Malawi Forest Governance Learning Group

Timber value chain analysis for the Viphya Plantations

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Contents

Acronyms

IIED	International Institute for Environment and Development
FGLG	Forest Governance Learning Group
MGDS	Malawi Growth and Development Strategy
MARDEF	Malawi Rural Development Fund
MK	Malawi Kwacha
NRA	National Revenue Authority
NTFP	Non-Timber Forest Product

Acknowledgements

The authors thank Malawi's Forest Governance Learning Group (FGLG) for giving them the opportunity to carry out this work. The FGLG is an informal alliance of in-country groups and international partners currently active in seven African and three Asian countries. The FGLG tries to connect those marginalized from forest governance to those controlling it, and to help both do things better.

Malawi established its own FGLG in 2004 with assistance from the International Institute of Environment and Development (IIED) – funded initially by the British government's Department for International Development (DFID) and latterly by the European Community (EC) and Dutch Ministry of Foreign Affairs (DGIS). In the financial year April 2007- March 2008, the international FGLG alliance prioritised thematic learning with a focus on 'Making small enterprises work better for social justice in forestry'. This report constitutes part of Malawi's contribution to both national and international learning groups.

The views expressed in this report are the authors own and do not necessarily represent those of the EC or DFID. All errors contained in this report are the sole responsibility of the researchers.

Executive summary

This report summarises an independent investigation by Malawi's Forest Governance Learning Group (FGLG) into the timber value chain of small and medium forest operators producing sawn timber from the Viphya plantations. The Viphya plantations are the largest single unit of forest plantations controlled by the Malawi Department of Forestry.

The findings of the report indicate that there are many pit sawyers (45) and mobile saw millers (61) operating in the Viphya plantations in the Lusangazi and Nthungwa blocks. The stumpage fees that they are being charged for extracting the timber are less than one quarter of the break-even point for costs incurred by the plantation management staff of the Department of Forestry. Field observations that annual harvesting (roughly 600 hectares) is not being accompanied by obligatory replanting (estimated at 400 hectares per year).

An economic assessment of costs incurred and sales income received suggests that the sale of timber to Malawian markets (such as Mzuzu timber market) is scarcely unprofitable for pit sawyers and scarcely profitable for saw millers. But large profits are being made by those who export timber to markets in East Africa such as Kenya and Tanzania. Conversion rates are low (10-15 per cent) partly because of the size specifications that are driven by these export markets.

This reality has encouraged non-Malawian operators to move into the sawmilling business in Malawi and drive down bidding prices (outcompeting Malawian nationals) while making large profits overseas. For example, in the 2008/2009 season, we estimate just under 550,000 planks were exported to East Africa incurring costs of MK 445 million (US$ 3.2 million) but with sales revenues of an estimated MK 1,056 million (US$ 7.5 million). In the same period the Department of Forestry reported the export of 397,827 planks to East Africa valued at MK 77.8 million (US$ 0.6 million). The disparity between these figures means that large volumes of timber are being exported unrecorded by the Malawi Department of Forestry.

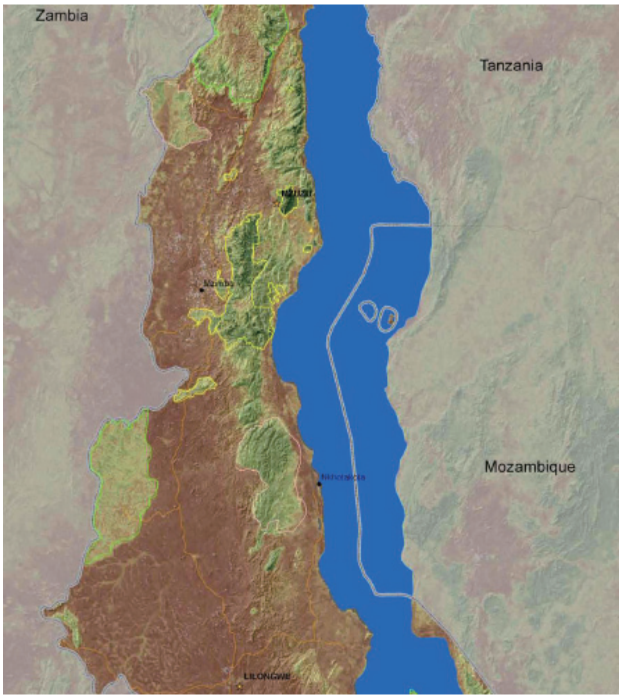
It is also recorded that there are many operators using more sawyers and machines than legally allowed, so that for every licensed operator there are two or three unlicensed operators. Part of the problem is that the Department of Forestry plantation management staff are under-resourced. It is estimated for the 2009/2010 financial year that the financial requirements to run the Viphya plantation is MK 220 million (US$ 1.6 million) and yet the whole Department of Forestry budget is MK 67 million (US$ 0.48 million).

The report concludes with the recommendation that the Government of Malawi should revisit what is going on in the Viphya plantations, allocate more resource to their management, restore parity between harvesting and replanting and find a way to rebalance operations in favour of value addition within Malawi.

1. Introduction

1.1 Background

The Forestry Department in Malawi, which is responsible for all forestry matters, was established in 1942 and continued in that role after independence from British Colonial rule in 1964. The government has overseen significant plantation establishment all developed inside forest reserves. In total, the government owns 73,000 hectares of timber plantations, most of which are covered in pine (68,000 hectares) but with some cypress, cedar and eucalyptus (blue gum) aimed at providing fuel wood and poles. The largest single unit is the 53,000 hectare Viphya Plantations.



Map showing location of Viphya Plantations (WHRC (2011) Malawi: Aboveground Live Woody Biomass. Woods Hole Research Centre, Falmouth, USA).

The Viphya Plantations were established in the early 1950s for the production of construction timber. Later in the 1960s, objectives changed with the promise of a pulp and paper mill after independence. Subsequently, the pulpwood project failed to materialise and the management objectives reverted to timber management.

The forest capital within the Viphya Plantations comprises the trees and the forest products. Currently, the sole forest products from the Viphya Plantations produced by small and medium scale producers are round wood and sawn wood.

Picture 1. *A mature stand on the left and young stand on the right at Nthungwa Plantation*

Pictures 2 and 3. *Saw logs ready for sawing, and on the right, produced sawn wood*

1.2 Objectives and expected outputs

In 2008, as part governance work to improve the policy environment for small forest enterprises, the Malawi Forest Governance Learning Group (FGLG), with support from the International Institute for Environment and Development (IIED), commissioned a study called 'Malawi's Green Gold' as part of the IIED's Small and Medium Forest Enterprise series (Kambewa and Utila, 2008). This earlier study focused primarily on enterprises working with Non-Timber Forest Products (NTFPs). Yet in conducting the work, it was noted that there was also a need for governance improvements among timber enterprises.

There were concerns that timber the industry may not be most efficiently and sustainably benefiting from the utilisation of plantation timber resources – notably in the countries' largest plantations – the Viphya Plantations. It felt to be important that there was transparency such that policymakers and other stakeholders know how the timber industry in Malawi is structured (especially small and medium timber enterprises) and more importantly how the benefits – both monetary and otherwise – are being distributed.

In 2009, it was agreed that a short new study be commissioned by the Forest Governance Learning Group to look specifically at the small and medium forest enterprises operating within the timber sector of the Viphya Plantations. The expected output was a short report and media briefing on the main conclusions drawn.

1.3 Methodology and approach

The study used both primary field research in the Viphya Plantations and secondary information from documents and key informants to reach its conclusion. The analysis of secondary sources of information, included records from three plantation blocks of the Viphya Plantations, namely Lusangazi, Nthungwa and Luwawa. The reason for choosing these blocks is that mobile and pit saw milling operations are largely located in these plantations, although some milling is done in part of Kalungulu Plantation. The other plantations, namely Chikangawa, Champhoyo and Kalungulu are under a RAIPLY concession, and currently there are no saw milling operations in Mazamba Plantation. Timber export records were accessed from the Department of Forestry and National Revenue Authority at the Songwe border in Karonga, the border with Tanzania on the northern corridor. Various other reports were reviewed during the study, including the National Forestry Programme, Forestry Policy and Act, Malawi Growth and Development Strategy (MGDS), and a range of unpublished consultants' reports.

A rapid assessment of the timber value chain was carried out through interviews with saw millers, pit sawyers, foreign and local timber exporters, National Revenue Authority (NRA) officials at Songe Border post, clearing agents, plantation management and several other key informants. The findings were further enriched by the meeting organised at the Regional Forestry Office on 28th July 2009, which discussed the timber trade from the Viphya Plantations. The study team visited timber production sites and plantation offices, as well as the Songwe Border to interviews various stakeholders. Direct observations at the Songwe border post, within the plantations and along the main road to the border post, also strengthened the findings of the study.

Further stakeholders interviews were undertaken during the study and included owners of the mobile sawmills, their workers, the chairperson of the Lusangazi Pit Sawyers Association, forestry staff, customs and excise staff, timber agents (facilitating the export of sawn wood to Kenya and Tanzania) and timber sellers at Mzuzu Timber Market. It should pointed out that the timber value chain study focused on the Viphya Plantations and the northern corridor timber transactions including Mzuzu Timber Market and the export of sawn wood to East Africa. It excludes any description of the southern corridor transaction mostly to South Africa, Zambia and Mozambique. The northern corridor transactions reflect the current typical transactions involving the timber trade in Malawi. Costs along the value chain were analysed and unit costs and values, as well as overall costs and revenue, were calculated based on expected costs and revenues for the saw milling enterprises and the timber sellers both at Mzuzu Timber Market and those involved in exported of sawn wood to Kenya, Tanzania and South Africa. Calculation of total costs (expenditures) and total revenue values (earnings) were based on averages per plank across the different size ranges of sawn wood (there are six main categories of sizes for wooden planks) to show expected costs and values.

2. Findings of the study

2.1 Organisational arrangements

The timber merchants are organised into groups of mobile saw miller (known as contractors), pit sawyer, timber seller and exporters – and some are organised into associations. The pit sawyers and saw millers are members of an association with its own committee, which is their mouthpiece and link to the Department of Forestry, and in particular to those within the Department of Forestry who govern plantation management. The timber export agents have a much looser organisation.

2.2 Purchase of growing stock for sawing

The pit sawyers and mobile saw millers are given a license to operate in the plantation by the Forestry Department. Their timber is bought through a bidding process. The plantation is divided into compartments, which are then subdivided into blocks. Through the bidding process, the saw millers and pit sawyers purchase the standing stock in each block at MK 1,100 (US$ 7.8) per cubic meter. The area of individual blocks varies from block to block, and bidders may buy more than one block. Pit sawyers buy plots already established by the Department of Forestry. Each plot is 0.04 hectare in size and a sawyer may buy more than one plot.

2.3 Harvesting of round wood

Picture 4. *A tree cutter using a chainsaw*

The harvesting system used is the clear felling system with saw logs either transported to a milling site or sawn directly at the felling site. Those with semi-mobile sawmills transport their timber from various blocks to a central milling point, while those with readily mobile sawmills produce sawn wood within the harvesting site.

Picture 5. *A tractor delivering saw logs at one of the milling sites.*

Picture 6. *A KARA F2000 sawmill- one of the semi-mobile type.*

Pictures 7 and 8. *AMEC mill on the left and JANKO on the right.*

Pit sawing is done by crosscut saws with sawlogs perched on wooden supports. A key aspect of pit sawing is that it is done in steep and largely difficult terrain.

Picture 9. *Typical pit sawing site on Viphya plantations*

2.4 Conditions for saw milling and pit sawing

Mobile saw millers are allowed a maximum of three machines each, while pit sawing contractors are allowed a maximum of five pairs of sawyers each. Most of the time, this requirement is not strictly adhered to. As a result, one saw miller can easily bring three more machines without the knowledge of the plantation management. A pit sawyer can also bring more than five pairs.
In terms of timber extraction fees, all saw millers must have a license to saw timber. Forest regulations require all contractors to observe necessary harvesting and fire protection operations. Most operators observe these regulations, and they also assist to put out forest fires if there are any. But the saw millers and pit sawyers who were interviewed argue that even though they are involved in these plantation management activities, there no direct incentives and subsidies to contractors for observing fire protection and recommended harvesting practices.

A counter argument is that the government is in fact heavily subsidizing the saw millers and pit sawyers. Unpublished work in 2006 by John Ngalande and Joel Luhanga, showed that in order to break even, growing stock on the Viphya had to be sold at MK 5,000 per m^3 (US$ 35.7 per m^3) A proposal to increase the selling price upwards has always been rejected by the Ministry. Currently (2009), one cubic meter of timber is selling at MK 1,100 (US$ 7.8). By buying at a price below breakeven point, it could be argued that millers are indeed being subsidized by the government. In addition, most of the time, harvesting is not based on forest management plans.

2.5 Management agreements

Apart from the institutional framework conditions (covering fees, fire and harvesting regulations), millers enter into management agreements, whereby they are supposed to raise seedlings for replanting in the harvested areas. However, our field observations reveal that the level of harvesting does not equal the replanting, and as a result there are more areas being harvested than replanted. Operators are also required to tend to young stands by weeding as well as fire protection. During the fire season, millers do send their workers to help the Department of Forestry fight fires. The pictures below show the type of silvicultural activities that saw millers, including pit sawyers, are to undertake.

Picture 10 and 11. *Nursery, establishment and tending operations that saw millers are also required to undertake as part of management agreement.*

3. Timber production and value chain

3.1 Timber production statistics (2008/09 season)

Table 1 shows estimated areas harvested and volumes bought by mobile saw mill operators and pit sawyers for the 2008/2009 season. Generally, pit sawyers tend to harvest smaller areas than the mobile saw millers. During the 2008/09 season there were more mobile sawmill operators working in Nthungwa plantation than in Lusangazi plantation. Hence, a greater area was harvested and more volume was produced in Nthungwa than in Lusangazi plantation. The number of pit sawyers was roughly the same for both Nthungwa and Lusangazi plantations – but even so, the area harvested and volume produced in Nthungwa plantation was almost three times as much as in Lusangazi.

A total of 105 hectares were harvested in 2008/09 season by mobile saw millers in Luwawa plantation, utilising 300,095m^3 of growing stock. The total amount expected to be paid to the Forestry Department was MK 34,556,506 (US$ 246,832) but the amount actually paid to the department was far less than the amount calculated as owed to the Department of Forestry in this study.

Table 1. Timber production statistics for the 2008/09 season

Plantation	No of contractors	Area harvested (ha)	Estimated volume purchased (m^3)	Amount paid (MK)
Nthungwa (mobile)	**38**			
Expected area purchased		325.86	73319.04	80,650,941
Average per mobile saw miller		8.6	1929.45	212,393
Range		1.2 – 39.95	181.95 – 8989.54	200,145 – 9,888,488
Nthungwa (pit sawing)	**23**			
Expected area purchased		11.12	3,138.82	3,422,049
Average per pit sawyer		0.48	136.47	148,784.72
Range		0.12 – 1.32	23.13 – 378.3	26,134 – 416,092
Lusangazi (mobile)	**23**			
Expected area purchased		111.4	29,132.63	333,873,630
Average per mobile saw miller		4.84	1266.64	1,472,766
Range		1 – 17.3	279.81 – 4041.77	397,791 – 5,081,685
Lusangazi (pit sawing)	**22**			
Expected area purchased		3.72	1337.44	1,470,1945
Average per pit sawyer		0.17	60.79	66,827
Range		0.08 – 0.36	17.1 – 128.53	18,807 – 141,387

3.2 Viphya timber value chain costs and earnings

3.2.1 Pit sawing

Table 2 shows pit sawing transactions and their associated costs. The costs incurred in getting a single plank to Mzuzu come on average to MK 236 (US$ 1.68). Sawing comprises the largest component of the cost at 45 per cent, followed by ferrying to loading site at 22 per cent. The expected selling price at Mzuzu timber market is MK 275 (US$ 1.96). These prices are based on average selling prices across the different sizes of sawn wood. Costs are immediately incurred but earnings are spread over the season (in fact there is some level of indebtness among the pit and mobile saw millers). The expected total cost for pit sawyers at Nthungwa, which had 23 pit sawing contractors for the 2008/09 season, is estimated at about MK 4.3 million (US$ 30,714) while expected earnings are estimated at about MK 5 million (US$ 35,714). Figures for Lusangazi Plantation are estimated at MK 2.3 million (US$ 16,428) and MK 2.6 million (US$ 18,571) for expected total cost and earnings respectively. On average, a contractor would engage ten sawyers per season, although some engaged up to twenty. It was reported that for each licensed contractor there are 2 or 3 unlicensed who would normally be engaged by the licensed contractors mainly to purchase more plots than would normally be bought by the licensed ones.

Table 2. Typical transaction costs of pit sawing contractors

Pit sawing		
Transaction	**Value of transaction per plank MK (US$)**	**Percentage**
Cost of sawing	107 (0.76)	45
Foodstuffs	30 (0.21)	13
Average ferrying cost/plank to loading site	53 (0.38)	22
Transport to Mzuzu per plank	46 (0.33)	20
Unit cost per plank	K236 (1.68)	
Unit selling price per plank	K 275 (1.96)	

3.2.2 Mobile saw milling

For mobile saw milling transactions, the costs of sawing make up a much lower percentage of the total cost. The costs of sawing a plank in pit sawing is almost four times as much as that in mobile sawing. For saw milling, ferrying to loading site and transport also take up significant proportions, at 22 and 19 per cent respectively. However, the overall unit cost of a plank delivered at Mzuzu for both pit and mobile sawing is virtually identical, at MK236 (US$ 1.68) and MK237 (US$ 1.69) respectively. Table 2 shows transaction costs of each activity in mobile saw milling. The unit cost for mobile saw millers is estimated at MK 237 (US$ 1.69). But the selling price is higher than for pit sawyers at MK 346 (US2.47) per plank. Stumpage averages from MK 230,000 (US$ 1,643) to MK 400,000 (US$ 2,857) per hectare. Stumpage is the amount paid by operators for a hectare of standing volume. On the Viphya, it is done through bidding. Variations in value depend on the average volume per hectare in a particular plantation. For example, the average volume per hectare in Lusangazi plantation ranges from 250 to 350m^3 while in Nthungwa plantation volume ranges from 250 to 500m^3.

Picture 12. *A pair of pit sawyers sawing a sawlog. Sometimes pit sawing is done on relatively gentle terrain.*

Mobile saw millers employed an average of 30 workers ranging from supervisors, sawyers, drivers and caretakers. One operator in Nthungwa plantation has 100 workers, with sixteen working on two machines, with two shifts of eight workers per shift, 24 hours a day. Each shift produces 270 planks. A number of mobile saw millers have orders from construction companies who have building contracts in the major cities and towns of the country like Lilongwe, Mzuzu, Blantyre and Zomba.

Table 3. Typical transaction costs of mobile saw millers

Mobile sawing		
Activity	**Value of transaction per plank MK (US$)**	**Percentage**
Purchase of growing stock per	28 (0.2)	12
Tree felling	43 (0.31)	18
Sawing	41 (0.29)	17
Trucking	43 (0.31)	18
Ferrying to loading site	35 (0.25)	15
Transport to Mzuzu	47 (0.33)	20
Unit cost per plank	MK 237 (1.69)	
Unit selling price per plank	MK 346 (2.47)	

Picture 13. *A WoodMizer mobile sawmill in action in Nthungwa Plantation*

With the unit cost and selling prices per plank as estimated in table 3, the total expected costs for all the Lusangazi plantation mobile saw millers is estimated at MK 34.4 million (US$ 245,714), and expected earnings at MK 58.3 million (US$ 416,428) for the 2008/09 season. The total costs and earnings for all Nthungwa plantation mobile saw millers are MK 100 million (US$ 714,285) and MK 147 million (US$1,050,000), respectively. Figures show that for the 2008/09 season there was more sawmilling activity in Nthungwa plantation (making up about 72 per cent of total output from the two plantations). Expected earnings per mobile saw miller are estimated at MK 1.2 million (US$ 8,571) and MK 1.0 million (US$ 7,142) for Nthungwa and Lusangazi operators respectively.

3.2.3 Timber trade at Mzuzu timber market

During the 2007/08 season there were about 250 timber sellers operating in the Mzuzu timber market. During the 2008/09 there were about 333 sellers. At any given time, about half of the sellers are actively engaged in buying and selling sawn wood. Each seller makes an average of two trips per week to buy sawn timber from the Viphya plantation. During the July to December period, an individual buys an average of 476 planks, which are sold within a week. One trip is made during the January to May season selling 238 planks within a week. The expected average price during July to December is MK 285 (US$ 2.03) per plank, while during January to May is MK 236 (US$ 1.68).

Table 4 shows costs for various transactions for timber sellers at Mzuzu timber market. The average unit cost is MK 225 (US$ 1.61) and the expected average sales price is MK 261 (US$ 1.86). Expenditures and earnings vary with the time of the year. More sales of timber are registered during the July to December period, while sales are generally low during the January to May period. July to December is the peak period because it is tobacco selling season and farmers buy timber to take home. In addition, it is also the dry season when building construction resumes. Timber sellers noted that people who are constructing their houses tend to buy their timber straight from the Viphya plantations. Some sellers have recently received orders to supply timber to construction companies in Mzuzu. The expected total cost for the 2008/09 July to December period for all timber sellers is estimated at MK 491 million (US$ 3.5 million), and earnings are estimated at MK 634.3 million (US$ 4.5 million). During the January to May season the estimates are MK 255 million (US$ 1.8 million) and MK 263 million (US$ 1.9 million) respectively.

Table 4. Typical average expenditures of timber sellers at Mzuzu timber market

Timber sellers' costs		
Transaction	**Value of transaction per plank**	**Percentage**
Purchase of planks	172 (1.23)	75
Meals	10 (0,07)	5
Security	1 (0.01)	1
Market fee	1 (0.01)	1
Transport to Mzuzu	41 (0.29)	18
Unit cost of plank	225 (1.61)	
Average selling price	261 (1.86)	

Picture 14. *Business women at Mzuzu market who make up half of the total number sellers*

On average, a timber seller at Mzuzu timber market expected to earn MK 455,000 (US$ 3,250) during the season.

3.2.4 Timber exports to East Africa

Over a third the landing cost of a plank in East Africa is made up of the cost of buying the plank in Malawi and the remaining costs divided between transport costs and customs clearance charges. This shows that there are at the moment 3 major cost factors in the timber export trade to East Africa (see Table 4). The number of planks per truck to East Africa varies between 850 and 1,500 planks. However, the expected export quantity is around 1,200 planks per truck.

The unit cost of delivering a plank to Tanzania is estimated at MK 831 (US$ 5.94). This includes the cost of the plank in Mzuzu at MK 346 (US$ 2.47). The expected price in Tanzania is MK 1,466 (US$ 10.47). In the 2008/09 season, an estimated 150,703 planks (3,914m^3) were exported to Tanzania costing MK 125,234,193 (US$ 894,529) and selling at an estimated MK 220,930,598 (US$ 1,578,075).

The unit cost of delivering a plank to Kenya is estimated at MK 810 (US$5.78). The expected price in Kenya is MK 1,922 (US$ 13.73). The total delivery cost for 1,200 planks in East Africa is estimated at almost MK 1,000,000 (US$ 7,142) (Table 5). In the 2008/09 season, an estimated 549,363 planks (14,269m^3) were exported to East Africa with total costs of MK 444,984,840 (US$ 3.2 million) and expected sales revenue of MK1,055,877,608 (US$ 7.5 million). In the same period, the Department of Forestry reported 397,827 planks exported (11,050m^3) valued at MK 77,835,240 (US$ 0.6 million). The Department of Forestry figures also showed exports to South Africa, Mozambique, Zambia, Botswana, and in smaller quantities to Malaysia. The disparities in total timber exports between what the Department of Forestry recorded and what the study team found is an area of concern that need to be rectified. It means that huge volumes of timber exported from Chikangawa and other plantations are not recorded by the Department of Forestry. This has implications for the total amount of revenue being accrued by the government from timber exports, as well as the contribution of the industrial plantation to the total foreign exchange earnings of the country and the GDP. Most of the time, it is the exporter – who in most cases is a non-Malawian national – who is benefitting from the timber trade in Malawi.

It was noted that 78 per cent of the total sawn wood exports to East Africa were exported to Kenya. Since in Malawi there is little value addition, it is the exporters, not Malawians, who are doing most of the value addition and reselling the saw wood at much higher prices.

Table 5. Values of typical transactions of timber exported to East Africa.

East Africa transaction	**Overall cost (MK)**	**Unit cost (MK (Kenya)**	**%**	**Overall cost(MK)**	**Unit cost (MK) (Tanzania)**	**%**
Cost of plank	415,200	346	42.7	415,200	346	41.6
Driver allowance	20,600	17	2.1	40,000	33	4.0
Unofficial	2,000	2	0.2	2,000	2	0.2
Loading at Mzuzu	10,000	8	1.0	10,000	8	1.0
Export permit	500	0	0.1	500	0	0.1
Phytosanitary certificate	2,800	2	0.3	2,800	2	0.3
Transport from Viphya to	14,000	12	1.4	14,000	12	1.4
Stacking of planks at	450	0	0.0	450	0	0.1
Malawi export license	18,173	15	1.9	19,440	16	1.9
Timber clearance at	6,500	5	0.7	6,500	5	0.7
Weighbridge charges	1,160	1	0.1	1,160	1	0.1
Malawi Revenue	1,200	1	0.1	1,200	1	0.1
Average unofficial	300	0	0.0	200	0	0.02
Kenya Revenue	80,000	67	8.2	180,000	150	18.1
Clearance Tanzania side	53,000	44	5.5	303,571.5	253	30.4
Transport to Nairobi	345,733	288	35.6			
Total cost	**971,617**	**810**	**100.0**	**997,021.5**	**831**	**100.0**
Average for Kenya and Tanzania	**984,319**	**820**				

Pictures 15 and 16. *Sawn wood for export warehoused at Luwinga, Mzuzu before being transported to Kenya or Tanzania.*

4. Discussion and policy recommendations

4.1 Discussion

Markets for the Viphya timber have changed over the last few years, especially the export markets, which comprise mainly Kenya, Tanzania and South Africa. As such, there has been an increase in demand for Viphya's sawn wood. On average, about 600 hectares is harvested annually and about 400 hectares replanted in the Viphya plantations, meaning that there is more harvesting than replanting. The total area for Nthungwa and Lusangazi plantations is estimated at 16,847 hectares. Out of this, about 1,090 hectares comprises young stands and about 4,313.14 hectares is unplanted. Without any intervention, the Viphya plantation will easily be wiped out within a very short period of time.

Currently, there are more operators in the plantation than exist on the Forestry Department register's lists of licenses that are given out. The study reveals that the number of operators does not include foreign operations in the plantation, and yet the reality on the ground is that there are many foreign operators. It is not clear how these non-Malawian operators acquire the operating licenses from the government. The truth is that Malawian operators, due to financial limitations, aid the foreign operators in acquiring operating licenses from the government. The political influence of these operators with Government officials cannot be ruled out as one explanation for the reality we found.

The large number of operators in the plantation poses a big challenge to the Department of Forestry's plantation management staff, who cannot easily monitor or enforce some of the regulations and agreements with the operators. The plantation management staff are ill-equipped with limited financial resources, and transport and firefighting equipment are scare. Yet these staff are expected to play the vital role of managing the plantation. One officer said that the total financial requirement for Viphya plantation is MK 220 million (US$ 1.6 million) during the 2009/10 financial year; and yet the whole Forestry Department has been allocated K 67 million (US$ 479,000) to cover all its operations. This is a recipe for disaster for Malawi's plantation forestry. Paradoxically, some of the senior government decision-makers and legislators have saw milling units operating in Chikangawa. One would have expected that these senior individuals and legislators would fight for high financial allocations for the Department of Forestry, to ensure that the plantation is sustainably managed.

The study noted that timber from Malawi is cheaper than in either Kenya or Tanzania. Figures like MK19,600 (US$ 140) per m^3 were mentioned for buying standing volume in Tanzania while MK1,100 (US$ 7.86) will buy the same in Malawi. While the Tanzania figure needs to be verified, at MK 1,100 (US$ 7.86) per m^3, this stumpage is far below the breakeven price of MK 5,000 (US$ 35.71) for the Viphya plantations estimated in 2006.

Judging from the expected total costs and expected total revenues for both pit sawyers and mobile saw millers, it is evident that transaction costs, especially cost of stumpage and sawing, are high, since the net earnings are small.

Pit sawyers in Lusangazi plantation, for example, were expected to earn about MK 2,557,500 (US$

18,267), but their expected total costs were about MK 2,194,800 (US$ 15,677). This left only MK 362,700 (US$ 2,590) profit for the group. However, the expected costs excluded stumpage, which amounted to an estimated MK 1,470,195 ((US$ 10,501). If this is included, pit sawyers in Lusangazi actually made substantial losses. Pit sawyers from Nthungwa plantation face a similar situation. If all fees and costs are paid as stated, from our calculations, pit sawing seems not to be a profitable enterprise.

The story is different for mobile saw millers, as their expected earnings do cover stumpage. However, their expected total costs are still relatively high compared to expected earnings.

With low conversion rates from log to sawn timber of 10 per cent and 15 per cent for pit sawyers and mobile saw millers respectively, it would be difficult to raise expected earnings through production other than by increasing conversion efficiency or by raising the average prices. However, for the timber industry in Malawi, the buyers take the lead in prescribing sawn wood prices and specifications whether for the domestic or the export market. Because of this, producers are not able to produce timber in the dimensions required to increase conversion efficiencies or raise prices, which in the end has a decisive impact on profit margins. It has been observed that the reason for low conversion rates is because of this reality.

Timber sellers at Mzuzu timber market also face high costs due to the high price of timber and transport. Even the export trade faces similar cost hurdles of high stumpage rates, high cost of planks, border charges and high transport charges.

The study revealed that there are huge amounts of timber crossing the border to Tanzania and Kenya, and yet the Department records do not reflect the volumes being exported. For example, during the 2008/09 season, records at the border reveal that over 14,000 cubic metres of planks were crossed through the border, while the Department recorded 11,000 cubic metres only. Because of poor recording, the Department of Forestry is not giving a true picture of the amount of timber that is being exported. This has consequences in terms of the export contribution of timber to the national economy. The figure presented as export earnings by the Department grossly misrepresent the true picture of timber exports from Viphya.

The timber business is characterised by an influx of foreign operators who have permeated the business, own their own sawmills and employ Malawians. Some Malawians are aiding these operators in acquiring licenses to operate the timber trade. Most foreign operators interviewed affirmed that the Malawi timber is of high value and very cheap, hence their coming to Malawi. They indicated that East Africa is just a route to the East European and Asian markets. Since these buyers are now involved in sawing, they can dictate the price of wood, generally lowering it, which results in pushing poor Malawian operators out of business – as their profits do not cover their costs. This introduces a negative cycle in which operators try to cut costs further –for example by not fulfilling their obligatory management or replanting requirements. In the management agreements, the Forestry Department is supposed to provide operators with tree seedlings to plant. This is not happening at the moment, and instead only a few operators are raising their own seedlings and planting them.

Timber exports do not seem to be benefitting the Malawi government at the moment. Instead, the government is subsidising mainly foreign operators, who are reaping the benefits from the timber trade. There are a large number of foreign operators and local operators who are interested in making profit immediately, with limited focus on the future of the plantation. These types of operators, if not well managed, will continue to mine the plantation until the last tree is removed.

4.2 Summary of challenges of the timber trade

The situation for the timber trade originating in the Viphya plantations can be summarized as follows:

- Unsustainable utilisation of timber product whose specifications are dictated by the market to the detriment of efficient saw milling conversion rates. The conversion rate of standing volume into sawn wood for pit sawyers is estimated at 10 per cent and 15 per cent for mobile saw millers. There is a lot of wood left over once the required sizes have been obtained from any given log.

- Competition for resources within the Viphya plantations is very high because of the cheap stumpage costs in comparison with neighbouring countries and this results in many operators competing and further driving down prices. Mobile saw millers who saw on contract have more or less fixed prices agreed. For the other sawyers, buyers bargain and bring the prices down. In the 2008/09 season there were 38 mobile saw millers at Nthungwa, 23 at Lusangazi and a total of 45 pit sawing contractors in the two plantations

- Accurate economic assessment of profit and loss is poorly developed among sawing operators – and this creates a problem. Some sawyers do not know how to cost their operations and see all revenue as profit.

- Timber exported to East Africa often go further, for example to the Middle East where 2 x 3 and 2 x 2 sizes are in high demand. Further processing is done in Kenya and processed products are declared as produce of Kenya from sustainable timber forests.

- Local contractors say timber is expensive because of bidding against foreign operators and yet prices for their products on the local markets are low. The market is therefore largely led by these foreign customers. Foreign buyers, though pushing the price down, are actually prepared to pay anything because outside prices are profitable.

- The timber trade is characterised by an influx of foreign sawyers. Former customers, almost all of them non-national, have become sawyers through Malawian intermediaries, undermining the Malawian enterprises. Malawi timber is cheap and more mature than comparative plantation resources in East Africa and produces longer logs, getting the required 18 feet. The foreign buyers insist on planks on being 18 feet as trading in Dar-es-Salaam, Mombasa and Nairobi is done by the boardfoot. (A boardfoot is an amount of wood contained in unfinished board (planks) 1 inch thick, 12 inches long and 12 inches wide (2.54 x 30.5 x 30.5 cm)).

- Licenses are renewed in June when sawing is closed and because there is no guarantee of renewal, this leads to uncertainty; yet the start of the trade season and sawing happens when rainy season is starting.

- There is a tendency for some licensed contractors to engage unlicensed contractors either before or after bidding, selling off the blocks to others. Non-bidders use other means to get timber (hence undercutting winning bidders who have to pay bid price and license).

- Lack of funds available to Malawian operators mean foreign operators took advantage of this and started saw milling themselves because the majority of Malawians could not afford to invest in saw milling equipment. Credit payback requirements for Malawians are too demanding, for example, weekly for FINCA and PRIDE, fortnightly to monthly for OIBM, and monthly for MARDEF. Yet product flows commence later than these periods in most cases

- There is a perception that Malawian workers are more inefficient than the foreign workers, hence affecting output.

- Management agreements with government to replant areas that have been harvested are not adequately fulfilled. There is a feeling that replanting is not adequate. As a result, regeneration is lagging behind harvesting.

- Exporting sawn wood gives better revenues but there are risks such as: non-delivery of timber; buyers who declare less cubic metres at destination despite verification of true volume at point of departure; lower bargaining power for prices (buyers can decide to reject an entire delivery!); use of board feet in Kenya and Tanzania, which underestimates quantity and hence gives less revenue (Tanzania is an open market with more risks and South Africa is a contract market with slightly less risks).

- Recording the amount of timber exported is a challenge to the Department of Forestry. The responsible members of staff at the border posts are under-qualified to perform the task.

- The Department of Forestry undervalues the amount of timber harvested and exported.

4.3 Policy recommendations and way forward

Based on our field work observations, literature reviews and interviews we make the following recommendations:

- The Government of Malawi should revisit what is going in the Viphya plantations and monitor the timber industry more closely.

- The ministry of finance should allocate more financial and human resources in order to improve plantation management

- The Forestry Department should increase the rate of regeneration of harvested areas in the plantation to ensure sustainable future supplies of timber.

- There should be concerted effort to ensure that Malawians are able to invest in the timber industry and compete with non-Malawian nationals.
- A full market analysis of the timber export market should be conducted.
- Timber value addition within Malawi should be promoted.
- A new initiative to promote use of 'rejects' from timber sawing to produce other products such as pellets should be introduced to increase conversion efficiencies (picture 14)
- The Department of Forestry should place qualified members of staff to man the border posts such as Songwe border.
- The Department of Forestry should work closely with the National Revenue Authority to ensure that true export revue values from the timber trade are recorded.

Picture 17. *These wooden pallets were manufactured from the sawn wood 'rejects' under an order worth millions of Malawian Kwacha. The timber enterprise that makes them also produces other sawn wood planks like the rest of the other mobile sawmills.*

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