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Development of a Market Information System Serving the Horticulture Industry in Kenya

Kenya Horticulture Competitiveness Project (KHCP)

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Contents

ACRONYMS	4
EXECUTIVE SUMMARY	6
1. INTRODUCTION	8
2. HORTICULTURE MIS IN KENYA	8
2.1 PUBLIC SECTOR	9
2.2 PRIVATE SECTOR.....	11
3. INTERNATIONAL SOURCES OF HORTICULTURAL MARKET INFORMATION	13
4. MIS BEST PRACTICES	17
4.1 KENYA AGRICULTURAL COMMODITY EXCHANGE (KACE) LIMITED	17
5. GAPS IN EXISTING MIS	20
6. OPPORTUNITIES	21
7. REQUIREMENTS FOR EFFICIENT MIS DEVELOPMENT	22
8. HORTICULTURE STAKEHOLDERS’ FORUM ON MARKET INFORMATION SYSTEMS (MIS) DEVELOPMENT	24
9. FORUM OUTCOMES	25
9.1 MIS FUNCTIONS	26
9.2 BASIC REQUIREMENTS FOR EFFECTIVE MIS DEVELOPMENT	27
9.3 WAY FORWARD	28
10. MIS RECOMMENDATIONS	29
11. CONCLUSION	30
12. REFERENCES	31
13. ANNEXES	32

ACRONYMS

ABE	African Bird's Eye chilli
CBI	Centre for the Promotion of Imports from Developing Countries
CBIK	Centre for Business Information in Kenya
CIF	Cost, Insurance and Freight
CIRAD	Centre for International Cooperation Agronomic Research for Development
EPC	Export Promotion Council
ERP	Enterprise Resource Planning
EU	European Union
FAO	UN Food and Agriculture Organization
FAS	Foreign Agricultural Service
FDI	Foreign Direct Investment
FOB	free on board
FPEAK	Fresh Produce Exporters Association of Kenya
GoK	Government of Kenya
HCDA	Horticultural Crops Development Authority
HTS	Harmonized Tariff System
ICT	information & communication technology
IDS	Internet Database System
IRC	Information Resource Centre
ITC	International Trade Centre
IVRS	Interactive Voice Response Service
KACE	Kenya Agricultural Commodity Exchange
KBC	Kenya Broadcasting Corporation
KEPHIS	Kenya Plant Health Inspectorate Services
KFC	Kenya Flower Council
KHDP	Kenya Horticulture Development Program
KHCP	Kenya Horticulture Competitiveness Project
KRA	Kenya Revenue Authority
LAN	Local Area Network
MFN	Most Favoured Nation
MIC/MIP	Market Information Centre/Point
MIS	Market Information System
MNS	Market News Service
MOA	Ministry of Agriculture
MRC	Market Resource Centres
MRL	Maximum Residue Level
PDA	personal digital assistant
PPP	Public and Private Sectors Partnerships
SME	Small and Medium Enterprise
SMS	Short Message Services

SPS	Sanitary and Phyto-Sanitary
TPI	Trade Performance Index
TSP	Trade Service Provider
UNCTAD	United Nations Conference on Trade and Development
USAID	United States Agency for International Development
USDA	United States Department of Agriculture
USITC	United States International Trade Commission
WML	West Media Limited
WTO	World Trade Organization

EXECUTIVE SUMMARY

The horticulture sub-sector is the fastest growing industry within agriculture in Kenya. The industry contributes to the Kenyan economy through generation of income, creation of employment opportunities for rural people and foreign exchange earnings, in addition to providing raw materials to the agro-processing industry. Market information is a very significant factor in any efficient marketing system. Without a functioning market information system (MIS), marketing decisions are based on limited or lack of information leading to unrealized opportunities for the various market players. A well-developed information system facilitates marketing mechanisms and increases competitive market processes hence, not only animating the market but also allowing for market players to exploit available opportunities with reduced losses and costs. This paper gives a review of existing MISs in Kenya and identifies gaps in these systems that should be addressed in order to develop an efficient MIS for the Kenyan horticulture industry.

The adoption, by the Government of Kenya (GoK), of policies aimed at developing a more liberalized economic environment led to a gap in the provision of strategic agricultural market information services. The review findings show that, currently, horticultural information on production and marketing is collected, analyzed and disseminated to respective users by various domestic entities both in the public and private sector. Some of them include Ministry of Agriculture (MOA), Horticultural Crops Development Authority (HCDA), Export Promotion Council (EPC), Fresh Produce Exporters Association of Kenya (FPEAK), Kenya Flower Council (KFC), and Kenya Agricultural Commodity Exchange (KACE) among others. International sources of horticultural information include inter alia the International Trade Centre, Centre for the Promotion of Imports from Developing Countries (CBI), FAOSTAT and selected journals.

KACE, a private sector entity, runs an impressive agricultural MIS that could be used as a learning pedestal to design and develop the envisioned one-stop MIS for the horticulture industry. The accomplishments and sustainability of the KACE model are attributed to inter alia a range of subscriptions and variable payments for the interactive voicemail and SMS services to attain daily price analysis for twenty commodities. This is supported by the fact that farmers, SMEs and other information users are willing to pay for marketing services for effective market linkages.

During the review, the gaps identified in the existing MISs were found to be generic across the various systems (i.e., MOA, HCDA, FPEAK, KFC, etc.) and only differed in context due to the different mandates for each institution. The gaps include restricted access to information available, unreliable information due to timeliness and accuracy challenges, limited information products, limited dissemination methods, low investment on information & communication technology (ICT) infrastructure and unsustainable MIS models.

However, there exists opportunities for development and implementation of an efficient MIS. They include: the growing market demand owing to the fast progressing sub-sector with new entrants; ongoing development in infrastructure and increased investment in ICTs especially mobile telephone services; and a positive and enabling policy environment with government's commitment to finalizing the horticulture policy draft being developed currently.

Nevertheless, there are several key requirements necessary for the efficient development of the envisioned MIS: extensive consultation with the major stakeholders in the horticulture

industry; an information center well-equipped with reliable and up-to-date horticulture information sources; investment on ICT software and hardware; capacity building of existing and new staff as well as stakeholders and other users on optimal use of the MIS; public and private sector partnerships that strengthen public institutions' performance in provision of market information services; and sustainability of the envisaged MIS in the long run.

In October, a stakeholders' forum was held bringing together representatives from various institutions that are major players in the industry. The Horticulture Stakeholders' forum on MIS Development was held on Thursday, 14th October, 2010 at the Red Court Hotel in Nairobi. It was organized and facilitated by USAID's Kenya Horticulture Competitiveness Project (KHCP) managed by Fintrac, Inc. The forum was attended by 26 participants representing 11 institutions from both the public and private sector, where part of the agenda included discussions on: effective MIS and their benefits to the horticulture industry; sources of market information and requirements for an efficient MIS development; and mapping the way forward. There was a consensus at the forum that every service provider has a role to play in the success of developing an effective and efficient MIS for the Kenyan horticultural industry. Participants agreed on behalf of their respective institutions to be committed to the process and take into consideration the points brought up in the discussions. The successful realization of this system will directly contribute to the intervention proposed in the National Horticulture Draft Policy: developing an efficient MIS and building necessary physical and human capacity to manage the system through collaboration by Government of Kenya, private sector and development partners.

With the significant growth of the horticulture industry exhibited by the consistent trend of annual growth rate, it suffices to say that improvement in any supporting services will positively impact the sub-sector and register positive ripple effects on the industry stakeholders. To develop an enviable MIS it is recommended to: involve government bodies in the process; conduct a needs assessment to identify information needed by users; exploit opportunities for delivery channels provided by modern ICTs; engage experienced consultants in development and implementation; and create public awareness on the MIS and its benefits.

In conclusion, the review showed that MISs for the horticulture industry in Kenya exist; however, they do not satisfy the information demands by various users. Basic information communication technology will contribute majorly in developing connectivity among markets and various market players. Enhancing the technical and human capacity to meet market information needs will help bridge the gap between surplus and deficit areas. The success of the development of this efficient demand-driven MIS will rely heavily on strong cooperation between the relevant public and private sector stakeholders and commitment from industry players with government playing a significant role in terms of development and adoption of policies that facilitate easy access to ICTs, especially in the rural areas where marketing of horticultural products is a key activity.

1. INTRODUCTION

The horticulture sub-sector is the fastest growing industry within agriculture in Kenya, recording an average growth of 15 percent to 20 percent per annum.¹ It contributes positively to wealth creation, poverty alleviation, and gender equity, especially in the rural areas. The industry continues to contribute to the Kenyan economy through generation of income, creation of employment opportunities for rural people and foreign exchange earnings, in addition to providing raw materials to the agro-processing industry. The sub-sector employs approximately 4.5 million people countrywide directly in production, processing, and marketing, while another 3.5 million people benefit indirectly through trade and other activities.

Market information is a very significant factor in any efficient marketing system. Without a functioning market information system (MIS), marketing decisions are based on limited or lack of information leading to unrealized opportunities for the various market players. A well-developed information system facilitates marketing mechanisms and increases competitive market processes hence, not only animating the market but also allowing for market players to exploit available market opportunities with reduced losses and market costs. Up-to-date information on various market factors enables spatial distribution of products from production areas to markets and between the various levels of markets.

In the production sector, timely market information aids the farmers to set up a production system that facilitates harvesting at the most profitable times, decide on where to sell their produce and be involved in informed negotiations with the traders. The traders and processors, on the other hand, decide where best prices can be sourced with less transaction costs and losses thus increasing their profit margins. Other business service providers require reliable information to exploit business opportunities provided by the market. The government needs an efficient MIS to be able to make appropriate policies and determine the dynamics of growth in the sector, whereas development and relief agencies would utilize the information to impart more effective and rightfully targeted assistance on food security, trade and relief efforts. However, given that the various users are not homogenous, it is necessary to establish a MIS that is responsive to the information requirements of all these different stakeholders. This paper gives a review of existing MISs in Kenya and identifies gaps in these systems that should be addressed in order to develop an efficient MIS for the Kenyan horticulture industry.

2. HORTICULTURE MIS IN KENYA

The adoption, by the government, of policies aimed at developing a more liberalized economic environment led to a gap in the provision of strategic agricultural market information services. Up until then, these services were exclusively a responsibility of the respective national commodity boards hence there was little need of other market players to build any expertise in this area. Even then, the information from the commodity boards only reached a small proportion of traders and producers with main beneficiaries being registered entities. The generic status quo was that (and still is in many parts of the country) the main market-information sources were interpersonal informal sources such as brokers, neighbors,

¹ Kenya Horticultural Council

fellow farmers and traders, etc. This always left a gap on information on quantity and quality required, and of the potential existing markets. With liberalization came direct exposure to market forces creating a need to develop MISs for the efficient operation of the progressively free market system. Currently, horticultural information on production and marketing is collected, analyzed and disseminated to respective users by various entities both in the public and private sector.

2.1 PUBLIC SECTOR

Ministry of Agriculture (MOA)

The Ministry is the sole public sector entity that does collect market price data on selected agricultural commodities in major markets in Kenya. Data is collected from 20 markets in six major towns on wholesale prices of commodities inclusive of horticultural products. The market enumerators are officers in the district or division level agricultural offices depending on market location. The MOA officers liaise with the respective local authorities (under whose management of markets fall) through the market superintendents. Given the complex market chains in Kenya that are characterized by a number of brokers (wholesalers), it is difficult to determine the wholesale price. However, the enumerators try to capture the price data from the first sellers before commodities start changing hands. The enumerators then send messages with coded information to the main office in Nairobi where it is decoded manually and entered in an excel spreadsheet, analyzed, interpreted, and disseminated to media houses for broadcasting and other users on request free of charge. MOA is the only stakeholder in the horticulture sub-sector with a comprehensive databank on a wide range of products. Most of the other stakeholders rely on the data collected by the ministry to generate their own information. In addition, MOA also sat in the data validation committee hosted by KHDP that met regularly to validate horticultural data on volume and value of selected commodities. The main challenges faced by the ministry in provision of market information services are: decoding of data manually due to lack of appropriate software hence more time spent and inadequate or lack of equipment (computers, personal digital assistants (PDAs), etc.).

Horticultural Crops Development Authority (HCDA)

HCDA is the government's regulatory agency for the horticultural sub-sector within the Ministry of Agriculture that offers various services inclusive but not limited to; issuance of export certificates and licenses; monitoring and disseminating prices in the local and export markets; availing market information and statistics to stakeholders; and assisting growers to identify local and export market to sell their produce. HCDA collects data on volume of horticultural products being exported as recorded from the invoices presented by various exporters for certification. The data is then analyzed and later validated by the Horticulture Data Validation Committee before dissemination to users. The free on board (FOB) and Cost, Insurance and Freight (CIF) export prices are collected from importers and international market information services that HCDA subscribes to. The ideal situation is that information should be disseminated through the institution website, to listed users in the mailing database, through the monthly newsletter that is sent out to subscribers and to the workstations in the field who then release to users on request. For the local market, HCDA has been trying to collect data on prices in three major markets in Nairobi (Wakulima, Gikomba and Kawangware) but the exercise has not been undertaken regularly due to staffing shortages, which makes it unreliable. On the other hand, the website does not contain any updated market information other than exporter requirements with most tabs on "market" under "resource centre" yet to be developed. Currently, the Information Resource Centre (IRC) located at the headquarters is looking into collection of farm gate export prices.

HCDA has commissioned an ICT consultant to develop an Enterprise Resource Planning (ERP) system. The ERP contains components of improving market information services through Short Message Services (SMS) where users send in inquiries and get immediate responses at various costs depending on whether the user is registered or not. Some of the challenges faced by HCDA in terms of provision of market information services are: poor coordination among local sources of information, understaffing, limited financial resources, inadequate means of information dissemination (currently only monthly newsletter and stakeholder forums usually held once or twice a year), an under-equipped temporary IRC and limited access to external information sources.

Kenya Revenue Authority (KRA)

KRA is a government agency charged with the responsibility of collecting revenue on behalf of the Government of Kenya. The Customs and Excise Department, as the authority's arm entrusted with the responsibility to monitor and control imports and exports, collects data on the same. Export and import data on volume and value is collected at entry points on commodities entering or leaving the country. This data is availed to various users like the national bureau of statistics, HCDA, KHCP and any other user on request. Some of the challenges facing KRA are accuracy issues with exporters/importers under-declaring commodities in a bid to reduce tax costs, unrecorded illegal trade volumes/value and coding modalities that, at times, aggregate heterogeneous commodities.

Kenya Plant Health Inspectorate Services (KEPHIS)

KEPHIS is the government's lead regulatory agency in agriculture specifically mandated to perform, among others: monitoring of quality and toxic residue levels, inspection, testing, quarantine control, description, grading and certification of horticultural imports and exports at the ports of entry and exit; developing and implementing of standards on both imported and locally produced seeds and plant materials; and approval of all importation and exportation licenses for plants and seed issued by the Ministry responsible for Commerce and Industry before such importation and/or exportation is implemented. The market data collected by KEPHIS is limited to import and export commodities by certification applicants that pass through their offices for inspection at the various ports. Hence, information acquired is restricted to produce that need to conform to specific standards (e.g., SPS, MRLs, etc.) as well as commodities that do not evade inspection. Furthermore, this data collected is not disseminated to users, but is for internal use and shared with the committee for data validation previously spearheaded by USAID's KHDP. Other horticultural market information services offered by KEPHIS include: simplifying information from other national plant protection entities in export destination countries; giving feedback on consignment conformity especially produce rejected on entry at destination country; disease trends in various regions in the country to forewarn producers and traders on what to look out for; and information on approved plant varieties. The gaps in the provision of market information services are limited information (only certified products), restricted access by users and infrequent dissemination methods.

Export Promotion Council (EPC)

The EPC is Kenya's leading institution in the development and promotion of export trade. EPC was established in 1992 principally to address challenges that were facing exporters and producers of export goods and services with a view to increasing the performance of the export sector. To ensure maximum impact, the Council uses a sectorial approach that structures its operations to focus on various sectors of the economy. One of the priority sectors is "Horticulture and other Agricultural". EPC collects, stores, analyzes and

disseminates trade information to support the business community through the Centre for Business Information in Kenya (CBIK). CBIK inter alia generates information on existing and potential export markets from credible international sources such as the International Trade Centre (ITC) and the World Trade Organization (WTO) among others. Information is available both electronically and in print. CBIK has a library (Reference Centre), which is accessible to the business community and also offers free Business Counseling Services to clients. Other market information services provided by the EPC include: profiles of various potential export destination countries, a directory of Kenyan exporters, trade alerts and events, the ITC market analysis tools, links to relevant sites like the East Africa export promotion portal, export market surveys, and a selection of books and manuals among others. Information is mainly disseminated through the website inclusive of a quarterly e-magazine.

2.2 PRIVATE SECTOR

Fresh Produce Exporters Association of Kenya (FPEAK)

FPEAK is a private sector trade association representing growers, exporters and service providers in the horticulture industry since 1975. Since inception, the association has grown to become one of Kenya's foremost sectorial trade associations whose members are involved in growing and/or exporting fresh cut-flowers, fruits, and vegetables. FPEAK provides a focal and coordination point for the horticulture export industry and supports growers and exporters by providing technical and marketing information and training. It acts as an information center and runs active lobbying and advocacy programs to enhance the sector's competitiveness. All members benefit from FPEAK's information services where news on technical issues, trade, official regulations, and market requirements is disseminated regularly through interactive meetings, email updates, ad hoc press coverage, a quarterly newsletter (*Horticultural Insight Journal*), farmer outreach programs, industry exhibition (Hortifair Kenya) and the website. FPEAK receives trade inquiries from overseas buyers and passes them on to members. One needs a password to access inquiries and any other classified information not available to outsiders. Ideally, there is supposed to be data collected on volume and value of horticultural exports from membership. However, this is not the case in practice.

Previously a newsletter was produced monthly; however, production was stopped after the inception of "*Market News*," a more comprehensive monthly newsletter produced by the then recently completed, USAID-Kenya Horticultural Development Program (KHDP). FPEAK relied on KHDP as a point of reference for market information and have been subscribers of "*The Market News*," prepared and disseminated previously by KHDP and now by Kenya Horticultural Competitiveness Program (KHCP). This monthly newsletter is then sent out to FPEAK members in the mailing list. Other than the earlier mentioned information services, FPEAK does not collect, analyze and/or disseminate any horticultural market data.

Kenya Flower Council (KFC)

The Kenya Flower Council is a private voluntary association of independent growers and exporters of cut flowers and ornamentals. KFC was formed to foster the responsible and safe production of cut flowers in Kenya while protecting the natural environment and promoting the welfare of all farm staff. KFC was established in 1996 with the purpose of bringing together independent growers and exporters of cut flowers and ornamentals in Kenya and seeks to provide a common platform for these growers and exporters and ensure the

implementation of acceptable local and international standards. The current KFC membership represents about 50 – 60 percent of the flowers exported from Kenya.

The market data collected at KFC is limited to volume of flower exports from membership only. However this data is solely for internal use and is therefore not accessible to other players in the horticulture industry. A weekly electronic newsletter (*The Friday Notice Board*) is sent out to a members' mailing list and mostly contains alerts on ongoing issues in the floriculture industry both locally and internationally. The e-newsletter is also available to the general public on the KFC website. KFC was one of the subscribers to KHDP's monthly market newsletter that was circulated to members on reception. This was their main source of horticultural market information. Other information services provided by KFC are the dissemination of Sanitary and Phyto-Sanitary (SPS) requirements and other quality assurance conditions to members from various sources inclusive of the Kenya Plant Health Inspectorate Services (KEPHIS).

The challenges faced by KFC in the provision of market information services are: scanty production data available in the floriculture industry, a limited resource center with employees having to often source for information elsewhere to respond to inquiries and negligible representation in the field.

Data Validation Committee

In the life-span of KHDP, there was a data validation committee on export data constituting major stakeholders in the horticultural sub-sector; HCDA, MOA, KEPHIS, FPEAK, KFC and KHDP. Validation of data from MOA and HCDA is carried out in a participatory and consultative manner every two to three months. The final data agreed on would be sent back to the heads of the participating organizations before being sent back to MOA for release and dissemination to users. This exercise is expected to continue under the USAID's KHCP so as to verify and increase reliability of available data. The validation aims at checking and correcting anomalies thus enhancing accuracy levels of the availed production and export data.

3. INTERNATIONAL SOURCES OF HORTICULTURAL MARKET INFORMATION

1. ITC Market News Service (ITC/MNS)

The International Trade Centre is a Geneva-based organization jointly funded by the WTO and UNCTAD. Its mission is to provide export promotion services to developing countries, particularly to what they call Trade Service Providers (TSPs). The group provides Market News Service (MNS) that reports on international prices and trends for fruits, vegetables, spices, juices, cut flowers, essential oils and other products for a fee (reduced fee for developing country clients). The MNS is a key component of ITC's market intelligence package available to support and strengthen the capacities of Trade Support Institutions and SMEs.

MNS provides qualitative (market trends, industry news, regulatory updates, trade show reviews, interviews with market players) and quantitative information (covering price statistics) on a wide variety of products. Through the provision of market intelligence, MNS strives to improve international market transparency by addressing the market intelligence needs of its beneficiaries comprising of producers, manufacturers, exporters, traders, universities, research institutions, trade support institutions and government agencies, in developing countries. Two editions are available for the MNS Tropical and Off-Season Fresh Fruits and Vegetables report: A monthly edition that contains a brief summary of market trends, market profiles on specific products, trade fairs & events and price information. The second is a weekly edition that offers price information of 70 tropical and off-seasonal fruit and vegetable products from web-based sources and importers from four major European markets.

Advantages: A service with comprehensive product coverage, gradually becoming more user-friendly. It includes Middle Eastern fruit and vegetable price reports, which are difficult to obtain. The service provides information on both prices and trends. It contains historical reports for the last few years available with subscription.

Disadvantages: Subscriptions are not free. Data needs to be transcribed from PDF.

2. ITC Market Analysis Tools

ITC has four major market analysis tools that are useful in sourcing for various market information products:

Trade Map provides users with indicators on export performance, international demand, alternative markets and the role of competitors for about 220 countries and territories and 5300 products of the Harmonized System. Trade data is also available at the tariff line level for more than 120 countries and on a quarterly and monthly basis for more than 70 countries.

Market Access Map covers customs tariffs (import duties) and other measures applied by 187 importing countries to products from 239 countries and territories. Most Favoured Nation (MFN) and preferential applied import tariff rates are shown for products at the most detailed national tariff line level. The Map has been designed to support exporters, importers, trade promoters, policy analysts and trade negotiators. One can compare themselves to their

competitors, vis-à-vis tariff measures or use the advanced features to prepare for trade negotiations by simulating the effects of tariff reductions.

Investment Map is an interactive market analysis tool that provides foreign direct investment (FDI) data for 93 countries at the sectorial level, together with foreign affiliates, trade flows and tariffs information for over 150 countries. It helps identify potential locations for investment abroad, priority sectors, competing countries and potential investor countries. There is a guide to show functionalities of Investment Map tool and explains how to interpret the different tables and charts as well as methodological information.

Trade Competitiveness Map (for many known as **Country Map**) provides country market analysis profiles for around 240 countries and territories. Each profile provides a series of tools to facilitate strategic market research, monitor national and sectorial trade and macro-economic performance and design trade development strategies. The Map offers **Trade Performance Index (TPI)** which assesses sectorial trade performance. The TPI provides a general profile and ranking for a country's key export sectors as well as a series of static and dynamic indicators to assess each sector's international competitiveness: **National Export Performance and National Import Profile** that provides an overview of the export/import performance of countries by looking at the composition of their trade portfolio in terms of the dynamics of international demand and sector diversification; **The Consistency of Trade Statistics and Technical Notes on Trade Data** that provides a comparison of a selected country's trade statistics with partner country statistics in order to identify discrepancies between the two and gauge their consistency. Technical notes provide comments on the way national trade data has been gathered and on its limitations.

3. United States Department of Agriculture- Foreign Agricultural Service (USDA/FAS)

USDA maintains staff in US embassies around the world who produce reports on agricultural opportunities and developments in their respective countries. These "Attaché Reports" are made available to the public for free and posted online. Products include fruits, vegetables, oilseeds, coffee, livestock and many others.

USDA also provides a Market News Service that delivers comprehensive wholesale market reporting for a wide range of fruits and vegetables, primarily for the North American market but also some European markets such as the UK and Netherlands. The prices are updated on a daily basis.

Advantages: System is an online database that is free and relatively easy to use; comprehensive products and market coverage.

Disadvantages: This is a price database only, no information on market trends.

4. CBI

The Centre for the Promotion of Imports from Developing Countries (CBI) is an EU organization based in the Netherlands. This group is not as well known in market information circles as ITC or USDA, but its market surveys are current, comprehensive and generally very well produced. Kenya is officially a "CBI Target Country" and reports are therefore downloadable for free for Kenyan institutions. CBI provides up-to-date information on issues like market access requirements, market size, consumer trends, trade structure, packaging,

pricing, terms of trade and export guidelines for more than 35 sectors, covering the European Union, its member states and trading partners. CBI's database contains market studies, export manuals, design guides, forecasts, EU market requirements and 5,000 selected hyperlinks to additional information sources.

5. FAOSTAT

The UN Food and Agriculture Organization provides a free online database called FAOSTAT that contains production and trade data collected and entered from various ministries of trade and agriculture worldwide. FAOSTAT provides time-series and cross-sectional data relating to food and agriculture for some 200 countries. The development of a national version of FAOSTAT, CountrySTAT, is underway and is to be implemented in a number of target countries, primarily in sub-Saharan Africa. It will offer a two-way data exchange facility between countries and FAO as well as a facility to store data at the national and sub-national levels.

Advantages: A free user-friendly search engine, with comprehensive reporting on many countries and products.

Disadvantages: Data is not cross-checked and consequently is of varying quality; often there is a lag of several years in data reporting.

6. UN/COMTRADE

COMTRADE is a free statistical database offered by the UN statistics division. The database provides comprehensive trade data for most countries worldwide, searchable by harmonized tariff system (HTS) code. Products include publications and analytical tables providing values and indices for individual countries and regions.

Advantages: System is comprehensive providing data for most countries worldwide.

Disadvantages: The system takes a bit of practice to become accustomed to; data is of varying quality and may lag by several years; product classification is limited to 6 HTS digits.

7. EUROSTAT

This is the EU's statistical office that maintains a free online database providing comprehensive trade data for the EU member countries. The data is available in the COMEXT database where various tables can be extracted from in PDF format. A monthly bulletin on external and intra-European Union trade provides data on short-term trends in the trade of the European Union and its Member States. The bulletin contains monthly statistics on the trade flows of the EU with its trading partners on the one hand and between the EU Member States on the other, broken down by major product groups.

Advantages: High quality data for all EU member countries and their trading partners. Data is relatively up to date, lagging by a period of around 10 months.

Disadvantages: System is complicated to use. Their product classification is up to six Harmonized Tariff Schedule (HTS) digits.

8. USITC

The US International Trade Commission is a regulatory agency that is also tasked with compiling US national trade data for all products and trading partners. This trade information is available and accessible in its free Data Web system.

Advantages: Excellent data reporting, with product classification up to 10 HTS digits; data is quickly updated with lag period of only 3-4 months.

Disadvantages: System is somewhat complicated to use.

9. Others

There are a number of agribusiness journals that provide useful price information for particular segments of the industry. Three are mentioned here:

FruiTrop Journal - FruiTrop is a monthly journal published by the Centre for International Cooperation in Agronomic Research for Development (CIRAD). The journal contains news about trade flows of fresh and processed tropical fruits, fresh citrus, and counter-season fruits. It is published in French and English editions and distributed in more than 50 countries with a varied readership from production to retail distribution. FruiTrop contains regular sections: a 'Close-up' on a particular crop (full economic and technical review), a European market report, an international press review, wholesale prices, trends and an agronomy section (varieties, plant management, pests and diseases, postharvest aspects, etc.) among others.

The Fresh Produce Journal – This is a primary news source for the UK fresh produce industry. It is a weekly publication of news and features provides price reporting for a wide range of fresh fruits, vegetables and flowers trades. It covers all aspects of the supply chain across the global range of fresh produce with an online historical price search engine.

The Public Ledger – This is a major news source for international commodities traders and includes: coffee, cocoa, paprika, sesame, vanilla, ABE chili and other mainly non-perishable products. Also has a historical price search engine.

There are many other international food and agriculture industry journals and sites that provide excellent market coverage for food and agriculture products. These include:

Journal	Product Area	Website
Eurofruit Magazine	Fresh Produce	http://eurofruit.tumblr.com
Foodnews Magazine	Processed Foods	http://www.agra-net.com
The Cracker	Dried Fruits & Nuts	http://www.nutfruit.org
OANDA	Currency converter	http://www.oanda.com/convert/fxhistory

4. MIS BEST PRACTICES

The review of efficient MIS existing in other countries all point to one conclusion of high reliance on ICTs. Developed economies have conventionally emphasized the importance of information provision for the agricultural sector, a notable example being the service provided by entities like USDA and Eurostat. The following are characteristic of efficient MISs;

- The market information services providers rely on high ICTs for data collection and dissemination of information in a timely manner. High-tech market information systems vary greatly. Some give basic information on the price of given products, while others go to the extent of offering details of availability, names and contacts of traders, quantities traded, stocks and even market trends and price forecasts.
- Second generation MIS that use ICTs are generally based at least partly on private capital as opposed to public funds. They also tend to be wider in scope and scale than their pre-high-tech predecessors, covering far more products and larger geographical areas.
- These systems are used extensively with generation of diverse information products so as to increase the quality, reliability and volume of information flowing through various supply chains for the various commodities.
- The aptitude of MISs to provide a valuable service has been reinforced with the growth of electronic commerce and the development of the Internet. Most of the impressive MISs are internet-based. They consist of a website offering a wide range of services from consistently updated periodic trade data as frequent as daily: databases with historical data, recent horticulture market news both local and international, information on requirements and conditions to enter potential markets, analyzed data summaries, analyzed and interpreted market trends with graphical representations generated from collected data, links to other sources of information and adverts and/or alerts from sector services provider e.g., seed companies.

This review is focused on one Kenyan-based private sector MIS developed, owned and managed by the Kenya Agricultural Commodity Exchange (KACE) Limited, whose lessons learned can be built upon.

4.1 KENYA AGRICULTURAL COMMODITY EXCHANGE (KACE) LIMITED

KACE is a privately owned entity that has been operational since 1997 providing market information and other tailor-made services in the marketing of agricultural commodities. The main objectives of the company are to link buyers and sellers as well as provide market information adapted to the needs of the various users. KACE has developed a Marketing Information and Linkage System (MILS) designed to facilitate competitive and efficient trade in agricultural commodities and services in Kenya, with the aim and potential for scaling out in the East African Community region. Through MILS, KACE collects, updates, analyzes and provides reliable and timely marketing information and intelligence on a wide range of crop and livestock commodities, targeting actors in commodity value chains, with particular attention to smallholder farmers and small scale agribusinesses. The information provided is inclusive of daily wholesale buying prices for various crop and livestock products in selected main markets in the country, as well as commodity offers to sell and bids to buy. KACE also links farmers and agribusinesses to markets through matching commodity offers and bids. Market information enhances the bargaining power of the farmer for a better price in the

marketplace, and helps to link the farmer to input and output markets more efficiently and profitably.

The KACE MIS involves harnessing the power and advantages of modern ICTs for information collection, processing and delivery. The components of the system are:

Market Resource Centres (MRCs): KACE has numerous field officers in the various Market Information Centres/Points (MICs or MIPs) located in major markets in Kenya. The Centres or Points are located in rural markets in Bungoma, Kitale, Eldoret, Kisumu, Vihiga, Siaya, Mumias, Kisii and Machakos. Once profitable and sustainable, these Centres/Points will be franchised to interested local entrepreneurs to own and operate hence promoting the growth of local entrepreneurial capacity to collect, analyze and disseminate information commercially. Sellers and buyers offer and bid on agricultural commodities as well as receive and provide marketing information and intelligence; what commodities to sell or buy, in what quality, at what cost, what price, where, when, from whom etc.

Mobile Phone Short Messaging Service (SMS): The SMS service applies mobile telephony for market information delivery to users and is provided in conjunction with the Adtel Phone Company Limited of Nairobi as the technical consultants. The field officers at the MICs send the data on prices of 20 products from their various locations via SMS messaging. The data is then analyzed, interpreted and uploaded into the Short Message Services (SMS) information systems. The information is available to all users who send requests on prices of any of the 20 commodities via SMS messaging. Safaricom and Zain subscribers are the exclusive users of this SMS service. Users send a text message with the name of the specific commodity to 411 for Safaricom subscribers and 247 for Zain. They then get an immediate response on wholesale prices from around seven markets. This market information service is called SMS Sokoni. Other than prices, users can also place offers or bid on various agricultural commodities.

Interactive Voice Response Service (IVRS): Another component of the KACE MIS is the IVRS provided in conjunction with the Adtel Phone Company Limited whereby users call the Kilimo Hotline and get price information requested for, via voicemail. KACE submits updated market information to Adtel Ltd., who translates the information into voice mail. A user dials a special phone number (0900881188) to access the information through simple menu steps, with a choice of language between the local Kiswahili and English. Any mobile phone can be used to dial the special number to access the information. Each IVRS phone call is charged a set premium rate by Safaricom or Zain. Adtel Ltd. tracks the number of IVRS calls in a month, and pays KACE an agreed percentage of the total value of the calls for the month.

Internet Database System (IDS): KACE disseminates updated market price information through an internet-based electronic database (RECOTIS) and website: www.kacekenya.co.ke Subscriber email contact addresses are in an electronic database. Updated market information is sent daily to subscribers in the database as email messages in an Excel worksheet attachment. Information is sent on a wide range of crop and livestock commodities. There are currently about six hundred subscribers in the database from 26 countries in the world, mostly in Africa. Subscribers pay KACE a set subscription fee for six months or 12 months.

National Radio: KACE submits updated price information daily to the Kenya Broadcasting Corporation (KBC) Radio (the national radio service) for dissemination. KBC broadcasts the information twice in a day: once in the morning and once in the evening, and acknowledges KACE in the broadcast as the source. The KBC radio network covers the whole country, including remote rural areas, and is therefore widely listened to by the public. KBC estimates that about 5 million people listen to KACE price information broadcast daily.

Rural FM Radio: KACE, in collaboration with the West Media Limited (WML), proprietors of the West FM Radio Station located in Bungoma town in Western Province of Kenya, have established an interactive radio program branded Soko Hewani (The Supermarket On-Air). Soko Hewani is in effect a virtual trading floor. It involves using West FM Radio to match commodity offers and bids by farmers and agribusinesses. Listeners are given an opportunity to phone or send SMS messages into the radio program and bid on the offers, or offer on the bids. The KACE radio program staff on standby during the Soko Hewani broadcast then match the offers and bids, using mobile phone calls and SMS, or reference back to the specific MRC which submitted the offer or bid for further negotiation and conclusion of deals. KACE charges a placement fee per initial offer or bid depending on volume, and a negotiable modest commission (0.5% - 5%) on successful transactions through Soko Hewani.

KACE Headquarters Central Hub (KCH) in Nairobi: The Central Hub at the KACE Headquarters in Nairobi serves as the nerve center of MILS. The Hub receives processes, manages, updates, disseminates and coordinates market information services through the MILS, using the channels described above. The Hub consists of a server, wireless internet connectivity, and several PCs linked in a local area network (LAN) for fast and timely receipt, processing and dissemination of market information by the KACE IT staff. In addition, the KACE Hub undertakes other activities aimed at building the capacity of farmers and agribusinesses to access and use MILS services more effectively. These include organizing, often in conjunction with other local service providers, training workshops, exhibitions, field days and promotional road shows.

Some of the identified gaps in the KACE MIS are: restricted number of commodities covered due to limited SMS space; farmers not being conversant with these information systems due to illiteracy as far as ICTs are concerned; potential users are not aware of services provided owing to poor publicity.

Financing:

KACE finances MILS through the following channels:

- A placement fee per initial offer or bid is charged depending on volume, and a negotiable modest commission on successful transactions on *Soko Hewani*.
- Subscription fees to RECOTIS
- Negotiated revenue sharing agreements with the SMS and IVR services providers
- Fees to organized visiting groups
- Franchised Market Resources Centres

Lessons Learned:

- Farmers and other SMEs are willing to pay for marketing services for effective market linkages
- Market information is necessary but not a sufficient condition for access to markets hence the adoption of the franchise model

- ICTs have a crucial role to play in facilitating access to market information but the costs must be affordable to the poor small-scale producer
- Market information services should cover large geographic areas linking surplus and deficit markets

5. GAPS IN EXISTING MIS

There are various challenges faced by different existing horticulture market information systems in the country. These challenges are generic across the board and only differ in context.

Accessibility

The current MISs in the horticulture sub-sector, more often than not, disseminate information electronically i.e., via websites. This limits the number of users reached since the information will only be accessible to those with access to the Internet and who are computer literate. A few other entities have printed information that is distributed to a pre-determined number of people, either membership or paid subscription. Again, this mode of dissemination benefits listed subscribers and/or literate users. Furthermore, the frequency of the generation of this information does not facilitate timely reception of news.

Reliability

The accuracy of the relayed information is very important. This is much so with systems dealing with quantitative information, for example, market prices or volumes traded. Despite the work done by the validation committee on export data contributing to improving the quality of disseminated information, the accuracy of the original data that is the key to generating reliable end results is still wanting. At the moment, there are no mechanisms in place to evaluate accuracy of data at collection points.

Products/Commodities

The variety of horticultural commodities covered by existing MISs varies from one entity to another. KFC, for example, only collects data on flowers and even this exclusively from their membership. KEPHIS, on the other hand, only collects data on products that need to conform to specific phyto-sanitary standards. FPEAK collects data on fresh produce exports only and exclusively from membership too. Therefore, other than MOA and HCDA, other stakeholders provide information services on a limited number of commodities of interest.

Dissemination

One of the major challenges in provision of market information services by the various entities is the methods and timeliness of information dissemination to users. Time lags between the data collection and dissemination render available market information services inadequate to allow for informed commercial decision making. The frequency of generation of information is also wanting with the most frequently produced horticulture journal being monthly.

Diversification

However even in the cases of coverage of larger numbers of commodities, the information availed is confined to prices and quantities traded in the specific markets. Information relevant for marketing is wide and diverse e.g., new market opportunities and requirements for entry into these markets, currency exchange trends, production data in competitive countries, etc.

Infrastructure

Despite the IT wave taking Kenya by storm, there is still much to be done in investment of technologies that allow quick collection of data and transfer of the same to analysis centers, who then analyze, interpret and disseminate data in optimal time. Use of PDAs, for example, would facilitate the transfer of data from the field to information centers as data is collected in real time. Unfortunately, since this is not the situation, data is manually decoded in most cases resulting in the use of more time and increasing probability for error.

Sustainability

The main issue affecting or threatening sustainability of existing MISs is limited resources to cater for operational costs. Public funds are not sufficient to finance provision of efficient market information services and donor funded efforts are not sustainable due to the possibility of donor support running out.

6. OPPORTUNITIES

Growing market/demand

With the horticulture sub-sector growing at an estimated 15 to 20 percent per year, more players should be expected to enter the local and export marketing scene hence, increasing the number of individuals and entities requiring market information services for better decision making. This good performance in the sub-sector has been taking place with no national horticulture policy in place. However, with the implementation of the recently developed policy, more significant growth is projected. There will be a need to have efficient MISs that cater to the different needs of existing sub-sector players as well as new entrants.

Infrastructure

The rapid growth of mobile telephone users makes the fast relaying of information, analysis and translation possible, reaching a large number of users at any one time. Studies in some developing countries demonstrate the impact of cell phones in reducing price variations and creating equilibrium among markets. The introduction of internet kiosks and cafes that provide wholesale price information to farmers has been shown to enhance the functioning of rural markets by increasing the competitiveness of local traders. The recent arrival of the fiber optic cable in the country facilitates easier access of internet services in the rural areas. Hence, setting up of internet points for purposes of provision of market information services would be exploiting this available resource. Furthermore, the various mobile phone service providers are now offering internet services on cell phones at affordable rates. However, before the internet becomes an effective way of delivering information to rural people, a lot of training on computer literacy will be necessary in addition to building capacity to interpret accessed information since market information is only of use if the user knows how to utilize it to his benefit. The emergence of numerous radio FM stations means that information can be disseminated to users even in their local languages translating to more area coverage and consequently increased number of listeners reached.

Policy Environment

The drawing up and implementation of structural adjustment policies that led to liberalization of the Kenyan economy has been a major contributing factor to the consequent growth of the horticulture sector. The recently developed horticulture policy by the MOA confirms the government's commitment to creating an environment conducive to the consistent growth of

the sub-sector with fewer barriers and more opportunities for the various players. However, drawing up a good policy is not the issue, it remains to be seen how the interventions in the policy will be implemented.

7. REQUIREMENTS FOR EFFICIENT MIS DEVELOPMENT

Consultation with stakeholders

The first step towards the development of an MIS with various components that cater to the various needs of the different users is to bring the major players in the horticulture industry together for participatory engagement. This not only allows for a consultative environment ensuring the needs of these principal users are also put into consideration, but also creates ease in ownership transition. Furthermore, a participatory needs assessment is a prerequisite to identifying the information needs of the would-be user.

Information Centre

Other than accessibility by users, the efficacy of the services and products available in an information resource center or point is of paramount importance. Diverse useful resource materials (both virtual/electronic and physical) should be acquired to provide a wide range of market information either from local sources or external ones. This will include material on periodic production levels, prices and volumes of traded commodities, identification of new/alternative markets, market regulations both locally and internationally, requirements to enter new markets, etc. Subscription to known market journals and reputable databanks like Eurostat will be integral in building up resources available at the information center.

ICT Software and Hardware

Data collection, analysis, interpretation and dissemination could be timelier with the use of modern technology tools. Investment in IT equipment like computers, scanners, printers and other computer accessories will be required for efficient information management. Furthermore, the use of PDAs in the field (market places) will allow for relaying of data in real time hence consequent timely analysis and dissemination of information. Internet connection and acquisition of relevant IT software specifically tailored for statistical analysis e.g., SPSS, STATA or any other customized software (like AgriMarket MIS software developed by FAO) will reduce time lost in manual decoding of information as well as improve accuracy levels. This could be inclusive of hiring a consultant either to develop new software or advice on the optimal software to purchase to suit the MIS needs.

Capacity building

There will be a need to hire new personnel and build capacity of current data collection and analysis officers on the use of the acquired software as well as familiarization with modalities of the new MIS. This will go a long way in ensuring provision of quality market information services with a strong competent workforce behind it. Training and enhancing skills of current staff in the various entities will not only ascertain ownership with no challenges posed by skills limitation or lack of personnel, but also support efforts geared towards sustainability. Smallholder producers and other users will also need training on utilizing the various components of the MIS to acquire the needed information. For example, the market price announced on the radio could refer to a wholesale selling price and a producer may have trouble interpreting this into a realistic price at their local market. This could be done through train-the-trainer system with assisted users training fellow users in their localities. Another mode is transmitting market information to community-based farmers' groups. The

market prices and other information would then be interpreted in meetings for the benefit of illiterate members and discussions held. In the spirit of affirmative action, special attention could be afforded to women who often have poor access to ICTs but strong potential for raising household income.

Public-Private Sectors Partnerships (PPP)

The growth in the horticulture industry is much attributed to the significant involvement and leading role of the private sector players in production and marketing. These players do have an incentive to engage in the development of an MIS that caters to their market information needs, hence making it a demand-driven initiative. Despite the limitations of the public sector, it will be important to build capacity of the public institutions charged with provision of market information services. This will strengthen and develop existing institution capacity on information management and provision of quality services to users. HCDA is the government agency responsible for the various aspects of the horticulture sub-sector inclusive of provision of market information services to the industry. A PPP between MOA and HCDA and the private sector stakeholders will strengthen the institutions' performance in the vital areas of statistics on domestic and export horticultural market information and provision of other related services to both sectors. Moreover, working together of stakeholders in the horticulture industry will fortify the client-driven characteristic of the MIS since the private sector players make up the bulk of users.

Sustainability

Having a well-developed MIS running efficiently is one thing, guaranteeing its performance in the long term is another. Despite KHCP being the major proponent of the MIS development, it will be of necessity that other players are on board early on in order to facilitate ownership hence, the importance of a participatory and consultative approach. For the budding MIS to be sustainable suitable institutional coordination is necessary and opportunistic strategies shunned. Stakeholders need to come together in an organized forum and have roles distributed amongst themselves in accordance with the various services provided by each and capacities of the different entities. This way each stakeholder has a component to contribute to, other than being on the receiving end. Furthermore, given that financial resources have been identified as one of the major impediments to efficient running of existing MISs, it is necessary to explore various channels of funding running costs to ensure longevity of the system. One of the most effective is charging users for information services offered based on the nature of the service as well as offering advertising space at a fee. Another funding tool would be aggregating contributions of major stakeholders borrowed from their respective MIS's budget provisions. This shared funding is one strong component of ownership.

8. HORTICULTURE STAKEHOLDERS' FORUM ON MARKET INFORMATION SYSTEMS (MIS) DEVELOPMENT

Preamble

Following the review on functioning MIS in Kenya, a stakeholders' forum was held in the month of October. The role of the review was to establish a basis for KHCP interventions focusing on improving the scope, quality and outreach of market information in Kenya. The primary objective of the review was to identify gaps and opportunities in the established horticultural market information services available to producers, traders, decision-makers and other users. It was observed that indeed there were information systems in place; however, the products offered were limited hence, not effectively responsive to the market demand and diverse needs of the various information users. In addition, only market prices from selected towns and horticultural commodities are disseminated through delivery channels easily accessible to small-scale industry players in rural areas i.e. Radio, SMS and interactive voice response services. With the envisioned continued growth of the sub-sector, the consequent increase in demand for reliable market information services presents a significant opportunity for MIS development to facilitate informed decision-making. The recently developed national horticulture draft policy confirms the government's commitment to support efforts in developing existing MISs to provide competitive, diverse and quality information products.

The Horticulture Stakeholders' forum on MIS Development was held on Thursday, 14th October, 2010 at the Red Court Hotel in Nairobi. It was organized and facilitated by USAID's Kenya Horticulture Competitiveness Project (KHCP) managed by Fintrac, Inc. The forum was attended by 26 participants representing 11 institutions from both the public and private sector with the following agenda:

- Introduction of participants
- Effective MIS and their benefits to the horticulture industry
- Sources of market information and requirements for an efficient MIS development
- Efficient Commodity MIS: Lessons learned
- Group discussions
- Mapping the way forward

Effective MIS and benefits to the horticulture industry

This presentation sought to inform on the various functions, components and products of an ideal MIS, the strategic tasks an MIS should have capacity to perform and the role a well-developed MIS plays in a generic horticulture industry.

The following were identified and highlighted as the functions of a MIS:

Collection: It is of importance to have relevant sources of information and data, market information resources and required tools e.g., human resources, IT, financial etc.

Cataloguing/storage and retrieval: This should be done in a way that facilitates easy access to the collected information.

Analysis: This function allows for value addition to the raw data. It involves interpretation, research and validation processes to output end-results that are easily interpreted by users i.e., graphs, charts etc.

Presentation: Results and findings should be presented in a manner that makes it easy for users to comprehend the contents.

Dissemination: The more the channels of delivery, the higher the number of users reached. The information can be disseminated through various means; print and electronic media, email, mobile phones, online publications, etc.

Client feedback: MISs must be demand-driven and responsive to client needs. Therefore, it is of significance that information flows both ways allowing for feedback from clients on services offered

Examples of typical MIS products are: Production data, Price reports, Market requirements, Market surveys, Standards, Technical bulletins, Customized research, General publications (e.g., newsletters), Contacts and credit checks, Internet applications, etc.

Thus, a successful MIS should:

- Contain realistic products and services;
- Constitute value addition processes;
- Be financially sound;
- Be supported by high staff competency and;
- Be client/demand driven

Sources of market information and requirements for efficient MIS development

Key users of horticultural market information are inter alia, farmers, local traders, exporters, policy makers, market researchers, and the academia. All the stated users have varying market information needs. The type of information being sorted by users includes, and is not limited to: price data (domestic and international), trade flows (volume and value), market entry requirements, relevant events for the sector e.g., trade fairs, quality and standard specifications (MRLs, SPS, etc.) and general information and updates on the sector.

Various sources of horticultural market information were discussed both for the local and global markets. Local sources include those aforementioned: Namely, the Ministry of Agriculture (MOA) and Kenya Agricultural Commodity Exchange (KACE) for domestic market prices, Kenya Revenue Authority and Horticultural Crop Development Authority for export statistics, Export Promotion Council for market surveys and event alerts, and Kenya Plant Health Inspectorate Services (KEPHIS) for market specific standards among others. On the international scene, there are various websites, portals, journals and databases where one can source for information on regional and international horticulture markets. Several (see above) were cited and their functions explained including Eurostat, International Trade Commission (ITC), and Centre for the Promotion of Imports (CBI) among others.

The key requirements for an efficient MIS development in the horticulture industry, as previously mentioned, were consultatively deliberated upon.

9. FORUM OUTCOMES

Representatives from the various institutions (major stakeholders in the horticulture sub-sector) presented the informed participants on the information services each entity offers with respect to the horticulture industry and the challenges they face as service providers. Thereafter, discussions were held by two groups on what needed to be done to develop an ideal MIS for the Kenyan industry one with respect to the functions of an MIS and the other on the basic requirements stated earlier.

9.1 MIS FUNCTIONS

The six major functions of an effective MIS were extensively discussed and also what needed to be done in the Kenyan context vis-à-vis the challenges faced. The following was agreed upon in the deliberations:

Data collection

- The importance of defining the objectives/reasons of data collection to determine what data to be collected and for what products/commodities cannot be emphasized enough.
- Having harmonized data collection practices between the various institutions involved in this function would allow for comparison/triangulation and ease data validation.
- Use of standard units of measure to improve accuracy in reporting on volumes traded
- The methodology of data collection adopted should allow for validation to be done so as to remove inconsistencies and harmonize statistics hence improving accuracy and transparency in the system.
- It was agreed that there is need to build capacity for enumerators/data collectors through regular trainings. Computerized data collection devices like PDAs will impede use of guessed data since they can be tracked using GPRS systems to give locations of the enumerators at any given time.
- Market data should be collected at specified times (peak hours) in the various markets to reduce deviations.
- Strict supervision of enumerators to ensure accurateness in the data collection processes.

Storage and Retrieval

- There will be a need to ensure standardized storage mechanisms and methods in formats that are easy to follow and downloadable by the various users.
- Easy to distinguish
- Raw data from the field should be stored in accessible databanks where users can retrieve and analyze the data for their diverse end uses. This will increase information that could emanate from one set of data.
- Storage should be done in a timely manner to ensure availability of up-to-date data
- Ensure back up system with security to avoid data losses
- The collected data should be validated before storage so as not to mislead the users.

Analysis and Presentation

- The method used for analysis should be user-friendly, easy to understand, and above all, be able to output the required information stipulated in the objectives of the data collection.
- Analyzed and interpreted data should be well-presented and output in a way that eases dissemination.
- The format of presenting analyzed data is to be agreed upon through consultation with stakeholders in the industry to ensure that the diverse needs are met.
- Data collected and analyzed in real time will ensure the information is ready for dissemination to users in a timely manner.
- Extra fees could be charged for information analyzed in requested detail

Dissemination

- Timely dissemination of information to the stakeholders and other users is important for the success of the MIS
- Measures should be taken to ensure confidentiality of classified information
- Use of electronic and print media (newspapers, radio, etc.), modern ICTs like emails, mobile phones and online publications will not only ensure reaching users in real time but also create public awareness on services available.
- Frequency of information dissemination is key to keep the sector regularly updated on the happenings in both domestic and international horticultural markets
- Appropriate channels of dissemination will be chosen based on the target group
- A common portal-website which is regularly updated could be a one-stop-shop linked to the stakeholders and other users.

Client feedback

- The envisioned MIS should facilitate reception of information, opinions or questions from the users
- Additionally, it will be of importance to conduct regular surveys to identify: Emerging horticulture market information needs; the various clients/users of the information and the number of users reached; and the strategic improvements needed to better serve the various users.

9.2 BASIC REQUIREMENTS FOR EFFECTIVE MIS DEVELOPMENT

Through a participatory engagement, the basic requirements necessary to lay the foundation for effective development of the envisioned horticulture MIS were debated and agreed upon.

Consultation with stakeholders

- Participation of key stakeholders from the inception stage would facilitate ownership. In addition, the involvement of more stakeholders that were not present, for example, KRA Ministry of Information and Communications (who are establishing digital village centers that could be a very useful resource) among others
- The engagement of stakeholders should be at different levels to ensure the process is not just at the macro-level but also involves the players at the micro-level e.g., rural smallholder producers
- Holding regular stakeholder forums will be necessary to evaluate performance of the MIS, appreciate successes, identify gaps and check for areas needing intervention
- The stakeholders involved in market information (either as service providers or users) should be fully involved in the data validation processes.

Information Resource Centres

- Recognize the existing Resource Centres, for example, those at HCDA, MOA, established libraries, etc. The intervention would be replenishing the Centres with resource materials as well as decentralization to ensure easy access of information at grass-root levels either through ministry offices in the various locations or other field out-stations.
- These Centres should be one-stop shops either in terms of virtual/electronic materials or physical resources with diverse information on the sector (historical or to-date).
- A web portal with multiple applications and access control, that presents information from diverse sources in a unified way should be developed. This will be quite

resourceful since, apart from search engines, portals offer other services such as email, market news, prevailing prices, databases and other information services.

- It was agreed that the host of the MIS should be an organization having experience and the capacity to run it with the support of the other stakeholders. Candidates for hosting were MOA, HCDA and FPEAK. HCDA was a preferred host since it is sector-specific (exclusively Horticulture). It is the institution with the mandate to provide these services and have a network extending from national to grass-root level. Additionally, they have recently purchased software that can be customized to the requirements of the envisioned MIS.

ICT Hardware and Software

- It was recommended to consult with KACE and/or other specialist on the MIS requirements in terms of ICTs.
- Equipment facilitating the efficient running of the six functions described by Group A have to be acquired.
- Computers and internet access should be considered for use in the IRCs to be established.

Capacity Building

- This will be done for the personnel involved in all the functions of the MIS at the various institutions involved.
- Channels of sensitizing users especially in the rural areas on the use of the MIS will be essential.
- Special consideration should be given to the illiterate users so that they are not excluded.

Public-Private Sector Partnership

- It was noted that most of the activities carried out in collaboration are usually by goodwill hence partnerships not long-lasting. There will be need to explore use of MOUs to get committed agreements on the roles of all stakeholders involved.
- Work with already existing entities that bring the same stakeholders together e.g., the National Task Force on Horticulture, Data Validation Committee, etc.
- Upholding of the first requirement mentioned, (consultation with stakeholders) will strengthen existing PPP relationships and forge new ones.

Sustainability

- Ownership of the process by the stakeholders is a major component of sustainability.
- The skilled staff assigned to the various MIS activities will ensure continuity. They should be provided with regular training to make sure they are up to par with new technology and modalities of the MIS as need be.
- Financial resources to run the MIS could be a combination of GoK funding, subscription and other service charges as well as cost sharing in agreement by stakeholders from their respective budget allocations.

9.3 WAY FORWARD

It is generally agreed that functioning MISs exist. However, these do not satisfy the market information demand in the Horticulture industry. Rather than building a new MIS, it is prudent to consider what each existing MIS has to offer, then build on this and incorporate all the various components in the envisioned MIS. This translates to every service provider

having a role to play in the success of developing an effective and efficient MIS for the Kenyan horticultural industry. Participants of the first stakeholder forum have agreed on behalf of their respective institutions to be committed to the process and take into consideration the points brought up in the discussions. In recognition of the important roles the players in the industry have to play, a follow-up meeting in the near future is recommended to discuss decisions made and lay the foundation on the MIS development plan while the morale is high. The successful realization of this system will directly contribute to the intervention proposed in the National Horticulture Draft Policy: developing an efficient MIS and building necessary physical and human capacity to manage the system through collaboration by Government of Kenya, private sector and development partners.

10. MIS RECOMMENDATIONS

With the significant growth of the horticulture industry exhibited by the consistent trend of annual growth rate, it suffices to say that improvement in any supporting services will impact positively on the sub-sector and register positive ripple effects on the industry stakeholders. To develop an enviable MIS the following is recommended:

- Government bodies (MOA, HCDA, and KRA) need to be part of the inception, development and realization of the MIS for the ‘public good’ aspect of the services offered. This will ensure government involvement and support and can contribute majorly to sustainability of the MIS.
- Despite the general knowledge of what information is needed in the horticultural commodities market, a needs assessment study should be carried out to ascertain the specific needs of the various information users. This will ensure the development of an MIS covering numerous horticultural products and with various products that are responsive to information requirements across the board.
- The current extensive usage of ICTs, like mobile telephony, should be exploited as delivery channels to disseminate market information in order to facilitate reaching as many users as possible. This will counter the challenge of accessibility to information. Furthermore, investment in modern technologies like use of PDAs for data collection and networking of field information points will allow for timely collection of reliable data and analysis.
- Other than the continuation of the validation committee, strict and effective supervision should be done at data collection points. Additionally, each source (i.e., MOA, HCDA, etc.) for the envisioned MIS should commit to ensuring quality assurance for the respective information provided hence making it reliable.
- The involvement of the key information providers with each of the contributing various components where their mandates lie will diversify the information products available to users.
- Hiring of consultation services from well-established MIS specialists and/or market information service providers in the private sector, e.g., KACE, for the development and successful establishment of an efficient MIS and consequent capacity building of staff and users
- Publicity plans should be laid out to create awareness to potential users once the development phase is done in order to sensitize people on the availability of the services on offer and how to access them. This should be done mainly through the various means of advertisement whether through print or electronic media. Some market players may be reluctant to trust information that they believe may not be beneficial to them or worth paying for with the possibility that some potential users may still prefer informal information sources that give limited opportunities.

11. CONCLUSION

The review showed that MISs for the horticulture industry in Kenya do exist; however, they do not satisfy the information demands by various users. Other than re-inventing the wheel, an efficient horticulture MIS can be developed based on lessons learned and adopting best practices. This envisioned MIS model would contain information sourced from all the major industry players (who are also information users) in both the private and public sector, where each one has a component contributing to the wholesome system (see Annex 2). Basic information communication technology will contribute majorly in developing connectivity among markets and various market players. This can assist horticultural producers in identifying the best markets for their produce based on market price knowledge and also in traders buying and selling in markets presenting bigger profit margins due to better prices and less transaction costs. Enhancing the technical and human capacity to meet market information needs will help bridge the gap between surplus and deficit areas. There is a need to develop an efficient MIS that will increase trade volumes, encourage new entrants into the local and export markets, strengthen horticultural producers in their negotiations with traders, provide farmers with opportunities to diversify production with respect to demand, increase incomes and profits consequently, reduce marketing risks and improve spatial arbitrage (reduced difference between prices for the one specific commodity in different markets).

The success of the development of this efficient demand-driven MIS will rely heavily on strong cooperation between the relevant public and private sector stakeholders and commitment from industry players, with the government playing a significant role in terms of development and adoption of policies that facilitate easy access to ICTs especially in the rural areas where marketing of horticultural products is a key activity.

12. REFERENCES

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Interviews

Mrs. Florence Chelagat, Marketing Department– HCDA

Mr. Francis Wario – FPEAK

Mr. Okite, ICT Department– HCDA

Mrs. Priscilla Muiruri, Head of Market Intelligence – MOA

Mr. P.K Njoroge – KEPHIS

Mr. Evans Gichuhi, Finance and Administration Department – KFC

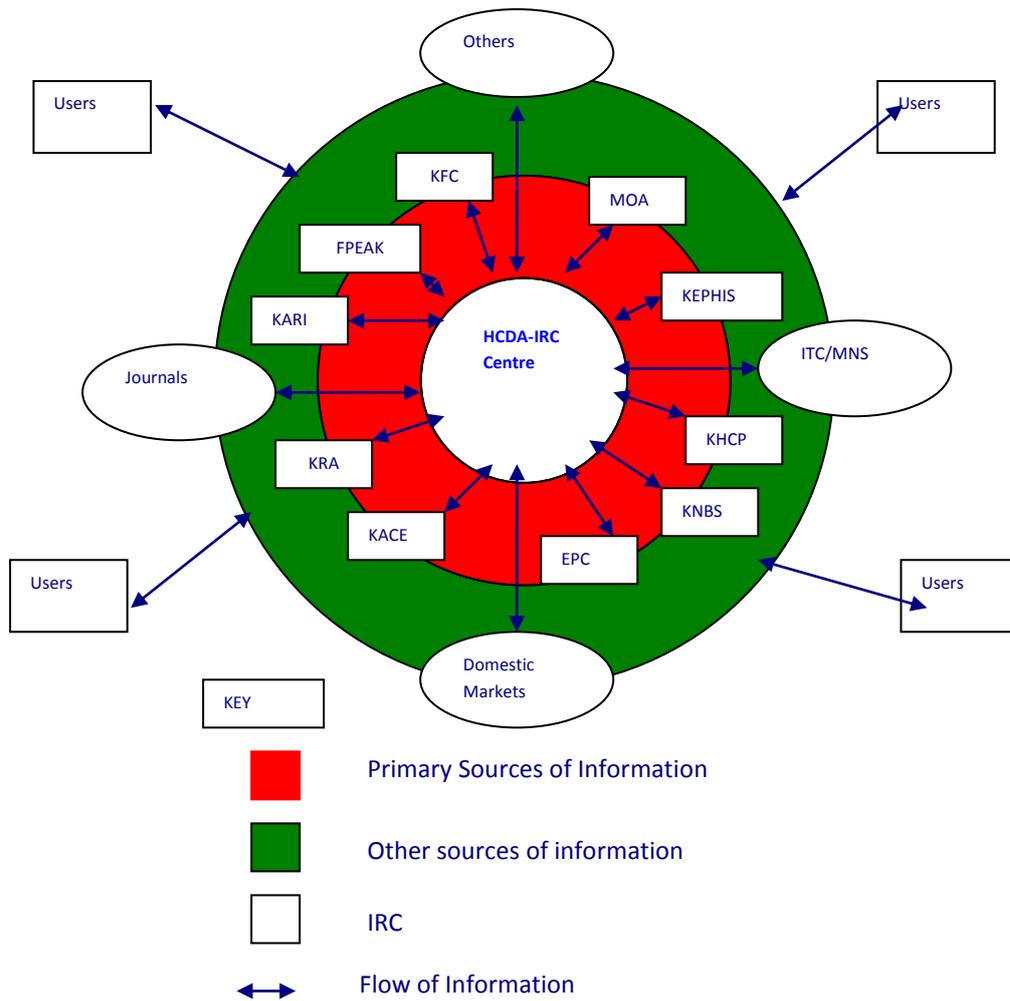
Mr. James Kundu, Managing Director - KACE

13. ANNEXES

ANNEX 1: LIST OF PROPOSED MIS PARTNERS

1. Export Promotion Council
2. Fresh Produce Exporters Association of Kenya (FPEAK)
3. Horticultural Crops Development Authority (HCDA)
4. Kenya Agricultural Commodity Exchange (KACE)
5. Kenya Flower Council (KFC)
6. Kenya Horticulture Competitiveness Project (KHCP)
7. Kenya National Bureau of Statistics (KNBS)
8. Kenya National Federation of Agricultural Producers (KENFAP)
9. Kenya Plant Health Inspectorate Services (KEPHIS)
10. Kenya Revenue Authority (KRA)
11. Ministry of Agriculture
12. Ministry of Information and Communications
13. Ministry of Trade
14. Tegemeo Institute of Egerton Univeristy
15. Other willing stakeholders

ANNEX 2: PROPOSED HORTICULTURE MIS MODEL



ANNEX 3: CONSULTANT SCOPE OF WORK AND DELIVERABLES

Scope of Work

The consultant will:

- Review the existing horticulture market information systems and data validation modalities
- Provide analysis on specified value chains
- Collect and review market related surveys and provide market news information services
- Identify capacity requirements for development and sustainability of streamlined and unified market information systems

Deliverables

One document of no more than thirty pages with focus on the following:

1. Capacity gaps in current “Market Information Systems” identified
2. Baseline information and requirements for the establishment and operationalization of national market information system documented
3. Parameters for value chain analysis, data collection and validation determined