THE MARKET OPPORTUNITIES FOR EUCALYPTUS ENTERPRISES IN WESTERN KENYA: Joshua K. Cheboiwo[1]

2.1.1 Introduction

2.1.1.1 The Forest Plantations

Forest plantations are generally defined according to the extent of human intervention in the forest's establishment and/or management. Forest plantations are defined as forest stands established by planting or and seeding in the process of a forestation or reforestation. The plantations are either composed of introduced species or intensively managed even aged stands of indigenous species. The role of forest plantation in meeting future wood demands is inextricably linked to past, current and future patterns in forest plantation establishment. Thus the area of trees that has already been planted determines round wood production in the immediate future. Future planting is dependent on available resources, perceived rates of return, and successes of previous planting programmes and perceptions of future supply-demand imbalances.

Global Importance of Eucalyptus Plantations

Eucalyptus species are planted extensively throughout the tropics and particularly in subtropical regions. The countries with the largest *Eucalyptus* plantation resources are: India (3.1 million ha); Brazil (2.7 million ha); South Africa (557,000 ha) and Vietnam (479,000 hectares) that collectively account for 69% of the total *Eucalyptus* plantation resource. Another dominant plantation species is the- fast growing pine -with Chile (1.4 million ha), Australia (833,000 ha) and South Africa (757,000 ha). Dominant pine species being *Pinus radiata,* and *Pinus patula* others include *Pinus caribaea and Pinus oocarpa*

Table 1: Top Global Eucalyptus Growing Countries

Country	Area in hectares
India	3,088,400
Brazil	2,717,300
China	662,600
South Africa	557,200
Vietnam	484,100
Morocco	186,500
Madagascar	105,600
Ethiopia	101,600
Rwanda	86,500
Kenya	70,000
Angola	67,000
Sudan	53,500

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2.1.1.2 **Demands for Eucalyptus Firewood by Industries**

In western Kenya currently, there are three categories of industrial firewood consuming sectors that include one pulp mill, 28 tea-processing factories affiliated to Kenya Tea Development Agency (KTDA) and 12 textile and food processing industries. In 2009 the demand for firewood by KTDA affiliated factories is estimated at 450,000 tonnes valued at Ksh 675 million The firewood demand by pulp, textile and food processing industries stood at about 320,000 tonnes valued at Ksh 560 million. Thus industrial firewood sector have a combined demand valued at over Ksh1.2 billion.

2.1.1.3 Demand for Semi-processed Eucalyptus poles

According to Kenya Power and Lighting Limited (KPLC) the demand for transmission poles in 2009 stood at 320,000 pieces valued at over Ksh 3.2 billion. Out of the 8 approved treatment plant in the country 6 are located in western Kenya and have an estimated installed capacity of 380,000 poles per year.

2.1.1.4 Technical aspects to ensure better Returns to Eucalyptus Enterprises

KEFRI guidelines indicate that *Eucalyptus grandis* grow best at low to medium elevation range of 1200-1800m above seas level and well distributed rainfall 1800-2400mm/yr

- The seed used should be from approved seed sources
- The planting sites should be well drained red loam soils rich in nutrients
- The planting sites should be prepared well. That include planting in lines, under shamba system, planting holes >20cm deep, intensive weeding
- Management options for rotation short term (<10 years) and long term enterprises (>17 years)
- Planting spacing option for various enterprises or products (2X2m, 2.5x2.5m, 3x3m, 4x4m), thinning and pruning schedules.
- Avoid swamps, murram, steep slopes or rocky areas with thin soil thickness or dry lands where your trees may dry up during dry season or drought periods likely to incur losses.
- Any detection of pests and diseases: seek advice from KFS/KEFRI among others.

2.1.1.5 Gross Marketing Margins in Firewood Trade

The main consumers of industrial firewood are mainly textile and food processing industries. The industries usually contract merchants and farmers to supply them with firewood. Our studies revealed that the trade involves three stages namely: farmer, merchant and industry. Table 2 indicate that the farmer equally share the factory gate price (37%) the rest being shared by logging and merchants. Thus transport is a major cost that reduces profit margins and hence trade

in firewood is a low remunerative venture for both farmers and merchants. Thus the trade in firewood will become attractive to farmers if the transport is subsidized. The trade also favors farmers and merchants with own transport vehicles.

Table 2: Breakdown of costs and benefits from 13 tonnes firewood delivered at Eldoret

Players	Price in Ksh	Share of delivery price (%)	Unit Price/tonne
Farmer	8,000	37	
Logging and loading	2600	13	
Transport	8,000	37	
Merchant	2850	13	
Delivery price	21, 450	100	1650

2.1.1.6 Gross Marketing Margins in Transmission poles.

Transmission poles require more technical specification and processing as compared to firewood and constructions poles. This is because its use is within specified standards in strength, length, and girth size hence the need for technical expertise from raw material selection, logging, sizing and grading. Ideally, the transmission poles are moved through one to two stages from the farm to processing plants and consumer but emergence of contractual arrangements involving merchants contracted by treatment plants and KPLC suppliers has increased the chain to more than 2 stages. There are many players entering into the market chain to finance purchase of poles at the farm level, felling, grading, transportation, treatment and purchase and delivery of treated poles. This has made the business become increasingly complex.

According to our recent studies it is estimated that at a price of Ksh 1,800 per pole at the stump a tree grower will receive 18% of delivery price to KPLC and 25% at an enhanced stump price of Ksh 2,500. For the farmer to increase share of the delivery price it has to do that at the expense of the merchants or get involved in logging and transport operations that may need skills and machinery that many farmer don't have now.

Table 2: Breakdown of costs and benefits from a treated pole at KPLC Eldoret

Item cost	Price 1	%	Price2	%
Log price at Farm gate	1800	18	2500	25
Logging &Transport	930	9.3	930	9.3
Treatment	3,000	30	3000	30
Investors return	4270	42.7	3570	35.7
Selling price	10,000	100	10,000	100

2.1.1.7 Conclusion

The potential financial gains from the Eucalyptus sector is very good news to tree growers in western Kenya. However, lack of regular information on the dynamics in the major market niches including the projected supply and demand for various Eucalyptus products in the country. Thus regular evaluation and monitoring expansion of Eucalyptus growing, expansion of consumption and competition from other materials need to be routinely undertaken.