



The Wood Value Chain and key issues – a focus on Uganda and Tanzania

Assignment submitted as part of the fulfillment of the MPhil requirements of the
MSM DBA/ Round Table Africa Programme

By



Joseph Denis Walusimbi
DS/SK/140507.017. Intake MSM/ESAMI/DBA2

Submitted to;

Professor Meine Pieter van Dijk

Dr. Robert Goedegebuure

1 Introduction

This paper examines the wood sectors of Uganda and Tanzania, particularly key market issues, examination of the wood industry value chains to determine the margins that accrue to each of the key actors in the chain and which of them benefit more, and ultimately to identify the constraints and opportunities. In deriving the value chain margins, data was mainly sourced from secondary sources; past industry studies of the wood sectors of the two countries.

2 Market Analysis

2.1 Uganda

- Forests and woodlands cover 4.9 million hectares which is 24% of the country's woodland area
- The protected areas of which 1.2 million hectares are forest reserves cover 30% and the other 70% is under private ownership
- Total marketable and non-marketable forest value is approximately Ushs.593 billion (USD \$ 348 million), roughly 5.2% in GDP terms (Source: Wildlife Conservation Society)
- The estimated average cost of establishing commercial plantations is US \$ 750 per hectare (Source: SPGS – Saw Log Production Grant Scheme)
- The National Forestry Authority (NFA) was established in the 2003 Act to protect and develop the 1.2 million hectares forest reserves. It's also an actor in the market by selling timber thus influencing market prices.
- The EU-funded Sawlog Production Grant Scheme (SPGS) was established in 2003 and offers a 50% planting subsidy, technical advice and training
- Main types of commercial woods grown are *Pinus caribaea* (sawlogs), *E. grandis* (fuel wood and poles), *Eucalyptus*, (poles, carpentry and furniture production), and the “classic” species mahogany and Mvule.

- Main investors are, New Forests Company (started in 2005/6 and already has 1,000 hectares), Busoga Forestry Co., Deutsche Forst Consult, Global Woods Limited and NilePly Limited.

2.2 Tanzania

- Forests and woodlands cover around 40% of the total land area, yet support the livelihoods of 87% of the poor population who live in rural areas.
- Indigenous hardwoods from the natural forest account for about 300 000m³ / year of roundwood, whereas plantations contribute about 600,000 m³/year of roundwood.
- Some 16% (and up to 60% seasonally) of households from villages located near forests in southern Tanzania benefited from logging and timber trade during 2005. Over 90% of the energy used in the country is wood fuel derived from the forests.
- To date, the private sector has a significant share in the wood extraction, processing i.e. saw mills and pitsawing where it owns about 78% (Ngaga 1998) through ownership of many of the small units, and a significant part of the secondary woodworking such as furniture and joinery units (MLNRT, 1989).
- Pitsawing, which is often organised on private basis by individuals or joint groups, is significant in the hardwood industry, particularly in the areas of natural forests. This activity accounts for more than 95% of the country's hardwood sawn wood.
- Since 2003, there has almost been an annual cycle of introducing periodic bans on harvesting from natural forests – the first between 24th December 2003 and 31st January 2004, the second from 1st October 2004 to 1st September 2005, and the most recent starting on 24th January 2006.
- Destinations in Asia and Middle East are currently the main importers of unprocessed and semi-processed timber products from Tanzania (Milledge, S.A.H., Gelvas, I. K. and Ahrends, A., 2007). Tanzania was the continent's sixth largest timber exporter to China in 2005, increasing by almost 1400% in value since 1997.
- Reported timber exports from Tanzania to *all* destinations during a three-year period ending in 2005 totaled around 19,300 m³, whilst import statistics from one

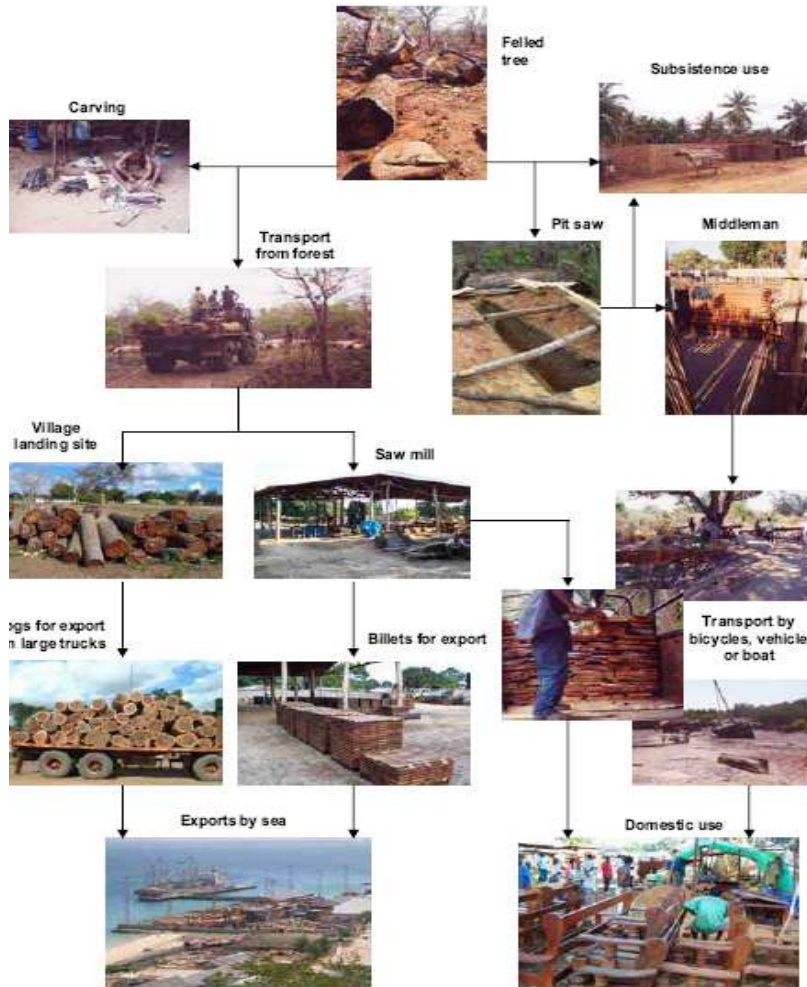
destination alone, China, showed a considerably higher value, exceeding 108 500 m³ (Milledge, S.A.H., Gelvas, I. K. and Ahrends, A., 2007).

- Profit margins for trading logs and sawn wood have remained high especially in southern Tanzania due to various factors, including low awareness of the true market value amongst rural communities, low levels of enforcement, relatively high abundance of targeted hardwood species, and high export prices as compared to West African nations (Shayo, 2006).
- The value of logs from Tanzania has continued to increase locally in addition to staying high compared to competitors in other African countries. According to the Forestry and Bee Keeping Division (FBD), revenue from log exports between 2002/2003 and 2004/2005 saw average unit values steadily increase from USD 251 to USD 330 per m³. Other reasons for increased profit margins included the low levels of enforcement effort (minimizing risks of operating illegally) and low awareness of the true market value amongst rural communities. This enabled many traders to secure low purchase prices at the outset and subsequently avoid paying government royalties later on.
- FBD revenue collection from the sale of forest products almost doubled in the three years from 2002/03 to 2004/05.
- Relatively low government commitments to forestry sector; official estimates of the sector's GDP contributions is only 2-3% and does not take into account large-scale illegal trade, ecosystem functions and services that lack true market values.

3 Wood Value Chain – major players, margins, constraints and opportunities

Below is a value chain structure (figure 1) that is largely common to both countries and which shows the main links and players involved to the point when the products reaches the consumer.

Figure 1: The Wood Value Chain structure



Source: Milledge, S.A.H., Gelvas, I. K. and Ahrends, A. (2007)

The four major players are forestry growers / loggers, saw millers, dealers and retailers / secondary processors (marketing mainly furniture, construction materials and exports in some cases). The main functions identified are as (i) felling and sawing of timber in the forest (ii) transport of the wood from the forest to the roadside or village (iii) coordination of production activities e.g. drying in kilns (iv) local trading in intermediate markets (v) transportation of the timber to end users (vi) retailing (vii) and secondary processing into products like furniture.

Uganda

The chain for Uganda is not sophisticated: support or extension services are very limited. Interaction with players external to the chain is limited to procurement of goods. Vertical integration is a business strategy commonly found along the chain. Most of the bigger businesses (revenue above US\$ 100 Mio and/or more than 20 employees) are vertically integrated; some encompassing all stages along the chain. The overall number of roadside businesses in Uganda was estimated to be around 2,500 (Auren & Krassowska 2004). According to Kallweit (2005), the estimated number of Primary Processors (excluding charcoal) is over 2,000 and Secondary Processors is estimated at 2,500 businesses (including Carpenters, Joiners, Artisans, Furniture production and Construction)

The majority of the businesses are small, producing for the low quality segment. Timber extraction is carried out partly by a few large companies, such as NilePly (which is also the only plywood processor and employs about 650 people), Amaply, Budongo Saw Mills, Techna Sawmills and also by numerous independent traders and wood product manufacturers. Within the last five years more medium sized businesses (annual revenue above \$US 100,000) entered the furniture market including foreign companies (mainly Asian owned, e.g. Hwan Sung). Construction companies are generally bigger in size and often vertically integrated. In terms of timber dealers, one of the biggest players is Erimu Ltd with a traded annual volume of about 6,000m³ and about 350 employees. Other important dealers include Bwaise Timber Stores and FMB Enterprise with annual turnovers of about 2,000m³. Construction companies are major players in the Ugandan market, e.g. Cementers and Roko which are subsidiaries of international companies. Their timber is generally sourced from a pool of five to ten stable suppliers.

The furniture segment includes high and low quality players. The low quality players tend to be roadside businesses with low processing technologies. Upper quality players identified include Lotus Arts, Kitchen & Office (imported boards), Roko, Kapkwata

(imported boards), Erimu, Hwan Sung (imported boards), Master Woodworks, Regional Woodworks (Mbarara) and BM Technical Services.

The role of the National Forestry Authority in the value chain is special; it is mainly responsible for managing the Central Forest Reserves (CFR) and ensuring proper forest management practices while it is also an actor in the market by selling plantation timber. It both has a regulatory function external to the chain but also actively participates in the chain, influencing market prices. It has regulated timber extraction from national forests through open and competitive bidding processes and from plantation forests by selling harvesting rights. For any wood that is found without proper stamps and/or documents is seized and auctioned; Since April 2004, NFA enforcement staff and Special Revenue Police have conducted monthly auctions which bring in an average US \$ 140,000 – 200,000 in annual revenue in 2004/05 and 2005/06 respectively which is maintained by NFA as income.

Tanzania

In the case of Tanzania, the situation tends to be complex as some of the sawn timber makes its way to consumers through intermediate markets in secondary towns. Some players can perform more than one activity in the chain and 6 scenarios were identified by Shayo (2006). They are as shown in figure 2.

The primary sectors in both countries wood chains are very fragmented, especially concerning the wood harvested in private forests. The majority of the private wood is harvested without informing the local authorities so as to avoid taxes and royalties

The secondary sectors of both wood chains consist of both industrial operations and traditional trades but the vast majority of businesses are small roadside workshops.

According to Milledge *et al.*, (2007), in late 2004, a total of **15 permanent hardwood sawmills were present in southern Tanzania** with processing capacity varying between 24 and 500 m³ of logs per month. The focus on Southern Tanzania is because this region has experienced the greatest upsurge in logging over the past six years. **Investment in wood processing and exports in this area increased in recent years** – seven sawmills have started operations since 2002, including five in 2004, causing many of the smaller sawmills to lose business. Key issues facing almost all sawmills in southern Tanzania were the prevalence of obsolete machinery and lack of specialized training. The table below shows details of permanent saw mills in Southern Tanzania’s forest growing areas;

Table 1: Details of permanent hardwood saw mills (Southern Tanzania) – October 2004

District	Name (date of commencement)	Lines and specialisation	Estimated capacity ^{III}
Rufiji	Badr East Africa Enterprises Ltd., Kwisini (1992)	3 lines - mostly <i>Millettia strobilifera</i> and <i>Pericopsis angolensis</i>	120 m ³ /month (2000 data)
	Portfolio Investment Co. Ltd., Kwisini (1996)	1 line - various hardwoods	203 m ³ /month (2002 data)
	Mahimol International Ltd., Kwisini (1995)	1 line - <i>Dalbergia melanoxylon</i> line	36 m ³ /month
	Alwaka, Kwisini (2002)	1 line - various hardwoods	24 m ³ /month
	Boleyn International (T) Ltd., Utete (2004)	2 lines	350-500 m ³ /month (700-1000 logs)
	MICOVEPAC, Mwaseni (2004)	1 line - mostly <i>Millettia strobilifera</i> and <i>Pericopsis angolensis</i>	
	Mitavale, Kwisini (2004)	1 line - various hardwoods	24 m ³ /month
Kilwa	Boleyn International, Nungunakuru (2004)	3 lines - mostly <i>Millettia strobilifera</i> and <i>Pericopsis angolensis</i>	500 m ³ /month (1000 logs/month)
	Shind Kengwood Co. Ltd., Kilwa Masoko (1995)	2 lines - <i>Dalbergia melanoxylon</i> , <i>Millettia strobilifera</i> and <i>Swartzia madagascariensis</i>	
Lindi	Mingoya, Mlazi Mlazi	2 lines - <i>Dalbergia melanoxylon</i>	
	Sameji, Lindi town (1989)	1 line - <i>Dalbergia melanoxylon</i> line	
	Vua, Lindi town (1997)	1 line - various hardwoods	
Mtwara	Prime Timber (2004)	Mostly <i>Millettia strobilifera</i> , <i>Swartzia madagascariensis</i> and <i>Pericopsis angolensis</i>	
Nachingwea	Nasoline		
	Mlwa (2002)	1 line - various hardwoods, including <i>Dalbergia melanoxylon</i>	

Source Milledge *et al.*, 2007

Analysis of official records (Milledge et al., 2007) from two relatively recent sources showed that a total of at least 28 companies exported hardwood timber products sourced from natural forests, not including sandalwood. Below is a table showing major exporting companies of hardwoods sourced from natural forests;

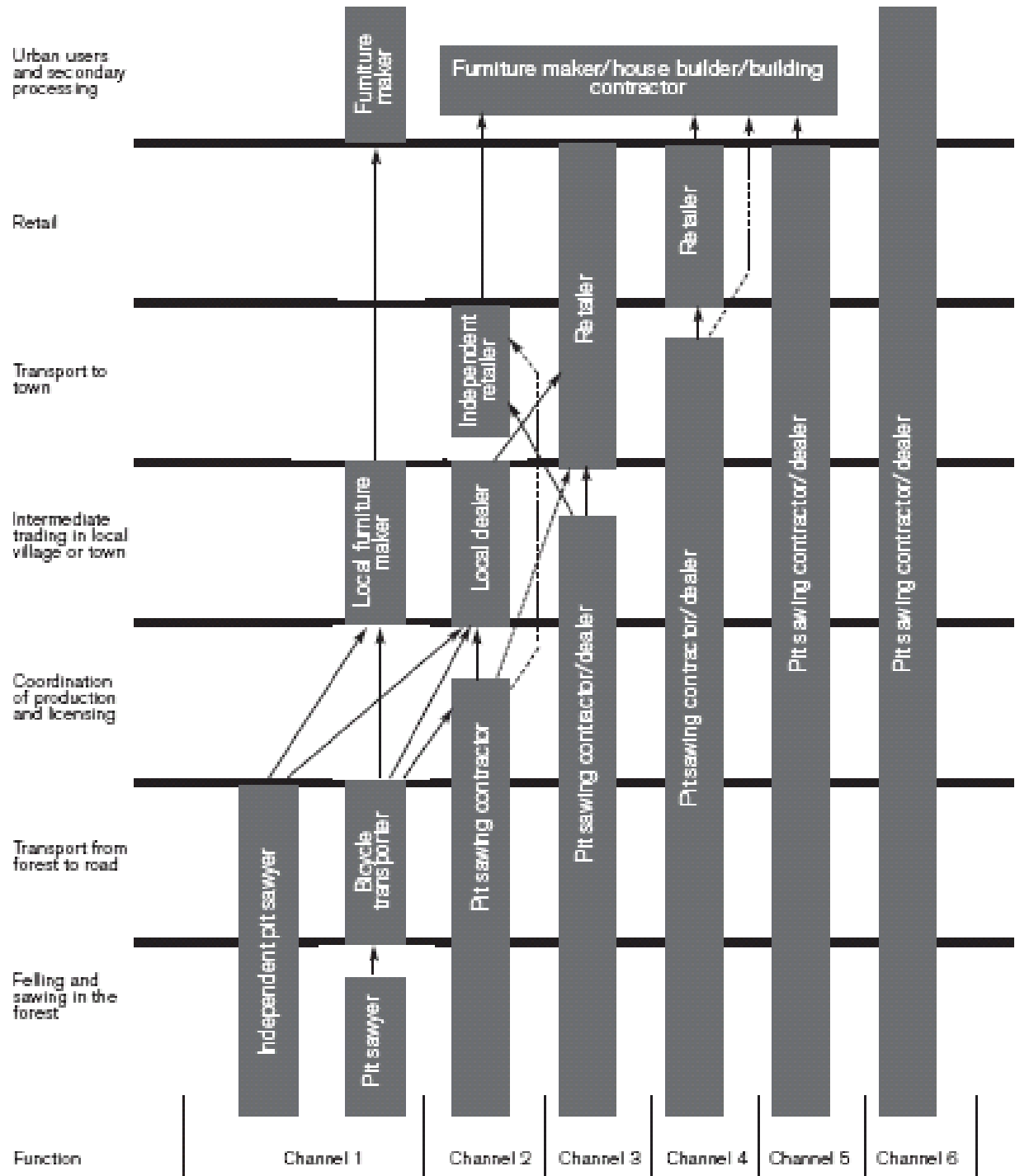
Table 2: Major exporting companies of hard woods sourced from natural forests (m3)

Company name ⁷	Granted ⁸ export permission December 2005 - March 2006		Actual exports January - June 2006	
	Logs	Sleepers	Logs	Processed
ABQ African Link		600.0		82.0
Adept Impex		100.0		145.7
African Blackwood				3.4
AGM International		120.0		
Aqool Traders Ltd.				12.0
AR Sheikh		900.0		
Arizona Business Co. Ltd.				1 000.2
Bolwyn International				54.8
East African Hardwood				13.2
EPAC Resources		200.0		
FQI Resources Management		200.0		
Junior Investment		550.0		
Kenwood Enterprises	700.0			
Mahmood International				6.3
Mhugala Sawmills Ltd.		400.0		699.1
Menzies Tanzania Ltd.				87.1
MICCO		200.0		435.1
Natural Wood (T) Ltd.	1 500.0		846.7	
Roal General Traders		200.0		
RS Investment	200.0	300.0		
Shandong Wood				23.6
Shere Trading Co.				46.5
Sign Select Suppliers				0.1
State Enter Trade		280.0		
TABECO Ltd.				8.0
VNS Commercial Company	200.0			
YGF Investment		150.0		
Z & H Holdings Co. Ltd.		450.0		285.2
Total	2 600.0	4 250.0	846.7	2 902.3

Source: Forestry and Bee Keeping Division statistics

The majority of timber exporters had some form of institutional relationship with senior government officials, both Tanzanian and foreign. Examples of institutional relationships included patronage (with the benefits to patrons based around financial returns and/or prestige), formal shareholding (either personally or on behalf of another individual or company) and board members.

Figure 2: Channels of transport from forest to market



The margins that accrue to the major players in the Uganda wood value chain (focusing on Pine) are shown in table 1 below;

Table 3: Profitability in Uganda’s wood value chain

Sector	Value / Selling Price (US \$ per cubic meter)	Margin (US \$ per cubic meter)	Margin as a % of selling price
At forestry stage (standing pine)	49	6.85	14
Sawed logs	61	12.2	20
Dealing	168.5	107.3	63.7
Retailing	232	63.9	27.5

Sources: Kallweit (2005) and own computations

From the analysis, margins are higher in the upper part of the chain, particularly the dealing and retailing stages.

Whereas sawmilling and dealing do not require high investments, they also do not offer promising long term potential. The profit margin can still be attractive but with more mature markets and a shift towards higher quality, the potential seems to be limited.

While forestry is not as profitable as upper quality furniture, the growing need for wood in the market provides an attractive opportunity. Wood dealers can still incur significant profits because of semi-legal operations and low transparency. With an increasing demand for quality, however, and more trustful relations between the individual actors those profits are likely to erode and the sector is likely to consolidate. Saw milling was very attractive with ample resources in the natural forests but now with the limited access to resources there is increasing pressure to restructure. With growing importance of plantations, it is likely that sawmilling and wood trade in the future will be integrated into forestry operations.

The profitability in Tanzania's wood value chain was derived by aggregating and transforming data from a study done on hard wood timber in four areas of the country; Uwinza, Mpanda, Tabora, Mvumi and Mlimbwa (Hildebrand, 2006). It is summarized in the table below;

Table 4: Profitability in Tanzania's wood value chain

Transaction	Price (US \$ per cubic meter)	Gross margin(US \$ per cubic meter)	Gross margin / price ratio
Pit sawing labor cost	25		
Pit sawyers selling price in forest	35.8	10.8	30%
Pit sawyers selling price in town	72	36.2	50.3%
Local dealers selling price	90	18	20%
Dar-es- Salaam urban dealers selling price	208.3	118.3	56.8%
Dar-es-Salaam selling price to domestic market	270	61.7	22.9%

Sources: Hildebrand (2006) and own computations

Absolute margins are highest at the urban dealing stage within the domestic setting. In terms of margin ratio to selling price, saw millers have high returns as well and this is mainly due to the low transparency of the sector – they are able to avoid taxes and royalties.

At village level local harvesters chronically under-value hardwood logs (note that in this case the very low-end pricing is not reflected in the profitability table). Consequently, they have been receiving barely one hundredth of the export price despite the fact that no value-adding had taken place since the logs were obtained.

On the upper end, trade opportunities abound following the increased overseas market demand, accessibility to the resource and favorable profit margins. One compounding factor in the face of increased globalization has been an expanded opportunity for collusive and concealed transactions to arise, especially where management and law enforcement Forestry authorities remain under capacitated and poorly supervised (Milledge, S.A.H., Gelvas, I. K. and Ahrends, A., 2007).

The constraints tend to be similar for both countries and are as follows;

- Lack of information – Limited reliable information to assess the financial potential of investments in forestry is lacking
- Very low capacity and technical standards for processing sawlogs (cheap saw mills, lack of skilled personnel)
- Low transparency of the sector - lack of standards and control over utilization of the natural forests
- Growing resource shortage concerning wood from plantations and natural forests because of unsustainable harvesting rates leading to price increases. Particularly for Uganda, this has led to legal and illegal wood imports from southern Sudan and DR Congo
- Technical standards - Poor storage, lack of drying or treatment and no quality grading of the sawn wood by wood dealers and secondary processors resulting in low value products
- Poor state of the rural road networks – high distribution costs
- High capital costs – For Uganda, interest rates as high as 17-20% for long term investments and 22-25% for short term

- Forestry tax anomalies – Long timescale between planting and harvesting (12-25 years or more) leads to plantation being taxed heavily more than other investments yielding a similar return
- Lack of R&D support and lack of skilled staff
- Funding and technical assistance uncertainties – In the case of Uganda, donor funding for NFA and SPGS activities are to end in 2008

Opportunities that can be explored as follows;

- Funding for large scale investors – Prospect of attracting carbon credits e.g. the World Bank’s Bio-Carbon fund.
- Easier funding for small scale investors by putting in place policies which encourage vertical and / or horizontal cluster approaches to sourcing of the funds
- In both countries, there are excellent growing conditions for trees and a fast growing demand (locally and regionally)
- Growing shortage of wood in the market – particularly quality wood.
- Use of advanced technologies - In place of electricity shortages during processing, introduction of wood-gasification technologies thereby utilizing wastage like sawdust and production rejects
- Process and functional upgrading - For current investors, integration of forestry, sawmilling and wood dealing to control quality thus increased value and ultimately the return on investment (and possibility of regional trading)

4 Conclusion

Overall, the wood value chains of Uganda and Tanzania are characterized as a sellers market and still dominated by price.

Accordingly, the bargaining power of suppliers is high but buyers with significant processed volume start to influence standards. Competition is high in the low-quality

segment but businesses in the upper quality segment do not feel competitive pressures due to strong growth of demand for various uses of wood products.

Tanzania has a more robust regulatory policy and operational framework compared to Uganda and also has the advantage of the sea ports, e.g. Dar-es-Salaam, thus the margins at the point of export would definitely be higher since the cost of transport can be lower (depending which region of Tanzania the wood is sourced)

Data Sources

Below are the key sources of further Value Chain research data that I intend to engage in the course of the DBA research;

- National Forestry Authority
- Sawlog Production Grant Scheme (SPGS) – EU funded
- National Bureaus of Standards
- National Revenue Authorities
- National Environmental Management Authorities
- New Forests Company – Largest private forestry planter in Uganda
- Ministry of Water and Environment
- Forestry Growers Associations
- District Forest Service
- Wildlife Conservation Society
- African Development Bank (ADB)
- Forest Stewardship Council
- UNIQUE Forestry Consultants – Germany
- Food and Agricultural Organisation (FAO)
- UNCTAD
- National Bureau of Statistics
- Sustainable Development center – Makerere University
- Deutsche Forst Consult
- TRAFFIC East / Southern Africa – The Wild Life Trade Monitoring Network
- TRAFFIC East/Southern Africa
- Tanzania Development Partners Group
- International Institute for Sustainable Development
- National Forest Programme - Tanzania
- Tanzania Forest Conservation and Management Programme
- Tanzania Forestry Service

- United Nations Environment Programme
- Tanzania Forest Products Transport and Export Dealers Union
- World Trade Organization
- Foreign investment Advisory Service(FIAS) – World Bank Group
- Forestry growers
- Dar-es-Salaam port authority
- Saw millers / Pit sawyers
- Wood dealers
- Wood and wood products retailers
- Wood Industry associations
- Ministries of Trade and Commerce
- Ministries of Agriculture
- Forestry trade licensing boards

References

AUREN, R. and KRASSOWSKA, K. (2004): *Small and Medium Forestry Enterprises in Uganda; how can they be profitable, sustainable and poverty reducing*, IIED, London and Forest Sector Co-ordination Secretariat, Republic of Uganda.

FBD. (2006): *Participatory Forest Management in Tanzania: Facts and Figures, July 2006*. Extension and Publicity Unit, Forestry and Beekeeping Division, Ministry of Natural Resources and Tourism.

KALLWEIT, K. (2005): *Reducing the uncertainty for forest investors in Uganda; Value Chain assessment for wood and wood products*, Unique Forestry Consultants, Republic of Uganda.

MILLEDDGE, S.A.H., GELVAS, I. K. and AHREND, A. (2007): *Forestry, Governance and National Development: Lessons Learned from a Logging Boom in Southern Tanzania*, TRAFFIC East / Southern Africa / Tanzania Development Partners Group / Ministry of Natural Resources of Tourism, Dar es Salaam, Tanzania.

MINISTRY OF LAND, NATURAL RESOURCES AND TOURISM (MLNRT) (1989): *Tanzania Forestry Action Plan 1990/91-2007/08*, Forestry Industry. Technical Annex V: Forestry and Beekeeping Division, Ministry of Lands, Natural Resources and Tourism, Dar es Salaam.

NGAGA, Y. M. (1998): *Analysis of Production and Trade in Forest Products of Tanzania*, PhD Thesis, Department of Forest Sciences Agricultural University of Norway, Aas Norway.

SHAYO, H. (2006): *Forestry governance in limbo in Tanzania; A case study of a supply chain of the indigenous hard wood timber, timber trade and procurement code*, RICS Research paper series, Volume 6, Number 5, London South Bank University.