



PLANTATION FORESTRY IN SUB-SAHARAN AFRICA



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CONTEXT

Plantation forestry has taken root in many Sub-Saharan African (SSA) countries and has been a significant component in forestry programmes since the early 1900s. It is convincingly argued by many experts that the only way to avoid shortage of wood in the near future is to meet these demands from rationally managed tree plantations on much smaller areas than would be required for equivalent production from natural vegetation. Furthermore, many secondary wood industries (furniture, paper, etc.) require wood of reasonably uniform and predictable quality, a strong argument in favour of plantations. In addition, tree plantations are often the most rational way of producing also non-wood forest products, for rehabilitation of degraded areas and improvement of watersheds, and for meeting environmental objectives such as windbreaks, shelterbelts and, more recently, carbon sequestration.

The general approach to plantation development has involved starting with species and provenance trials, mainly fast-growing exotic species. Successful results from these trials have guided establishment of large-scale planting in some sub-regions, particularly from the mid 1900s. The justification for plantation development has been based on growth superiority and product uniformity over those of useful, but normally slow-growing, indigenous tree species.

The production performance of plantations varies. Outstanding performance (up to 30–40 $\text{m}^3\text{ha}^{-1}\text{yr}^{-1}$) has been observed while poor performance (1–2 $\text{m}^3\text{ha}^{-1}\text{yr}^{-1}$) has been noted in other situations. The variability is due mainly to species/provenance selection, genetic improvement, species-site matching and cultural practices.

In 2000, the total plantation area in Africa was just over 8 million ha or 4.3% of the global plantation area. The annual rate of planting in the same year was estimated to be 194 000 ha or 4.4% of the world total. Africa's total and annual planting areas are the lowest among all the continents. Eucalyptus is the most widely planted genus on the continent covering 22.4% of all planted area, followed by Pinus (20.5%), Hevea (7.1%), Acacia (4.3%), Tectona (2.6%), other broadleaved (11.2%), other conifers (7.2%) and unspecified (24.7%).

For a number of reasons, plantation programmes in many countries have faced some serious challenges and have been on the decline, particularly in the last two decades. Land use conflicts, concern about the ecological impacts of plantations, and weakening public forest services as a result of diminishing priority given to them in the face of structural adjustment programmes and donors losing interest in funding forestry activities have all contributed to this. Many countries now have to re-think the way forward with their plantation programmes.

It is in the above context that one of the studies commissioned by the *Sustainable Forest Management in Africa (SFM)* project was to analyse the performance of plantation forestry in SSA countries to:

- ✿ Identify factors contributing to the long-term economic, social and environmental viability of forest plantations.
- ✿ Determine the extent to which plantations can overcome the problem of wood supply.
- ✿ Determine the possibilities to replicate success stories and the necessary and sufficient conditions for promoting plantation forestry in Africa to achieve sustainable management.

The report by Shabani Chamshama and Frank Nwonwu is available on AFORNET's web site www.afornet.org

SOME KEY ISSUES TO BE ADDRESSED

There are a number of important issues identified in the study and in the many discussion forums organised by the project, which must be considered in the development of the plantation potential in SSA, viz:

- ✿ Africa's own capacity to meet its present and future requirements of bulk utility wood (furniture, construction, fuel, etc.) and fibre (paper) products is not well known, particularly regarding the questions of what wood will be available (from natural forests, plantations or farm) and from what sub-regions, ecozones and countries.
- ✿ Plantation establishment and management require big and sustainable inputs of capital, technical know-how, long-term commitment, economic

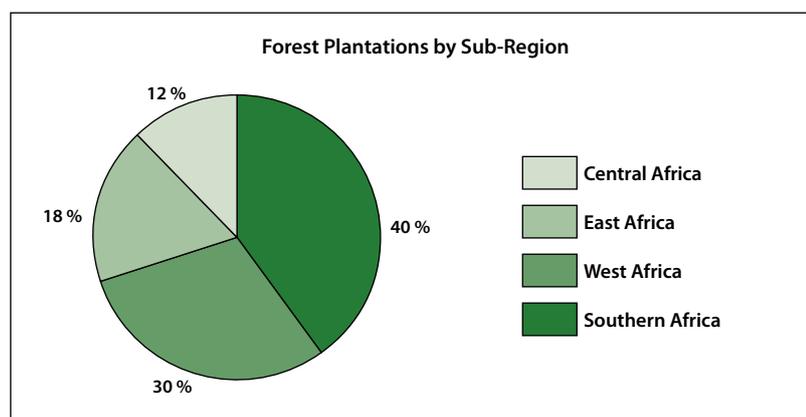


Figure 1 shows the sub-regional distribution of plantations. The public sector holds 47.4% of the plantations in SSA, private 18.1%, others 8.2%, and unspecified 26.3%.

management skills and forward integration to value adding secondary processing – therefore, the question of ownership of plantations is a major issue determining their success.

- ☼ Out-grower schemes and other forms of farm-based wood production appear to have a significant potential in narrowing the gap between demand and supply of forest products but also carry inherent risks to farmers.

- ☼ Plantation establishment continues to face many technical obstacles and often gives rise to ecological and land/water use controversy.

- ☼ Use of plantations for environmental management purposes is promoted without due consideration to long-term sustainability

LESSONS LEARNT

Capacity to meet present and future requirements

- ☼ With the exception of South Africa, plantation health and productivity have been on decline in the last twenty years, mainly due to declining management capacity, know-how and commitment in public forest services.

- ☼ In some of the semi-arid regions of Africa there are inherent limitations to plantation growth potential. And in many less dry areas, where the growth potential is reasonable, there are limitations due to land use conflicts, mainly with grazing animals and for water.

- ☼ There is insufficient reliable monitoring and analyses of long-term trends and developments in consumption and supply patterns, and increasing trade imbalances in wood and fibre products within the continent.

- ☼ Unless present trends are reversed, SSA will soon rely largely on importation of wood and fiber-based products.

Investments in plantations

- ☼ The potential of plantations to contribute to wood production is underestimated as a result of the many plantation schemes that have either failed or deteriorated because of drastically reduced support to their management, wrong location and no forward integration to industry, or establishment without proper demand analysis.

- ☼ With few exceptions, notably South Africa and Zimbabwe, publicly owned plantations have been unsuccessful or downright failures because of lack of resources and interest, corruption, no integration to users, and low sustainability.

- ☼ Private plantations, with South Africa and Swaziland as leaders, have often been successful due to market integration, profit generation, secure tenure in some countries, motivated and skilled management.

- ☼ In many countries, land and tree tenure systems often prevent and/or discourage private investments

in plantations making it difficult to attract both local and foreign investors.

- ☼ There is a trend in currently developed forest policies in many countries to promote privatisation of less successful public plantations, but there is as yet limited experience of this; there appears to be some hesitation in the private sector to take on such opportunities, partly because of limited experience in managing plantations, partly unwillingness to enter into long-term investments in situations of political uncertainty.

Growing trees outside forests

- ☼ Production on farms of timber and other wood for “independent” sale is increasing very rapidly in countries and areas where farmers own or have very secure tenure to their land, e.g. Kenya, Uganda and Ghana; the potential appears very high for this to become an important addition to national wood production and income generation, but there are many problems to overcome, e.g. related to insufficient technical know-how and marketing.

- ☼ Well organised farmers and a forest industry that takes a long-term view and responsibility have created many win-win situations in out-grower schemes in South Africa. However, because such schemes are often an “imperfect market” with only one buyer, farmers may risk setbacks in situations of weak markets for industrial products.

Improving technical know-how

- ☼ Knowledge gaps still causes many failures of plantation projects, e.g. in terms of matching species and provenances to sites and uses, improper establishment, silvicultural and harvesting management, how to protect trees from damage caused by various agents, and conflicts between plantation forestry and other demands on land and water resources.

Addressing environmental concerns

- ☼ There is strong opposition against the use of exotic monoculture plantations from some environmental organisations, particularly those outside Africa. How-



Plantations are providing increasing volumes of utility wood for the use of African populations.

ver, claims about the ecological fragility and damaging effects of such plantations are only partly justified, viz:

- There are few cases where monitoring and investigation of soil decline affecting long-term production have shown that this actually is a problem.

- There are many examples of substantial, but often localised and temporal, damage to plantations by animals (e.g. monkeys, rodents, and livestock).

- Fast growing plantations, whether exotic or indigenous, will have an impact on water balances in direct proportion to their growth rates.

- Biodiversity in monoculture plantations will inevitably be less than in a natural forest but not necessarily less than in agricultural lands. In addition, biodiversity increases with increasing age of plantations.

- Incidences of pest and disease damage occur but there are only half a dozen or so examples where such attacks have acquired serious and permanent proportions (e.g. *Dothistroma pini* on *Pinus radiata*).

- Plantations can also play positive ecological roles in terms of enhancing the natural regeneration of indigenous species on reforested degraded sites.

- ☼ Most plantations established for environmental reasons in dry areas (e.g. for wind protection or dune fixation in the Sahel) are expensive to establish and often depend on outside donor funding, and therefore have a poor record of sustainability.

THE WAY FORWARD

For long-term viability of plantation programmes in SSA, the following actions are necessary:

- ☼ Establish better national and sub-regional methods and mechanisms for predicting supply and

demand for wood and fibre products and for monitoring trends in these; use such statistics in the economic sub-regional groupings on the continent (SADC, EAC, ECOWAS, etc.) as bases for promoting trade in wood-based products between countries within Africa.

- ☼ Promote and expand the local use of plantation wood (rather than from natural forests) based on high yielding species with known utility that are backed up by research and technology, and where proper analyses of the economics of the plantations have been made.

- ☼ Initiate studies and processes that seek to change/revise tree and land tenure systems that prevent or discourage individuals, communities and companies to invest in long-term sustainable forest plantation establishment and management.

- ☼ Establish pilot programmes of privatising public/government plantations and monitor their development carefully so as to guide the process of privatisation on a larger scale; as an alternative approach, develop and promote public-private plantation partnerships to exploit the comparative advantage of both sectors.

- ☼ Create and strengthen incentives for private tree planting by farmers and provide inputs (at a price), technical backstopping and market supply/demand information through extension services.

- ☼ Since tree species used in plantations often have a wider ecological and economic range than individual countries, it is strongly advisable to launch regional research programmes on any relevant aspects of them – germplasm improvement, silviculture, environmental benefits, impacts on soils and biodiversity, pest/disease prevention, wood utilisation, economics (both of products and services), etc. – rather than to duplicate such programmes in all national research institutes; AFORNET could initiate such collaboration.

The project, "SFM in Africa" for short, has been jointly managed by the African Forest Research Network (AFORNET) at the African Academy of Sciences (AAS), the Royal Swedish Academy of Agriculture and Forestry (KSLA) and the Forest Department of the United Nations Food and Agriculture Organisation (FAO).

The policy briefs are based on commissioned reports which are available in full at the web site www.afornet.org. The reports contain all relevant references to information sources used.