

Kenya's Water Towers Protection and Climate Change Mitigation and Adaptation (WaTER) Programme

## A GUIDELINE FOR MARKET SURVEYS FOR FARM FORESTRY TREE PRODUCTS IN KENYA



Joshua K. Cheboiwo, David Langat, Paul Ongugo and Jonah Kipsaat



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**Cover captions:**

Timber yard in Kakamega town (left)

Firewood trader riding a bicycle along Eldoret-Kaptagat (right)

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## PREFACE

Emergence of forest enterprises as viable alternative land uses in the country calls for KEFRI to package information in a simple and user-friendly format for use by tree growers and other actors in the forest sector in their decisions on forest related business. This is because forest enterprises are competing with alternative land uses for scarce land and other inputs to meet land owners subsistence and income needs. Market information will therefore play a crucial role in guiding farmers and other land owners' decisions to invest in commercial oriented forest activities. Thus generation of market related information starts with well-informed market surveys that capture the desired data and information. Some of the critical information needed are tree product market niches, product specification, prices, quantities demanded, key players and policy and legal environment that govern tree product trade.

Market information is of critical importance to communities, individuals and investors with interest in investing in forest sector in the country. KEFRI in recognition of importance of tree product market information initiated regular market survey studies since 1999 to date. This booklet is therefore developed to guide stakeholders with interest in forests to undertake simple market surveys in the production to consumption market value chain for tree products. The guideline also aims to provide information for mapping the marketing chains of specific tree product flows to the consumers.

The guideline is a useful tool for forestry extension officers and other grass root actors including farmers who currently access very limited market information related materials in terms of booklets, manuals, pamphlets, and posters. The production of this guide will assist in addressing some of the inadequacies in market surveys and information gathering gaps between researchers, key stakeholders the extension agents and farmers.



Ben E. N. Chikamai (PhD)

**Director, Kenya Forestry Research Institute**

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The authors thank the Government of Kenya through Director KEFRI Dr. Ben Chikamai and the European Union through the Water Towers Project for facilitating preparation, editing and publication of the guideline. We acknowledge Dr Daniel Nyamai and Dr P. Oballa for their support in market survey activities. We also acknowledge KEFRI Editorial Committee namely; Bernard Kigomo, Dorothy Ochieng, Josephine Wanjiku, Paul Tuwei, and Bernard Kamondo for editing the manuscript. Gratitude goes to Joyce Okumu and Richard Siko of Rift Valley Eco-region Research Programme - Londiani for their contributions in the preparation of the booklet.

## **1.0 INTRODUCTION**

In the past, farm forestry in Kenya was mainly practiced for production of goods and services for subsistence consumption. However, various factors that include high demand for forest products, and decrease in forest cover and productivity, have led to emergence of farm forestry as alternative source of forest products that have potential for commercialization. Currently, major products from trees grown on farms include; round wood, timber, firewood, charcoal, construction wood, poles, posts, fruits, nuts, and honey.

Other than when trees are grown in woodlots, plantations or orchards, trees on farms are usually grown without much consideration for their market potential or market value. To motivate farmers to grow trees on farms for forestry enterprise, markets should provide opportunities for farmers to make money from sale of surplus or targeted market products. Key market niches for various tree products from farms include sawmills, pole treatment plants, tea factories, institutions and rural households, construction sector developers, furniture sector, and urban households. To maximize benefit from the target markets, farmers require to have relevant marketing information to guide production of tree products required by buyers in terms of products quality, specifications, and quantity.

Marketing involves various inter-connected activities that include; production, harvesting, processing, sorting/grading, sizing, assembling, transportation, storage, distribution, advertising and sale all of which have an influence on quality and price of the product. Marketing activities are also influenced by information exchange and financing. Marketing as a function covers wide range of services undertaken when moving products from production farms (woodlots and plantations) to various consumption points within and outside a country.

Good marketing infrastructure and efficient delivery of marketing information are beneficial to tree growers and traders as they facilitate efficient spatial distribution of products from rural areas to urban centres and between markets. For markets and marketing to operate efficiently they need supportive policy, legal, institutional, macro-economic and infrastructural environment. Efficient markets will enhance socio-economic development, income generation and delivery of tree products to where they are needed.

Despite the acknowledged importance of marketing farm forestry products, procedures for collecting reliable information data on farm forestry market value chain is inadequate. The aim of this guideline is therefore to provide steps necessary in undertaking market surveys for various forest product from production to various consumption points. The guideline also provides information for mapping key players who facilitate marketing functions at various stages of product flows. The guideline will be useful to researchers and other stakeholders who have interest in mapping markets and marketing of forest products. Groups with interest in tree products market information include; tree growers, and women and youth groups involved in forest related income generating activities (IGAs).

## **2.0 MARKETS AND MARKET CHAINS TERMINOLOGIES**

### **2.1 Market Terminologies**

#### **2.1.1 Markets**

A market is a medium that allows buyers and sellers of a specific good or service to interact in order to facilitate exchange. A market therefore can be a physical place such as markets places and bazaars, or virtual such as online markets where buyers and sellers interact without meeting.

Markets can be categorized as primary or secondary markets.

1. Primary markets are where farmers meet traders to sell their products at farm gates or markets places.
2. Secondary or terminal markets are located in urban areas where products are delivered through wholesalers or retailers to consumers.

#### **2.1.2 Distribution Channels**

Distribution channel refers to market agents (producers, traders and consumers) and indirect actors such as marketing boards or government agencies that enable movement of products and information from the producer to the consumer. Market agents and indirect actors create a distribution channel that also comprises transport and storage facilities used for movement of the product between producers and consumers.

#### **2.1.3 Market Chain**

A market chain is an interconnected group of suppliers that handle a product from the pro-duction point to the consumption outlets. Market chain can therefore be defined as the people, process, and technology deployed in production, distribution and marketing of goods.

#### **2.1.4 Market Environment**

Market environment are the various factors and conditions that influence markets and marketing of tree products such as demand, production, processing and distribution of products. These factors include; policies, laws, economic status, political status, socio-cultural status and technological capacities in the specific region or country.

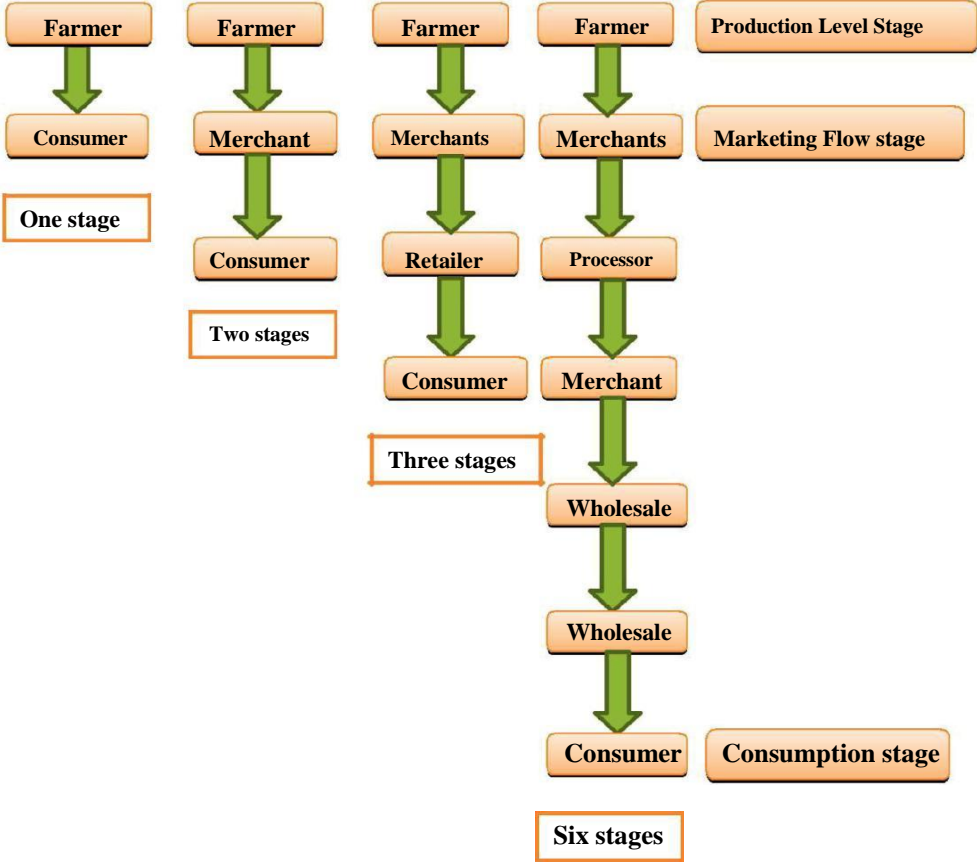
### **2.1.5 Marketing**

Marketing is defined as a function undertaken by a market chain agent to make available a product needed by customers. It can also be defined as a technique available to producers or merchants to: identify what customers need and want; and find out what the competitors are offering; and help them meet the needs and wants of customers.

### **2.2 Market Chains for Tree Products**

In Kenya the most traded tree products from farms are; charcoal, sawnwood, sawlogs, construction polewood, transmission polewood, firewood and pulpwood. Market chains are identified by following specific tree product movement from production to consumption points. To identify market chain of each of these products, there is need to record intermediary players, value addition processes, pricing procedures, prices, transport cost, processing or manufacturing cost, and mode of transport at various levels. The market environment and associated opportunities and constraints also need to be documented. The products can be moved several stages from production site to the final consumer depending on; type of product, transformation levels, number of players, and distribution distances. Typical stages for tree products from farms vary from two to five (Figure 1).

In Figure 1 for example the farmer is assumed to process the charcoal before interring the market value chain otherwise the stages has to include processor immediately after the farmer.



**Figure 1:** Typical tree product market chains in Western Kenya



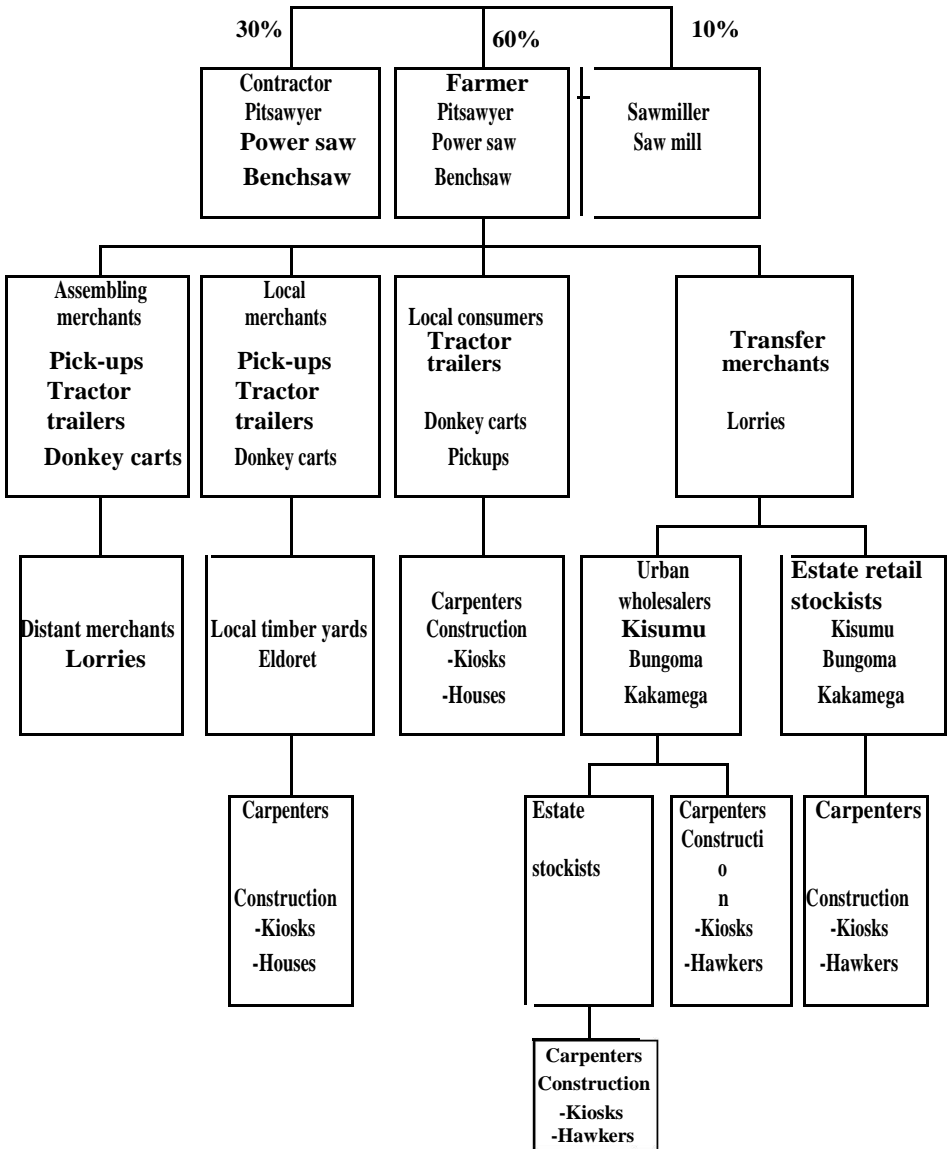
### **2.3 Market Efficiency**

The most efficient market systems are those that enable greater share of final consumer price flow to the producer. The efficient market system ensures that each player in the market value chain gets competitive share for their products or services. Several parameters are used to evaluate market efficiency for specific products. However, only two namely; GMM and MPC are commonly used for simple analysis of marketing efficiency. The Gross Marketing Margins (GMM) measures distribution of consumer price among the marketers in the value chain. Market Price Correlation measures association between supply production areas and the final market outlets that measure the rate at which markets adjust to price shocks at both production and outlet sites. Details on how to evaluate market efficiency using GMM and MPC are Appendix 1.

### **2.4 Distribution channels**

Product distribution channels are combinations of alternative market routes that a product can flow through from production site to the various market outlets. The distribution channels are influenced by various factors including; type of marketers, volume of trade, and modes of transport.

Figure 2 shows a distribution channel for sawn produced from farms in western Kenya that show that 60% of the roundwood harvested is processed by the farmer by hiring processors, 30% sold to contractors or merchants and 10% sold to saw millers. The roundwood is process into sawnwood using various technologies before entering the market value chain. Similarly, other products such as charcoal, transmission poles and firewood follow such distribution channels with slight modification depending on the product uniqueness.



**Figure 2:** Typical sawnwood distribution channels in Western Kenya

## **2.5 Key tradeable products**

In western Kenya the key tradable products that can be subjected to market surveys include:

- Roundwood standing or felled
- Sawnwood
- Firewood
- Charcoal
- Transmission and construction poles
- Fencing posts

## **3.0 PROCEDURES FOR CONDUCTING TREE PRODUCT MARKET SURVEYS**

A successful market survey of forest products should be undertaken using the following phases

### **3.1 Reconnaissance surveys**

Reconnaissance surveys should be undertaken before conducting the main market survey. Reconnaissance surveys are rapid appraisals organized to meet critical market chain actors including; tree growers, public officials, forest product traders, NGO staff, farmers, tree product processors, transporters, wholesalers, retailers and consumers of tree products. Reconnaissance survey is mostly an information gathering or exploratory process where key actors in tree products trade are identified prior to formulation of the main survey work. It is also at this stage that literature reviews on environmental conditions such as policies, laws, standards and others factors that influence market performance is done.

The reconnaissance survey will facilitate identification of major areas that supply and consume specific tree products within regional and national market outlets.

### **3.2 Identification of major tradable products**

Marketing is carried out in cases where there is production of specific forest products in excess of the subsistence needs of the producers. Tradable product identification can take place at the farm or market places through reconnaissance surveys and discussions with farmers and tree products traders. In this product identification phase, preliminary information on movement of specific forest products along market chains is collected from various actors including; producers, harvesting crews, transfer traders, transporters, wholesalers and retailers. Depending on the objectives of the survey the market value chain of all or few of the tree products can be done.

**3.3 Selection of study sites, main players and market outlets** Selection of study sites and actors will be based on information from the reconnaissance survey. The selection criteria should be based on: clearly defined products; the number of processing, bulking and transportation agents; and the number of outlets in a given region. Since it is not possible to survey all players and market outlets because of the high costs selection process to identify those to be interviewed. The selection process takes into account the number of players and the volume of business they handle to decide on the number of players and markets to be surveyed. In most cases market surveys target few samples of representative farmers, processors, traders, transporters, wholesalers, retailers and consumers in the region of interest for collection of desired detail information.



**Plate 1:** A sawnwood market outlets stocking assorted sizes.

### **3.4 Selection of specialized markets**

Specialized markets re categorized as: those that use specific tree products or materials on continuous basis as inputs; or those where value addition processing on wood materials take place. These specialized markets include; large industrial enterprises such as tea factories, pulp and paper mills, wooden transmission pole treatment plants, textile plants, and food processing industries. In cases where specialized markets are few, all of them can be sampled during a survey.

## **4.0 SURVEY METHODS**

Tree product market surveys involve use of various tools such as structured questionnaires, semi-structured questionnaires, informal discussions and use of checklist depending on the complexity of the survey. Combination of structured questionnaire and informal discussions is highly recommended as it provides room for extracting more information that may not be possible with use of one method. Combination of methods also provides a means of verifying information from respondents.

There are two ways of composing and administering questionnaires:

1. A questionnaire can be divided into several sections that target to solicit information from specific markets actors in a market value chain. Enumerators fill the parts relevant to specific respondents.
2. A questionnaire developed for specific market agents to be administered by one or separate enumerators.

Cost consideration may favor a combined questionnaire set but the sponsor of a market survey and their core teams will decide the most appropriate method to use.

### **4.1 Size of the questionnaire**

It is advisable that content of the questionnaire be kept minimal. It should not take an inter-viewer more than half an hour to administer a questionnaire to respondent.

### **4.2 Questionnaire testing**

Before interviews are undertaken, it is essential that the questionnaire is tested. This is done during pre-testing and all unclear or ambiguous sections are revised.

### **4.3 Information to be captured in a market survey**

There are crucial issues about tree products that must be captured by the questionnaire or interview for purposes of assembling market information.

These issues include; production patterns, product specification, quantity flows, production costs, farm gate prices, transport mode, transport costs to outlets, buying and selling prices in each stage in the production to consumption value chain (farm gate, assemble points, wholesale outlets, retail outlets) and policy and legal environment, among other factors.

## **5.0      **PROTOCOL TO BE OBSERVED DURING MARKET SURVEY****

### **5.1      **Introductory phase****

The surveyors (sponsor) have to introduce themselves and explain to interviewees the objective of the survey. The interviewer should explain to the interviewee their interest in production to consumption of tree products market chain. This introductory phase should include several key issues:

1. What is role or interest of enumerator in the sector
2. The sponsors interest in the matt
3. The scale/scope of the study (local, regional or national exercise)
4. What is expected from the stakeholders
5. How the stakeholders can benefit from the outcome of the study

### **5.2      **Letter of introduction****

It is advisable for the enumerators to present an introductory letter to the interviewee. The introductory letter should bear; the name and logo of the sponsor, name of the enumerator, and contents that address issues listed in 4.1. This introductory letter will give confidence to both the enumerator and the interviewees on the official status of the exercise.

### **5.3      **Assistance of local opinion leaders****

It is highly recommended that the survey team consult local opinion holders such as the chief, village elders, market supervisors, local technical officers, and other locally respected institutions and offices. This consultation will enable the team get insights to the local conditions and device strategies to ensure success of the market survey. It is with such consultation that the team can get assistance in recruiting local assistants who are conversant with the target issues and have confidence of the local stakeholders.

## **5.4 Local assistants**

These are locally recruited assistants who accompany the team during the survey. Locally assistants should be: fairly educated, well informed on local culture and customs, and be well known and respected by the people in the target areas. They should undergo some rapid training on tasks they will undertake and their roles clearly spelt out.

## **5.5 Conducting the interview**

It is advisable that the team and the interviewee develop rapport by exchanging pleasantries and introduction of the subject matter before the actual interviews begin. Prior discussion will generate some convergence of interest that lays ground work for a successful interview

## **5.6 Recording of notes**

During the interview the interviewer should have a note book to record crucial issues that emerge from the interview. This is because the questionnaire usually captures core pre-selected issues only thus leaving out other relevant issues and experiences that can only be captured through discussions. The notes taken will become handy during interpretation and analysis of the data captured. Use of recorders is optional tools that need to be agreed upon with the interviewee.

## **5.7 Routine surveys**

It is advisable to carry out regular market surveys to update information on changing patterns of trade and prices for key tradable tree products. It is therefore advisable to have reliable contacts in key places such as industries, market outlets and offices. The survey team needs to have telephone numbers and emails addresses of the contacts persons or institutions for regular consultation and discussions. Long term contacts will provide reliable information and linkage to new actors in the tree market value chain. Such relationship also builds trust between the survey team and actors after several encounters and information sharing. Such relationships will encourages market actors to freely share information and have confidence in the market survey and the persons conducting it.



## **5.8 Concluding remarks**

At the end of the interview it is good practice to give the respondent a word of thanks for their time and contribution to the cause of the tree product market survey. Exchange of contacts and other pleasantries are also crucial for laying ground for future visits.

## **6.0 POST MARKET-SURVEY ACTIVITIES**

### **6.1 Methods for analyzing market data**

**Profitability analysis:** provides critical information that informs tree growers of profit generated as compared to competing enterprises

**Trend analysis:** measures movement of prices and market growth in the past based on knowledge and perception of key players to inform future decision to expand or reduce production

**Volume analysis:** provides information on the size of market to absorb specific products hence enable growers to manage over-production and under-production

**Market margin analysis:** provides information distribution of the final consumer price among players and services provided hence addresses the common feeling that tree growers are exploited by traders

**Market efficiency:** measures performance of marketing systems to inform interventions to lower costs and enhance incomes

## **6.2 Results from market survey**

Results from market surveys are many but the following are key to tree growers in the region:

- Understanding key players and their roles in the market value chain for specific products
- Regulatory requirements such as movement permits and conditions that need to be adhered to
- Documentation of costs and income in the market value chain for specific products
- Differentiated prices along the market value chain and causal factors
- Buyers needs and preferences on specific products
- Prices on offer in the market value chain and how the farmer can improve incomes
- Key market niches and remuneration for specific products
- Market opportunities and any major risks

## **6.3 From survey to action**

To translate marketing information generated into desired changes the following action need to be undertaken:

- Framework of action to move from the current status to better outcomes
- Exchange visits to better performing entities to upgrade methods and ideas
- Linking producers to key consumers
- Identification of marketing champions to support continuous market surveys and information gathering
- Development of business plans to enable players access loans and other facilitation
- Piloting and scaling up of viable business plans

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## APPENDIX 1: EVALUATION OF MARKETING EFFICIENCY FOR FOREST PRODUCTS

### 1.1 Gross marketing margin (GMM)

The gross marketing margins (GMM) measures the distribution of consumer price among the market player in the production to consumption market value chain. Table 1a show the players in three market chains for charcoal produced in Malindi, Kwale and Tana River counties. The retail price taken as consumer price in Mombasa is KES 1400, Nairobi (KES 2,000) and Malindi (KES 1,400 and 1,500) that is taken as 100%. The methods work backwards by taking out the gross incomes share of each market player till the gate price. Table 1a show the breakdown of consumer price among key players for charcoal moved from Tana River, Kwale and Malindi counties. It shows that for Malindi charcoal the gate price accounted for 43%, transport costs (14%), transfer merchant (21.4%) and retail merchants (24.1%). The transport and delivery merchant shares highly influenced that price share of the consumer price for the retailer take home remained relatively stable indicating a competitive environment at retail levels (Table).

**Table 1a:** Breakdown Charcoal prices and transport costs in KES and GMM (%)

	Malindi - Mombasa			Kwale - Mombasa			Tana River - Nairobi		
	10*	Share (KES)	GMM	10*	Share KES	GMM	15*	Share KES	GMM
Lorry capacity	150			150			350		
No. of bags	150			150			350		
Gate price KES	600	90,000	43	500	75,000	33	700	245,000	35
Transport	30,000	30,000	14	45,000	45,000	20	85,000	85,000	12
Delivery merchant	1,100	45,000	21.4	1,200	60,000	27	1,500	195,000	28
Retailer merchant	1,400	45,000	21.4	1,500	45,000	20	2,000	175,000	25

\*Lorry carrying capacity in tonnes

## 1.2 Market price correlations (r)

The market price correlation measures the price association between key final market outlets. It measures the rate at which markets adjust to price shocks at both production and outlet sites. For example the gate price of KES 500 per bag for 40ks for charcoal produced in Kesses Division of Uasin Gishu County for the month of April 2016 and its relationship to those of selected markets taken at the same period. It compares the degree at which charcoal prices move against each other in the selected markets. For example when Eldoret market price is when compared to Eldoret prices the score I a perfect correlation.

The calculation is complex and usually done by mathematical functions that are available in simple calculators or computer packages. Table 1b shows market price correlations for charcoal between selected market outlets. It is based on mean bi-monthly price records for charcoal in the selected markets. In simple terms the results show that charcoal trade between these markets are highly integrated because their market correlations are high and consistent. The high price correlation between regional markets can be attributed to good road network and telephone services that enable fast vehicular and information movements between production areas and outlets. Kisumu, being the largest market in the region for forest products is highly integrated to the production site price as compared to other regional markets.

**Table 1b:** Mean bi-monthly price correlation for charcoal in selected market outlets

Markets	Eldoret	Kisumu	Kakamega	Mbale	Bungoma	Nairobi
Eldoret	1	0.868**	0.833***	0.688***	0.897***	0.929***
Kisumu		1	0.966***	0.822***	0.901***	0.960***
Kakamega			1	0.959***	0.789***	0.812***
Mbale				1	0.761***	0.716***
Bungoma					1	0.884***
Nairobi						1

\*\*\* Highly correlated



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