

Fuelwood use in South Africa: Where to in the 21st Century?

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INTRODUCTION

South Africa is well known for the dichotomous nature of its economy, with its juxtaposed first and third world characteristics, perhaps nowhere more starkly evident than in the energy sector. South Africa produces and consumes over 60% of the total electrical energy on the African continent, and is ranked twelfth in the world in terms of carbon emissions (EIA, 2002). Yet the majority of the South African population does not have access to electricity, and despite the enormous strides taken since 1994 to increase household access to electricity (NER, 2001), newly electrified households, more often than not, cannot afford the appliances nor the monthly costs required to significantly improve their quality of life (White *et al.*, 1997). Thus, most rural and many peri-urban households continue to use fuelwood as their primary energy source (Griffin *et al.*, 1992; Dyer, 1996; Kotze, 1996; Williams *et al.*, 1996).

Fuelwood use presents both opportunities and risks. Wood is a renewable resource. Therefore, if managed wisely, and harvested within sustainable limits, it can continue to meet the energy, construction and other needs of the rural and peri-urban poor. Simple technological interventions, such as the introduction of improved woodstoves with chimneys, can significantly reduce consumption and the health hazards associated with woodsmoke inhalation. However, if fuelwood is used unsustainably the costs, both environmental and social, will escalate, adding to the impoverishment of the fuelwood using communities, and the environment as a whole. Whether or not fuelwood is used sustainably at a specific location depends upon a number of local and external factors, of which human population density, and resource access and tenure are key.

This paper summarises the current situation in South Africa, at the beginning of the 21st Century, with respect to the supply and demand for fuelwood, as well as the evolving policy context. We have highlighted areas requiring research and interventions within emerging policies and strategies.

DEMAND FOR FUELWOOD

Except in some areas where trees are relatively scarce, either naturally, or because of resource depletion, between 80% and 99% of South African rural households meet their energy needs with fuelwood (Williams *et al.*, 1996). The bulk of this is supplied by domestic collection from indigenous savannas and forests, augmented by plantation residues and harvesting of invasive species such as wattle. Fuelwood also represents a source of livelihood to many, who sell wood to neighbours, passers by or in local peri-urban and township areas (Liengme, 1983; Gandar, 1994; Williams *et al.*, 1996; Shackleton & Shackleton, 2000). The number of households involved in fuelwood trade is unknown and fluctuates widely. For example, in the Bushbuckridge area of Limpopo Province, the percentage of households per village trading in fuelwood varied between 7% and 53% (Shackleton & Shackleton, 1997; Hansen, 1998).

It is estimated that more than 13 million m³ of fuelwood are used annually in South Africa (DME, 1996), the equivalent of 9.8 million tons (dry mass). Quantities of fuelwood used per household per annum vary greatly and are dependent on a number of factors, including household size, availability of the resource and labour to collect it, proximity to urban areas, and wealth and social status. Published figures range from 0.6 to 7.7 tonnes per family per annum (Gandar, 1983; Liengme, 1983; Banks *et al.*, 1996). Most of these are clustered around a mean of 687 kg per person per year (Shackleton, 1993).

Overall national demand for fuelwood is likely to remain little changed for the next decade as human population growth approaches zero in the face of the HIV/AIDS pandemic, and because of low substitution levels due to the high costs, from a poor household perspective, associated with the use of modern energy sources. Areas experiencing fuelwood shortages will continue to do so, probably resulting in localised environmental decline, and an increase in commercialisation. For example, the proportion of households buying and selling fuelwood in the Bushbuckridge lowveld between 1991 and 2002 has