantial income for countries. Gum Arabic, rattan, cashew nuts, wattle, shea butter and cork are some items that have a long history of trade. The Sudan accounts for about 80 percent of the world's gum Arabic production, and until recently this was one of the country's most important sources of foreign exchange. Although Central and West Africa have substantial rattan resources, local processing is yet to develop significantly and most of the rattan exported is unprocessed.

4.1.3. Wildlife

Wildlife is undoubtedly a very important natural resource of Africa, with considerable potential for contributing to rural development through employment and income from tourism, and as a source of food, especially bushmeat. Establishment of protected areas - especially national parks and sanctuaries - has been an important approach to conservation. Game viewing and trophy hunting have proved to be major attractions for tourism in some countries, contributing significantly to increasing export earnings. Key issues concerning wildlife management are:

- the extent and size of protected areas that enable effective protection of ecological variability, in particular the protection of unique and endangered species;
- investment in the management of protected areas;
- economic and social viability of protected areas, including resolution of conflicts; and
- enhancing economic and social benefits through ranching species that have commercial potential (for example ostrich, grass cutter, etc.).

4.2. Environmental services of African forests

4.2.1. Watershed management

The role of African forests in watershed protection and in arresting land degradation is particularly significant. Watershed degradation is affecting agriculture in most of the major river basins. Currently, 14 countries in Africa are subject to water stress or water scarcity, and the number is expected to increase by another 11 by 2025. Many urban areas are already facing acute water and power scarcity, partly due to decreased storage capacity of reservoirs caused by heavy siltation. Intensification of agriculture in Africa, which is critical to overcoming food insecurity, requires measures to protect watersheds and arrest land degradation. Since water is a key resource, the role of forests and trees in altering evapo-transpiration and infiltration, and thus affecting downstream water availability, cannot be overemphasized.

4.2.2. Arresting desertification

Controlling desertification and land degradation is a major concern for most African countries. The traditional approach of conserving original tree cover in cultivated landscapes has resulted in the development of agroforestry parklands, especially in West Africa. Windbreaks and shelterbelts have been used to stabilise shifting sand dunes and reduce the effects of dry winds on agricultural crops. Food security, especially in the Horn of Africa, will depend in part on how trees are integrated into the farming system and whether people have access to forest and tree resources during periods of drought and famine. In many traditional communities, the role of trees and forests in protecting the

environment is well understood. These efforts must be supported and nurtured.

4.2.3. Forests and biodiversity conservation

African forests are rich in biodiversity, although information on its long-term potential is scanty or at best fragmented. Almost all African countries (except Liberia, Libya and Somalia) are signatories to the Convention on Biological Diversity. However, the capacity of most countries to protect and manage biodiversity remains limited. The key problems concerning biodiversity conservation include:

- the inability to integrate the concept of biodiversity conservation into all economic activities, especially land use;
- the focusing of most biodiversity conservation efforts on protected areas, to a large extent ignoring the vast remainder; in the context of declining resources, even protected areas are not effectively managed;
- lack of understanding of the long-term economic potential of biodiversity and the inability to invest in improving know-how; while there is substantial indigenous knowledge, there has been very little effort to nurture this and increase its utility in a more systematic manner; and
- despite some efforts at bioprospecting, most countries and local communities have not been able to take advantage of the potential, notwithstanding the traditional knowledge base. The low bargaining power of the local communities and the weaknesses of local and national institutions limit the economic benefits accruing to the people[3].

4.3. Key issues and constraints

Forests and forestry form a subset of the overall economy and a number of factors outside the subsector have an overwhelming impact on what happens to forests. A complex and dynamic cause-effect web influences the way forest resources are used. The opportunities and constraints for forestry are expected to change rapidly. Below are some of the major constraints affecting the forest subsector.

Opportunistic exploitation of forests. The opportunistic exploitation of African forests, paying little attention to sustainability until recently, stems from a number of factors, including uncertainty of tenure and weak institutional arrangements. Traditional community arrangements have become less effective in the context of rapid social and economic changes. Most of the key actors, including governments, private sector and communities, treat forests as a means of raising income or for meeting immediate needs for wood and other products. Income from forests is seldom ploughed back to enhance or maintain productivity. Although the rationale of sustainable forest management is well understood, unsustainable use of forests remains more profitable in the short term. In a situation of low income, the incentives for investment to ensure sustainability are limited. This is all the more so in the context of poorly defined tenure and absence of accountability. As long as unsustainable use is more profitable, the current trend of opportunistic exploitation is likely to continue, notwithstanding the long term adverse impacts.

Policy and institutional weaknesses. Political and institutional changes fundamentally impact patterns of resource use. During the past two decades, Africa has witnessed significant political changes, especially a shift towards more democratic governments. A number of countries have introduced policy and legal changes, especially to facilitate decentralisation and increased participation of people in resource management. However, these are often slow and institutional weaknesses remain a major problem in the implementation of policies and legislation which are purportedly satisfactory. In general, forestry institutions are extremely weak in Africa, even under traditional centralised systems. Areas such as research, education and extension remain weak especially due to limited resources.

Trade barriers. In the context of limited domestic demand, the dependence on external markets is substantial, especially for industrial roundwood and a number of other forest products. Historically, Africa has been an exporter of primary products, including minerals and other extractives. Global developments, especially as they affect the prices of African exports, will have far-reaching direct and indirect impacts on forestry.

Low level of processing and value addition. A key feature of the African forestry sector is the overall neglect of value addition. Only about ten percent of the roundwood is subjected to any industrial processing and of this 25 percent is used as sawnwood. At the regional level, sawnwood consumption in Africa is substantially greater than production. Between 1980 and 2000, the production of panel products has increased substantially, largely owing to the expansion of production in West and Southern Africa. However, Africa's share in the global production of wood based panels declined from 1.5 percent in 1980 to 1.1 percent in 2000. While global production increased by about 80 percent between 1980 and 2000, Africa's production increase was about 38 percent. Africa's production of printing and writing paper has been far less than its consumption. For example, in 2000, production accounted for only 46 percent of consumption.

[3] A typical example of this is the exploitation of Prunus Africana bark, which is used to extract a chemical cocktail used in the treatment of benign prostate hyperplasia. In 1999 Cameroon earned about US$700 000 from Prunus Africana bark, but it was worth about US$200 million to pharmaceutical companies in North America and Europe (see CARPE, 2001).

Poor research development linkages. During the last few decades, there have been significant developments in science and technology, including in forestry, resulting in improvements in resource management and processing of wood and other products. Improvements in production processes have significantly reduced raw material requirements and resulted in a wide range of new products. However, Africa's ability to harness science and technology in the forestry sector has remained very limited, except in a few countries like South Africa. To a large extent, this reflects the overall deficiencies in the capacity, first, to invest in research and development relevant to the needs of the people and second, to adapt what is available from elsewhere.

Forestry research and development institutions in Africa are generally weak and suffer from structural, technical and financial problems. They are also highly dependent on external support, which has decreased in recent years. With the exception of South Africa, which has a strong private sector research system supported by the wood products industry, forestry research in most countries has not made any significant progress and has often declined in the level of efforts and the quality of outputs. Some efforts have been made to address the problem, especially through regional collaboration and networking through the Forestry Research Network for Sub-Saharan Africa (FORNESSA) and the African Forestry Research Network (AFORNET).

4.4. Priority areas for intervention

The forestry component under CAADP will focus on the following four critical priority areas:

i) improving the policy, legislative and planning framework;
ii) strengthening the institutional structures to better implement policies and legislation;
iii) increased investment in critical areas, especially to implement sustainable forest management and to enhance the availability of goods and services; and
iv) complementary investment for the development of industries and supporting infrastructure.

4.4.1. Policy and legal reforms and improved land use planning

One of the major areas of thrust in forestry is to strengthen the policy and legal framework that directly or indirectly impacts on the forestry sector. Although a number of countries have initiated changes in policies and legislation, this needs to be pursued vigorously. Specifically, there is a need to consider the cross-sector linkages and to address the impact of policies in other sectors on forests and vice versa, and to correct the inconsistencies. Specifically, this sub-programme will aim at:

- reforming, where necessary, forest policies emphasising on empowering the different factors to implement/adopt sustainable forest management;

Wood blocks picking up in South Africa, www.academic.sun.ac.za

- reviewing and helping to revise policies in other sectors to ensure that policies are mutually complementary and are in accordance with the principles underlying sustainable development;
- updating the legislative framework for providing a transparent and level playing field to all the key actors; and
- strengthening land use planning especially in the context of inevitable conversion of forests to increase agricultural production.

4.4.2. Strengthening the institutional framework

African forestry is characterised by a number of institutional weaknesses. Although many countries have revised forest policies and brought about changes in legislation, in the absence of supporting efforts to strengthen the institutional framework, these policies and legislation remain ineffective. Improving the institutional framework will focus on the following:

- revitalise the public sector forest administration, specifically focusing on policy guidance and providing a conducive environment for other actors;
- support the development of the private sector and enhance its effectiveness, especially by providing an effective legal framework;
- strengthen community organisations and other participatory approaches, specifically to improve the performance of the informal sector;
- augment the science and technology capacity through enhanced investments in research, education, training and extension; and
- improve and/or strengthen regional/subregional institutional mechanisms to promote intercountry collaboration to address common problems.

4.4.3. Investing in sustainable forest management

Efforts will be directed to enhance the sustainable production of goods and services from forests and trees. Specifically, this will involve:

- increasing the area of forests (including woodlands) under sustainable management, so that by 2030, there will be about 30 million ha of forest estate that is managed sustainably, producing about 60 million m^3 of industrial roundwood annually;
- creating by 2015 a total of 12 million ha of highly productive planted forests, managed by the corporate sector, local communities and farmers to produce industrial roundwood and woodfuel totaling 100 million m^3 annually. The planted forests programme will also strive to enhance the production of non-wood forest products and to support environmental services, especially improved watershed management and arresting desertification and land degradation;
- rehabilitating the rural landscape, especially through supporting and improving traditional land use systems like the agroforestry parklands;
- supporting the sustainable production and processing of non-wood forest products, especially through the application of improved technologies by small and medium enterprises;
- improving the management of national parks and game reserves through local community participation; and
- strengthening the capacity for resource monitoring and development of an effective information system to improve the policy and planning process.

4.4.4. Improving the efficiency of forest industries and other complementary investments

This subprogramme will focus on enhancing investment in forest industries to improve the state of technology and to create additional capacities to meet future domestic and external demand for forest products. Special attention will be paid to upgrading technology to make products competitive (including reduction of waste and adherence to environmental standards) in the local and global markets. Areas of focus specifically include:

- the improvement of technology, especially as regards production of secondary wood products (including furniture, handicrafts, etc.) that would enhance employment creation and at the same time take advantage of traditional skills;
- the development of products and services catering for high value niche markets;
- the growth and the expansion of other forest-based industries in subregions/ countries that have already demonstrated their comparative advantage or those that will have potential comparative advantages to meet the demand from regional and global markets; and
- the improvement of the processing of non-wood forest products, ensuring compliance to health and safety standards.

Currently, Africa is producing about 700 million m^3 of wood. Much of this production is unsustainable, largely because of the very low investments in regeneration and follow-up maintenance. In addition, large tracts of forests are degraded and deforested, partly due to over-exploitation as well as unplanned expansion of agriculture. Much of this is attributable to the very low level of annual investment, which is about US$1 billion per year. This amounts to about US$1.4/$m^3$ of wood produced.

The level of investment now proposed would help to shift the scenario to a more sustainable path and significantly enhance the production of wood and non-wood forest products and also improve the provision of environmental services, especially through improved protection of water-

sheds, conservation of biological diversity and arresting desertification. On a per hectare basis, the annual (current and additional) investment will be approximately US$6.0 or a total of US$72 per hectare up to the year 2015. Taking into account only wood production benefits, investment at the enhanced rate would amount to about US$4.0/$m^3$ of wood produced (wood production is estimated to increase to about 950 million m^3 by 2020). The current level of prices of industrial roundwood and woodfuel would indicate that this investment is more than justified. In addition, it is also important to take into account the returns from value addition to wood and non-wood forest products, as well as the indirect benefits from the environmental services.

4.5. Financial resource requirements

The table below provides a general indication of estimated total resource requirements to reach the objectives indicated above.

Average annual resource requirements are estimated at about US$3.9 billion (about US$6 per hectare). Public expenditure (including government, external cooperation partners) in the forestry sector in 1999 (24 African countries accounting for a forest area of about 343 million ha) is estimated at US$282 million. Assuming the same level of spending in the remaining countries, the annual public expenditure on forestry in Africa could be estimated at about US$530 million.

No estimates are available on the expenditure by the corporate sector, other private investors, non-governmental organisations, farmers and local communities. In several countries, especially in Southern, Central and West Africa, where the private sector plays an important role in the management of plantations and forest concessions, logging and industrial processing, private sector investment could be significant. Similarly, in several countries farmers have made considerable investment in tree growing. Assuming the same level as public expenditure of about US$530 million, total annual expenditure would then be approximately US$1 billion. This would suggest that the level of additional annual resource outlay required will be of the order of US$2.9 billion.

Substantial efforts will clearly need to be made to raise resources from various sources in order to reach the stated objectives. Investments would most likely be tapped from (a) governments including external development assistance; (b) corporate sector and (c) farmers, local communities and non-governmental organisations. A provisional indication of the financing sources is provided in the table on the right hand (page 23).

Most of the public sector investment will focus on bringing about policy and institutional changes and strengthening the institutional framework, thereby creating the necessary conditions for the other actors to invest in sustainable management and in processing. Much of the investment in planted forests is expected to come from the corporate sector and to a limited extent from farmers and local communities. It is assumed that the upstream investment in policy reform and institutional strengthening encourages investment by other actors and the public sector will help to fill up gaps, especially as regards the provision of environmental services.

In view of the diverse situation prevailing in each country, the resource requirements will vary considerably among countries. Factors like the current situation of forests, demand for forest products and services, quality of management, current state of forest industry, infrastructure, policy and institutional environment, etc. will be important in determining the extent of investment required. This will be worked out in due course taking into account the views of the different stakeholders.

Total estimated cost of the forestry component

Programme	*US$ millions*				
	Immediate (2004–05)	Short-term (2006–2010)	Medium- term (2011–2015)	Total (2004–2015)	Average Annual Costs
Policy and legal reforms and improved land use planning	540	1 120	870	2 530	211
Institutional strengthening (including public sector forestry agencies, private sector and community organizations)	1 900	5 300	2 650	9 850	821
Sustainable production of wood and non-wood forest products and services from forests and farms	3 770	10 355	11 455	25 580	2 131
Infrastructure and other complementary investments including forest industry development	1 500	3 750	3 750	9 000	750
TOTAL	**7 710**	**20 525**	**18 725**	**46 960**	**3 913**

Sources of Funds

Activity area	Estimated annual investment *(in US$ million)*			
	Public sector	**Corporate sector**	**Local communities/farmers**	**Total**
Policy and legislative changes	211	-	-	211
Institutional strengthening	400	200	221	821
Sustainable forest management to enhance supply of goods and services	900	1 100	131	2 131
Investment in forest industries and other infrastructure	200	450	100	750
TOTAL	**1 711**	**1 750**	**452**	**3 913**