

## MEASUREMENT UNITS FOR SELLING TIMBER

Case of Mufindi, Njombe & Kilolo Districts



# FINAL REPORT

## Submitted to:

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## ACRONYMS AND ABBREVIATIONS

Acronym/abbreviation	Definition	
AMCOS	Agricultural Marketing Cooperative Societies	
BEST-AC	Business Environment Strengthening in Tanzania – Advocacy	
	Component	
CSOs	Civil Society Organizations	
LGA	Local Government Authority	
MKUKUTA	MkakatiwaKukuzaUchuminaKupunguzaUmasikini Tanzania	
MNRT	Ministry of Natural Resources and Tourism	
MS	Microsoft	
SPSS	Statistical Package for Social Sciences	
SUA	Sokoine University of Agriculture	
TANWAT	Tanganyika Wattle	
TCCIA	Tanzania Chamber of Commerce, Industries and Agriculture	
TGAs	Tree Growers Associations	

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Last, but not least, we are highly indebted to timber dealers (i.e. loggers, saw millers, timber yard owners, and owners of planner units) and consumers (i.e. carpenters, and contractors) for their cooperation during key informant interviews and sample measurements of timber in their work stations. Moreover, we understand there are many other people whom we did not mention by names (such as drivers and local guides) but since we recognize their contributions in this project, we simply say "THANK YOU SO MUCH for your support and GOD bless you abundantly".

#### **EXECUTIVE SUMMARY**

This study was conducted between May and September 2013 to assess the use of different measurement units along timber value chain in Mufindi, Njombe and Kilolo Districts, with a purpose of influencing Local Government Authorities (LGAs) to formulate and /or amend timber related by-laws to guide actors on the use of appropriate measurement units during buying and selling sawn timber. Value chain analysis framework was used to guide data collection, analysis and interpretation. Multiple methods and techniques were used to collect data. These included but not limited to focus group discussions, key informant interviews and direct measurements of sawn timber in a random sample of timber yards in each district. Collected data were entered into microsoft excel and Statistical Package for Social Sciences (SPSS) software for analysis and future reference. Qualitative data were analysed using content analysis to derive meaningful sentences explaining the studied phenomenon.

The results show that misuse of standard measurement units is based on two main reasons: historical and gap in policy and legislation system towards smallholder forestry. Qualitative findings show that small-scale tree growers and timber dealers in rural areas are major victims of non use of standard timber measurement units. Quantitative timber measurements has revealed five different units of timber measurement commonly used in the market namely piece, cubic meter, cubic foot, running meter and running foot. However, majority (88%) of timber dealers and users use piece as a common unit of measurement. Only a few small, medium and large timber industries such as Ihembe Industries Ltd, Sao Hill Timber Industries Ltd and TANWAT Sawmill Ltd, use cubic meters and/or running meters in their timber transactions. It was also found that there are a lot of variations or inconsitency in timber dimensions in the market in the districts. At times, thickness is below or above nominal size or vice versa. Similar scenario was observed on width of pieces.

As was expected, selling per piece achieved the lowest sales when compared to the other two practices (i.e. selling per running meter and per cubic meter). The highest sales were recorded from transactions, which uses cubic meter as a unit of exchange. Quantitative analysis shows that sellers using cubic meter add more value by about 50% of sales made by piece while those selling by running meter gains an extra value of about 39% of that obtained when sales are done per piece. The noted difference in sales achieved through different selling measurement units triggered an interest to understand whether the difference in sales were significant enough to advocate for the formulation and/or amendments of timber marketing by-laws in the study districts. The statistical analysis shows that loss accrued from selling timber per piece instead of per running meter or cubic meter are significant, which justifies for a by-law formulation and/or amendments.

The key stakeholders meeting held on 16<sup>th</sup> December 2013 at Mafinga, unanimously agreed that the key findings of this project justifies reviewing and amending of existing timber by-laws in the three districts so that the current practice of ignoring use of appropriate timber measurement units is kept into halt. However, it was suggested that a position paper be prepared and tabled before District's Full Council meetings for creating awareness to all ward councilors, especially on the challenges faced by tree growers who bear great losses when selling trees without using any appropriate measurement unit of their standing trees.

In conclusion, smallholder forestry in the three districts surveyed is largely informal and hardly get support from professional foresters except during national tree planting campaigns. The marketing chains in all districts are dominated by local intermediaries and brokers who are not professionals hence a predominance use of traditional norms and experiences of timber harvesting and processing. Timber dealers should consider using running meter and cubic meter to maximize their returns than selling by piece. The use of appropriate measurement units will not only increase actors' profit margins but also will increase local government revenue from 595,721,250/= TZS (equivalent to US\$ 372,325.8) up to 1,198,258,800 TZS (equivalent to US\$ 748,911.75) when cubic meter is used as a unit of measurement during timber transactions where one cubic meter is sold at 400,000/= and cess (local government crop levy) is charged at only 3% instead of 5%.

It is therefore, recommended that respective district councils review and amend existing timber marketing by-laws to influence timber dealers to make a deliberate shift from selling timber per piece to selling per cubic meter. Furthermore, timber dealers and tree growers should be made aware (through capacity building seminars) of the impacts of using inappropriate timber measurement. However, for sustainability reasons, we are recommending for the establishment of forestry extension system to support in the growing smallholder forestry. Last but not least, we are recommending that tree growers form tree growers' cooperatives to oversee timber marketing similar to what Agriculture Marketing Cooperative Societies (AMCOS) are doing. This is important because it will create empowerment and support to local representative institutions and thus reduce the exploitation of farmers by unscrupulous traders/middle-men/local intermediaries/brokers.

#### **1.0INTRODUCTION**

#### **1.1 Background information**

Mufindi, Kilolo and Njombe districts are among the largest districts of Iringa and Njombe regions. These districts are among the few districts in Tanzania which have vast tree plantations and natural forest reserves. For example, Mufindi, has a total of 7,112 square kilometers with a total of 22,457 hectares of forest reserves. Their geographical and ecological characteristics, coupled with peoples' culture of tree planting make these districts among big producers of timber, especially Pines, Eucalyptus and Cypress. The geographical and ecological systems of these districts form the basis for these districts to be among few districts with high timber production in Iringa and Njombe regions respectively. However, despite the fact that the above mentioned districts produce a significantly large number of commercial timber, marketing of timber products, especially sawn timber has been a great problem which draws attention to many stakeholders and partners.

### 1.2 Problem statement and justification

Forest products, like other commodities, must be measured before they are sold. This is important in order to find the basis for setting the price of the product. However, many timber sellers, and tree growers in developing countries, and Tanzania in particular, have limited knowledge on sustainable logging, accurate timber estimation, importance of product standards/quality and on available guidelines and policies among others. Experience shows that most small-scale timber sellers in Mufindi, Kiloloand Njombe districts have been selling timber to different buyers in the market by counting the number of pieces instead of using standard measurement units such as running meters/feet and cubic meters/cubic feet and weight which are commonly used worldwide. Therefore, the problem addressed in this study was to assess the current practice in timber production and marketing and determine the impact of using inappropriate measurements along timber value chain. The study also aims to create awareness of timber producers and sellers on the benefit of marketing their products by using appropriate measurements.

### 1.3 Objectives of the study

#### 1.3.1 Overall objective

The overall objective of this project was to influence Local Government Authorities in the three districts (based on research) to formulate by-laws that will guide timber marketing for increased production, economic growth and employment creations.

## 1.3.2 Specific objectives

In order to achieve the above objective, the following specific objectives were fulfilled:

- i. To map the timber value chain and its marketing channels;
- ii. To review the existing institutional environment and challenges facing smallholder forestry actors along the timber value chain;
- iii. To identify timber measurement units commonly used in the selected districts;
- iv. To measure the commonly used nominal timber sizes (width and thickness) to ascertain whether they are sawn accurately to given dimensions;
- v. To determine the impact of selling timber per piece instead of using standard measurement units such as cubic meter/cubic foot and/or running meter/r foot.

### 1.4 Scope of work, expected outcomes and deliverables

The scope of work, expected outcomes and deliverables of this assignment are outlined in the given terms of reference (Annex 1).

### 2.0 METHODOLOGY

### 2.1 Data collection

A fieldwork was conducted between May and September 2013 in three pre-selected districts: Kilolo, Mufindi, and Njombe District within Iringa and Njombe Regions respectively. The value chain analysis framework (Figure 1) guided data collection.



Data collection was organized in two stages: identification of product flows and the operations performed from production to consumption, identifying all agents connected to the value chain and getting overview to their respective functions. For this purpose, tree growers (primary producers) were chosen as the starting point. The value chain was then followed until we reached the end consumers of sawn timber, mainly carpenters and building contractors. During this stage respondents were selected based on purposive sampling. Data were collected based on semi-structured interviews, focus group discussions and direct measurement of random samples.

The organizations involved in the functioning of the value chain (central and local government authorities) were also involved in the study. Last but not least, information on institutional environment was collected from both secondary and primary sources. Purposely, data collection was organized into two main stages: the first stage enabled us to differentiate two categories of agents connected to the value chain: i) the direct agents who were those having the product ownership at a given time along the chain and ii) the indirect agents who intervened merely in the functioning of the value chain. During the second stage the focus was exclusively paid on the direct agents by carrying out in-depth surveys. In the surveys involved tree growers and traders, the respondents were selected based on cluster sampling at the lowest administrative level – the village for tree growers and town council for traders. At this stage we were assisted by 10 enumerators.

In terms of methods and techniques of data collection, five different techniques were used: i) *key informant interviews*; ii) *focus group discussions*; iii) *participant observation*; iv) *semi-structured interviews* and v) *physicalmeasurement of samples of sawn timber*. Checklists and semi-structured questionnaires were used as major tools for data collection. Each of these tools specifies the type of data collected as indicated in **Appendices 1a-c, 2, 3a-b and 4**as attached towards the end of this report.

#### 2.3 Data processing and results compilation

Based on the types of data collected, the methods and tools used to collect such data, both qualitative and quantitative methods were used to analyseand compile the results based on researchers' expertise and experience. The first stage analysis involved mapping the value chain from farm-level (standing trees and harvested logs) to consumer level (poles and sawn timber). The second stage involved analysis of the collected data using Ms. Excel Spreadsheets. This analysis was aimed to determine the impact of selling timber using inappropriate measurement units, especially the use 'piece' as a unit of selling sawn timber.

## **3.0 RESULTS AND DISCUSSION**

## 3.1 Mapping the timber value chain and its marketing channels

## **3.1.1** Timber value chain actors

Timber value chain in all study districts encompasses three direct agents namely production (producers/tree growers), traders/timber dealers and consumers. The chain also constitutes the regulatory part constituting government officers. Table 1 summarizes the list of agents involved in the timber value chain indicating number of people contacted during the actual interviews.

S/N	Agent/participant category	Planned agents	Actual agent	Percent (%)
1	Tree growers/individual farmers (small and large			
	scale farmers, TGAs)	33	31	93.9
2	Timber users (carpenters, contractors, planers)	69	45	65.2
3	Timber dealers (saw millers, agents, yard owners,			
	transporters)	105	53	50.5
4	4 District Executive Directors (DEDs)		3	100.0
5 District Forest Officers (DFOs)		3	3	100.0
6	District Legal Officers (DLOs)	3	3	100.0
7 District Trade Officers (DTOs)		3	3	100.0
8	8 Chairpersons of Municipal Councils		3	100.0
	Total	222	144	64.9

**Table 1**: Summary of timber value chain agents involved in the study areas.

A total of about 144 (64.9%) respondents were actually consulted. The reasons for not being able to meet all 222 respondents were related to the fact that data were collected during the period where most timber dealers were not trading because harvesting permits from Sao Hill Forest Plantation were not yet released.

## 3.1.2 Timber marketing channels

There were two timber marketing channels namely i) local and urban respectively. The local channel is dominated by producers/tree growers and local intermediaries and brokers working on behalf of small and large wholesaler-retailers (timber yard owners). This extends to retailers and urban consumers as illustrated in Figure 2.



Figure 2: Map of the small-holder forestry actors along timber value chain

Unfortunately, this channel hardly use standard measurement units such as tree meter or cubic volume because they do not follow tree harvesting guidelines rather they follow the traditional canons of estimating standing crop based on experience and indigenous methods such as lying flat under the trees to estimate the length and expected number of logs. This is because of the lack of awareness on forestry knowledge and practices amongst local people. On the other hand, urban channel involve small and large wholesalers most of whom buying from commercial tree farms such as Sao Hill Forest Plantation and other private large Companies such as Sao Hill industries (Mufindi), New land Forest Company (Kilolo) and Tanwat Company (Njombe) where standard timber measurement units are used.

#### 3.2 Institutional environment and challenges facing smallholder forestry actors

#### 3.2.1 Existing legal framework in forestry sector

The forestry sector is currently under the mandate of the Tanzania Forest Service (TFS) Agency and Local Government Authorities through District Forest Officers. This implies that there is an overlap between central government and local government systems. Nevertheless, the forestry practice is guided by the National Forest Policy (1998), which is currently under review; Forest Act (2002), forest regulations of 2004, and timber harvesting guidelines (2007). All these form an institutional environment which ensures that actors along the value chain follow prescriptions in the Forest Policy and Legislation.

However, experience shows that neither the forest policy nor the legislation pays much attention to private smallholder tree growers/farmers. The National Forest Policy (1998) was directed to the forestry sector as a whole, and not specifically to smallholder forestry and related value chain. However, some policy elements and the National Forest Programme (2001-2010), which is also currently under review, all have markedly influenced smallholder forestry development in the country and in the study areas particularly.

### 3.2.2 Challenges facing smallholder forestry actors

Local communities and individual farmers represent a valuable source, which under right incentive schemes and other policy instruments such as timber marketing guidelines; can be modernized to grow trees on large scale and cost efficiently. Similarly, local tree growers have the opportunity of enjoying the emerging carbon market, which developed countries are promoting to offset air pollution. However, smallholder forestry dealers face a number of challenges as outlined below:

- i. Lack of investment capital/access to credit facilities partly due to lack of access to new innovative financing schemes that exist locally and internationally;
- ii. Unavailability of profitability calculations for timber growing per se compared with the opportunity cost of other land uses;
- Lack of sufficient knowledge in tree growing and harvesting with limited awareness on market specifications;
- iv. Lack of market information, marketing and bargaining power including weak linkages with market agents;
- v. Because farmers often plant and manage trees without a specific market in mind, farmgrown timber is often of substandard quality as volume and length are usually inadequate hence low production volume;
- vi. Poor infrastructure to transport and store timber products;
- vii. Limited modern technologies leading into low conversion efficiencies; and
- viii. Inadequate management and entrepreneurship skills among others.

#### 3.3 Timber measurements units used in selected timber markets

The study has revealed four different types of timber measurement units commonly used during selling and/or buying timber. Table 2below clearly indicates that none of the timber buyers use board feet (bf) and weight unit measure when they buy timber. On the other hand, majority of respondents buy and/or sell lumber per piece. The finding supports the concern that was raised by TCCIA- Mufindibranch, which justified the design and pursuit of this study. However, a few individuals and more specifically, relatively large industries such as Ihembe Industries Ltd, Sao

Hill Timber Industries Ltd, TANWAT Sawmill Ltd and New Forest Company use cubic meters and running meters interchangeably when selling their timber.

Name of district	Category of user	piece	cubic meter	Running meters	Running ft	board ft	Weight (tons)
	Carpenters	20	0	1		l.	l.
Kilolo	Contractors	0	1	0			
	Planer units	2	0	0			
Mufindi	Carpenters	6	1	2	1		
	Carpenters	8					
Njombe	Contractors	1					
	Planer units	1					
Total		38	2	3	1		

Table 2: Common units of measurement for buying timber in the three districts

When these timber buyers and sellers were questioned further as to why selling or buying timber per pieces was the adopted practice in the districts, there were mixed feelings amongst them. Table 4 picks up some of the responses on why buying or selling per piece is the preferred practice. Notably, familiarity with the practice is the main reason while a few cited seller's preference and ignorance of other units of measurements to have contributed to the practice.

Name of	Category of	The only	Low	Not aware	seller	То	Counting
district	user	measure	knowledge	of other	preferen	avoid	pcs is easier
		familiar to	of other	measures	ce	loss	than other
		sellers	measures				measures
		&buyers					
		(used to)					
Kilolo	carpenters	17	1	1	1	1	
	contractors	0	0	0	1	0	
	planer units	1	0	0	1	0	
Mufindi	carpenters	3	1	1		5	
Njombe	carpenters	4			1	2	1
	contractors	1			0	0	
	planer units	1			1	0	
Total		27	2	2	5	8	1

Table 3: Reasons which contribute to popularity of selling/buying timber per piece.

### 3.4 Common sizes of timber on lumber yards

In this study the team found that the following sizes (inches) were largely available than other timber sizes in yards visited: 1x4, 1x6, 1x8, 2x3, 2x4, and 2x6. However, yards of relatively

large industries i.e., SaoHill, and TANWAT Ltd, a much wider diversity of sizes were observed. Notwithstanding, the team assumed that the above mentioned sizes could be enough to demonstrate the disadvantage of selling/buying timber per piece in the three districts.

## **3.4.1 Timber dimensions**

Both nominal and actual dimensions for of lumber were plotted in MS Excel and Figure3(a-I)displays how thickness and width varied among sizes and pieces measured.









Figure 3 (a-l): Variation of thickness and width on studied pieces for different lumber sizes

It is evident from Figure **3** (a-l) that there are a lot of variations or inconsitency in timber sizes in the market. At times, thickness is below or above nominal size or vice versa. A similar scenario was also observed on width of pieces. The variations could have been attributed by obselete machinery that was used to produce lumber and or unskilled machine operators. Furthermore, the problem could have been ascalated by the failure of customers to DEMAND uniformity or high grade lumber from producers. Almost, whatever is produced is sold; whether undersize or oversize!

### 3.4.2 Timber volume

Figure 4 (a-f) displays volume determined from nominal and actual dimensions. Pieces that are sold per piece are assumed to have a length of 12 ft or 3.7 m. However, when actual measurements were taken, some pieces were found to measure more than 3.7 m and as a result spikes in volumes were observed over piece volumes. Similarly, as indicated in section 3.2.3, actual thickness in some of the pieces was much larger than nominal thickness which contributed to increased volume particularly for 1x4, 1x6, and 1x8 pieces. A contrary observation was seen for 2x3 pieces which showed to have less volume than nominal. The anomaly could have been contributed by the fact that most of the pieces had lesser thicknesses than expected.



Figure 4 (a-f): Volume of timber measured

# 3.5 Timber prices and sales

## 3.5.1 Prices

The team noted varying prices in the market for similar lumber sizes as summarized in Table 4 and 5. Prices presented in Table 5are average figures.

Size	Price ranges per pc by district (Tshs)		Overall price	Average price	
	Njombe	Mufindi	Kilolo	range (Tshs)	(Tshs)
1x4	1,500-2,000	2,000-2,500	1,500	1,500-2,500	2,000
1x6	3,500-4000	2,000-3,000	2,500	2,000-4,000	3,000
1x8	7,000-8,000	6,500-8,000	6,000	6,000-8,000	7,000
2x3	3,000-3,500	3,000-3,500	3,500	3,000-3,500	3,250
2x4	3,500-4,500	4,000-4,500	3,500-4,500	3,500-4,500	4,000
2x6	8,000	8,000	6,000	6,000-8,000	7,000

Table 4: Price ranges and average per piece in the study districts.

Source: validation meeting (28<sup>th</sup> October 2013).

The prices above show that in almost all timber sizes, Kilolo has relatively lower prices per piece compared to Mufindi and Njombe Districts. This is probably because of the geographical location i.e. far from active townships. Moreover,, unlike other districts, most sawn timber in Kilolo come from small-scale farmers and that the prices for farm-grown trees are also relatively cheaper (8,000-15,000/=) compared to the other two districts where a single full grown tree can be sold as high as 50,000/=. Table 5 shows the average prices of three different units used in the study areas.

**Table 5**: Average prices for different units of measurements.

S/n	Size	Average price per pc,	Price per running	Average price per m <sup>3</sup>
		(Tsh)	meter, (Tsh)	(Tsh)
1	1x4	2,000	589	237,130
2	1x6	3,000	1,340	386,610
3	1x8	7,000	2,057	416,110
4	2x3	3,250	1,596	423,780
5	2x4	4,000	1,997	400,700
6	2x6	7,000	2,498	400,700

NB: These prices do not include new raw material price tariffs (October 2013) charged at Sao Hill Forest Project.

#### 3.5.2 Sales

The average prices ere used to determine sales from measured lumber pieces. Sales, i.e. a product of volume and price per  $m^3$  or per actual running meter and sales per piece are shown in Figure 5 (a-f).



(a)





(c)



Figure 5 (a-f): Trends of sales per unit measure in the study areas

What could be concluded from what is displayed in Figure 5is that selling timber per piece count; where both customer and the seller assume that individual pieces comply with nominal thickness and width sizes and have a length of 3.7 m; is detrimental to the seller. The practice of selling per piece count fetches the lowest sales (about 39% less) than selling per running meter, on average and about half (50%) the sale when selling by cubic meter.

Therefore, the highest sales are achieved by selling per m<sup>3</sup> with the exception of Figure 5 (d and e) where timber was sawn undersize and thus couldn't fetch the expected volumes and sales. In general, selling by running meters meanders inbetween the two units of measure (m<sup>3</sup> and per piece) and looks to be the best option because it provides a win-win scenario to both parties, i.e. the seller and the buyer.

### 3.5.3 Relative losses of selling timber per piece as compared to standard measures

Table 6 below indicates the average prices per pieceand indicative losses incurred per piece due to selling timber per piece instead of per running meter or cubic meter. The average prices per piece were validated during stakeholders' meeting to reflect the reality hence a slight difference from those reported in the draft report.

**Table 6**: Losses incurred when selling timber per *piece* instead of per *running meter* or *cubic meter*.

Size	Average price per piece, (Tsh)	Indicative loss per piece for selling timber per pc instead of per running meter (Tsh)	Indicative loss per piece for selling timber per pc instead of using m <sup>3</sup> (Tsh)
1x4	2,000	$305 \pm 47$	761 ± 139
1x6	3,000	$2,096 \pm 52$	$2,918 \pm 155$
1x8	7,000	$1,053 \pm 49$	$1,810 \pm 322$
2x3	3,250	$2,669 \pm 144$	$1,863 \pm 212$
2x4	4,000	3,783 ±77	3,376 ± 202
2x6	7,000	2,210 ± 138	3,772 ± 311

*NB:* Figures were updated during validation meeting held on 28 October 2013 at Mafinga, Mufindi District.

### 3.6 The impact of using inaccurate measurement units for selling timber

#### **3.6.1 Impacts to small scale tree growers**

Most tree growers sell standing trees without use of any standard measurements. Instead they sell their trees based on buyer's stated price, again without any standard criterion. This leads into relatively low tree's farm gate prices ranging between 3,000 Tshs and 5,000, especially in Kilolo

district. The prices are too low to allow to serve as tree planting incentive for farmers to plant more trees.

#### **3.6.2 Impacts to saw millers**

The use of standard measures such as running meters could enable sawmillers to collect more revenues. The increased revenue will inevitably trigger their interest to increase capacity of their sawmills and thus be able to employ more people. However, change in price particularly when the prices increases; this might have negative consequences as well because buyers may refrain from buying high price timber because they are currently enjoying super profits. This is where TCCIA could convince local government authorities to intervene by formulating by-laws to guide all timber dealers to abide into standard measures on a win-win justification.

#### **3.6.3 Impacts to constructors and carpenters**

Use of non-standard measures lead into conflicts of structural dimensions, especially when a constructor expecting a given standard dimension, say 50mmx50mm receives higher sizes or lower sizes that do not conform into his/her structural plan. This is even more serious to carpenters who are forced to plane the timber sizes into their desired sizes. This is adds cost in terms of time and depreciation of machines/or tools.

#### **3.6.4 Impacts to local government revenues**

Local government usually charge crop cessfrom all crops including trees harvested on farms. Therefore, if standing trees could be measured of their standing volume, local government could charge from tree's merchantable volume than from sawn timber which brings legal confusion because timber is a secondary product which is supposed to be charged tax and not crop cess. Conversely, selling timber using standard measures could increase local government revenues from 595,721,250/= TZS (equivalent to US\$ 372,325.8) up to 828,052,537.5 TZS (equivalent to US\$ 517,532.8) when running meter is used and up to 1,198,258,800 TZS (equivalent to US\$ 748,911.75) when cubic meter is used as a unit of measurement during timber transactions where one cubic meter is sold at 400,000/= and cess charged at 3%. The detailed analysis is shown in **Appendix 10**.

#### 3.6.5 Impacts to national economy

Use of standard measures could add value to the national economy as it would attract serious investors and professional foresters to engage in timber business. This would help to absorb current idle labor of college and university graduates specialized in forestry and thus contribute into employment creation. The National Development Vision 2025 - strongly recognizes

individual and private sector's roles as central driving forces for building a strong, productive and renewing economy. The National Strategy for Economical Growth and Poverty Reduction I&II both looks forward to effective participation of civil society, private sector in national development efforts. Both strategies stress that the private sector has central role to play as an engine for economic growth. Furthermore, the National Poverty Eradication Strategy (1998) recognizes a pivotal role of the private sector in poverty eradication. The private sector has a role of creating employment opportunities by increasing investment.

## **4.1 Conclusions**

- Harvesting of timber logs from smallholder tree growers is NOT guided by the Forest Law and Guidelines. The existing legal framework focuses on national level forest plantations and natural forests.
- Tree growers do not use any standard timber measurement when selling their trees to timber dealers. This is where the problem starts! Consequently tree farm gate prices are relatively very low, which distort the whole value chain.
- Majority (88%) of timber dealers and users make transactions using piece as a unit of timber sale. This has been a tradition in such a way that both buyers and sellers are almost happy because the seller is not aware of alternative units and their relative advantages and disadvantages. The use of piece as a common unit of measure has historical background linked to pit sawing of softwood and as Dar es Salaam market penetration strategy to compete with timber from northern circuit (Tanga, Kilimanjaro and Arusha).
- The current practice of selling sawn timber per piece is unprofitable to sellers but unfortunately sellers are not aware of that and that District Councils collect their revenues using piece as a unit of revenue estimation.
- If a seller continues with this practice; s/he prone to significant losses of both tree resource, peoples' income and local government revenues.

## 4.2 Recommendations

- New forest policy, law and guidelines should include private tree growers, especially smallholder woodlot owners with emphasis on use of appropriate timber measurement units before and during selling sawn timber. This is important because harvesting of forest products should be done according to the existing laws, guidelines and administrative orders.
- TCCIA and the MNRT should conduct an advocacy/campaign for awareness creation to local communities on the importance of using proper measurements when selling sawn timber or trees to middlemen and other businessmen in their localities.
- Smallholder timber sellers and buyers should think of shifting to a measurement unit for selling timber which benefits both sides. From the findings of this study; they should shift towards selling and buying timber using running meters. If this option is agreed upon, then timber producers should cut timber to "*rough green target sizes*"

(RGTS).RGTS dimensions are acceptable by all stakeholders. Rough green target sizes are neither undersize nor oversize but JUST RIGHT.

- The existing timber harvesting committee in each district should also pay more attention into tree woodlots owned by smallholder farmers in order to ensure that they comply with prescribed harvesting, processing and selling guidelines in place or as shall be set forth in the timber harvesting by-laws. The current harvesting committees are paying more attention into government owned forest plantations and natural forests with little emphasis on private ones.
- It is also recommended that tree growers form tree growers' cooperatives similar to Agriculture Marketing Cooperative Societies (AMCOS), which will be responsible for timber marketing. These cooperatives will also be responsible with members' social security issues including access of financial resources for socio-economic development at household level.

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## LIST OF APPENDICES

Appendix 1: Checklist of questions to district executive directors (DEDs

Date of interview:	District:
--------------------	-----------

Name of the DED \_\_\_\_\_\_ Mob #:\_\_\_\_\_

## **Guiding questions:**

1. What are your main sources of revenues [in order of priority] in this district?

*Which law or by-law [if any] do you use to guide the district in collecting revenues from timber?* 

- 2. Do you face any challenge(s) in using such law or by-law to collect revenues from timber? **YES/NO** [circle appropriately]
- 3. If YES, what challenges do you face in collecting timber/log cessy in your district?
- 4. Do you think there is a need for formulating specific by-laws to guide timber sales and local revenue collection in this district? **YES/NO**
- 5. If YES, what procedure should be followed to formulate such by-laws?

## THANK YOU FOR YOUR TIME AND COOPERATION!

Appendix 2: Checklist of questions to district forest officers (DFOs)

Date of interview: \_\_\_\_\_Name of respondent: \_\_\_\_\_

District:\_\_\_\_\_Contacts: Mob #:\_\_\_\_\_

## **Guiding questions:**

1. Do you carry out a survey of tree growers/farmers in your district? **YES/NO** [circle one] If YES, how many tree growers/farmers do you have?\_\_\_\_\_\_ If NO, why? Give major reason:

2. *How much money do you [district] collect per month from timber cessy /levy at farm /road gate?\_\_\_\_\_Shs/month.* 

3. To whom do you collect tree crop cessy/levy in your district?

- Log buyers at source (farmer or plantation level]
- Timber sellers/yards
- *Timber transporters*
- Others
  - (specify)\_\_\_\_\_

4. What criteria do you use to collect timber/log cessy or levy from the above mentioned source? \_\_\_\_\_\_\_\_[options: pieces of timber/logs, cubic meters of timber/logs

*or?]*Which of the above would you recommend and why?\_\_\_\_\_

5. Which law or by-law [if any] are you using as guide in collecting timber /log cessy?

- 6. What challenges do you face in collecting timber/log cessy in your district?
- 7. Kindly list the major commercial timber producing wards and villages in your district:

Ward	Villages	

## THANK YOU FOR YOUR TIME AND COOPERATION!

Appendix 3: Checklist of questions to district legal officers

Date of interview: \_\_\_\_\_ Name of

District:\_\_\_\_\_

Name of the officer \_\_\_\_\_

Mob #:\_\_\_\_\_

**Guiding questions:** 

1. Which law or by-law [if any] do you use to guide the district in collecting timber /log cessy?

- 2. Do you face any challenge(s) in using such law or by-law to collect timber cessy in your district? **YES/NO** [circle appropriately]
- 3. If YES, what challenges do you face in collecting timber/log cessy in your district?
- 4. Do you think there is a need for formulating specific by-laws to guide timber sales for easy collection of timber cessy or levy for the district? YES/NO
- 5. If YES, what procedure should be followed to formulate such by-laws?

## THANK YOU FOR YOUR TIME AND COOPERATION!

Appendix 4: Checklist of questions to tree growers/ farmers in the study areas

Date of focus group discussion\_\_\_\_\_

Name of District:\_\_\_\_\_

Ward Name------Village Name------

**Guiding questions:** 

- 1. When did you start to grow trees?-----year
- 2. What are types/spps of trees do you have on your farm(s)? Please list:

\_\_\_\_\_

\_\_\_\_\_

- 3. How big are your farms (on average)?
- 4. Have you ever sold trees to commercial buyers last year? YES/NO
- 5. What do you consider to be the best age of harvesting different tree species? **Tick**

Tree species	Tree species Minimum age		Average age		

- 6. Do you set your own price during harvesting and selling of your trees? YES/NO.
- 7. If YES, which criteria do you use to set price for different species?

Species name	Form sold (whole tree/log)	<b>Unit of measure</b> $M^3$ , $ft^3$ , running m or ft, weight, cord	Price/unit

- 8. What other types of measure do you know?
- \_\_\_\_\_
- 9. What is the most preferred measure by your buyers why?-----

-----

10. What is your most preferred measure and why?-----

\_\_\_\_\_

11. What constraints/challenges if any, do you face in marketing of your products?------

-----

12. What do you say regarding the claims in the market that tree farmers usually sell juvenile wood and at lower price?------

## THANK YOU FOR YOUR TIME AND COOPERATION!

Appendix 5: Guiding questions to timber dealers (middlemen, timber yard operators, sawmillers& transporters)

Date	of interview:	Name of Dis	strict:
Area	Name		
Name	e of the Dealer	Mob #:	
1.	How long have you been	n in this business?	yrs
2.	what sizes of timber do	you sell?	
	What species/type of wo	od do you sell?	Who
	are your main customers	?	Wild
3.	What is the unit of meas	ure do you use whenever yo	bu buy/sell your products?
4.	What are other types of	measure do you know?	
5.	What is the most preferr	ed measure and why?	
6.	What are the advantages selling timber/logs?	and disadvantages of using	different measures in buying and/or
	Unit of measure	Advantages	Disadvantages
	M3		
	Ft3		
	Running meter		
	Weight		
	Cord		

7.	If you come know that a unit of measure that you don't use (either because you are not aware of it or don't know it) is more profitable than the one you use, will you be willing to shift to the new one (Yes or No)If No why?If No why?
8.	What is price of timber per unit measure?
9. 10.	Do actually set the price for your timber you sell? YES/NO If Yes, how do you set the price? Mention main criteria
11.	If No, who sets the price for your timber? <ul> <li>Market forces</li> <li>Government</li> <li>Other (specify)</li></ul>
12.	What constraints do you face in marketing of your products/timber?
13. 14	Is juvenile wood in the market? (Yes or NO)
15.	What is its quality level (low, medium or high)
16.	Do you sell timber by pieces? YES/No
17.	If Yes, Why? Give three main reasons:

- 18. There is a concern that selling timber by pieces is more disadvantageous than selling by standard measure (M<sup>3</sup>), is this true in your experience? YES/No.
- 19. If Yes, why do you and/or other sellers sell timber in pieces?

Appendix 6: Guiding questions to timber users (carpenters, contractors, planers)

Date of	f interview: _	Name of District:
Area N	lame	Category: (Carpenters, contractors, planers)
Vame	of the User _	Mob #:
1.	How long hav	ve you been in business?yrs
2.	What are the	sources of timber you use?
		(sawmills, yards, farmers, middlemen)
3.	How do you	perceive the quality of timber that you buy: too low, low, medium, high
4.	If it is too lov	v, what is the major problem?
5.	Have you me the problem?	t with over size or under size timber? (Yes or NO); if Yes, how serious is
6.	Do think it is	advantageous or disadvantageous to grade timber before selling?
7.	Will you be v YES/NO	villing to buy graded timber at differentiated prices?
8.	If No, why?_	
9. 10	Do you plane <b>Don't know</b> / What is the u	timber before use? If yes, how much of the thickness goes into shavings? Just little/Too much
10.	(ru	inning meters, per pc, average length,orft, ft <sup>3</sup> or m <sup>3</sup> , weight,)
11.	What are othe	er types of measures do you know?
12.	What is the n	nost preferred measure and who determines this (buyer or seller)
		why?
13.	Do you know	the dis/advantages of using different measures?
14.	If you come l aware of it or to shift to the	know that a unit of measure that you don't use (either because you are not don't know it) is more profitable than the one you use, will you be willing new one?If not why?
15.	How you rate	the prices of timber: low, medium, high
16.	If you were to	o rank timber sources, who offers the best timber in terms of quality?
17.	Why do think	s/he does so?

different prices? (Yes or No) if yes what are the prices per sort	
19. Who are your customers?	
20. What constraints do you face in marketing of your products?	
21. Have you come across juvenile wood is in the market?(Y	(es
What is the price /unit measure	

# Appendix 7: Tally sheet

## Timber yards and saw mills

Date of interview
Name of District:
Area Name:
Name of the enterprise:
Mob #:

## Nominal sizes

	1	2	3	4	5	6	7	price/unit
Sizes	A	ctual s	sizes: Thi	ckness	(mm) xW	vidth (mn	n) xLengt	th (m)
25x50 (1x2)								
25x175(1x3)								
25x100(1x4)								
25x125 (1x5)								
25x150 (1x6)								
25x200 (1x8)								
25x225 (1x9)								
25x250 (1x10)								

	1	2	3	4	5	6	7	price/unit
50x50 (2x2)								
50x175(2x3)								
50x100(2x4)								
50x125 (2x5)								
50x150 (2x6)								
50x200 (2x8)								
50x225 (2x9)								
50x250 (2x10)								

Other sizes	1	2	3	4	5	6	7	price/unit

# Appendix 8: List of Government Officials consulted in the study areas

S/N	Name of the person	Organization	Title/position	Contact No.
1	Henry Mang'enya	TCCIA-Mufindi	Chairman	0754 410103
2	Boniface Mlinga	TCCIA-Mufindi	Treasurer	0755 420982

2			DC	0704 20 60 50
3	EvaristaKalalu	Mufindi District	DC	0784 386950
4	Ntinika, Paul, W.	Mufindi District	DED	
5	PiensiaNyema	Mufindi District	HRO/Ag. DED	0767 626133
6	EllahMsingwa	Mufindi District	Legal Officer	0655 824405
7	Raymond J. Kalinga	Mufindi District	Trade Officer	0754 667846
8	Ubisimbali, J.G.	Mufindi District	DNRO	0754 016725
9	ShabaniAdha	Mufindi District	DFO	0754 452477
10	Benson Kilangi	Kilolo District	DED	0754 228595
11	Abdul Manga	Kilolo District	Legal Officer	0757 056601
12	Julius Ndunguru	Kilolo District	DFO	0782 229563
13	Malala, P.	Njombe District	DED	0767 633415
14	HurumaMhidze	Njombe District	DFO	0763 598028
15	Dustan Shimbo	Njombe District	Legal Officer	0754 505365
16	Workshop participants*	Various	Various	Various

\* The lists of workshop participants are available at TCCIA-Mufindi Branch Office.



Participants of stakeholders' validation meeting held on 28th October 2013 at Mafinga.

## TANZANIA CHAMBER OF COMMERCE, INDUSTRY AND AGRICULTURE (TCCIA) MUFINDI BRANCH P.O.BOX 315 MAFINGA IRINGA

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## COMMISIONING AN ADVOCACY PROJECT

### TERMS OF REFERENCE FOR CONSULTANT

### **1.0 Project Title**

Accurate Measures for Selling Timber

### 2.0 Background

Mufindi, Njombe and Kilolo Districts are among the largest districts of Iringa and Njombe regions. Mufindi has a total area of 7,112 Square Kilometers (The Office of Planning Officer, Mufindi district, 2010). These districts are among the few districts with vast tree plantations and natural reserves in the country. The Central Government forest reserves in Mufindi have a total of 22,457 hectares (Tanzania Bureau of Statistics, 2007). Government and the community have put more efforts in planting trees such as pines, eucalyptus and cypress. Hence, the geographical and ecological system of these districts gives the reasons for them to be among few districts with high timber production in Tanzania.

Marketing of timber in Mufindi, Njombe and Kilolo districts has been a great problem which draws attention to many stakeholders and partners. Inaccurate measures are being used in selling timber in these districts. The sellers sell their products per piece instead of cubic meters, this result to huge loss among the timber sellers as described in the example below.

There is a need to formulate the by-laws which will make sure that, timber sellers markets their products in cubic meters which generate a viable profit margin rather than selling per piece. In addition to that, there is a need to conduct the stakeholders and partners meetings in order to create awareness on the issue and get consensus on the draft report produced by the consultant.

Therefore, the problem to be addressed under this project is the use of inaccurate measurements in selling timber (selling the timber per piece instead of cubic meters) resulting from absence of by-laws to monitor timber marketing in Mufindi, Njombe and Kilolo districts and unawareness of timber producers and sellers on the benefits of marketing their products per cubic meter as a standard measure.

The proposed consultant will have to design the research framework on how to gather information in the use of inaccurate measurements of selling timber from different stakeholders and partners in the 3 districts selected so as to ensure that the problem is addressed successfully then develop a report and facts for TCCIA Mufindi to influence the government to formulate by-laws which will ensure timber is sold using International standard measures.

## 3.1 Overall objective

The purpose of the project is have a policy position paper to influence Local Government Authorties (LGAs) in Mufindi, Njombe and Kilolo districts to formulate by-laws that will guide timber marketing in the proposed districts and thus increase production for economic growth and employment creations.

## **3.2 Specific Objectives**

- 3.2.1 To identify and segment stakeholders to ease data collection on the impact of the problem and propose changes to government
- 3.2.2 To develop an advocacy proposal (position paper) to formulate by-laws for change on the practice of timber selling
- 3.2.3 To guide TCCIA Mufindi on better ways to strengthen the relationship with LGAs and Central Government, and build effective network among the timber buyers, sellers and producers.

### 4.0 Scope of Work

The consultant to be appointed to undertake this assignment will work with the Secretariat of TCCIA Mufindi whose Chairperson will coordinate the exercise. The consultant will interact with BEST-AC Programme Officer for advice and guidance in the process of preparing the report.

The consultant has to come up with a strong policy position paper that will be used to persuade the government on the proposed amendments.

The tasks and activities to be carried out by the consultant under this project are as follows:

- 4.1 To prepare the concept note (inception report) to be presented during the project launching event.
- 4.2 To prepare data collection tool and conduct interviews, focus group discussions in the selected 3 districts.
- 4.3 To recruit, train and supervise research assistants on data collection in consultation with TCCIA-Mufindi Branch.
- 4.4 To analyze the data collected and prepare a draft advocacy research report.
- 4.5 To facilitate and present the draft report at the Stakeholders' validation meeting.
- 4.6 To prepare a policy position paper and a 2 page factsheet on the findings.
- 4.7 To facilitate the dialogue with 3 district councils/LGAs.
- 4.8 To participate in both TV and radio programmes.

## **5.0 Expected Outcome and Deliverables**

The consultant is expected to deliver the following:

- 5.1 A concept note/inception report for raising awareness to partners and stakeholders during project launching.
- 5.2 Training of 10 research assistants and ensuring that, the data collection in three districts is done successfully.
- 5.3 A well prepared research draft report on complete findings from desk review, interviews and focus group discussions.

- 5.4 A presentation of findings and recommendations suitable for TCCIA Mufindi to use for later meetings with partners and stakeholders.
- 5.5 A final report with compiled comments from TCCIA Mufindi, stakeholders' comments and BEST-AC.
- 5.6 A policy position paper with a 2 page factsheet to the LGAs.

## 6.0 Competency and Expertise Requirements

The minimum requirements and preferences requested for the consultant to carry out this project are:

## 6.1 Education qualifications

- Master's degree in Forestry, Marketing, Business Administration, Social Sciences or any other related field or its equivalent from a recognized institution.
- PhD will be an added advantage.

## 6.2 Experience required

- At least 3 years' experience in the field. Attestable experience working with public and private sectors up-country in matters of business environment.
- At least 3 years' experience and competence in conducting research methodologies, design research tools, and good data analysis.
- Experience in advocacy projects is highly desired

## 6.3 Technical skills

- Strong organization and networking skills
- Knowledge on timber production and marketing
- Strong proposal writing and negotiation skills
- Excellent report writing and presentation skills.

## 7.0 Time framework

The proposed time to carry out this project is six months, from date of signing the contract. The consultant should be available for the whole period of project implementation. After signing the contract, the consultant will provide an Inception report with the work plan for the project implementation.

## **8.0 Reporting Requirement**

The consultant will be required to report to the Project Coordinator of TCCIA Mufindi and designated BEST-AC staff. At the completion of all activities assigned, the consultant will be required to compile the reports on activities done so far to get the comprehensive final report.

## 9.0 Budget

The consultant will prepare a draft budget which will be discussed with TCCIA Mufindi Branch Task Force in collaboration with BEST-AC staff.

The payment conditions will be in accordance with TCCIA Mufindi and BEST-AC's guidelines.

**Contact:** 

HENRY MANG'ENYA, CHAIRPERSON, TCCIA MUFINDI BRANCH, P.O.Box 315 MAFINGA

Email: <a href="mailto:tcciamufindibranch@gmail.com">tcciamufindibranch@gmail.com</a>

Mobile: +255 754 410 103

Quantity of timber transported 2012		1 piece = 150 Tshs	LG levy collection (Tshs) within a cessy range of 2-5% of buying price.				
Month	No. of pcs	m³	LG levy collected/pc	2% cessy/m <sup>3</sup>	3% cessy/m <sup>3</sup>	4% cessy/m <sup>3</sup>	5% cessy/m <sup>3</sup>
January	118,750	3,865	17,812,500	30,920,000	46,380,000	61,840,000	77,300,000
February	111,015	3,679	16,652,250	29,432,000	44,148,000	58,864,000	73,580,000
March	51,730	1,860	7,759,500	14,880,000	22,320,000	29,760,000	37,200,000
April	62,270	1,784	9,340,500	14,272,000	21,408,000	28,544,000	35,680,000
May	108,481	3,717	16,272,150	29,736,000	44,604,000	59,472,000	74,340,000
June	54,500	1,675	8,175,000	13,400,000	20,100,000	26,800,000	33,500,000
July	471,281	13,977	70,692,150	111,816,000	167,724,000	223,632,000	279,540,000
August	822,048	22,883	123,307,200	183,062,400	274,593,600	366,124,800	457,656,000
September	472,044	12,853	70,806,600	102,824,000	154,236,000	205,648,000	257,060,000
October	183,575	4,798	27,536,250	38,384,800	57,577,200	76,769,600	95,962,000
November	758,196	14,316	113,729,400	114,528,000	171,792,000	229,056,000	286,320,000
December	757,585	14,448	113,637,750	115,584,000	173,376,000	231,168,000	288,960,000
Total	3,971,475	99,855	595,721,250	798,839,200	1,198,258,800	1,597,678,400	1,997,098,000
		US\$	372,325.78	499,274.50	748,911.75	998,549.00	1,248,186.25

Appendix 10: Indicative analysis of revenue scenarios using different timber measurement units.

Source: DFO's Mufindi District (May, 2013).