

**KENYA AGRICULTURAL COMMODITY EXCHANGE LIMITED (KACE)**

**Reaching the Poor in Rural Kenya with Market Information: A Case Study of a Market Information System**

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**Executive Summary**

The lack of market information represents a significant impediment to market access especially for smallholder poor farmers: it substantially increases transaction costs and reduces market efficiency. For any one crop, the marketing chain consists of multiple middlemen, each taking a margin at every stage of the chain, and price variations in space and time are often large and erratic.

This paper highlights a case study of a market information system (MIS) developed by the Kenya Agricultural Commodity Exchange Limited (KACE), a private sector firm, for collecting, processing and disseminating relevant and timely market information especially targeted at smallholder farmers.

The MIS involves harnessing the power of modern information and communication technologies (ICTs) to empower smallholder farmers to access markets more efficiently and profitably. The components of the KACE MIS are: rural based Market Information Points (MIPs), Market Information Centres (MICs), mobile phone Short Messaging Service (SMS), Interactive Voice Response (IVR) service, internet based Regional Commodity Trade and Information system (RECOTIS) and a Website ([www.kacekenya.com](http://www.kacekenya.com)).

KACE collects, processes, updates and disseminates market information daily to farmers and other market intermediaries through the MIS. Market information includes prices of commodities in different markets, and commodity offers to sell and bids to buy, as well as short extension messages. Through the offers and bids function, farmers are able to advertise their stocks (offers) for sale or their demands (bids) for farm inputs such as fertilizers and improved seeds. KACE monitors the usage of the MIS, and receives feedback which it uses to continuously refine and improve the system.

The application of ICTs is taking the market to the door-step or farm-gate of the farmer. It is hypothesized that when fully developed and widely applied, the KACE MIS will lower transaction costs and improve market efficiency, and thereby enhance smallholder farmer access to markets and lower market risks.

The usage of the MIS is, however, still limited as evidenced by the indicator statistics, in part because system development is not yet complete, and also because it has not yet been promoted

for widespread use. Nevertheless there is evidence that the system is beginning to yield benefits to the client users, who are both female (29%) and male (71%). For example, in Bungoma District in western Kenya, farmers who sold maize via the MIS achieved a higher average price of Ksh 1,219 per 90-kg bag (US\$ 181 per MT) as compared to those who did not at Ksh 1,000 per bag (US\$ 148 per MT) (22% more). In addition, during last year's maize harvesting season in the District, the average farm-gate price of maize at Ksh 1,000 was 150% higher compared to lows of Ksh 400 per bag (US\$ 59 per MT) during previous harvest seasons. Furthermore, there is apparent evidence from data collected in selected three markets that spatial arbitrage in the price of maize (a major staple crop in Kenya) between markets is narrowing over time. Although the price impacts can not be fully attributed to the KACE MIS, it is reasonable to assume that the awareness created by the MIS has contributed to this positive development in farm-gate prices. In the words of one SMS farmer user: *with KACE' market information, middlemen can no longer cheat us on prices. We are now able to bargain on a level playing field with middlemen, with our knowledge of prices.*

The main challenges facing KACE are threefold: how to ensure widespread use of the MIS that it has developed, the unreliable mobile phone network availability in remote rural areas where a majority of smallholder maize farmers live, which limits access to the SMS and IVR services, and the development of an SMS service with the second Mobile Phone Service Provider in the country, i.e. on the Kencell Communications Limited.

KACE's plans for the coming year are aimed at addressing these challenges so as to enhance the performance of the MIS to help smallholder farmers and small-scale commodity traders to increase their household incomes. Planned activities will focus on: up-scaling the development and usage of the MIS, establishment of a Village Phone Service to improve the mobile phone network accessibility in remote farming communities, exploring the use of the VSAT technology for information dissemination and the development of an SMS service with the Kencell Communications Limited.

A major lesson is that indeed information is power: smallholder farmers in rural areas are being empowered to bargain for better prices in the market place. Relevant and timely market information packaged and delivered by low-cost ICTs can improve the competitiveness of smallholder farmers in the market place for better prices, and provide a level playing field in the market place, not only between smallholder farmers and middlemen, but also between women and men players. Access to better markets and better prices mean better incomes for the farmer, ensuring food security and a means out of the vicious cycle of poverty and food insecurity.

As a private sector firm KACE initiated the development of the MIS from its own share capital. However, over time, the initiative has attracted funding support through various projects from a number of development partners including the USAID Mission in Kenya, the ACDI/VOCA of the USA, the Technical Centre for Agricultural and Rural Cooperation (CTA), the Rockefeller Foundation, CAB International, the International Crops Research Institute for Semi Arid Tropics (ICRISAT), Kenya Business Development Services, and the Regional Land Management Unit (RELMA in ICRAF). The long-term sustainability of KACE MIS is based on generation of sufficient revenue from the services rendered. KACE has introduced modest fees and commissions on the volume of commodity trade conducted through MIPs to train farmers and other system users to pay for the services rendered. In addition, KACE has signed revenue-sharing agreements with SMS and IVR service providers. It is planned that when the MIS services are fully developed, promoted and widely used by clientele, they will generate sufficient revenue to sustain themselves.

## **1. Introduction**

### ***1.1 Agricultural markets do not work for poor farmers***

Agricultural markets in Kenya as in Africa do not work efficiently for poor farmers. Following the market liberalization reforms undertaken by the Government in Kenya in the late 1980s and early 1990s, agricultural markets are characterized by the following constraints among others: long chains of transaction between the farm-gate and consumers; poor access to appropriate and timely market information; small volumes of products of highly varied quality offered by individual smallholder farmers; and poorly structured and inefficient markets.

The lack of market information represents a significant impediment to market access especially for smallholder poor farmers: it substantially increases transaction costs and reduces market efficiency. For any one crop, the marketing chain consists of multiple middlemen, each taking a margin at every stage of the chain, and price variations in space and time are often large and erratic.

Liberalisation of agricultural markets has introduced new challenges to farmers, especially smallholder poor farmers. Government marketing boards can no longer guarantee the farmer the market for his produce. Equally, buyers of commodities from farmers (traders, processors or consumers) do not have sufficient information about commodity sources, or the quantities and quality of those commodities available and their prices.

Farmers are now facing markets which are neither competitive nor transparent, and they are greatly disadvantaged, especially those in remote rural areas. They have no incentive to increase the level of their production and productivity in order to alleviate the poverty in which many live.

### ***1.2 Market information can make markets work for the poor***

The development of institutional arrangements that are needed to make markets work better for the poor, especially those needed to lower transaction costs, improve market coordination and ensure availability of price information, is needed in order to improve access of the poor to new input technologies and output markets. In this regard, pro-poor market information is the key to making markets work for the poor in Africa.

Market information is needed for farmers to choose what commodities to produce, what technologies to apply for production, when to produce, for whom to produce, and when and at what price to sell. Market information also empowers the farmer with bargaining power for a better price in the market place. Without this, the farmers is greatly disadvantaged against middlemen and traders who often have better access to market information. In addition, market information can bring about stability in product supplies and prices in time and space.

In the absence of market information, it is common to find situations of artificial food scarcities, as food surpluses areas co-exist with areas of food deficits. This has the effect of lowering farm gate prices in surplus areas and raising the price of food for the poor in deficit areas (Adesina, 2004).

### ***1.3 Public sector delivery of market information has failed***

The traditional approach to providing agricultural information is through public extension services, but in Africa extension services do not work effectively, and in many instances they have collapsed (CABI, 2004). In a world Bank review of past extension projects in developing countries (Anderson and Feder, 2004) conclude that although public extension organizations are common in developing economies, they are often inadequately funded and their effectiveness is limited by many administrative and design deficiencies and challenges. Chief among these are the large scale and complexity of public extension operations, the important influence of the broader policy environment, weak links between extension and knowledge generation institutions, difficulties of tracing extension impact, problems of accountability, weak political commitment and support, the frequent encumbrance of extension agents with public duties beyond those related to knowledge transfer, and severe difficulties of fiscal unsustainability.

The World Bank has acknowledged that the large amount of money invested in the T&V system has had little impact. Nevertheless, reviews by the Bank show that there is demand for information in agricultural communities, and even some willingness to pay for it (Anderson and Feder, 2004). This presents a commercial opportunity for the private sector to invest in the provision of market information services.

### ***1.4 Revolution in information and communication technologies***

A communications revolution is occurring across Africa. This revolution is equally as powerful as the genetic revolution. The liberalization of the communications sector in many African countries has allowed cellular phone companies to enter rural areas. Previously under-developed and excluded villages are now able to access markets. This offers a new opportunity to test new models for reaching the rural poor with market information.

Modern Information and Communication Technologies (ICTs) now offer unprecedented potential to deliver information to poor rural communities, and thus contribute to alleviating food insecurity, poverty and transforming social and economic conditions. It has been said that “information technology, together with the ability to use it and adapt it, is the critical factor in generating and accessing wealth, power, and knowledge in our time” (CABI, 2004).

The ability of ICTs to increase search activities and eventually raise the quantity and quality of available information reduces uncertainty, lowers transaction costs and enhances market participation. The overall reduction of costs and the increase in efficiency will eventually have an impact on the development of food markets and on

food security. Market development is now seen as one of the prime drivers of agricultural development. For food security to improve, not only subsistence production needs to be increased, also cash income, savings and investments should grow and that implies more reliance on markets (Tollens, 2004).

## **2. The KACE Market Information System**

The key to Africa's green revolution is to link markets and technologies, with markets providing farmers with better incentives to use technologies (Adesina, 2004). In Kenya, the Kenya Agricultural Commodity Exchange Limited (KACE), a private sector firm, with support from some development partners is developing and testing a market information system (MIS) designed to link smallholder poor farmers to better markets. A similar model, adopted from KACE, is being replicated in Malawi with the recent establishment of the Malawi Agricultural Commodity Exchange (MACE) with the support from the Rockefeller Foundation.

The MIS involves harnessing ICTs to empower the smallholder farmer with low-cost relevant and timely market information to enhance the bargaining power of the farmer for a better price in the market place, and to link the farmer to markets more efficiently and profitably.

The KACE MIS consists of various components designed to link the farmer to market outlets at different levels of commodity value chains, from other farmers to traders, commodity dealers, processors and even exporters and importers. The components of the KACE MIS are:

- Rural market based Market Information Points (MIPs)
- District-level Market Information Centres (MICs)
- Mobile Phone Short Messaging Service (SMS)
- Interactive Voice Response (IVR) service
- Internet based database system
- Mass media (radio)

These components are briefly described below.

### *2.1 The MIP*

A MIP is an information kiosk located at a rural market centre where farmers go to sell and traders to buy produce. A MIP serves as a source of marketing information and intelligence, and also as a trading floor to link buyers and sellers of commodities in a transparent and competitive manner. Information is prominently displayed on bulletin and writing boards at a MIP. MIPs are operated by KACE staff. There are currently 11 MIPs in the following areas and regions: Embu and Machakos in Eastern Province; Murang'a and Karatina in Central Province; Eldoret and Kitale in Rift Valley Province; Chwele, Kamukuywa, Mayanja and Myanga in Western Province; Kisii in Nyanza

Province. Eventually, resources permitting, KACE will establish MIPs in all agricultural regions of Kenya, to link commodity surplus and deficit areas.

### *2.2 The MIC*

A MIC is established to manage and service a number of MIPs which are located in rural market centres which do not have electrical power supply and/or fixed landline telephone service to enable internet connectivity. A MIC is established at a District Headquarter. It is equipped with Information and Communication Technologies (ICTs): landline and mobile phones, fax and computer with email and internet connectivity. In areas where MIPs are located in market centres supplied with electrical power and fixed telephone services, the MIPs are equipped with the ICTs including internet connectivity. In this case MIPs are directly linked to the KACE Headquarters for information exchange, and a MIC is redundant. Currently, there is a MIC in Bungoma servicing the 4 MIPs in Western Province.

### *2.3 Providing market information at a MIP*

KACE headquarters in Nairobi sends market information to a MIC. The MIC downloads the information and prints hard copies which it distributes to MIPs. Where a MIP has a direct or internet link with the KACE Headquarters, information is sent direct to the MIP. Information is available at a MIP every market day. Users visit MIPs to view and use the information for free (charges are embedded into fees and commissions of trade transactions). Currently information provided includes: prices of different agricultural commodities in different markets in Kenya, regional (East African – Uganda and Tanzania) and (sometimes when in demand) international markets, and also information on commodity offers to sell and bids to buy.

### *2.4 Operating a Trading Floor at a MIP*

Writing boards are provided at a MIP and serve as a trading floor for displaying offers to sell and bids to buy commodities. Sellers are encouraged to place offers and buyers to place bids. KACE staff link sellers and buyers in an open outcry system. Supply and demand set prices in a transparent and competitive manner.

### *2.5 The Mobile Phone SMS*

SMS is text messages sent and received with mobile phones. KACE is harnessing this technology to disseminate market information and intelligence. KACE has developed an SMS market information service branded as *SMS Sokoni* in partnership with a leading mobile phone service provider. A farmer anywhere in the country where the Safaricom mobile phone network exists can in easy steps access market information like commodity prices in different markets, who is buying or selling what commodity, at what prices, where and when, as well as access extension messages using their Safaricom mobile phones. The user receives and pays for the SMS messages to the Safaricom Ltd. Each SMS message received currently costs the user KSh 7, paid to Safaricom Limited. SMS is

easy to use, reliable, convenient and low-cost. The information is updated everyday and hence is most current and timely to the user. KACE is in the process of developing a similar service with the Kencell Communications Ltd., the second mobile phone service provider in the country.

### *2.6 The IVR System*

In responding to the different client needs KACE has, in collaboration with an IVR service provider (the Interactive Media Services Ltd.), also developed and branded the *Kilimo Hotline*, where a user calls the 0900552055 hotline telephone number to access market information in voice mail. Any mobile phone or digital landline can be used to call the Kilimo Hotline number. This service is available in both English and Kiswahili and a caller follows an easy step-by-step pre-recorded voice prompt menu to choose the language and access the information. Commodities currently covered by this service include: maize, beans, potatoes, tomatoes, and cabbages. Each information call currently costs KSh 20 paid to the IVR service provider. Like the SMS Sokoni the IVR Kilimo Hotline service is low-cost, timely and convenient to use.

### *2.7 The RECOTIS*

KACE has developed an internet based RECOTIS for dissemination of market information. RECOTIS is an electronic database of clients interested in buying, selling, importing, exporting or distributing agricultural commodities.

KACE collects and disseminates marketing information on commodity offers, bids and prices through RECOTIS as frequently as it compiles the data, sometimes several times a day. Information recipients can dialogue back with the KACE information technologists for more information.

There are currently about 550 client recipients in the database, spread in about 26 countries around the world, the majority being in eastern Africa.

### *2.8 The Website*

The KACE website, [www.kacekenya.com](http://www.kacekenya.com) is being reconstructed to serve as a virtual library of market information and also as a virtual trading floor for commodities.

*Virtual library:* The content is being developed to include information on major farmers' organizations and their commodity interests, input suppliers, commodity traders / brokers, other marketing services (e.g. storage, transport, credit) providers, trade policies and tariffs, export quality requirements (e.g. to the European Union market), etc. The content will be continuously reviewed and updated, to keep it most current and relevant.

*Virtual trading floor:* An electronic platform is being developed where clients can place commodity offers and bids. KACE IT staff will facilitate trade transactions between clients in an e-commerce mode.

Through RECOTIS and the website, KACE clients are linked into Kenyan, regional (Eastern Africa) and international markets, facilitating them to transact export and import trade most efficiently.

### *2.9 Mass media*

KACE in conjunction with the Kenya Broadcasting Corporation (KBC) radio (the national radio service) has begun (in September 2004) disseminating price information on a limited number of commodities in selected markets daily except Sundays. The information is aired both in English and Kiswahili languages from Monday to Saturday at 9.10 am and 6.45 pm. According to KBC estimates about 5 million people listen to the radio program weekly. KACE updates the information on a daily basis. The KBC radio network covers the whole country even in remote areas, and is therefore widely listened to by the public, including smallholder rural farmers.

### *2.10 KACE data collection, dissemination and updating*

KACE collects, disseminates and updates market information in Kenya daily from selected markets where KACE has presence: Nairobi, Eldoret, Kitale, Bungoma, Nakuru, Karatina, Embu, Murang'a, Machakos, Kisii and Mombasa. It is planned that eventually all agricultural regions in the country will be covered, linking commodity surplus and deficit areas, thus facilitating the flow of commodities between the areas.

### *2.11 Financial sustainability*

Through the MIS, KACE is developing, testing and providing market information services targeted at smallholder farmers. These services are currently not provided by the government through its essentially collapsed extension service. As a private sector firm KACE initiated the development of the MIS from its own share capital. However, over time, the initiative has attracted funding support through various projects from a number of development partners including the USAID Mission in Kenya, the ACDI/VOCA of the USA, the Technical Centre for Agricultural and Rural Cooperation (CTA), the Rockefeller Foundation, CAB International, the International Crops Research Institute for Semi Arid Tropics (ICRISAT), Kenya Business Development Services, and the Regional Land Management Unit (RELMA in ICRAF).

The long-term sustainability of KACE MIS is based on generation of sufficient revenue from the services rendered. KACE has introduced modest fees and commissions on the volume of commodity trade conducted through MIPs to train farmers and other system users to pay for the services rendered. In addition, KACE has signed revenue-sharing agreements with SMS and IVR service providers. It is planned that when the MIS services are fully developed, promoted and widely used by clientele, they will generate sufficient revenue to sustain themselves. Table 2 Annex 1 shows that the volume of trade and the level of SMS and IVR usage are still too low to generate sufficient revenue. The

plan is to increase this volume of trade and SMS and IVR usage through an outreach promotion of MIS services for widespread use.

### **3. Some achievements of the MIS**

Tables 1 to 5 and Figures 1 and 5 in Annex 1 provide some statistics on performance trends for some MIS indicators over a period of 12 months from October 2003 to September 2004.

#### *3.1 Users of the KACE MIPs/MICs*

Table 1 indicates that on average 498 users visited the MIPs and MICs per month, out of which 29% were female and 71% male. These are the users who visited the MIP/MIC offices and signed visitors' books. It is estimated that the actual number of MIP/MIC users was at least 10 times the number who signed the visitors' books. Those who sign visitors' books are often first-time users. Repeat users are often unwilling to sign the visitors' book each time they visit a MIP or MIC. In addition many users view market information on boards placed outside MIP offices for easier access, and do not therefore get the opportunity to sign the visitors' books. Thus, we estimate that at least 4,980 visitors used the MIP/MIC services on a monthly basis. A majority (about 80%) of these were smallholder farmers who came to the market centers to sell their produce to traders from big towns.

The number of monthly visitors to the MIPs and MICs is higher during the maize harvesting and marketing months (May to October for Western Kenya) than during the months of field preparation and growing months (January to April).

#### *3.2 Value of trade through the KACE MIS*

Table 2 summarizes the volume of trade conducted through the MIS, which stands at an average of about US\$ 5,000 per month. This is by no means a large volume. However, considering that smallholder farmers sell produce in small quantities, this amount involves trade from many farmers. In addition, the value of the KACE MIS is more than just the volume of trade that is directly conducted through it, which these figures reflect. Even a greater value (difficult to quantify at this stage) lies in the use that farmers and other market participants make of the market information received in conducting trade outside the KACE MIS. For instance farmers may use the knowledge of maize price in different markets to bargain for a better price with traders, or traders may use this information to purchase in relatively low-price markets and sell in relatively high-price markets at a profitable margin to themselves.

#### *3.3 Effect of MIS on price of Maize price trend in selected markets*

The shortage of maize supplies during the 2003/4 crop year is reflected in the relatively high prices of maize in three selected markets in Annex Table 3 and Figure 3. The mean price of about Ksh 15 per kg (Ksh 15,000 or US\$ 192 per MT) was higher (15%) than

what would usually be in a year of normal supplies, of about Ksh 13 per kg (Ksh 13,000 or US\$ 167 per MT).

In addition, the differences in the maize price between markets (spatial arbitrage) appear to narrow towards convergence over time (Figure 3). This is what would be expected with widespread availability and knowledge of market information.

### *3.4 SMS, IVR and Website trends*

Table 4 and Figure 4 provide the monthly SMS and IVR market information message received by users, and the monthly KACE website hits. The monthly number of SMS messages (2,495) and IVR calls (251) and website hits (8,525) are still low, as these ICTs have been under development and refinement, and have not yet been introduced to many farmers to enable widespread use. The SMS and IVR numbers are expected to rise substantially following a planned outreach promotional campaign in the coming months, not only in project areas in western Kenya but also in other smallholder farming districts across the country. The website virtual library and virtual trading floor are in their last stages of completion, and when launched in the coming months will also boost the monthly hits. The website has been under reconstruction to achieve *virtuality* in the library of agricultural information and trading floor capability, hence the decline in the number of hits over the last several months. When the reconstruction of the web site is completed and re-launched in the coming months this will also boost the monthly hits.

### *3.5 RECOTIS clients*

Table 5 and Figure 5 provide the composition of clients in the RECOTIS database. The database provides market information to regional and international clients. Out of a total of 550 clients, 24% are either farmers or farmers groups or associations. The majority (84%) of the clients are from the Greater Horn of Africa region.

## **4. Challenges and coping strategies**

There are three major challenges that KACE faces now in implementing this MIS initiative. The first challenge is how to ensure widespread use of the MIS that it has developed; the second challenge is the unreliable mobile phone network availability in remote rural areas where a majority of smallholder farmers live. The unreliable phone network limits access to the SMS and IVR services in remote rural farming communities. The third challenge is the development of an SMS service on the second Mobile Phone Service Provider network in the country, i.e. on the Kencell Communications Network.

### *4.1 Widespread use of the KACE MIS*

During the last two years, KACE has developed and tested a low cost market information system targeted at smallholder farmers. However, the majority of poor farmers throughout the country have not yet been exposed or introduced to the KACE MIS services, and remain vulnerable to unscrupulous middlemen or remain ignorant of the

better market opportunities that exist. During the coming year, KACE plans to up-scale and promote the application of the system throughout the country. The benefits and impact of the system will be substantial when it is more widely applied to benefit the majority of smallholder poor farmers.

KACE will conduct an outreach promotional campaign for the SMS and IVR services across the country. The outreach campaign will target smallholder farmers and traders, and will involve the following activities:

- conducting road/market shows in rural areas across the country
- demonstrating the use of SMS and IVR to smallholder farmers and traders
- running radio programs on SMS and IVR services on the national Kenya Broadcasting Corporation (KBC) radio and rural FM radio stations
- developing, publishing and disseminating brochures, fliers and other promotional materials about the *SMS and IVR* services in English and Kiswahili, a widely spoken local language.

#### *4.2 Unreliable mobile phone network in rural communities*

##### *4.2.1 Village Phone Service*

The provision of SMS and IVR services depend on the availability of a reliable mobile phone service network. Unfortunately in Kenya currently, mobile phone networks are weak and unreliable in remote rural farming areas away from urban centers and major highways where the networks are more reliable. In the coming year, KACE in collaboration with interested private sector partners plans to establish a Village Phone Service (VPS), where with simple booster equipment the network can be extended and made reliable in remote rural villages and communities. This will be modeled after the experiences of similar VPS that have been successfully implemented in Bangladesh and most recently in Uganda.

The establishment of a VPS would involve a partnership among a Mobile Phone Service Provider (MPSP), e.g. the Safaricom Limited (with which KACE has developed the SMS service), organized farmers' groups, micro-finance companies and KACE. It is envisaged that partners will facilitate identified farmers' groups to access necessary equipment and starter-off airtime, along with training and business skills development.

A farmers' group will identify a dependable member to serve as a Village Phone Operator (VPO). The VPOs would be facilitated and trained to own and operate a VPS on a commercial basis. The VPOs would provide group members with affordable, accessible and dependable communication. The VPOs would operate in village communities where a mobile phone network can only be accessed with a booster antenna. From a Village Phone, a farmer would be able to check commodity prices, offers and bids or extension messages disseminated through KACE's SMS and IVR services, organize a farmers' or community meeting or party, or respond to a radio advertisement.

A VPO would receive arranged credit from a micro-finance company a Village Phone Kit containing a mobile phone handset, charging solution, an antennae, a sign post, business cards, and SIM pack inclusive of an initial working capital worth of airtime. The MPSP would provide the communication infrastructure, affordable airtime, and customer support via a toll-free number. KACE along with the MPSP would assist the VPOs in establishing the business through marketing, call recording and technical assistance.

Farmers' group members, as well as other farmers and users at the village or community level would go to the VPOs to access information at established appropriate and affordable tariff rates paid to the VPOs. The revenue generated would, over time, be sufficient to sustain the VPS operations by the VPO.

#### *4.2.2 VSAT*

Telkom Kenya has set up email services at all post offices throughout the country using VSAT. Customers may access email services using the facilities installed for efficient communication. KACE has initiated discussions with the Telkom Kenya to explore the potential of using VSAT for market information dissemination. Telkom has indicated that the technical details of the VSAT facility are still being worked out, and that when these are completed they will contact KACE for further discussion to chart the way forward. If this works out, VSAT would offer a huge potential to reach most rural areas with market information, as there are about 400 post offices spread throughout Kenya, many in remote rural centers.

#### *4.3 Development of SMS with Kencell Communications Ltd.*

KACE has been trying to develop an SMS market information service with Kencell Communications Ltd. during most of the second year of the project. However, progress has been quite slow due to technical limitations of the firm that Kencell Communications have outsourced to develop and roll out SMS services. Almost half of the rural mobile phone subscribers are on the Kencell network, while the other half are on the Safaricom network. Those on the Kencell network have been complaining to KACE as to why the KACE SMS market information service is not also available on their network apart from being on the Safaricom network. Efforts to develop the SMS service for Kencell subscribers have been intensified, and KACE has been assured that this will materialize by the end of 2004. When this happens, it will considerably increase the coverage and hence usage of the SMS and IVR services, especially when coupled with the planned promotion of these services in the coming year.

### **5. Key Lessons Learnt from the KACE MIS Initiative**

A major lesson is that indeed information is power: smallholder farmers in rural areas are being empowered to bargain for better prices in the market place. Relevant and timely market information packaged and delivered by low-cost ICTs can improve the competitiveness of smallholder farmers in the market place for better prices, and provide a level playing field in the market place, not only between smallholder farmers and middlemen, but also between women and men players. Access to better markets and

better prices mean better incomes for the farmer, ensuring food security and a means out of the vicious cycle of poverty and food insecurity.

## **6. MIS Impacts**

The KACE MIS is helping farmers to find better markets and prices and avoid being cheated by unscrupulous middlemen. No wonder, middlemen on the other hand feel threatened by the new more transparent and competitive system. They express fear that the new system will drive them out of business. Indeed, for those middlemen who have been preying on the farmer's ignorance of market information, their days are numbered. However, those who are quick to learn and take advantage of the opportunity the new system offers can extend their business activities to distant markets that are out of reach without the new system. It is now technically possible through the KACE MIS for them to place and also receive offers and bids and conduct business with clients in other markets, in domestic, regional and even global markets.

In addition, local government officials fear that the new system that facilitates farmers to sell their produce easily will lead to food deficits in the area. KACE's response is that the new system will enable consumers to source for needed food supplies more easily and efficiently in times of shortages. The new system has the potential to stabilize supplies as well as prices: when a surplus exists, it facilitates exports out of the area, and this prevents farm prices from hitting rock-bottom; on the other hand, in times of supply deficits, the system facilitates imports into the area, thus preventing consumer prices from hitting the roof. Sellers and buyers will respond and react to the market price signals, selling in times of surpluses and buying in times of deficits.

In more practical terms, the new KACE MIS is helping farmers to find better markets and prices and avoid being exploited by middlemen. The bargaining power of the smallholder farmer in the market place for better prices has been enhanced. For instance, in one KMDP project District of Bungoma, farmers who sold maize via KACE MIS during the 2003/4 maize season achieved a higher average price of Ksh 1,219 per 90-kg bag (US\$ 181 per MT) as compared to those who did not at Ksh 1,000 per bag (US\$ 148 per MT) (22% more). In addition, during the maize harvesting season, the average price of maize at Ksh 1,000 was 150% higher compared to lows of Ksh 400 per bag (US\$ 59 per MT) during previous harvest seasons. These price impacts can not of course be fully attributed to the KACE MIS. However, it is reasonable to assume that the awareness created by the MIS has contributed to this positive improvement in farm-gate prices and reducing spatial arbitrage between markets, even if only in a modest way. Although the exact contribution is hard to quantify at the present, planned monitoring and evaluation activities will enable such calculations of impact to be made in the future activities.

In the words of one SMS farmer user: *with KACE' market information, middlemen can no longer cheat us on prices. We are now able to bargain on a level playing field with middlemen, with our knowledge of prices.*

**References:**

1. Adesina, Akin, 2004. Making markets work for the poor in Africa. A presentation at the Presidential-Level Seminar on “Innovative Approaches to meeting the Millennium Hunger Development Goal (MDG) for Africa, July 5, 2004, United Nations Conference Centre, Addis Ababa, Ethiopia. Pp.17.
2. Anderson, J.R. and Gershon, F, 2004. Agricultural Extension: Good Intentions and Hard Realities. *The World Bank Research Observer*, vol. 19, no. 1 pp: 41-60.
3. Njuki, J, Asaba, J.F., Okolla, A, and Wesonga, A, 2004. Strategies for pro-poor agricultural knowledge systems in East Africa. Draft report, CABI, pp. 14.
4. Tollens, E., 2004. Role of information tools in food security. Draft paper, CTA, pp. 19

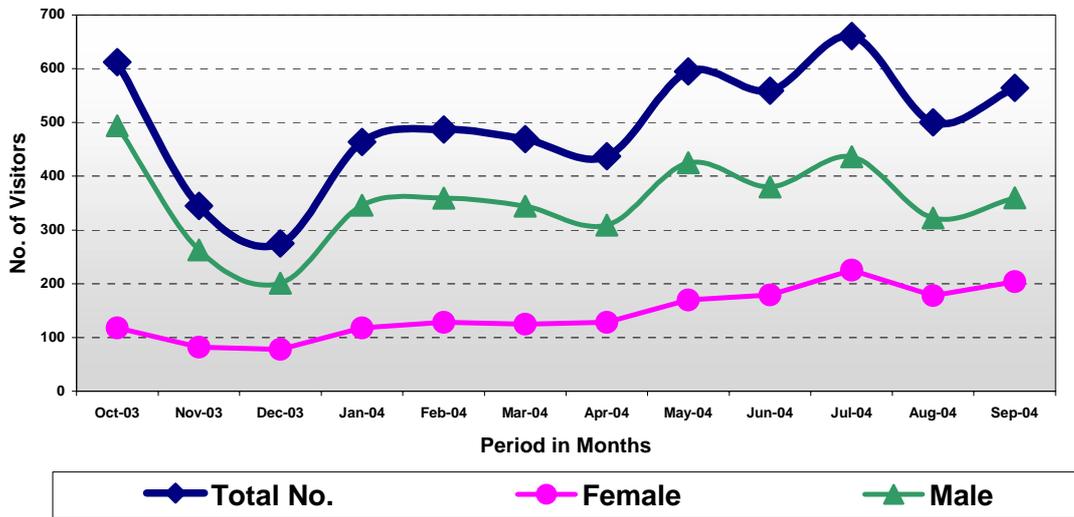
## ANNEX 1

### KACE: Some Summary Statistics

**Table 1. Visitors to MIPs/MICs and Head Office**

Month	Total	Female		Male	
		No.	%	No.	%
Oct 03	612	118	19%	494	81%
Nov 03	345	82	24%	263	76%
Dec 03	279	78	28%	201	72%
Jan 04	464	118	25%	346	75%
Feb 04	487	128	26%	359	74%
Mar 04	469	125	27%	344	73%
Apr 04	437	128	29%	309	71%
May 04	595	170	29%	425	71%
Jun 04	559	179	32%	380	68%
Jul 04	661	225	34%	436	66%
Aug 04	500	178	36%	322	64%
Sep 04	564	204	36%	360	64%
<b>Total</b>	<b>5,972</b>	<b>1,733</b>	<b>29%</b>	<b>4,239</b>	<b>71%</b>
<b>Month Average</b>	<b>498</b>	<b>144</b>	<b>29</b>	<b>353</b>	<b>71</b>

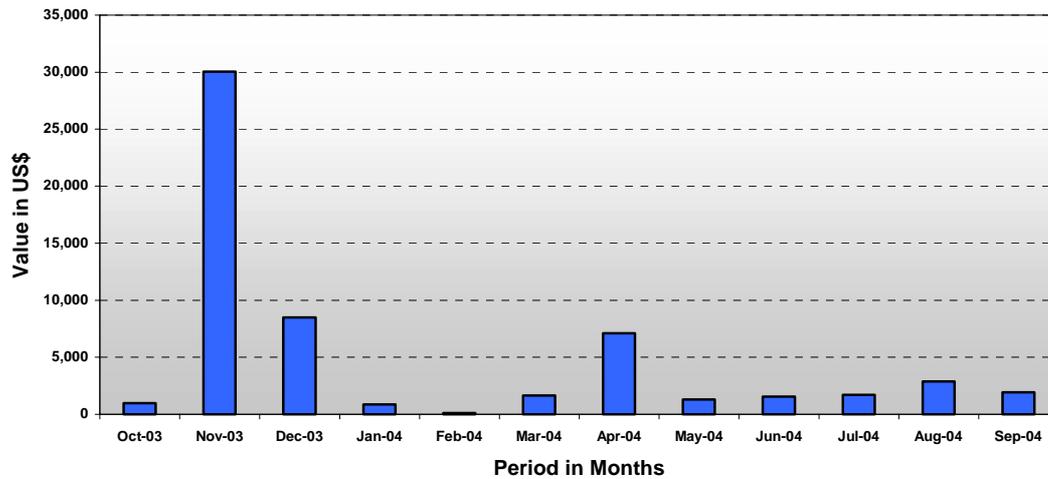
Figure 1. Number of visitors to MICs/MIPs & Head Office (Oct 03 - Sep 04)



**Table 2. Value of Trade through the KACE MIS, Oct 03 – Sep 04**

Month	US\$
Oct 03	972
Nov 03	30,038
Dec 03	8,496
Jan 04	876
Feb 04	120
Mar 04	1,653
Apr 04	7,103
May 04	1,308
Jun 04	1,538
Jul 04	1,719
Aug 04	2,889
Sep 04	1,938
<b>Total</b>	<b>58,650</b>
<b>Monthly average</b>	<b>4,888</b>

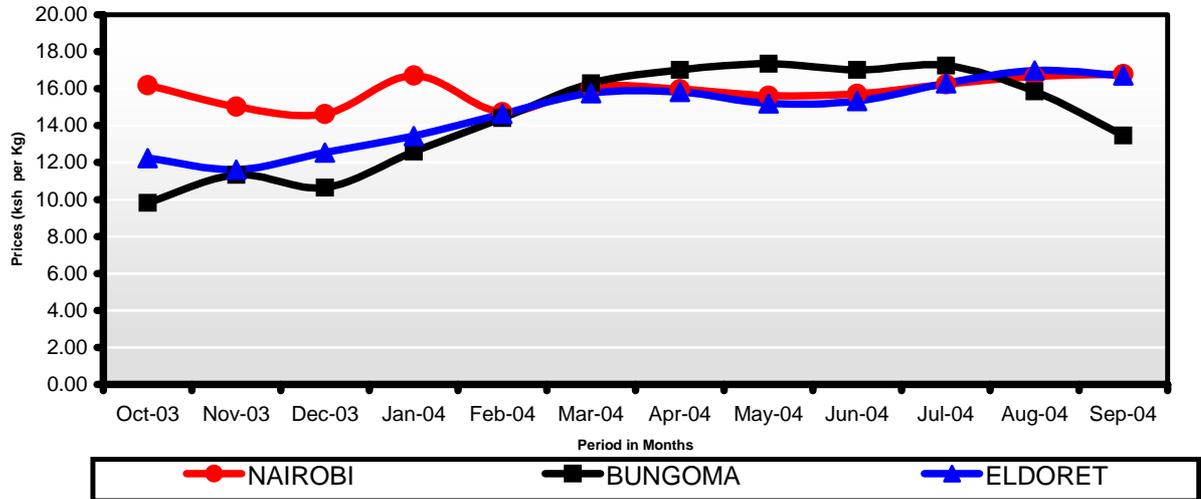
**Figure 2. Trade Value through KACE MIS (Oct 03 - Sep 04)**



**Table 3. Dry maize wholesale prices in selected markets in Kenya, Oct 03 – Sep 04**

Month	Market		
	Nairobi	Bungoma	Eldoret
	<i>Ksh per kg (Ksh 80 = US\$ 1.0)</i>		
Oct-03	16.19	9.82	12.24
Nov-03	15.04	11.33	11.62
Dec-03	14.63	10.65	12.55
Jan-04	16.72	12.59	13.43
Feb-04	14.73	14.41	14.63
Mar-04	16.10	16.29	15.75
Apr-04	15.96	17.01	15.81
May-04	15.61	17.35	15.20
Jun-04	15.71	17.01	15.33
Jul-04	16.24	17.25	16.29
Aug-04	16.65	15.85	16.98
Sep-04	16.79	13.46	16.71

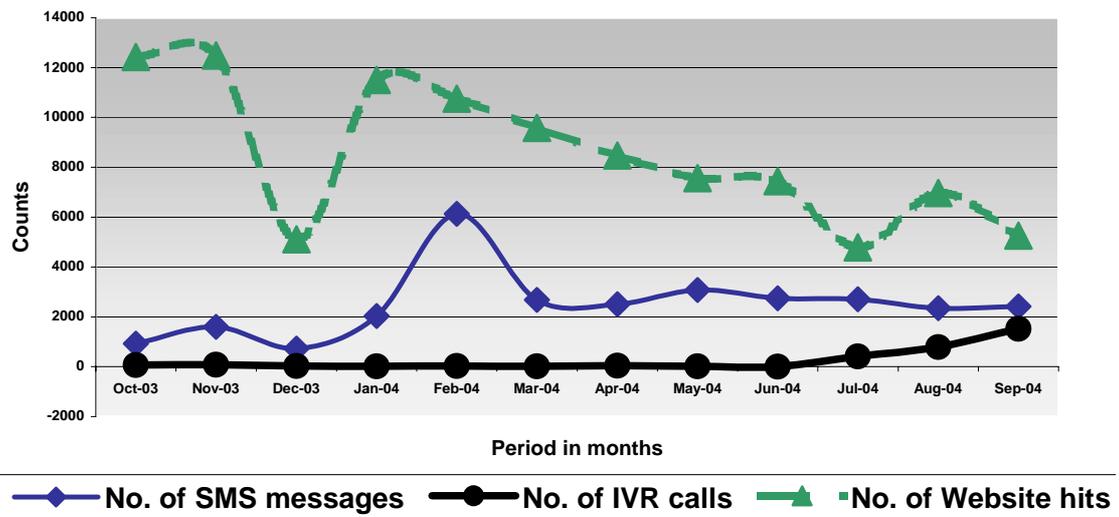
**Figure 3: Dry Maize wholesale prices in selected markets in Kenya (Oct 2003 - Sep 2004)**



**Table 4. SMS messages, IVR calls and Website hits per month, Oct 03 – Sep 04**

Month	SMS messages, no.	IVR calls, no.	Website hits, no.
Oct 03	924	70	12,419
Nov 03	1,593	77	12,483
Dec 03	724	26	5,111
Jan 04	2,032	14	11,492
Feb 04	6,129	28	10,751
Mar 04	2,676	13	9,578
Apr 04	2,513	36	8,467
May 04	3,077	12	7,562
Jun 04	2,749	8	7,438
Jul 04	2,703	420	4,781
Aug 04	2,346	793	6,959
Sep 04	2,425	1,518	5,260
<b>Total</b>	<b>29,891</b>	<b>3,015</b>	<b>102,301</b>
<i>Month Average</i>	<i>2,491</i>	<i>251</i>	<i>8,525</i>

**Figure 4. Number of SMS messages, IVR calls & Website hits (Oct 03 - Sep 04)**



**Table 5. Number and regional distribution of RECOTIS clients**

<b>Clients Category</b>	<b>GHA<sup>1</sup> Region</b>	<b>Central &amp; Southern Africa</b>	<b>Other Regions</b>	<b>Total</b>	<b>% of Total</b>
Farmers/Farmers associations	130	6		126	24
Processors	80	2		82	16
Commodity traders & Trade associations	90	11		85	17
Donor / Development & Relief Organizations	43	40	9	79	15
Agricultural Research centres & Universities	84	10	6	100	20
Market Information Centres	18			18	4
Government Institutions	12	2	1	14	3
Media	7			7	1
<i>Number countries</i>	7	6	13	26	100
<b>Total Number of Clients</b>	<b>464</b>	<b>71</b>	<b>15</b>	<b>550</b>	<b>100</b>
<b><i>Percent of total</i></b>	<b>84</b>	<b>13</b>	<b>3</b>	<b>100</b>	

*Note:* <sup>1</sup>GHA = Greater Horn of Africa region

Figure 5. Number & regional distribution of RECOTIS clients

