

Rising preference for eucalyptus poses dilemma in eastern Africa



World Agroforestry Centre
TRANSFORMING LIVES AND LANDSCAPES

HOW THE REGION CAN GAIN FROM THE EXPERIENCE OF OTHER COUNTRIES



A dramatic decline in forest cover in eastern Africa along with a growing population means that timber and poles for building and wood for fuel are in short supply. To overcome this shortage, the region is increasingly turning to eucalyptus. But eucalyptus raises new concerns of its own.



the dilemma

THE DILEMMA

On one hand, eucalyptus is strikingly popular with farmers as a cash crop. But on the other is the valid concern over the tree's well-known aggressive effect on the environment—it drains water, causes erosion, and adversely affects nutrient cycling and soil properties.

In critically assessing the evidence for and against the species, the region stands to benefit from looking at how other countries have coped with this dilemma. For instance, how India

resolved its quandary concerning eucalyptus and declining water tables in the early 1990s; how Ethiopia handled its national debate over the issue; and why South Africa decided to get rid of invasive species in water catchments. The region can also gain from the scientific information these countries and others have gathered and from their perception of the best course of action to take.

eucalyptus



A SHORT GLIMPSE AT THE REGIONAL SITUATION

Ethiopia has 477,000 hectares of eucalyptus and South Africa 250,000 hectares; therefore, their experiences with the tree are highly relevant for Kenya where only 6000 hectares are planted to it.

Eucalyptus in Ethiopia plays an important role in meeting economic needs. In its humid zones, where eucalyptus is a key source of poles and firewood, the tree's beneficial role in generating income comes without any apparent adverse ecological effect. However, long-term effects of eucalyptus afforestation have yet to be assessed.

Relatively drier South Africa has had quite a different experience. Much of the land is greatly dependent on catchment of rainfall in the mountains to supply the rivers and streams. When natural forests and grasslands were converted into eucalyptus plantations, stream flow reduced in much of the country. To counter this, South Africa has set up a licensing system that evaluates the possible consequence any proposed afforestation scheme is likely to have on water resources.

The country is also removing these plantations from riparian zones, thus encouraging the natural forests and grasses, which use less water, to regenerate. It has destroyed alien tree species and encouraged the cultivation of new drought-resistant species that use water efficiently.

Of great benefit to Kenya is South Africa's long history of catchment hydrology, as the two share similar characteristics of water resources and environment. Kenya's Forest Department and the Kenya Forestry Research Institute (KEFRI) stand to gain from closer collaboration with South Africa in assessing the effect on water resources of commercial forestry in general, and of the emerging eucalyptus species in particular. This assessment is especially important for Kenya's arid and semi-arid lands (ASALs) and key water catchment areas, where introducing any alien species or allowing it to proliferate is likely to affect stream flow negatively.

A CALL FOR RATIONAL USE OF EUCALYPTUS

Unfounded Fears?

Fears that eucalyptus will deplete the water supply, affect wildlife habitats and soil fertility in undesirable ways, and cause soil erosion in ASALs seem to be valid. But fears that it will affect wet zone biodiversity adversely appear unfounded.

Despite eucalyptus's enormous potential for generating income, issues linger that need to be addressed before the tree is fully exploited in eastern Africa.

What is needed?

Needed for both small-scale and large-scale land users is adequate information, which should come from researchers and extension workers:

- What potential eucalyptus has for generating income, especially for smallholders
- Cost-benefit assessment of the new clones

- Clear scientific recommendations on how to manage eucalyptus's heavy water consumption
- Guidelines and maps on where best to plant eucalyptus — if it should be planted at all

Also, farmers should be made aware of the merits of alternative tree species such as *Grevillea robusta*, *Prunus africana*, *Melia volkensii* and *Paulownia fortunei* and encouraged to grow them.

Learn from others' experience

Rational use of eucalyptus in eastern Africa should hinge on the South African experience. The region should avoid expanding eucalyptus cultivation into water catchments, riparian areas and ASALs—at least until appropriate clones are identified. Eastern Africa needs to assess critically the trade-off between the income eucalyptus generates and the water it consumes.

How the policy brief was prepared

This policy brief is based on recommendations made by researchers, extension agents, environmentalists and policy-makers from Ethiopia, South Africa and Kenya who reviewed scientific evidence on water use and the ecological effects of eucalyptus in a forum that the Regional Land Management Unit (RELMA) organized on 5 June 2003. It is also based on research and modelling on eucalyptus conducted in South Africa by CSIR-Forestek and on water use by *Grevillea* and *Melia volkensii* in Kenya by ICRAF.

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