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# Egerton University



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## Tegemeo Institute of Agricultural Policy and Development

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**Working Paper No. 08B/2004**

**IMPROVING KENYA'S DOMESTIC HORTICULTURAL PRODUCTION AND  
MARKETING SYSTEM: CURRENT COMPETITIVENESS, FORCES OF CHANGE,  
AND CHALLENGES FOR THE FUTURE**

**VOLUME II: HORTICULTURAL MARKETING**

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## LIST OF ACRONYMS

|         |  |
|---------|--|
| CIDA    | Canadian International Development Agency              |
| COMESA  | Common Market for Eastern and Southern Africa          |
| EAC     | East African Community                                 |
| EU      | European Union   |
| FAO     | Food and Agriculture Organisation                      |
| FPEAK   | Fresh Produce Exporters Association of Kenya           |
| GDP     | Gross Domestic Product                                 |
| HCDA    | Horticultural Crop Development Authority               |
| IBR     | Institute for Biotechnology Research                   |
| ICIPE   | International Centre of Insect Physiology and Ecology  |
| IFAD    | International Fund for Agricultural Development        |
| IGAD    | Inter-Governmental Authority                           |
| JKUAT   | Jomo Kenyatta University of Agriculture and Technology |
| KARI    | Kenya Agricultural Research Institute                  |
| KBS     | Kenya Bureau of Standards                              |
| KEPHIS  | Kenya Plant Health Inspectorate Service                |
| KFA     | Kenya Farmers' Association                             |
| KFU     | Kenya Farmers Union                                    |
| KRA     | Kenya Revenue Authority                                |
| KSC     | Kenya Seed Company                                     |
| MoALD   | Ministry of Agriculture and Livestock Development      |
| MRLs    | Maximum Residual Levels                                |
| NCPB    | National Cereals and Produce Board                     |
| NGOs    | Non-Government Organizations                           |
| OPVs    | Open Pollinated Varieties                              |
| PTA     | Preferential Trade Area                                |
| QDS     | Quality Declared Seed                                  |
| SADC    | Southern African Development Community                 |
| TAMPA I | Tegemeo Agricultural Monitoring and Policy Analysis    |
| TFC     | Tanzania Fertilizer Company                            |
| THRC    | Thika Horticultural Research Centre                    |
| THRI    | Tengeru Horticultural Research Institute               |
| TOSCA   | Tanzania Official Seed Certification Agency            |
| TSC     | Tanzania Seed Company                                  |
| UK      | United Kingdom   |
| UNDP    | United Nations Development Programme                   |
| USAID   | United States Agency for International Development     |
| WV      | World Vision   |

## Executive Summary

Kenya's horticultural sector (defined here to include fruit and vegetable production and marketing, but not flowers) has received a great deal of attention over the past decade due to the rapid and sustained growth of its exports to Europe. This impressive growth has undoubtedly contributed to increased rural incomes and reduced rural poverty in Kenya. Yet despite this growth, exports remain a small fraction of Kenya's overall horticultural sector. For the past decade, over 90% of all fruit and vegetable production was consumed domestically, and the domestic market accounted for over 90% of the total growth in quantity of fruit and vegetable production. While over 90% of smallholder farmers in all but the arid regions of Kenya produce horticultural products, fewer than 2% do so directly for export.

This overwhelming dominance of the domestic market, combined with slower growth experienced in the export sector over the past decade, the challenges that smallholders face to continue participating in the export sector, and the possibility of more rapid growth in domestic demand, all argue for a more active focus on the potentials and constraints of domestic horticulture in Kenya. Such a focus implies also the need to assess the competitiveness of local production and marketing against that of neighboring countries such as Tanzania and Uganda. This paper explores these key issues in three Volumes. The overall objectives of the three Volumes are to provide a broad diagnostic overview of the horticultural sector, to identify specific constraints that limit the system's performance, to make suggestions for selected policy and programmatic changes, and to identify key research that needs to be done to guide further investments to improve sector performance. Volume II– the present volume – focuses on horticultural marketing, including the share of domestic production going to domestic and international markets, market channels within the domestic market, the import share of selected FFV crops, and costs within the domestic marketing system and resulting competitiveness of Kenya produce with that from neighboring countries. Volumes I and III focus, respectively, on horticultural production in Kenya, and on technical research and regulatory issues.

The paper is organized as follows. Chapter 1 provides background and briefly discusses the data and methods used in the report. Chapter 2 estimates the share of domestic FFV production going to international and domestic markets. Chapter 3 identifies the structure of horticultural marketing channels, estimates the share of production flowing through “traditional” and “modern” marketing channels, and quantifies the imports from Tanzania and Uganda of two vegetable and two fruit crops. Chapter 4 develops marketing cost budgets for these same four crops. Finally, Chapter 5 presents conclusions, recommendations, and suggestions for further research.

***International and Domestic Market Shares*** Using data from various sources for 1997-2001, we estimate that at least four- to five times more horticultural produce, by value, was sold in domestic markets than in international export markets. If produce consumed on the farm is included, the domestic share rises to 7-8 times that of the export market. Value added in domestic markets (post farm gate) was at least three times that in the export sector.

***Marketing Channels and Regional Trade Patterns:*** The traditional marketing system, including urban wholesale markets, continues to play the dominant role in FFV (fresh fruits and vegetables) marketing in the country. Based on retail price relationships between the traditional system and supermarkets, and patterns seen in Central and South America, where supermarket development began earlier, we estimate that the supermarket share of the FFV



market in Nairobi is below 10%. Direct survey evidence for Nairobi reinforces this conclusion, suggesting a market share of 4.4% in late 2003. Outside of Nairobi, it would certainly be lower. The two major chains – Uchumi and Nakumatt – each carry upwards of 80 horticultural products in their Nairobi stores, and each has ambitious expansion plans. Uchumi and Nakumatt are attempting, with uneven success, to bypass the wholesale markets in favor of direct procurement with an assortment of contracted commercial farmers and some organized small- and medium-sized farmers. Based on an assessment of key demand- and supply-side factors, we conclude that supermarket FFV shares will grow over time, but will remain well below 20% for the foreseeable future; traditional retail outlets served by public wholesale markets will continue to dominate the sector.

At the present time, traditional wholesale markets are unattractive to buyers concerned with assuring high quality and food safety while reducing procurement cost. New information is needed about options for designing investment programs to facilitate continued smallholder participation in fruit and vegetable value chains, while reducing overall marketing costs and prices to final consumers.

Banana and tomato imports from the region are estimated to have no more than a 7-8% share of the Kenyan market. Orange imports (nearly all from Tanzania) may exceed 20%, while the onion import share (also nearly all from Tanzania) may exceed half. Kenya exports almost no produce to regional markets.

***Regional Competitiveness:*** Collecting wholesaler budgets are consistent with these observed trade patterns: trader profits per unit of bananas and tomatoes are higher for Kenyan produce than for imports, profits per bag of oranges are higher for the commodity from Tanzania but returns to capital are comparable, and both profit per bag and returns to capital are higher for imported onions.

***Conclusions, Recommendations, and Further Research:*** Fresh fruit and vegetable production and marketing value chains are becoming increasingly important to a broad array of Kenyan consumers. These also hold potential market opportunities for important segments of the smallholder farming community. But investments are needed to upgrade marketing infrastructure and facilitating services for traditional participants in the system. Important forces of change include the entry of supermarkets into the domestic horticultural market. Both major supermarket chains indicate that they are moving towards direct procurement through “preferred grower” programs. Because the chains’ current market share is very low (4% in Nairobi, lower elsewhere) and is likely to grow only to a level of 10-20% over the next decade, the risk that they pose is not that smallholders and small traders will be excluded from the FFV market. Rather, the risk is that supermarkets may extend the dualism currently seen between export and domestic systems into the domestic system itself. The traditional system – and the small farmers and traders who primarily supply it – may be increasingly confined to the low income portion of the market, with low value added, high costs, and limited profits, while commercial farmers and a small number of organized smallholder farmers dominate the smaller but more profitable direct procurement system of the supermarket chains. How to avoid this entrenched dualism, with its negative implications for smallholder incomes, rural poverty reduction, and the quality of the urban food supply, is a key public policy issue over the next five to ten years. Initiatives which help reduce this dualism will also be likely to increase the domestic system’s competitiveness in regional markets.

Expanding domestic and regional markets for Kenyan horticultural produce and integrating the country's smallholder farmers into profitable supply chains that satisfy these markets will require investment in three key areas: technical production constraints, "hard" and "soft" market infrastructure, and the legal and regulatory environment. The high level of investment needed means that active partnering by government with donors and private sector will be crucial.

This volume focuses on horticultural marketing. In this regard, traditional wholesale markets should be the central but not exclusive focus of investments in three key types of hard and soft market infrastructure. First, improved logistical efficiency, especially for loading and unloading, is needed to reduce costs and improve hygiene in the markets. Second, improved hygiene combined with logistical improvements will make these markets more attractive options for a broader range of retail outlets. Third, improved grades and standards, and more easily available information on prices and volume by grade of product, will increase market transparency and further attract customers.

Achieving these improvements will require that wholesale market management take on a business orientation while recognizing that it is providing a partial public good by integrating smallholder farmers into a more dynamic and competitive system while providing poor consumers with higher quality produce at competitive prices. Active partnering between government, private sector and donors will be crucial to mobilize the needed financial resources and knowledge to make these improvements. Government and donors could also play an important role partnering with supermarkets to reduce the cost to them of dealing directly with smallholder farmers. Improvement in secondary and tertiary roads is also key to modernizing the sector.

To help guide investments to relieve bottlenecks in the production and marketing system, further applied research needs to be done in several areas, and used to develop extension messages as appropriate:

**Urban Retailing,** especially market shares for the full range of retail outlet types, the costs and standard operating procedures of each retailer's procurement system, and key bottlenecks that, if relieved, could reduce costs and increase quality.

**Product quality:** Understanding the degree and specific mechanisms of quality differentiation in the traditional system is fundamental to designing a more formal system of grades and standards that is workable and that can increase transparency and create a dynamic of constant quality improvement. Improved packaging would make an contribution to improved quality over time.

**Urban Wholesaling:** The behavior and performance of urban wholesale markets affects costs, prices, and the distribution of benefits throughout the production and marketing system. Identifying specific investments to improve logistics, hygiene, and market information requires applied research in close collaboration current and potential users.

**Links between urban markets and rural producers:** To design programs that link small farmers more closely to market outlets, one needs to know more about the system wide "price discovery" process. One would also want to establish how many small farmers sell through associations, what cost and other marketing advantages these associations provide, and what

if any price premia these organized farmers receive. Finally, it is important to know what the share of smallholder farmers vs larger commercial farmers is for the main horticultural crops.

**Rural marketing:** We anticipate that many rural households will be net buyers of horticultural produce. If this is true, then the performance of the rural marketing system, including rural retailing, will affect the real incomes of net sellers and net buyers.

# **Improving Kenya's Domestic Horticultural Production and Marketing System: Current Competitiveness, Forces of Change, And Challenges for the Future**

## **Volume II: Horticultural Marketing**

### **1. Introduction**

#### **1.1 Background and Objectives**

Kenya's horticultural sector has received a great deal of attention from local and international researchers, government, and donors over the past decade, due to the rapid and sustained growth of its export sector (Jaffee 1994, Jaffee 1995, Swernberg 1995, Kimenye 1995, Stevens and Kennan 1999, Dolan et al. 1999, Kamau 2000, Thiru 2000, Harris et al. 2001, Minot and Ngigi 2002). From a very low base, Kenya's horticultural exports (defined here to include fruit and vegetables but not flowers) grew 9% per year in the first decade after independence, then 17% per year from 1974-1983 (Minot and Ngigi 2002). Growth slowed over the 1980s and 1990s, but still averaged about 4% per annum over the past decade. By the year 2000, fruit and vegetable exports amounted to US\$270m, or 15% of Kenya's total export economy. This impressive growth has undoubtedly contributed to increased rural incomes and reduced rural poverty, through both direct production effects and linkage effects, as horticultural incomes from export are re-spent in rural areas.

Yet despite its rapid and sustained growth, exports remain a small fraction of Kenya's overall horticultural sector. For the past decade, over 90% of all fruit and vegetable production was consumed domestically, either on-farm or through domestic markets. Despite higher percent growth rates in the export sector, the absolute amount of growth has come overwhelmingly from the domestic sector: between 1992/93 and 2000/01, the domestic market accounted for 98% of the total growth in quantity of fruit production and 91% of the total growth in vegetable production. Even allowing for higher prices of export commodities, the dominance of the local market is clear.

This dominance is reflected at the farm level. While over 90% of smallholder farmers in all but the arid regions of Kenya produce horticultural products, fewer than 2% do so directly for export (Bawden et al, 2002). Kenyan smallholders who have succeeded in producing for the export market also face a daunting set of challenges if they are to maintain their participation in the sector. These challenges are driven by increasing consumer demand for quality and food safety in the UK and continental Europe, and by the related rise of supermarkets in these areas. By the late 1990s, supermarkets' share of the fresh fruit and vegetable market in the UK had surpassed 70%, and the share of *chains* among supermarkets had increased to nearly 80%. Consolidation in the retail sector has led to increasing market power for large retail concerns, and much more control by them over production practices. A focus on Maximum Residue Levels (MRLs) of

pesticides on fresh produce, and the need to ensure that exports do not exceed these, has led to an increasing emphasis on the *traceability* of horticultural production; exporters want to be able to trace production back to the specific farm from which it came in order to ensure quality and safe production and handling procedures.

Researchers, development practitioners, and governments are concerned that these changes in international supply chains for horticultural and other high-value agricultural products will make it increasingly difficult for smallholders to maintain their position in this trade (Dolan *et al.* 1999; Dolan & Humphrey, 2001; Dolan & Sutherland, 2002; Harris et al, 2001; Jaffee 2003; Kamau and Sisule 2001). Estimates of changes in Kenyan smallholders' share of the fresh horticultural export market vary widely. Most researchers seem to agree that shares were as high as 75% in the early 1990s (Harris 1992). The most optimistic current estimate is by Kenya's Horticultural Crops Development Authority (HCDA), which places smallholder export market shares at 40% for fruit and 70% for vegetables, implying an overall horticultural share of 55-60%. Dolan and Sutherland (2002) provide the lowest estimate. Based on interviews with four leading exporters, they suggest that smallholder shares fell to 18% by 1998 and 11% by 2001. Minot and Ngigi (2003) suggest that this figure is probably too low, based on the small number of firms interviewed and on the tendency of exporters to underestimate smallholder shares "to satisfy European buyers who are suspicious of smallholder quality control." Minot and Ngigi cite Jaffee (2003) as perhaps the most reliable current source. Based on interviews with several dozen exporters, he estimates smallholder export market shares of 27% for fresh vegetables and 85% for fresh fruit, for an overall horticultural share of 47%. Part of the reason for this much smaller estimated decline in smallholder participation in the export market (compared to Dolan and Sutherland) is that about 60% of Kenya's fresh horticultural exports are sold, not to UK supermarkets, which have the strictest food safety and quality requirements, but to UK wholesalers and other European countries, whose standards are not as strict.

Thus, outright pessimism about continued Kenyan smallholder participation in fresh horticultural export markets does not seem warranted. Yet their share does appear to have fallen substantially over the past 10 years, from about 75% to under 50%. In addition, Kenya's horticultural export sector as a whole faces increasingly stiff competition from other African countries such as Cote d'Ivoire, Morocco, Zimbabwe, South Africa and Cameroon. Kenya's horticultural export expansion has been aided by the country's preferential duty-free access to EU markets under the Lome Agreement, which currently runs through 2008. If this agreement is not renewed, or if other developing countries obtain similar benefits, Kenya can expect to face even stiffer competition in these markets. Finally, food safety standards in Europe, with emphases on *traceability* and *process standards*, are set to become much more strict in January 2005 under EUROPGAP, implying even higher barriers to smallholder participation. Thus, the continued growth of Kenya's horticultural exports, and the ability of smallholder farmers to participate in any growth that does occur, cannot be taken for granted.

Kenya's economy is also changing, with continued high rates of urbanization expected to drive increases in demand for horticultural products. If the new government is able to reverse the country's economic decline and stimulate private investment to generate renewed growth in per capita incomes, then the increase in domestic demand for horticultural products will accelerate.<sup>1</sup>

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<sup>1</sup> Income elasticities of demand for fruits and vegetables are generally high.

Responding to this growing demand will require increased productivity in both the production and marketing parts of the value chain; if productivity and quality remain low in either part of the chain, poor consumers will be faced with increasing prices, and small farmers may see little effective growth in the demand for their output.

All of these factors – the overwhelming dominance of the domestic market, the slower growth experienced in the export sector over the past decade, the challenges that smallholders face to continue participating in the sector, the possibility of more rapid growth in domestic demand, and the need for productivity growth in both production and marketing to meet this demand and protect the real incomes of poor consumers – argue for a more active focus on the potentials and constraints that the domestic horticultural market faces in Kenya. A focus on the domestic market implies also the need to assess the competitiveness of local production and marketing against that of neighboring countries such as Tanzania and Uganda. In this paper we explore these key issues in three Volumes. The overall objectives of the three Volumes are to provide a broad diagnostic overview of the horticultural sector, to identify specific constraints that limit the system's performance, to make suggestions for selected policy and programmatic changes, and to identify key research that needs to be done to guide further investments to improve sector performance. Volume II – the present volume – focuses on horticultural marketing, including the share of domestic production going to domestic and international markets, market channels within the domestic market, the import share of selected FFV crops, and costs within the domestic marketing system and resulting competitiveness of Kenya produce with that from neighboring countries. Volumes I and III focus, respectively, on horticultural production in Kenya, and on technical research and regulatory issues.

The specific objectives of this Volume are to:

- Estimate the share of domestic FFV production going to international and domestic markets;
- Determine the share of imports from Tanzania and Uganda in Kenya's horticultural markets;
- Investigate the competitiveness of Kenya's horticultural produce in local and regional markets;
- Determine the current and likely future share of key marketing channels in Kenya's domestic FFV marketing system, especially "modern" channels such as supermarkets and more traditional channels such as open air markets and kiosks.
- Recommend steps that should be taken to place Kenya's domestic horticulture in a position to compete favorably in local and regional markets.

## 1.2. Data and Methods

To undertake this study, data were obtained from several sources. Between November 2002 and February 2003, secondary data on imports and exports of fresh horticultural produce were obtained from Customs Department records in seven cross-border points: Lunga Lunga, Taveta, Ilasit, Namanga, Isebania, Busia and Malaba. Also, 32 horticultural collecting wholesale traders sourcing produce from both Kenya and Tanzania/Uganda were interviewed in Mombasa at Kongowea market, Nairobi at Wakulima market and in the main market in Taveta. In addition, 51 fruit and vegetable retailers were interviewed using a structured questionnaire. Systematic method of sampling was used to select them. During these interviews, data were collected on various aspects of fresh horticultural trade mainly geared towards determining commodities imported and exported, their origin, destinations, quantities, costs, prices, values and comparison of different origins of a commodity at a common market point. Discussions were held with customs officials at the Kenyan and Tanzania/Ugandan border points on handling of horticultural and broader agricultural trade.

Estimates of production entering international export and domestic market channels are based on vegetable production data from MoALRD and HCDA data on the volume and value of fresh vegetable exports.

Estimates of the market share of various domestic marketing channels are based on results of a survey of 524 households residing in Nairobi, carried out in November 2003. This survey, which was designed and executed by Tegemeo Institute, used the CBS sample frame to randomly select households throughout Nairobi, including high, medium, and low income areas. The statistical design of the sample allows it to be representative of the city as a whole. The survey gathered data on the households' income, and quantified their purchases of 40 different food items over the past 30 days.

Secondary data on various aspects of domestic and export horticulture were gathered from Kenya Revenue Authority, Horticultural Crop Development Authority, Ministry of Agriculture Livestock and Rural Development-Horticulture Division, Ministry of Trade and Industry, and Central Bureau of Statistics.

The paper is organized as follows. Chapter 2 estimates the share of domestic production entering domestic and international export market channels. Chapter 3 identifies the structure of domestic horticultural marketing channels, quantifies the market share of "traditional" and "modern" marketing channels, and establishes upper bounds for the quantities of two vegetable and two fruit crops imported from Tanzania and Uganda. Chapter 4 develops domestic and import marketing cost budgets for these same four crops. Finally, Chapter 5 presents conclusions, recommendations, and suggestions for further research.

## 2. International Export and Domestic Market Shares

Fruits and vegetables produced in Kenya can be retained on the farm, or marketed through local fresh markets, local processed markets, fresh export markets, or processed export markets. Establishing what proportion of total production flows through each of these channels is hampered by lack of data, especially on processing, and by definitional issues. In this section we first use data from several sources to estimate the proportion of total vegetable production that is a) consumed on farm, b) marketed locally, and c) exported in fresh or processed form. For comparability, we value all flows at farm-gate prices. Next, we value flows in each channel at final prices in that channel to estimate total value added in each of these channels. Together, these two results provide a picture of the relative importance of local and export markets for Kenya's horticultural sector.

We focus on vegetables for two reasons. First, vegetables appear by all accounts to contribute most to horticultural export earnings. FAOStat data on all fresh and processed horticultural exports (not including flowers) show vegetables with about a 60% share. HCDA data, which are limited to fresh exports, show vegetables with an 80-85% share over the past five years. The difference in these shares is due to the overwhelming importance of canned pineapples and pineapple juice in fruit exports – about 85% of all fruit exports according to FAOStat. Second, pineapple production and exports in Kenya are dominated by Del Monte's vertically integrated production, processing, and export operation: including Del Monte in fruit calculations would make them less applicable to the typical smallholder or commercial farm, and we lack data to make the calculations accurately without Del Monte.

Vegetable production data come from MoALRD, and include smallholder and commercial production. MoALRD values production at "farm gate" prices that it collects. HCDA reports volume and value data for fresh vegetable exports (primarily French beans and Asian vegetables)<sup>2</sup>. These figures represent all exports regardless of whether they come from smallholder or commercial farms. HCDA values are based on FOB export prices; we revalued these fresh vegetable exports using MoALRD farm-gate prices to make the production and export figures comparable.

This exercise shows that fresh vegetable exports rose from 4-5% of total vegetable production in the early 1990s to over 12% in 2000, before falling to about 7% in 2001 (Figure 2.1). The trend is clearly positive; the lower figure in 2001 is slightly higher than those for 1996 and 1997 and well above those of the early 1990s. Over the past 5 years (1997-2001), fresh vegetable exports averaged 9.3% of production, by value. Adding processed vegetable exports, which FAOStat data show to be about 1/3 as much, by value, as fresh exports, raises the total export share (processed plus fresh) of vegetables in Kenya between 1997 and 2001 to about 12%. In the absence of more detailed data, this final calculation assumes that the mix of processed vegetable exports is comparable to fresh, and that export prices for fresh and processed are also comparable.

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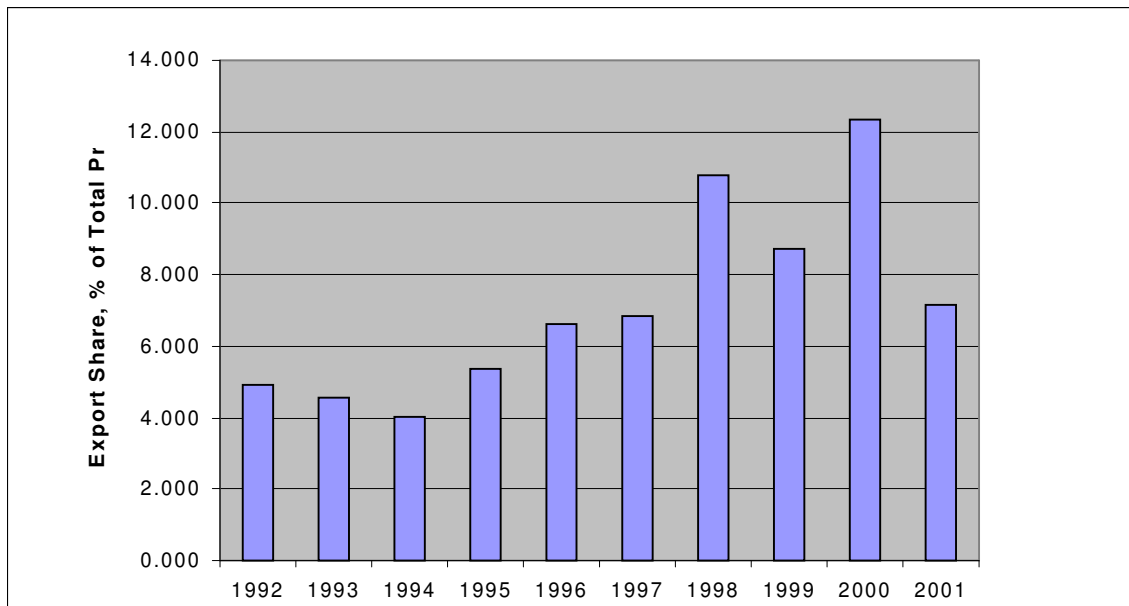
<sup>2</sup> "Asian vegetables" include eggplant, chillis, dudhi, karela, okra, and other vegetables used widely in South Asian cooking



As a final step to calculate market channel shares, we use data from the 2000 Tegemeo/MSU Tampa smallholder income survey which show that 64% of total vegetable production that year was sold, and 36% retained on farm. This calculation provides a lower bound for marketed share if we assume, as is reasonable, that commercial producers sell nearly all their production.<sup>3</sup> By combining all these data, we arrive at Figure 2.2, showing that the value of vegetable production sold and then consumed domestically over the past five years has been at least four-to-five times as large as the value exported in fresh and processed form (52% compared to 12%). If produce consumed on the farm is included, the domestic share rises to seven-to-eight times that of the export market.

Value added per unit of farm-gate production is higher in the export sector due primarily to higher quality and health standards. Comparing MoALRD farm-gate prices with HCDA export prices for French beans and Asian vegetables shows that export prices of these vegetables have exceeded farm-gate prices by a factor ranging from 2.7 to 6.2 since 1992, with an average of 3.9, or 290%. In contrast, mark-ups in domestic markets are typically about 100% from farm-gate to collecting wholesaler sales, and an additional 20-25% to retail.<sup>4</sup> These figures imply a 150% total markup from farm-gate to retail in local markets. Applying these markup figures to the share of production flowing through the domestic and export channels, and continuing to value unsold production at farm-gate prices, shows that total value added in domestic vegetable markets is nearly three times that in vegetable export markets (Figure 2.3).

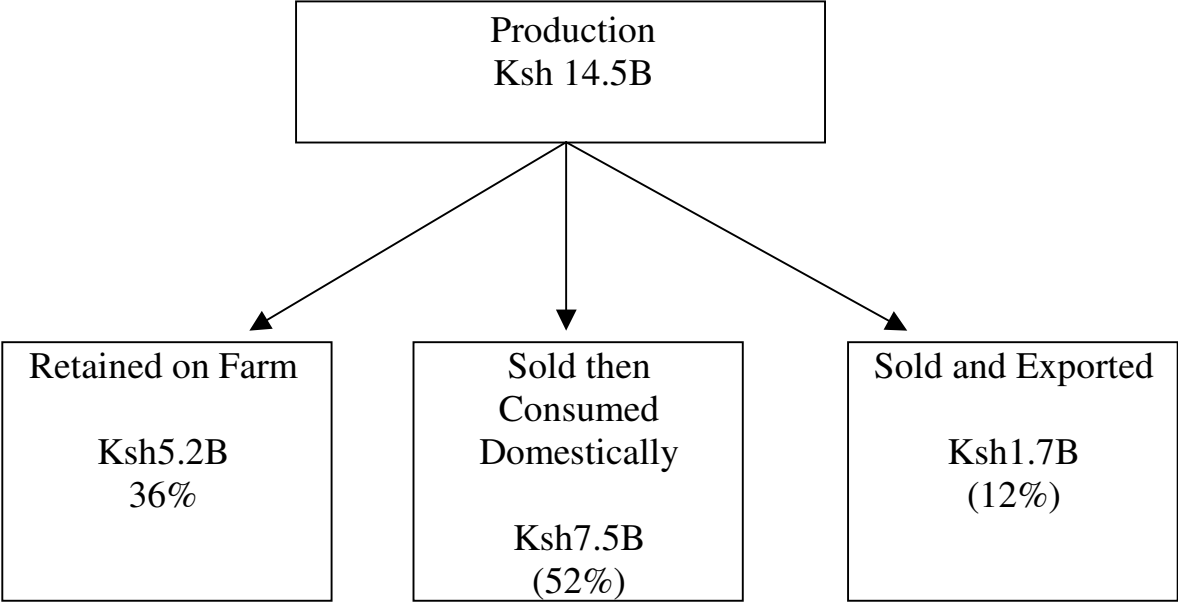
**FIGURE 2.1. FRESH VEGETABLE EXPORTS AS SHARE OF TOTAL PRODUCTION, BY VALUE (1992-2001)**



<sup>3</sup> Unfortunately, MoALRD does not report production separately for smallholder and commercial farmers. This makes it impossible to calculate a more accurate marketed surplus figure.

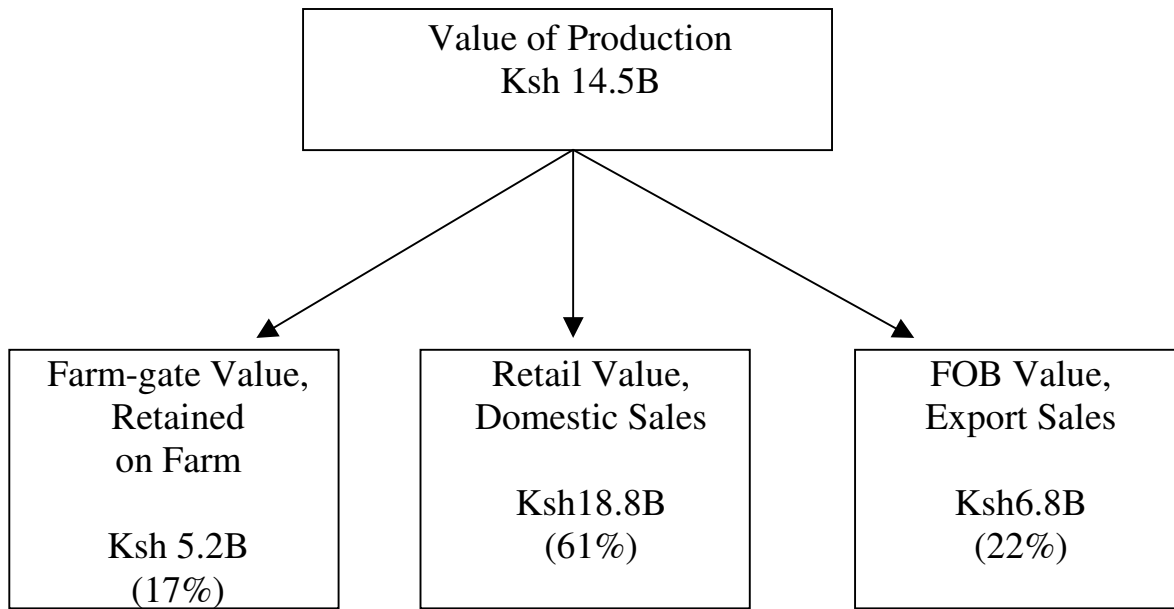
<sup>4</sup> See Tables 6.2, 6.4, 6.6., 6.8, and 6.10 for farm-gate to collecting wholesale markups. Mark-ups from collecting wholesale to retail are based on data collected in Wakulima market in November 2003. See Appendix XX for the original price data.

**Figure 2.2. Market channel shares (farm, local sales, export sales) of total vegetable production in Kenya, 1997-2001, valued at farm-gate prices**



Source: Derived from Tegemeo/MSU 2000 household survey data, production data from MoALRD, and export data from HCDA

**FIGURE 2.3. TOTAL VALUE ADDED (AND SHARE) IN FARM, LOCAL SALES, AND EXPORT SALES CHANNELS FOR VEGETABLES IN KENYA, 1997-2001**



Source: Derived from Tegemeo/MSU 2000 household survey data, production data from MoALRD, and export data from HCDA

These calculations show two things. First, vegetable exports are an important component of the vegetable supply chain, absorbing about 20% of all sold production by value, and accounting for about one-quarter of all value added after the farm gate. Second, domestic markets nonetheless remain the primary outlet for vegetable production and generate much more value added than do export markets. This conclusion will hold even more for fruit, which has a higher total value of production and lower value of exports.

### **3. Domestic and Regional Marketing Channels and Product Flows of Fresh Horticultural Produce**

Various regional cooperation initiatives have been put in place to boost intra-Africa trade, including the East African Community (EAC), the Southern African Development Community (SADC) the Inter-Governmental Authority on Development (IGAD), and the Common Market for Eastern and Southern Africa (COMESA). Expectations upon formation of these groups were that member countries would take advantage of these cooperation efforts to increase their trade within regional markets. Yet such trade remains low in both physical and value terms. For example, in 1992 the value of total Preferential Trade Area (PTA) country exports was \$ 12.453 billion, and only \$ 826 million (about 7%) was to member states. The total value of PTA imports was \$17.496 billion of which \$ 826 million (5%) was from member states (Preferential Trade Area, 1994).

Horticulture has been identified as one of the main commodity areas with potential for increasing rural household incomes in Kenya. Hence, increasing the volume and value of traded fresh horticultural produce among rural agricultural households as well as between them and the rest of the domestic, regional and international economy would be in line with the objective of increasing rural incomes and reducing poverty. The purpose of this section therefore is to assess the magnitude of trade in fresh horticultural produce between Kenya, Tanzania, and Uganda through the main border points. First we examine the marketing channels that domestic and imported produce flow through.

#### **3.1 Marketing Channels**

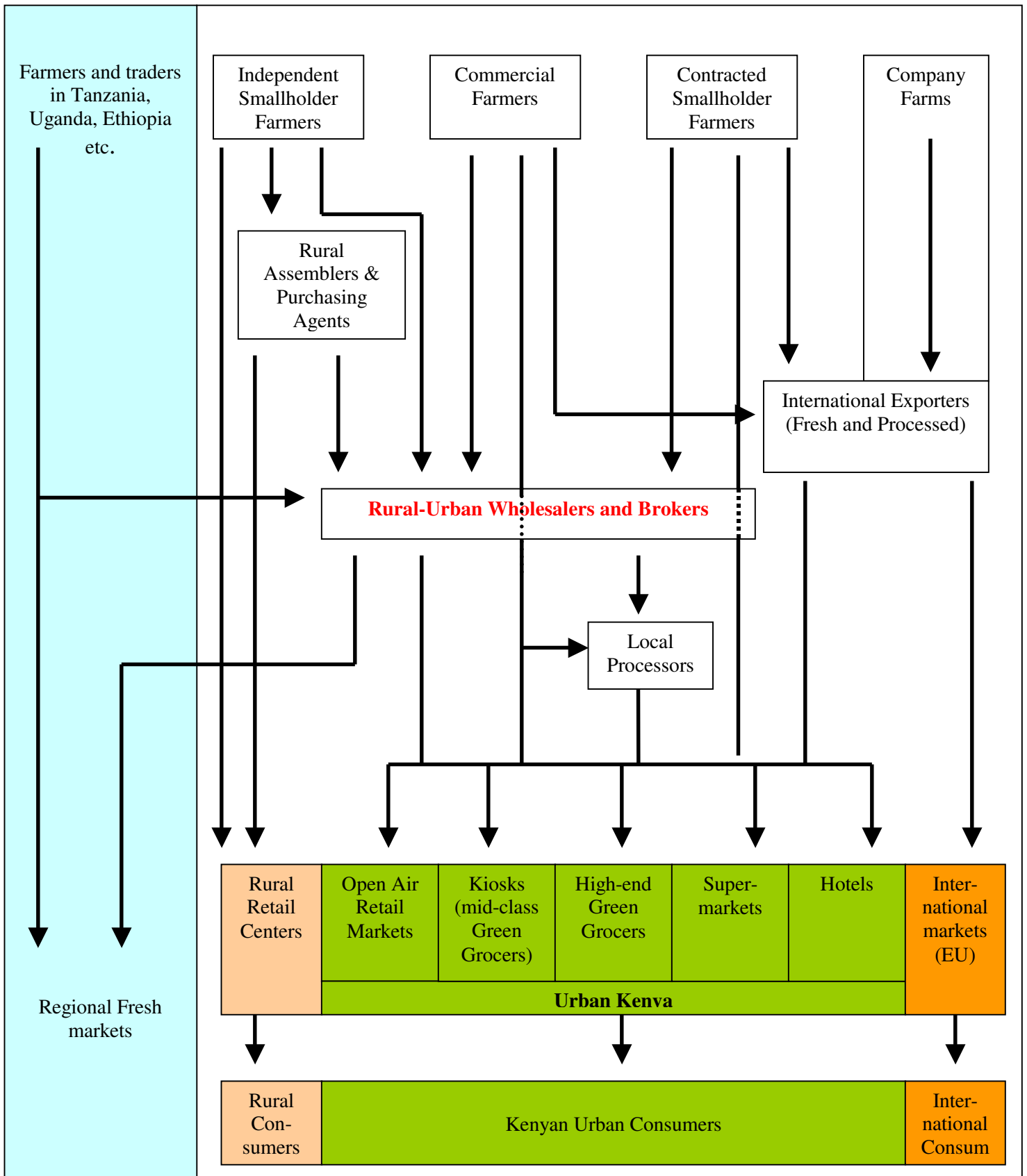
Government assistance to the horticultural sector has been concentrated primarily on the export market; public influence on the domestic market is seen primarily through construction of public markets, which primarily serve urban areas and are dominated by the horticultural trade, and maintenance of roads. Concerns about traffic congestion and lack of hygiene in public markets have become increasingly pressing in recent years, while poor road infrastructure has imposed high costs on the marketing of all agricultural products. Thus, the size of the urban population, the degree of self sufficiency of rural households, the purchasing power of urban and rural households, and the costs of collecting, transporting, and selling horticultural products are the key determinants of the size of the horticultural market for Kenya smallholders.

Figure 3.1 shows the various local, regional and international marketing channels for horticultural produce in Kenya, emphasizing the actors involved in the process. Figure 3.2 focuses on the principal physical market places through which domestic horticultural products pass<sup>5</sup>. The export market is served by a few large-scale own company farms, an increasing number of contracted commercial horticultural farms, and a declining but still significant number of contracted smallholder farms (Dijkstra and Magori, 1995). Independent smallholders produce the bulk of the vegetables and fruits for domestic markets.

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<sup>5</sup> The size of the boxes in both figures should not be taken to indicate the relative size of various channels or actors. The figures attempt only to show the types of channels and actors involved, and relations among them. So, for example, neither figure should not be taken to imply that rural consumption is substantially less than urban consumption.

**FIGURE 3.1. DOMESTIC, REGIONAL AND INTERNATIONAL MARKETING CHANNELS FOR FRESH HORTICULTURAL PRODUCE IN KENYA**



The main traders in the regional markets are the wholesalers. Wholesalers as a group are divided into collecting wholesalers and distributing wholesalers. The former specialize in collecting produce from farmers in the region. They travel long distances to purchase commodities in spot markets from the producing areas and towns in Kenya, Tanzania, and Uganda. To facilitate operation, collecting wholesalers frequently employ purchasing agents who work in the production areas on their behalf. Purchasing agents reduce costs by identifying produce for sale, carrying out the negotiations, accumulating, assembling and carrying the produce to a nearby earth road for ease of collection. Hence, they streamline the procurement process (Dijkstra, 1996; 1997; 1999). Once enough product is obtained, collecting wholesalers then transport the commodities to the main cities/towns generally using lorries with a minimum of seven tons. These professional collecting wholesalers sell primarily in urban wholesale markets to distributing wholesalers<sup>6</sup>. For example, oranges are fetched from Tanga and Morogoro in Tanzania and sold in Moshi, Arusha, Mombasa, Nairobi and Kisumu; onions are obtained from Arusha/Mang'ola in Tanzania and sold in Mombasa, Dar es Salaam and Nairobi. Coconuts are obtained from Mombasa and sold in Dar es Salaam, Moshi, Arusha, Nairobi and Kisumu. Bananas are obtained from Mbale in Uganda and Kisii in Kenya and sold in Nairobi.

Collecting wholesalers operate in such a way as to allow distributing wholesalers to focus entirely on their urban clientele. This is important in large regional urban centers such as Nairobi, Mombasa, Dar es Salaam and Kampala where wholesale and retail markets are operational six days a week. For such distributing wholesalers, being absent results in lost revenue and poor customer relations (Dijkstra, 1997). The urban clientele that these distributing wholesalers serve are highly diverse. They include traders in traditional open-air retail markets, green grocers serving middle-class clientele in roadside kiosks, high-end green grocers mostly in established retail centers, supermarkets, and hotels. Supermarkets have attempted to expand their participation in horticultural markets over the past three years, but their market share remains quite low (see section 3.2). The two major chains – Uchumi and Nakumatt – each carry upwards of 80 horticultural products in the produce section of their Nairobi stores, including fresh whole produce from Kenya, imported produce, and prepared vegetables ready for cooking. Each has ambitious expansion plans, with Uchumi planning to reach 50 stores within five years from 30 currently (Weatherspoon et al, 2003). However, as of March, 2003, these plans appeared to be stalled due to financial difficulties that this firm is having.

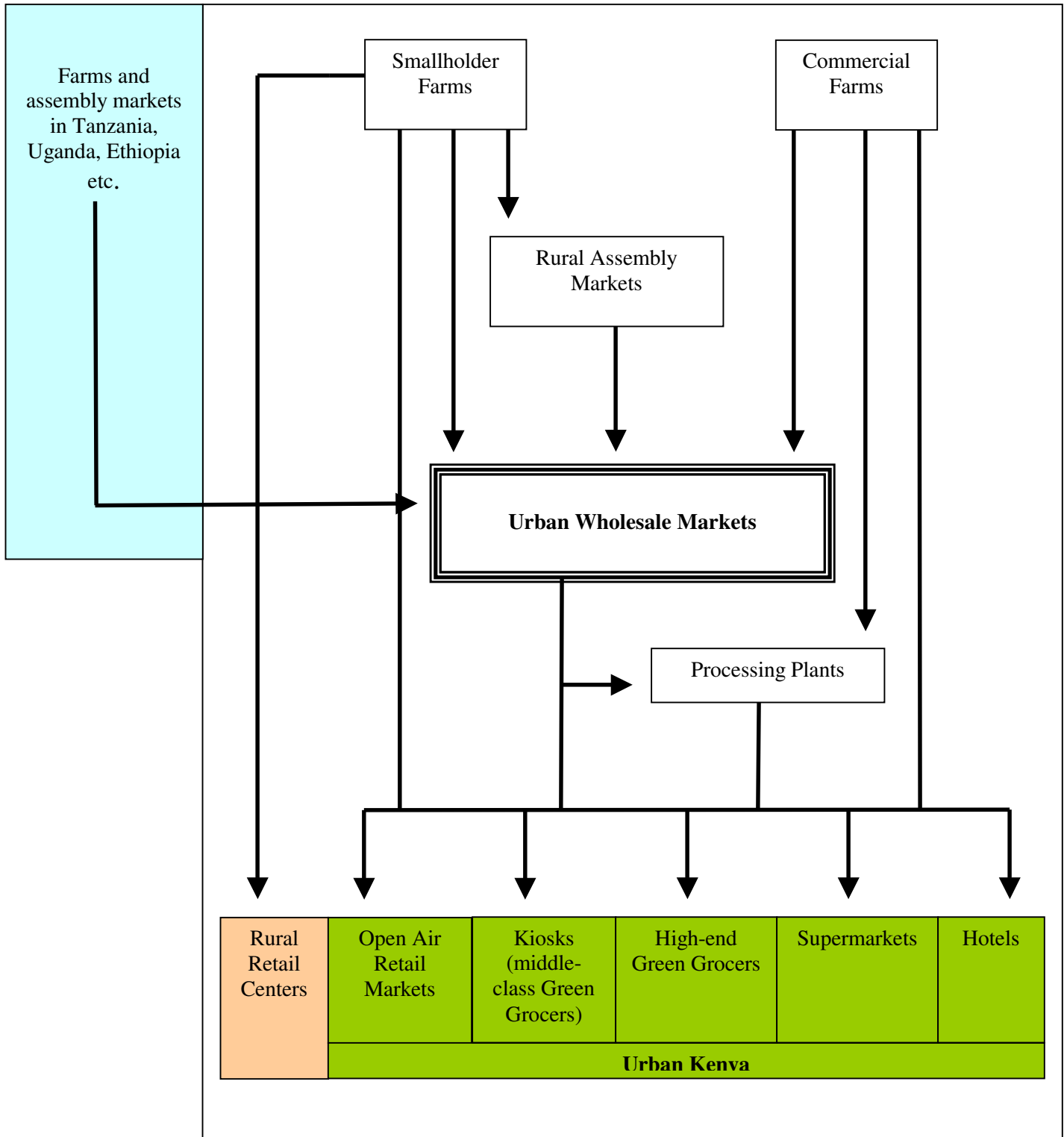
Urban wholesale market places continue to play a key role in the domestic horticultural marketing system as the dominant source of supply for open-air retail markets, kiosks, and small stores. The two largest supermarkets are attempting to by-pass these markets. Each relies primarily on brokers and secondarily on direct procurement with an assortment of contracted commercial farmers and some organized small- and medium-sized farmers (Weatherspoon et al). It is known that brokers obtain some of their produce in wholesale markets, though detail is lacking on the volumes and specific commodities that they tend to procure in this manner. The largest supermarket chains state that they intend to phase out brokers over the next five years as they develop their “preferred grower” programs. Whether in fact they are able to do so will

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<sup>6</sup> Collecting wholesalers do also sell directly to professional retailers in the market. The distinction between the various actors is to some extent artificial because at the end of the day wholesalers often sale produce that they have left over directly to consumers, thus taking the role of retailers. The trading system is very flexible.

depend on whether these systems are able to provide appreciably better quality produce at comparable prices to the traditional system.

**FIGURE 3.2. PRINCIPAL FLOWS OF HORTICULTURAL PRODUCTS THROUGH PHYSICAL MARKET PLACES IN KENYA**



### 3.2. Price Relationships and Retail Market Shares

Berdegú, et al, in a review of the rise of supermarkets in Central America, show that the supermarket share of the fresh fruit and vegetable (FFV) market lags well behind their penetration of the overall food market. While supermarkets' overall share in food retail is ranges from 19% to 50% in the region, their share of the FFV market ranges only from 5% to 18%. Similar patterns are found in South America. The authors suggest that the key reason for the lagging FFV share of supermarkets is that they offer similar quality produce for substantially higher prices; supermarket prices were found to be 15% to 60% higher than prices for comparable products in traditional markets. The primary advantages of supermarkets were convenience, safety, and cleanliness. Supermarkets' move in that region towards preferred buyer programs and centralized procurement and distribution are attempts to reduce costs while maintaining or improving quality, thus enabling them to capture more of the FFV market.

To examine price relationships in Kenya, we present two sets of comparisons, one from a one-time observation of prices in various market channels in late April, 2003, and another from a survey of over 500 consumers in Nairobi, carried out in November 2003. In late April, 2003, researchers collected price data on all FFV items offered for sale in two chain supermarket outlets, three randomly selected City Market stalls, one high-end green grocer, and one typical roadside kiosk in Nairobi. The City Market tends toward the higher end of the "traditional marketing system", while roadside kiosks primarily serve Nairobi's middle - and lower-middle classes. Traditional open air markets serving the city's poor were not visited.

Table 3.1 first presents information on all items offered by each outlet, then information only on the 39 items found in at least one supermarket and at least one City Market Stall (Subset 1), and finally on the 13 items found in at least one supermarket, at least one City Market stall, and the roadside kiosk. Four key patterns emerge. First, supermarkets and high-end green grocers have much greater variety than the roadside kiosk, with about five times more items on offer. Second, supermarkets and high-end green grocers offer more high-priced imported and semi-processed items than either kiosks or the City Market stalls. Kiosks offer few or none: the highest priced item in the kiosk was one-half to one-eighth the highest price item in the other outlets. Third, supermarkets (and green grocers) typically, but not always, charge higher prices than other outlets on the same items. In the head-to-head comparison with City Market stalls (subset 1), mean supermarket prices were about 13% higher, but Uchumi had the lowest (or tied for the lowest) price on 11 of their 32 items, while Nakumatt was lowest on four of their 32.<sup>7</sup> In the head-to-head comparison among supermarkets, City Market stalls, and the roadside kiosk, the kiosk emerges as the lowest price option; mean kiosk prices on the 13 items were 35% below supermarkets and 26% below City Market stalls, and the kiosk had the lowest price for seven of the 13 items compared. Supermarkets were the lowest price option in only 2 cases.

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<sup>7</sup> While each supermarket individually had only 32 of the 39 items, together they had all 39.



Table 3.1. Product availability and prices of fresh fruits and vegetables in various retail outlets, Nairobi, 21-28 April 2003

|                                       | Supermarkets |          | Three City<br>Market stalls | High-end<br>Green<br>Grocer | Roadside<br>Kiosk |
|---------------------------------------|--------------|----------|-----------------------------|-----------------------------|-------------------|
|                                       | Uchumi       | Nakumatt |                             |                             |                   |
| <b>All Items</b>                      |              |          |                             |                             |                   |
| Total number of items offered         | 71           | 79       | 47                          | 91                          | 18                |
| Mean price on all items (Ksh/kg)      | 91           | 94       | 66                          | 87                          | 38                |
| Maximum price over all items (Ksh/kg) | 540          | 399      | 680                         | 320                         | 80                |
| <b>Subset 1</b>                       |              |          |                             |                             |                   |
| Number of items offered               | 32           | 32       | 39                          | 31                          | 13                |
| Mean price on these items (Ksh/kg)    | 69           | 70       | 60                          | 72                          | 40                |
| Minimum price frequency               | 11/32        | 4/32     | 18/39                       | 6/31                        | 7/13              |
| <b>Subset 2</b>                       |              |          |                             |                             |                   |
| Number of items offered               | 10           | 12       | 13                          | 9                           | 13                |
| Mean price on these items (Ksh/kg)    | 63           | 66       | 54                          | 57                          | 40                |
| Minimum price frequency               | 0/10         | 2/12     | 5/13                        | 1/9                         | 7/13              |

Notes: 1) Two supermarkets: Uchumi Hyper on Ngong Road and Nakumatt Mega on Uhuru Highway, 2) Three randomly selected City Market stalls, 3) High-end green grocer is The Corner Shop in YaYa Center, 4) One roadside Kiosk on Ngong road, 5) Subset 1 is the 39 items offered in at least one supermarket and one City Market stall, 6) Subset 2 is the 13 items offered in at least one supermarket, one City Market stall, and the kiosk

Table 3.2 presents median prices and number of observations for 14 FFV items from the urban consumer survey. We present results for the four most common market channels for FFV purchases. The table shows that the three traditional retail outlets (open air markets, roadside kiosks, and hawkers) had similar prices over the 14 items, and that large supermarkets (Uchumi and Nakumatt) on average charged about 60% more than these outlets for the same items.<sup>8</sup>

These results are nearly identical to the kiosk-supermarket comparison in Table 3.1, and make it clear that, compared to traditional retail outlets, supermarket chains are a substantially higher cost option for consumers purchasing FFV in Nairobi. The price differentials between supermarkets and traditional outlets in Nairobi appear to be at least as great as those in Central America (15-60%; Berdegué, et al). This, plus the fact that supermarket penetration of the FFV market started later in Kenya than it did in Central America, suggests that the supermarket share of the FFV market in Nairobi is below the 10% share found in Central America<sup>9</sup>. Outside of Nairobi, it would certainly be lower still.

<sup>8</sup> These data do not allow for quality comparisons among channels.

<sup>9</sup> Njagi (1995) uses results from the CBS Urban Food Purchasing Survey of 1989 to indicate that, in that year, supermarket's share of the total food market in Nairobi was only 2%. This report has some of the best detail currently available on food marketing in Nairobi.

Table 3.2 Prices for selected FFV items from urban consumer survey in Nairobi, October 2003

| Produce Item            | Open Air Market |           | Roadside Kiosk  |           | Large Supermarket |           | Hawker          |           |
|-------------------------|-----------------|-----------|-----------------|-----------|-------------------|-----------|-----------------|-----------|
|                         | Median Price/kg | # of Obs. | Median Price/kg | # of Obs. | Median Price/kg   | # of Obs. | Median Price/kg | # of Obs. |
| Irish Potatoes          | <b>8</b>        | 268       | 10              | 115       | 20                | 20        | 10              | 7         |
| Sweet Potatoes          | <b>17</b>       | 100       | <b>17</b>       | 22        | 60                | 3         | 20              | 6         |
| Tomatoes                | <b>24</b>       | 277       | 25              | 179       | 30                | 36        | <b>24</b>       | 16        |
| Cabbage                 | 29              | 234       | 21              | 139       | 29                | 25        | <b>14</b>       | 12        |
| Sukuma Wiki             | 15              | 223       | 13              | 189       | 20                | 20        | <b>10</b>       | 5         |
| Carrots                 | <b>20</b>       | 197       | 25              | 113       | 25                | 38        | <b>20</b>       | 10        |
| Onions                  | <b>20</b>       | 280       | 26              | 167       | 40                | 41        | 30              | 12        |
| French Beans            | 30              | 43        | <b>28</b>       | 10        | 50                | 27        | 40              | 4         |
| Bananas                 | 30              | 211       | 30              | 163       | 30                | 26        | <b>18</b>       | 12        |
| Cooking Bananas         | 11              | 130       | 11              | 57        | <b>6</b>          | 3         | 14              | 5         |
| Avocado                 | <b>17</b>       | 132       | <b>17</b>       | 107       | <b>17</b>         | 9         | <b>17</b>       | 8         |
| Oranges                 | <b>33</b>       | 211       | <b>33</b>       | 134       | 50                | 37        | <b>33</b>       | 14        |
| Pawpaw                  | 17              | 123       | <b>13</b>       | 64        | 30                | 19        | <b>13</b>       | 10        |
| Mangoes                 | <b>20</b>       | 166       | <b>20</b>       | 89        | 55                | 19        | <b>20</b>       | 11        |
| Simple Mean             | 21              |           | 21              |           | 33                |           | 20              |           |
| Minimum Price Frequency | 8               |           | 6               |           | 2                 |           | 9               |           |

Results from the urban consumer survey support this contention. Table 3.3 shows market shares for the largest retail outlet channels for four food groups: grains, meals and other staples; dairy; meat; and fresh fruits and vegetables. Despite the apparent growth of supermarkets in Nairobi over the past five years, the results show a continued dominance of traditional retail outlets in consumer food purchases. Consistent with patterns in other areas of the world, supermarkets' greatest penetration has been in non-perishable staples; chains and independent supermarkets have a combined 36% market share in these items. Supermarket shares do not exceed 16% in any other food group, and are only 4% in FFV.

Table 3.4 shows that nearly all FFV purchases in supermarket chains are made by the top 20% of households in the income distribution. The bottom 60% of households reported no FFV purchases in supermarket chains, while the next 20% reported making only 1% of their purchases there. Only among the top 20% of households do FFV purchases in supermarkets rise to meaningful levels, at 15%. Even in this highest income group, open air markets and kiosks have nearly 80% of the FFV market.

Table 3.3. Population Weighted Share of Different Market Outlets in Food Expenditure in Nairobi, by Food Group

| Food Group  | Market Outlet       |                    |           |             |       |          |                     |
|---|---------------------|--------------------|-----------|-------------|-------|----------|---------------------|
|   | Super-market Chains | Small super-market | Duka/shop | Open Market | Kiosk | Butchery | Other Minor Outlets |
| ----- % of total expenditure over 40 food items ----- |                     |                    |           |             |       |          |                     |
| Staples   | 21.0%               | 12.9%              | 49.5%     | 6.4%        | 8.1%  | 0.0%     | 2.2%                |
| Dairy   | 13.9%               | 2.1%               | 55.4%     | 0.0%        | 10.8% | 0.0%     | 17.8%               |
| Meat  | 3.9%                | 0.4%               | 8.9%      | 11.5%       | 3.9%  | 68.4%    | 3.1%                |
| Fresh fruit & Veg.                                    | 4.4%                | 0.3%               | 0.7%      | 56.4%       | 35.7% | 0.0%     | 2.6%                |
| Overall   | 11.5%               | 4.8%               | 28.7%     | 18.7%       | 14.3% | 16.7%    | 5.4%                |

**Notes:** For each food group, the most commonly consumed items were selected for data collection. Staples include maize grain and meal, wheat flour and bread, rice, sugar, spaghetti, macaroni, and other pasta; dairy includes pasteurized and raw milk, cheese, yoghurt, and ghee; meat includes beef, goat, sheep, chicken, and eggs; FFV includes irish potatoes, sweet potatoes, tomatoes, cabbage, sukuma wiki, carrots, onions, french beans, bananas, cooking bananas, avocado, oranges, pawpaw, and mangoes.

Table 3.4: Population Weighted Share of Different Market Outlets in FFV Expenditure in Nairobi, by per capita Income Quintile

| Per capita Income Quintile             | Mean Per Capita Income (Ksh) | Market Outlet       |                    |           |             |       |          |                     |
|--|------------------------------|---------------------|--------------------|-----------|-------------|-------|----------|---------------------|
|  |                              | Super-market Chains | Small super-market | Duka/shop | Open Market | Kiosk | Butchery | Other Minor Outlets |
| ----- % of Total FFV Expenditure ----- |                              |                     |                    |           |             |       |          |                     |
| 1 (lowest)                             | 7,407                        | 0.0%                | 0.1%               | 0.2%      | 53.3%       | 42.9% | 0.0%     | 3.6%                |
| 2                                      | 19,199                       | 0.0%                | 0.4%               | 1.3%      | 56.7%       | 38.0% | 0.0%     | 3.6%                |
| 3                                      | 33,567                       | 0.0%                | 0.6%               | 0.0%      | 64.3%       | 33.9% | 0.0%     | 1.1%                |
| 4                                      | 59,560                       | 1.0%                | 0.1%               | 0.3%      | 59.3%       | 38.3% | 0.0%     | 1.0%                |
| 5 (highest)                            | 276,698                      | 14.9%               | 0.1%               | 1.3%      | 48.9%       | 30.8% | 0.0%     | 4.0%                |
| Overall                                | 79,079                       | 4.4%                | 0.3%               | 0.7%      | 56.4%       | 35.7% | 0.0%     | 2.6%                |

### 3.3. How Rapidly Might the FFV Market Share of Supermarket Chains Grow?

The rate at which supermarket chains will be able to capture FFV market share, and the impact that key public and private investments in the traditional marketing system can have in maintaining its competitiveness against supermarkets, are key policy issues in Kenya and other developing countries. With an FFV market share of less than 5% in Nairobi (lower in the rest of the country) in late 2003, what growth rate can government and donor development planners expect over the next decade? We will briefly examine two key demand side determinants of this growth and two supply side determinants.

Per capita incomes and urbanization are both positively associated with the growth in supermarket share of the FFV market. Table 3.5 presents data on both these variables, along with FFV supermarket shares, for selected Latin American countries, along with Kenya and South Africa. Three points stand out. First, Kenya's per capita income is less than half that of the lowest Latin American country, and about one-tenth that of South Africa and the wealthier Latin American countries. Second, Kenya's urban population as a percent of total population is also the lowest in the group. Finally, even among the wealthier Latin American countries, supermarket shares of the FFV market are typically about 20% -- Brazil at 37% is unusually high.

Table 3.5. Purchasing Power Parity Gross National Income per Capita, Urban Population %, and Supermarket Share of FFV Market in Kenya, South Africa, and Selected Latin American Countries

| Country      | PPI GNI per capita | Urban Population % | FFV supermarket share | Source of FFV share          |
|--------------|--------------------|--------------------|-----------------------|------------------------------|
| Argentina    | 10,980             | 89                 | 23 (1997)             | Ghezán et al, 2002           |
| South Africa | 10,910             | 55                 | 15-20?                | Weatherspoon, et al          |
| Costa Rica   | 9,260              | 52                 | 18 (2002)             | Berdegúé, et al, 2002        |
| Chile        | 8,840              | 85                 | 3-8 (2001)            | Reardon and Berdegúé, 2002   |
| Mexico       | 8,240              | 74                 | 21 (2001)             | Schwentesius and Gomez, 2002 |
| Brazil       | 7,070              | 81                 | 37 (1996)             | Farina, 2002                 |
| El Salvador  | 5,160              | 47                 | 11 (2002)             | Berdegúé, et al, 2002        |
| Guatemala    | 4,380              | 40                 | 9 (2002)              | Berdegúé, et al, 2002        |
| Honduras     | 2,760              | 47                 | 12 (2002)             | Berdegúé, et al, 2002        |
| Nicaragua    | 2,150              | 65                 | 5 (2002)              | Berdegúé, et al, 2002        |
| Kenya        | 970                | 33                 | 4 (2002)              | Current Authors, 2004        |

On the supply side, one key determinant of supermarket share of the FFV market is the ability of these firms to bring down costs and improve quality through "preferred supplier" programs and centralized procurement. Doing both is critical in a country like Kenya, where the mass of low income consumers are unlikely to pay sustained price premia for higher quality produce and where traditional retail markets and kiosks are well adapted to their buying habits. In this regard, it is clear that the poor physical infrastructure and under-

developed system of grades and standards in Kenya simultaneously push supermarkets towards preferred suppliers and centralized procurement and raise the cost of instituting these systems. Thus, while Uchumi and Nakumatt seem to view these procurement approaches as vehicles to lower cost and improve quality, it remains unclear to what extent they will be able to achieve these objectives. It is also important to note that the empirical record across Europe, Latin America, and South Africa of movement towards these parallel procurement systems – and away from reliance on traditional wholesale markets – is mixed (Cadilhon, et al 2003; Tollens 1997; Fresh Produce Marketing Section 7 Committee 1999; Schwentesius and Gomez 2002). In South Africa, for example, FFV sales through fresh produce markets exceed direct marketing volumes by a factor of about six (Fresh Produce Marketing Section 7 Committee; 1999), while in Mexico most FFV for supermarkets and for export is procured in modern wholesale markets with a high level of service provision. In Europe, wholesale markets on the continent have maintained greater importance in FFV distribution than in the UK.

The second supply-side determinant of supermarket share of the FFV market is the extent to which public investment is channeled into public wholesale and retail markets to enhance their competitive position *vis a vis* supermarkets. Wholesale markets serving traditional retail outlets in the Netherlands and France have increased their market share in recent years due in part to public commitment to them, while in Italy public investment in wholesale markets has helped them and their traditional retail clients maintain a dominant position in FFV markets. Indeed, investment in public wholesale markets can help both the traditional and supermarket retail sectors by reducing procurement costs and improving quality for both. Such investment thus contributes to a more diversified, competitive, and higher quality food system – and especially fresh produce system – in general.

Based on this brief review, we reach three conclusions. First, the overall food market share of supermarket chains is likely to grow over time, meaning that these firms should be an important force of change in African food systems. Second, this growth is likely to be much slower in the FFV sector, and market shares of supermarket chains will remain substantially lower for FFV than for other food items. As a result, traditional retail outlets served by public wholesale markets will maintain a dominant market share in FFV for the foreseeable future; we suggest that this share will remain above 80% over the next decade. This pattern would echo those found in many Latin American countries where, for example, Schwentesius and Gomez (2002) indicate that in Mexico, ‘Despite the growth ..., expectations regarding (supermarkets’) ... ability to displace traditional retailing have not been met.’ In the final chapter we turn to the policy implications of these conclusions. Third, public policy and investment towards wholesale and related assembly and retail markets will be a major determinant of the structure of the FFV production and marketing system. If these markets are ignored, a dualistic system may emerge in which supermarkets work with commercial farmers and a small number of organized smallholders in a parallel procurement system that bypasses wholesale markets, while the large mass of farmers, traders, and consumers operate in a traditional sector characterized by high unit costs, low quality, and low value-added. On the other hand, forward looking investment in these markets would help establish a more integrated but diverse and competitive system in which consumers can access high quality produce in a variety of outlets, and small farmers and traders can earn favorable returns in a progressive traditional system.

### 3.4 Formal Border Point Imports and Exports of FFV

A survey on the main cross border points was carried out in the months of November and December 2002 to determine the formal flow of imports and exports of fresh horticultural produce between Kenya, Tanzania, and Uganda. These border posts were Lunga-Lunga, Taveta, Loitokitok, Namanga, Isebania, Busia and Malaba. Data on commodity, quantity imported/exported and the respective values on daily basis was extracted from Form 88 booklets and registers of the Customs Department from November 2001 to October 2002. Because informal border trade can often be larger than formally recorded trade, border agents were also asked to estimate the amount of informally traded produce that crosses the border. In between these major entry points, there are smaller posts that were not visited. Also, the whole of the Eastern, Northeastern and Northern frontiers were not surveyed because these areas are not important entry points for horticulture. However it is important to point out that some onions and cabbages have been reported to come from Ethiopia through the Northern frontier. These regions therefore may also be included in future studies. The results are summarized and discussed in the following sub-section.

#### 3.4.1. Imports of Fresh Horticultural Commodities

Fresh horticultural commodities passing through the Kenya/Tanzania or Uganda border posts vary from one entry point to the next, but oranges, bananas, tomatoes and red onions predominate in volume and frequency. Imports of other fresh horticultural commodities were minimal.

Table 3.6 presents information on production, marketed surplus, and imports of these commodities. Because import data is for the November 2001 through October 2002 period, we present mean production for each crop during the 2001 and 2002 production seasons. We estimate marketed surplus of each crop using data from the 2000 Tegemeo/MSU rural household survey. To account for informal imports, we create lower bound estimates assuming that these imports are nil, and upper bound estimates assuming they are four times as large as formal imports. The latter scenario is two times as large as border agent estimates. The table suggests that, during the period of analysis, imports of bananas and tomatoes were a relatively minor portion of total domestic supply, while orange imports were more substantial, and onion imports may have captured more than half of the Kenyan market.

Table 3.6. Upper- and lower- bound estimates of import market share for selected horticultural crops in Kenya

| Crop    | Formal imports,<br>Nov 01 --<br>Oct 02 (mt) | Mean Production,<br>2001 and 2002 (mt) | Domestic Marketed<br>Surplus, % of<br>Production | Import Shares |             |
|---------|---|--|--|---------------|-------------|
|         |   |  |  | Lower Bound   | Upper Bound |
| Bananas | 6,885                                       | 1,060,000                              | 44   | 1.5           | 6.9         |
| Tomato  | 3,255                                       | 262,500                                | 72   | 1.7           | 7.9         |
| Oranges | 4,300                                       | 126,000                                | 65   | 5.0           | 20.8        |
| Onions  | 9,880                                       | 58,000                                 | 72   | 19.1          | 54.2        |

**Notes:** 1) Lower bound estimates assume no informal imports; upper bound assume informal imports are four times formal, based on border agent qualitative assessments. 2) marketed surplus percent is from Tegemeo/MSU 2000 household survey. This is for smallholder farms only, and thus provides a lower bound estimate on total marketed surplus.

**Bananas:** Kenya imports bananas mainly through Malaba and Busia border posts (Table 3.7). Approximately 70% of the recorded imports were from Uganda, with the balance coming from Tanzania through Taita Taveta and Namanga border posts. A key reason for importing bananas is that there are sweet varieties (bogoya) in Uganda which are not available in Kenya. The total recorded number of bunches imported during the period analyzed was 404,633 with a total value of Kshs. 42,139,618.

Table 3.7. Import of bananas (bunches) through the Main Cross-Border Posts in Kenya

| Month       | Tanzania-Kenya |         | Uganda-Kenya |       |        | Total<br>(Bunches) | Total Value<br>(Kshs) |
|-------------|----------------|---------|--------------|-------|--------|--------------------|-----------------------|
|             | Taita taveta   | Namanga | Isebania     | Busia | Malaba |                    |                       |
| November 01 | 145            | 11000   | 736          | 4525  | 20280  | 36686              | 3103550               |
| December 01 | 63             | 9200    | 400          | 6538  | 13810  | 30011              | 2530550               |
| January 02  | 0              | 5800    | 208          | 8068  | 18500  | 32576              | 2967600               |
| February    | 22             | 8800    | 110          | 4436  | 16400  | 29768              | 2320100               |
| March       | 5604           | 14200   | 244          | 7053  | 20200  | 47301              | 4853443               |
| April       | 4353           | 0       | 0            | 7777  | 11600  | 23730              | 3025825               |
| May         | 11955          | 0       | 138          | 6153  | 55400  | 73646              | 9153710               |
| June        | 8952           | 0       | 140          | 7670  | 17710  | 34472              | 4783000               |
| July        | 0              | 6200    | 0            | 7629  | 6175   | 20004              | 1690400               |
| August      | 1788           | 6000    | 0            | 10567 | 11128  | 29483              | 2916500               |
| September   | 1397           | 7200    | 250          | 4394  | 15345  | 28586              | 2695650               |
| October 02  | 1775           | 0       | 132          | 3868  | 12595  | 18370              | 2099290               |
| Total       | 36054          | 68400   | 2358         | 78678 | 219143 | 404633             | 42139618              |

Source: Kenya Revenue Authority, Customs Department.

**Tomatoes:** The production of tomatoes in Kenya and Tanzania is throughout the year. Tanzania experiences surplus supply in May to August and November to December. During these months, Kongowea market in Mombasa experiences shortages of local supply. Hence, there is some seasonal importation of tomatoes mainly from Tanzania during these periods (Table 3.8). Seventy-eight percent of the quantities imported go to the coastal region i.e. Kongowea market in Mombasa through Lunga-Lunga and Taita Taveta borders. Approximately 18% of tomato imports passed through Namanga border post to Wakulima market in Nairobi. For the period of November 2001 and October 2002, 92,737 crates of tomatoes valued at Kshs. 65,818,607 were imported from Tanzania and some minimal quantities from Uganda. In Tanzania, Kenyan collecting wholesalers source for tomatoes from Iringa and Lushoto, 915 km and 715 km respectively from Mombasa.

The variety of tomatoes produced in Tanzania is moneymaker. It has a soft skin and a shorter shelf life when compared to cal-J, which is produced in Kenya. Kenyan consumers have a preference for Cal-J, which has a hard skin and a longer shelf life.

Table 3.8. Import of Tomatoes (crates) through the Main Cross-Border Posts in Kenya

| Month       | Tanzania    |              |         | Uganda   |       |        | Total Number of Crates | Total Value (Kshs) |
|-------------|-------------|--------------|---------|----------|-------|--------|------------------------|--------------------|
|             | Lunga lunga | Taita Taveta | Namanga | Isebania | Busia | Malaba |                        |                    |
| November 01 | 2430        | 1432         | 530     | 70       | 0     | 85.5   | 4547.5                 | 2815570            |
| December 01 | 1000        | 859          | 260     | 38       | 0     | 0      | 2157                   | 1204150            |
| January 02  | 0           | 0            | 0       | 15       | 0     | 0      | 15                     | 13500              |
| February    | 0           | 0            | 0       | 5        | 0     | 0      | 5                      | 4000               |
| March       | 0           | 68           | 0       | 7        | 0     | 0      | 75                     | 23525              |
| April       | 0           | 28           | 0       | 0        | 0     | 0      | 28                     | 7000               |
| May         | 12265       | 1261         | 739     | 85       | 357   | 24     | 14731                  | 11869467           |
| June        | 0           | 2008         | 9460    | 73       | 958   | 0      | 12499                  | 3870900            |
| July        | 17400       | 2767         | 5416    | 8        | 529   | 0      | 26120                  | 18281858           |
| August      | 28109       | 863          | 358     | 100      | 819   | 0      | 30249                  | 26141420           |
| September   | 1350        | 95           | 80      | 130      | 196   | 10     | 1861                   | 1405567            |
| October 02  | 0           | 205          | 0       | 21       | 223   | 0      | 449                    | 181650             |
| Total       | 62554       | 9586         | 16843   | 552      | 3082  | 110    | 92737                  | 65818607           |

Source: Kenya Revenue Authority, Customs Department.

**Oranges:** Orange imports appear to be substantially more important than imports of either bananas or tomatoes, with upper bound estimates of imports reaching nearly 10% of local production and 15% of local marketed surplus (Table 3.6). The Kenyan market is a very important export market for Tanga region oranges from Tanzania. It has been estimated that 60% of oranges produced in this region are exported to the Kenyan market during the peak production season (Development Alternative Inc., 2003).

For the period considered in the study, oranges were imported throughout the year (Table 3.9). Of the total recorded cross border imports of oranges, 59% passed through Lunga Lunga to Mombasa and 34% through Namanga to Nairobi. A total of 42,565 bags valued at Kshs. 25,509,575 were imported, about 95% coming from Tanzania. Wholesalers procure oranges from Mweza District in Tanzania, which is about 320 km from Mombasa.

Although oranges are produced in most parts of Tanzania, the major areas of concentration are Tanga and Morogoro region. It is generally considered that orange production in Tanzania grew to a major economic importance during the late 1970s (Development Alternative Inc., 2003). The Ministry of Agriculture in Tanzania embarked on a plan to improve fruit production. Actions focused on the establishment of district nurseries for the production of planting materials, the introduction of new cultivars and the establishment of mother orchards. Accumulation of surplus fruits that could not be marketed and were pilling up along the roadsides was observed as early as 1980s. This led to establishment of processing plants in Korogwe, Mweza and Morogoro in the early 1980s. However, they all failed due to lack of working capital.

At the time Tanzania was establishing the citrus sub-sector in 1970s, Kenya's orchards were facing an attack from citrus greening disease. This disease thrives in mid-altitude areas of Kenya and has never been fully controlled in the country. Tanzanian production zones are primarily coastal, where the vector which spreads the disease is not active. Greening has therefore not been a major problem in Tanzania, which has allowed it to fill the gap in Kenya created by stagnant production over the past 10 years.



Table 3.9. Import of Oranges (bags) through the Main Cross-Border Posts in Kenya

| Month       | Tanzania    |              |         | Uganda   |       |        | Total (bags) | Total Value (Kshs) |
|-------------|-------------|--------------|---------|----------|-------|--------|--------------|--------------------|
|             | Lunga lunga | Taita taveta | Namanga | Isebania | Busia | Malaba |              |                    |
| November 01 | 0           | 148.5        | 2952    | 2        | 167   | 0      | 3270         | 3235000            |
| December 01 | 2240        | 80           | 1008    | 0        | 0     | 0      | 3328         | 1849600            |
| January 02  | 1680        | 0            | 732     | 0        | 16    | 0      | 2428         | 1308800            |
| February    | 5383        | 0            | 624     | 14.5     | 0     | 0      | 6022         | 2459580            |
| March       | 1735        | 31           | 0       | 286      | 0     | 0      | 2052         | 875821             |
| April       | 1190        | 46           | 837     | 299      | 0     | 0      | 2372         | 1554700            |
| May         | 980         | 257          | 1104    | 101.5    | 0     | 0      | 2443         | 1784398            |
| June        | 1120        | 34           | 1008    | 79       | 0     | 0      | 2241         | 1456750            |
| July        | 1680        | 40           | 1188    | 2        | 0     | 0      | 2910         | 1887700            |
| August      | 140         | 110          | 1272    | 0        | 0     | 0      | 1522         | 1429600            |
| September   | 1800        | 200          | 0       | 0        | 796   | 48     | 2844         | 1255426            |
| October 02  | 7155        | 232          | 3672    | 0        | 0     | 76     | 11135        | 6412200            |
| Total       | 25103       | 1178         | 14397   | 784      | 979   | 124    | 42565        | 25509575           |

Source: Kenya Revenue Authority, Customs Department.

**Onions:** Onion imports appear to be very substantial in Kenya., reaching as high as half of local production and two-thirds of local marketed surplus (Table 3.1). Kenya imports onions from Tanzania throughout the year, nearly all passing through Namanga post to Nairobi and Taita Taveta border to Mombasa (Table 3.10). The yield of onions in Kenya is one of the lowest of the world producers. Area under production has oscillated around 5,000 ha over the last ten years and total production (tons) has stagnated around 56,000 tons/yr. Thus, as demand for onions has continued to rise with population, Kenya has been forced to import from Tanzania.

In addition to horticulture, there were a number of other primary agricultural commodities also imported. These were as follows:-

**Lunga Lunga:** Groundnuts, Yellow Grams, raw milk, Sorghum, Coconut cake, and Copra cake;

**Taita Taveta:** Beans, Maize, Rice, Dry peas, Tobacco, Timber, Green Grams, arrowroots, Sorghum and Groundnuts;

**Namanga:** Maize, Finger Millet, Peas (Dry), Wheat, Cloves, Beans, Fish, Coffee, Cotton, Rice, Milk, Groundnuts, Spices, Prawns, Sunflower Cake, Maize germ, Sisal, Feed Barley, Cow peas, Pigeon peas;

**Isebania:** Fish, Ground nuts, Peas, Rice, Maize, Cassava, Sorghum, and Finger millet, SimSim and Cotton Seed Cake;

**Busia:** Finger Millet, Maize, Beans, Soya beans, Ghee (milk), Groundnuts, Eggs, SimSim, Cow peas, Sorghum, Fish, Ginger (Tangawizi), Cotton Seed Cake, Rice Jam, Cassava, Honey, Timber, Wheat bran;

**Malaba:** Maize, Finger millet, Eggs, Beans, Maize bran, G/nuts, Timber, Rice, Green Grams, peas, Arrow Roots, Wheat bran, Rice bran, Cotton and omena.

Table 3.10: Red Onions Imports (bags) From Various Border Points

| Month       | Tanzania     |         | Uganda   |        | Total Number of Bags | Total Value (Kshs) |
|-------------|--------------|---------|----------|--------|----------------------|--------------------|
|             | Taita Taveta | Namanga | Isebania | Malaba |                      |                    |
| November 01 | 2903         | 11162   | 12       | 0      | 14076.5              | 12510300           |
| December 01 | 2760         | 9192    | 2        | 0      | 11954                | 11036300           |
| January 02  | 0            | 6685    | 1        | 4      | 6690                 | 4015550            |
| February    | 75           | 9631    | 3        | 0      | 9709                 | 5930960            |
| March       | 884          | 994     | 7        | 0      | 1884.5               | 2370665            |
| April       | 1019         | 5280    | 63       | 0      | 6362                 | 5263330            |
| May         | 3233         | 4322    | 19       | 0      | 7574                 | 9076490            |
| June        | 1972         | 7493    | 16       | 0      | 9480.5               | 8447600            |
| July        | 1513         | 6003    | 0.5      | 0      | 7516.5               | 6628300            |
| August      | 2201         | 4297    | 4        | 0      | 6502                 | 6983000            |
| September   | 2068         | 125     | 0        | 0      | 2193                 | 4211000            |
| October 02  | 1565         | 9855    | 4        | 0      | 11424                | 9047640            |
| Total       | 20192        | 75039   | 131      | 4      | 95366                | 85521135           |

Source: Kenya Revenue Authority, Customs Department.

### 3.4.2. Formal Exports of Fresh Horticultural Commodities

The export records of the Customs Department indicated that there is very little cross border export of fresh horticultural produce from Kenya to Tanzania and Uganda. However, there was a substantial amount of recorded fresh coconut exports to Tanzania through the Lunga Lunga and Taita Taveta borders. It was further observed at the Loitokitok border, that minimal unrecorded quantities of tomatoes, onions, cabbages, kales (sukuma wiki) and indigenous vegetables are sold to Tanzanian residents around Tarakea border point for local consumption. These commodities do not reach the main township areas in Tanzania. The customs officers said that there is very little export of fresh horticultural produce from Kenya to Tanzania and Uganda.

Thus, most of the official trade flow of fresh horticultural produce and raw agricultural commodities is from the neighboring countries i.e. Tanzania and Uganda to Kenyan domestic markets. The direction of formal trade flow was assumed to be an indication of the direction of flow for informal trade for the same commodities. With this kind of scenario, it was concluded that Kenya's fresh horticultural produce have not yet developed the required competitive advantage to claim space in the regional markets.

Improved infrastructure and fewer regulations in Tanzania may be one key reason that it is able to export more successfully to Kenya than Kenya is to Tanzania. Unlike Kenya, Tanzania has continued to tarmac roads to its border posts. Four of its border points with Kenya are covered by the telecommunication network whereas in Kenya only one (Isebania) is covered. Tanzanian authorities have made issuance of trade permits administratively easy and cheap. Any interested trader can access these documents. In Kenya, procedures for issuing permits and import brokerage are complex, and only known brokers can clear goods.

It is not clear what role relative exchange rate movements over the past decade have played in promoting imports into Kenya from Tanzania and Uganda. Since 1994, the Tanzanian

Shilling has depreciated nearly 50% against the Kenyan Shilling, but official inflation data (from IMF) indicate that accumulated inflation in Tanzania has also been about 50% higher. These patterns would suggest little change in real relative prices between the two countries, but may not accurately reflect dynamics affecting the products and areas of Tanzania under consideration. During this same period, the Ugandan Shilling has fallen about 20%, while accumulated inflation in that country has actually been about 20% *less* than in Kenya. These patterns do suggest falling real relative prices in Uganda. This may have contributed to the relatively high imports of banana from Uganda.

### **3.5 Handling of Agricultural Trade at Border Points**

#### **3.5.1 Duty Concessions**

Import duty is the levy charged on any import cargo into the country. Generally 35% of Cost Insurance and Freight (CIF) price is charged on any imports from outside COMESA and members of the East African Community (EAC). However, tax concessions are given to member states at different percentages. For example, Kenya has given Tanzania and Uganda 90% concession on primary agricultural produce. Thus, import cargo within this category attracts a duty of 3.5%. Import Declaration Form fees are charged on goods that have a value of more than \$5,000 at a rate of 2.75% of CIF price. The interpretation on what rates to levy on each commodity is derived from the First Schedule of the Customs and Excise Act (Tariff Interpretation). In return for Kenya's 90% concession, Tanzania and Uganda are expected to reciprocate by giving Kenya tax concessions on some categories of cargo e.g. primary agricultural produce. However, Kenya custom officials complain that Tanzania frequently resorts to suspended duty (anti-dumping) at 25% on Kenyan goods. Kenyan traders also complain of red tape with high tax rates imposed. When the Presidents of Uganda, Tanzania, and Kenya met in July 2003, one action they took was the creation of a task force to harmonize duties among the countries to facilitate trade.

#### **3.5.2 Horticultural Crop Development Authority Levy (HCDAL)**

The HCDA levy is a fresh horticultural import levy collected by customs department on behalf of HCDA. However, during the research visit, this charge was not being levied at Lunga-Lunga and Taveta. The charge is supposed to be one shilling (Ksh 1.00) per kg of produce. However, indications are that there is substantial under estimation of weights so as to minimize the cost.

#### **3.5.3 Measurements and Recording**

It is not easy to get accurate measurements of what comes into the country through cross border posts because there are no weighing scales nor standardized packaging of commodities. The Custom offices resort to Direct Assessment using Form 88. Because none of the border points are properly equipped with computers, electronic weighing machines, weigh bridges, and other infrastructure, the officer assessing the cargo uses own judgment to estimate the quantity and price per unit and checks with the First Tariffs Schedule whether or not it is dutiable (Import Duty) and at what rate. Also, an assessment is made on whether or not to charge Import Declaration Form Fees (IDF). One would expect uniformity in all the trade parameters assessed for the same commodity in the various border points. This however, was not the case; different stations had different measurement units, and charged differently for the same produce (Table 3.11). This inconsistency was observed for all agricultural commodities traded. In practice, these procedures appear to result in underestimation of measurements, inaccurate recording and ultimately loss of revenue. It also

results in low operational efficiency in trade due to the time and effort wasted by the cargo assessment officers in walking within the post.

Table 3.11. Trade Parameters for Oranges in the Various Border Points

| Border Points | Unit | Weight   | Price per Unit<br>(Kshs/Unit) | Import Duty Rate<br>(%) | IDF Rate | HCDA Levy<br>(Kshs/kg) |
|---------------|------|----------|-------------------------------|-------------------------|----------|------------------------|
| Lunga Lunga   | Bag  | 20 kg    | 340                           | 3.5                     | 2.75     | 0                      |
| Taveta        | Bag  | 100 kg   | 1000                          | 3.5                     | 2.75     | 0                      |
| Namanga       | Ton  | 1000 kg  | 6000                          | 3.5                     | 2.75     | 1                      |
| Isebania      | Bag  | 100 kg   | 900                           | 7                       | 0        | 1                      |
| Busia         | Bag  | 18.75 kg | 500                           | 3.5                     | 2.75     | 1                      |
| Malaba        | Bag  | 500 kg   | 6000                          | 1                       | 0        | 1                      |

Source: Kenya Revenue Authority, Customs Department.

### 3.5.4 Infrastructure

To enhance accurate measurements and recording of traded cargo in Tanzania, the Governments has improved the various forms of infrastructure. Every Tanzanian border point with Kenya is supplied with electricity and a plan to computerize them is in progress. In Kenya, on the other hand, only two (Taveta and Oloitoktok) of the five border points with Tanzania have electricity supply. The road network in some of the border points and their production areas is relatively poor. Yet some of these areas are among the main producers and suppliers of fresh horticultural produce to major towns and cities. For example, Taita Taveta region supplies fruits and vegetables to Kongowea market. Oloitoktok area also supplies fresh produce to Nairobi and Mombasa. Yet they are connected to the rest of the country with poor roads. Horohoro and Tarakea border points in Tanzania face a similar problem. The production areas have seasonal earth roads that are impassable during the rain season. Poor road network results in losses due to wastage in the farms and deterioration of quality of the produce during transportation to the market. It increases transportation costs for inputs and produce resulting in lower margins for farmers.

### 3.5.5 Border Point Agriculture Personnel

Whereas several Government departments in Kenya, Tanzania and Uganda send officers to manage various aspects of trade at the border points e.g. Kenya Plant Health Inspectorate Services (KEPHIS), Kenya Bureau of Standards (KBS), Public Health etc, Tanzania in addition sends two Agricultural Extension Officers and two Veterinary Officers from the Ministry of Agriculture and Livestock to every border point. Their work is to inspect and record all types and quantities of agricultural trade leaving or coming into the country. The Ministry of Agriculture in Kenya would need to post Agricultural Officers at the border points to monitor and record agricultural trade, summarize the data on quarterly basis and send them to the headquarters. A decision had been made by the Director of Agriculture to send officers at the border point. However, it was not implemented. By the time of the survey there was only one officer posted at Busia border point, but he had left to go on study leave.

### **3.5.6 Telecommunication**

Telecommunication services in East African region are expensive, inadequate and unreliable. It has hampered quick and efficient flow of information between farmers and traders at the border points/production areas and the markets in the main cities and towns. However, out of the five border points of Kenya with Tanzania, only Isebania is not covered with telecommunication network; Horohoro, Holili, Tarakea and Namanga are all served by cell phone services. Indeed, Kenyan horticultural farmers/purchasing agents in Taita-Taveta area who can afford mobile phones have taken lines in Moshi region in Tanzania to enable them to receive market information from and transact business with partners or wholesalers at Kongowea market in Mombasa. Telecommunication has enhanced regional onion trade between distributing wholesalers at Wakulima market and collecting wholesalers at Kilombero market in Arusha. Traders in Arusha receive market information from their partners at Wakulima market in Nairobi early in the morning. This information forms the basis for price negotiation with traders in Nairobi and facilitates quick transaction of business before the commodity is shipped to Nairobi. It seems that telecommunication network is going to play an important role in business transactions of fruits and vegetables in the regional markets in the near future.

### **3.5.7 Cargo Inspection Facilities (Verification Bays).**

These are the facilities that would assist Customs officials to inspect cargo in the transportation vehicles. Such a facility would be a structure with a roof and a pit where cargo can be offloaded for thorough inspection. These facilities are lacking or are not operational in all the border posts visited. This means that the officers cannot be effective in inspecting cargo on transit.

### **3.5.8 Porous Borders**

Except for Malaba, which has a natural but limited barrier (a fast running river), the rest of the borders are quite open and difficult to patrol. Border patrols and arrests usually made by security agents of the would-be smugglers do not help to solve the problem. It is estimated that in some border points, as much as 90% of all commodities entering Kenya do so informally. Loitokitok border for example maintained they did not make a single official entry of any agricultural produce imported through that point because there was none.

The data recorded is estimated at one-third of what actually is traded across the border point. It is difficult to ascertain the value of such informal trade. The most serious limitation is that none of the trade data recorded at the border posts is transmitted to KRA headquarters. What is remitted is the consolidated revenue by month. The implication is that national agricultural figures on trade are inaccurate because what is reported excludes unofficial cross-border trade activities. This means that there is underestimation of quantities of commodities imported, exported and consumed domestically. Thus, national food policy decisions are based on incomplete information.

#### **4. Commodity Competitiveness Between Kenya and Tanzania/Uganda**

There are two commonly held views that explain how economies grow. The earlier view was that the economic success of a country is based on the available factors of production i.e., its comparative advantage. Comparative advantage is important because it is the basis of competitiveness of local production on both internal and external markets (World Bank, 2000). A more recent view explains the economic success of a country on the ability of the people to add value to available resources i.e., its competitive advantage. The two views result to radically different implications for a country's economic policy. The growth of economies like Japan with little if any comparative advantage have also lead to the a conclusion that indeed, competitive advantage can be created.

“Competitiveness is the degree to which a country can, under free and fair market conditions, produce goods and services that meet the test of international markets while simultaneously expanding the real incomes of its citizens (Castells, 1996)”. It is the requirement for staying in business on a sustained basis (World Bank, 2000). The fact that Kenya imports substantial quantities of some fresh horticultural produce from its regional neighbors while exporting very little to them suggests that Kenya is less competitive in these products than are her neighbors. The fact that the country is nevertheless very competitive in international produce markets suggests the dualistic nature of Kenya's horticultural sector. The export sector, comprised of a relatively limited number of organized smallholder farmers along with medium- and commercial scale farmers, all of whom receive some level of production and marketing support from private export companies, competes effectively in the highly competitive and quality conscious markets of Europe. Meanwhile, the domestic sector is comprised of the vast majority of (largely unorganized) smallholder farmers, who receive little if any production or marketing support. The sector pays very little attention to productivity or quality, and struggles to compete with imported produce primarily from Tanzania.

It is for this reason that this section analyzes marketing margins and the subsequent distribution of observable marketing costs as a measure of performance and efficiency in the production and domestic marketing of horticultural commodities. The section focuses on price spread at wholesale level, estimated wholesale profit and return to investment as indicators to measure competitiveness of commodities from Kenya and Tanzania/Uganda at a common market and at the farm level. Since the objective was to compare commodities, it was imperative to start the analysis at the wholesale level where the commodities from Kenya and Tanzania/Uganda meet at Kongowea market in Mombasa and Wakulima market in Nairobi.

For ease of comparison, this study focused on collecting wholesalers who purchase the commodities from farmers, transport them to the main markets and sell them either to retailers or distributing wholesalers. The analysis was based on cost buildup budgets for this group of traders of fresh horticultural commodities with a common market destination. Though few in number, these traders play a crucial role in the trading system by linking farmers and urban traders. They also have the broadest view of problems and opportunities in the system, due to the breadth of their contacts. Eight collecting wholesalers were interviewed for each commodity, 32 in total. Interviews in Mombasa (Kongowea market) and

Taveta were conducted in November 2002, while those in Nairobi (Wakulima market) were done in January 2003. The results are discussed by commodity in the following sub-sections.

## 4.1. Wholesale Market Analysis Results

### 4.1.1 Bananas

Bananas imported into Kenya's domestic markets are obtained primarily from Uganda in Mbale region. Locally, bananas are produced and sold throughout the country (except for arid zones), but are most concentrated in Western and Central Highland areas, especially in Kisii and Murang'a/Nyeri in central province. Local and imported bananas are sold in Wakulima market in Nairobi. Some minimal quantities are imported from Tanzania and sold in Wakulima market also whereas others find their way to Kongowea market through Taita Taveta border point. Cost buildup budgets for bananas from Kenya and Uganda at Wakulima market are shown in Tables 4.1 and 4.2. The computations were based on a bunch of bananas. The statistics indicate that the cost of transportation takes the greatest proportion of marketing costs in both Kenya (77%) and Uganda (63%). It is also noticeable that transportation cost is higher for bananas from Kenya than for Uganda even though the distance covered is longer from Uganda.

Table 4.1 Distribution of Wholesale Marketing Costs (Kshs/bunch) of a Bunch of Bananas from Uganda and Kenya at Wakulima Market in Nairobi

| Cost Items                                 | Kenya –Kisii/Nyeri           |                            | Uganda-Mbale                 |                            |
|--|------------------------------|----------------------------|------------------------------|----------------------------|
|  | Marketing costs (Kshs/bunch) | % share of marketing costs | Marketing costs (Kshs/bunch) | % share of marketing costs |
| Handling Costs at source: Assembly/Loading | 2.70                         | 5.70                       | 1.00                         | 2.51                       |
| Transport cost from source to market       | 36.60                        | 77.22                      | 25.00                        | 62.66                      |
| Customs fees                               | -                            | -                          | 10.00                        | 25.06                      |
| Council fees per unit                      | 7.50                         | 15.82                      | 3.50                         | 8.77                       |
| Handling Costs at market: *offloading      | 0.60                         | 1.27                       | 0.40                         | 1.00                       |
| Total marketing costs                      | 47.40                        | 100.00                     | 39.90                        | 100.00                     |

Source: Authors Computation

Examining the distribution of marketing margins, trader profits, and return on capital shows that profits per bunch of banana are more than 50% higher for the Kenyan commodity, but returns on capital are comparable for local and imported bananas (Table 4.2). The main advantage that bananas from Uganda have in Kenyan markets is the very low purchase price – 20 Ksh/bunch in Uganda vs. 60 Ksh/bunch in Kenya. Kenyan producers receive 43% of the selling price compared to only 25% in Uganda. Marketing costs from Uganda net of customs duties are also lower – about 30 Ksh/bunch vs. 47 Ksh/bunch. Thus, Ugandan bananas clearly have a substantial cost advantage over Kenyan bananas. Yet, despite the much more remunerative prices for Kenyan producers, and the somewhat higher local marketing costs, imported quantities as a percent of total supply appear to be very low under any reasonable scenario (Table 4.1); even if informal imports were 10 times formally recorded imports, total imports would only rise to 15% of locally marketed surplus. It would thus appear that Kenyan consumers prefer local varieties of banana.

Table 4.2. Distribution of Marketing Margins, Trader Profit and Return on Capital for a bunch of Wholesale Bananas (Kshs/bunch) From Uganda and Kenya at Wakulima market in Nairobi

| Category of values                                     | <u>Kenya-Kisii/Nyeri</u><br>(Kshs/bunch) | <u>Uganda-Mbale</u><br>(Kshs/bunch) |
|--|--|-------------------------------------|
| Mean purchase price                                    | 60.00                                    | 20.00                               |
| Mean selling price                                     | 140.00                                   | 80.00                               |
| Marketing margin                                       | 80.00                                    | 60.00                               |
| Marketing costs (including customs duties)             | 47.40                                    | 39.90                               |
| Estimated wholesale profit                             | 32.60                                    | 20.10                               |
| Share of selling price accruing to producers (%)       | 42.86                                    | 25.00                               |
| Share of selling price accruing to marketing costs (%) | 33.86                                    | 49.88                               |
| Share of selling price accruing to wholesalers (%)     | 23.29                                    | 25.13                               |
| Estimated return on wholesale investment (%)           | 30.35                                    | 33.56                               |

Source: Authors Computation

#### 4.1.2 Tomatoes

Tomatoes consumed in Mombasa and most of the coastal region are obtained locally from Karatina, Loitoktok and Taveta areas. When there is a shortage, tomatoes are imported from Tanzania in Iringa. Table 4.3 shows the marketing costs from these production areas to Kongowea market in Mombasa. The computations are based on a crate (35 kg) of tomatoes. The results indicate that transportation takes the highest proportion (> 60%) of the marketing costs for Kenyan as well as Tanzanian tomatoes. The proportion is greater in all Kenyan regions than in Tanzania, though actual transport cost is highest from Tanzania, consistent with the longer distances traveled.

The share of selling price accruing to producers in Kenya was about 50% in the regions considered (Table 4.4). In Tanzania, the farmers got a relatively small share (28%). The difference in actual purchase prices was even greater: Ksh 180/crate in Tanzania, compared to Ksh 350-400 in Kenya. With the exception of tomatoes from Taveta, trader profit per crate and return to capital were both substantially higher for locally produced tomatoes than for the imported product.



Table 4.3 Distribution of Wholesale Marketing Costs (Kshs) of a Crate (35 kg) of Tomatoes from Tanzania and Kenya at Kongowea Market in Mombassa.

| Cost Items  | Tanzania-Iringa                |                             | Kenya-Karatina                 |                             | Kenya-Oloitoktok               |                             | Kenya-Taveta                   |                             |
|---|--------------------------------|-----------------------------|--------------------------------|-----------------------------|--------------------------------|-----------------------------|--------------------------------|-----------------------------|
|   | Marketing costs<br>Kshs/crate) | % share<br>of total<br>cost | Marketing costs<br>Kshs/crate) | % share<br>of total<br>cost | Marketing costs<br>Kshs/crate) | % share<br>of total<br>cost | Marketing costs<br>Kshs/crate) | % share<br>of total<br>cost |
| Distance from market(KM)                              | 915                            |                             | 650                            |                             | 470                            |                             | 309                            |                             |
| Handling cost at source: Assembly/Loading/Market fee  | 12                             | 4.3                         | 12                             | 9.8                         | 10                             | 7.6                         | 29                             | 18.2                        |
| Transport cost to Kongowea market                     | 172                            | 61.7                        | 90                             | 73.2                        | 100                            | 76.3                        | 100                            | 62.8                        |
| Custom fees   | 72                             | 25.8                        |                                |                             |                                |                             |                                |                             |
| Any other payment                                     | 1.7                            | 0.6                         |                                |                             |                                |                             |                                |                             |
| Council fees per unit                                 | 11                             | 3.9                         | 11                             | 8.9                         | 11                             | 8.4                         | 10                             | 6.4                         |
| Handling costs at market:Offloading/storage/Brokerage | 10                             | 3.6                         | 10                             | 8.1                         | 10                             | 7.6                         | 20                             | 12.6                        |
| Total marketing costs                                 | 279                            | 100.0                       | 123                            | 100.0                       | 131                            | 100.0                       | 159                            | 100.0                       |

Source: Authors Computation

Table 4.4. Distribution of Marketing Margins, Trader Profit and Return on Capital for Crate (35 kg) of Tomato at Kongowea Market in Mombassa (Kshs/Crate)

| Category of Values                                 | Tanzania-Iringa<br>(Kshs/crate) | Kenya-Karatina<br>(Kshs/crate) | Kenya-Oloitoktok<br>(Kshs/crate) | Kenya-Taveta<br>(Kshs/crate) |
|--|---------------------------------|--------------------------------|----------------------------------|------------------------------|
| Mean purchase price                                | 180.00                          | 400.00                         | 400.00                           | 357.14                       |
| Mean selling price                                 | 638.00                          | 825.00                         | 825.00                           | 700.00                       |
| Marketing margin                                   | 458.00                          | 425.00                         | 425.00                           | 342.86                       |
| Marketing costs                                    | 278.70                          | 123.00                         | 131.00                           | 159.20                       |
| Estimated wholesale profit                         | 179.30                          | 302.00                         | 294.00                           | 183.66                       |
| Share of selling price accruing to Producers (%)   | 28.21                           | 48.48                          | 48.48                            | 51.02                        |
| Share of marketing costs (%)                       | 43.68                           | 14.91                          | 15.88                            | 22.74                        |
| Share of selling price accruing to wholesalers (%) | 28.10                           | 36.61                          | 35.64                            | 26.24                        |
| Estimated return on wholesale investments (%)      | 39.09                           | 57.74                          | 55.37                            | 35.57                        |

Source: Authors Computation

#### 4.1.3 Oranges

Imported oranges landing at Kongowea market in Mombasa are sourced from Tanga area in Tanzania, whereas local oranges come primarily from Shimba Hills, which lies 70 km from Kongowea market. The oranges sold in Wakulima market are obtained from Mweza District in Tanzania, about 700 km from the market. No Kenyan oranges were found in Wakulima during the period of research. Orange varieties from Tanzania are of better quality than those from Kenya, being consistently larger, juicier and with fewer surface blemishes. This quality superiority is based in part on improved varieties and in part on better control of citrus greening disease, which has affected orchards in Kenya since the 1970s. Although symptoms can vary across varieties, the disease is known for producing small irregularly shaped fruit

with a thick, pale peel. Because the vector which spreads the disease thrives primarily in mid-altitude areas, while orange production in Tanzania is concentrated in the coastal lowlands, Tanzania has had far fewer problems with this disease. The ‘matombo sweet variety’, produced only in Mweza district in Tanzania, is especially valued by consumers in Nairobi, and in fact has come to be called ‘Nairobi variety’ because so much of its production is exported to Nairobi

Tables 4.5 and 4.6 show the cost budget and selling price shares for wholesale traders in both markets. The key result from Table 4.11 is that total marketing costs from Tanga in Tanzania are lower than from Shimba Hills in Kenya, despite the transport distance being nearly 5 times longer from Tanga. At the time of data collection, transport costs for the 70 km route from Shimba Hills were about 90% higher than for the 320 km from Tanga. This reflects extremely poor road infrastructure in the main orange producing areas of the Coast, resulting in transport of oranges on head or in wheelbarrow for relatively long distances until reaching passable roads. While the problem is worse during the rains, costs are high throughout the year in these areas.

Producer price and the share of selling price accruing to producers are relatively low for Kenyan oranges (29%) compared to Tanzanian oranges (44% -- 50%), reflecting both the higher quality of Tanzanian oranges and high marketing costs out of Shimba Hills. Oranges from Mweza appear to be of exceptionally high quality, based on their purchase and sales prices. Wholesaler profits per bag are higher for Tanzanian oranges, especially for those from Mweza, but returns to working capital are comparable across all purchase locations.

Table 4.5. Distribution of Wholesale Marketing Costs of a Bag (100kg) of Oranges from Tanzania and Kenya at Kongowea (Mombassa) and Wakulima (Nairobi) Markets

| Cost Items   | <u>Tanzania-Tanga</u><br>Kongowea |                            | <u>Kenya –Shimba hills</u><br>Kongowea |                            | <u>Tanzania –Mweza</u><br>Wakulima |                            |
|--|-----------------------------------|----------------------------|--|----------------------------|------------------------------------|----------------------------|
|  | Marketing costs                   | % share of marketing costs | Marketing costs                        | % share of marketing costs | Marketing costs                    | % share of marketing costs |
|  | Kshs/bag                          | costs                      | Kshs/bag                               | costs                      | Kshs/bag                           | costs                      |
| Distance from source to sale market (Km)             | 320                               |                            | 70                                     |                            | 700                                |                            |
| Handling cost at source                              | 52                                | 22.91                      | 60                                     | 21.62                      | 70.70                              | 20.23                      |
| Assembling/Loading                                   |                                   |                            |  |                            |                                    |                            |
| Market fee   | 6                                 | 2.64                       |  |                            |                                    |                            |
| Transport cost per unit from source to Kenyan market | 100                               | 44.05                      | 186.50                                 | 67.21                      | 147.80                             | 42.30                      |
| Custom fees  | 40                                | 17.62                      |  |                            | 60.00                              | 17.17                      |
| Any other payment                                    | 4                                 | 1.76                       | 6                                      | 2.16                       | 50.15                              | 14.35                      |
| Council fees per unit                                | 6                                 | 2.64                       | 6                                      | 2.16                       | 8.00                               | 2.29                       |
| Handling charge at sale market:                      |                                   |                            |  |                            |                                    |                            |
| Offloading   | 6                                 | 2.64                       | 6                                      | 2.16                       | 10.00                              | 2.86                       |
| Packing and weighing                                 | 11                                | 4.85                       | 11                                     | 3.96                       |                                    | 0.00                       |
| Security   | 2                                 | 0.88                       | 2                                      | 0.72                       | 2.75                               | 0.79                       |
| <b>Total marketing costs</b>                         | <b>227</b>                        | <b>100.00</b>              | <b>277.50</b>                          | <b>100.00</b>              | <b>349.40</b>                      | <b>100.00</b>              |

Source: Authors Computation

Table 4.6. Distribution of Marketing Margins, Trader Profit and Return on Capital for a Bag (100 kg) of Oranges (Kshs/Crate) From Tanzania and Kenya

| Category of values                                     | Tanzania-<br>Tanga<br>Kongowea<br>(Kshs/bag) | Kenya- Shimba<br>Hills<br>Kongowea<br>(Kshs/bag) | Tanzania –<br>Mweza<br>Wakulima<br>(Kshs/bag) |
|--|--|--|---|
| Purchase price   | 375.00                                       | 192.50   | 1008.75                                       |
| Selling Price  | 850.00                                       | 660.00   | 2005.50                                       |
| Marketing Margin                                       | 475.00                                       | 467.50   | 996.75  |
| Marketing Costs  | 227.00                                       | 277.50   | 349.40  |
| Estimated wholesalers profit                           | 248.00                                       | 190.00   | 647.35  |
| Share of selling price accruing to producers           | 44.12  | 29.17  | 50.30   |
| Share of selling price accruing to marketing costs (%) | 26.71  | 42.05  | 17.42   |
| Share of selling price accruing to wholesalers (%)     | 29.18  | 28.79  | 32.28   |
| Estimated return on traders' investment (%)            | 41.20  | 40.43  | 47.66   |

Source: Authors Computation

#### 4.1.4 Onions

Onion imported from Tanzania are mainly produced in Mang'ola in Arusha region, approximately 550 km and 450 km from Kongowea and Wakulima markets respectively. Locally, key areas of onion supply to the market are Karatina, Meru, Oloitokitok and Taveta. Tables 4.7 and 4.8 show the wholesale trade budgets for Tanzanian and Kenyan onions at Kongowea market whereas Tables 4.9 and 4.10 are for Wakulima market. The key result from Table 4.7 is that total marketing costs – driven by transport costs and “other transit costs” – are highest from Taveta in Kenya, which is the shortest distance from Kongowea market. Trader profits per unit and returns to working capital for onions sold in Kongowea are both about 2.5 times higher on onions from Tanzania, but are still low compared to other commodities analyzed.

Table 4.7 Distribution of Wholesale Marketing Costs (Kshs./bag) of a Bag (100kg) of Onions From Tanzania and Kenya at Kongowea Market in Mombassa

| Country –Source:   | Tanzania –Mangola          |                            | Kenya–Karatina             |                            | Kenya Taveta/ Loitokitok   |                            |
|--|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| Cost Items   | Marketing costs (Kshs/bag) | % share of marketing costs | Marketing costs (Kshs/bag) | % share of marketing costs | Marketing costs (Kshs/bag) | % share of marketing costs |
| Distance from source to sale market(KM)                          | 550                        |                            | 650                        |                            | 373                        |                            |
| Handling cost at Marketing fee/Brokerage source:Assembly/Loading | 42                         | 7.50                       | 115                        | 19.33                      | 39                         | 5.01                       |
| Transport cost to Kongowea market                                | 217                        | 38.67                      | 235                        | 39.50                      | 390                        | 50.13                      |
| Custom fees  | 28                         | 5.06                       |                            |                            |                            |                            |
| Any other payment  | 10                         | 1.78                       |                            |                            | 32                         | 4.11                       |
| Any other cost on transit  | 10                         | 1.78                       |                            |                            | 72                         | 9.25                       |
| Council fees per unit  | 48                         | 8.57                       | 48                         | 8.07                       | 48                         | 6.17                       |
| Handling at sales market:  |                            |                            |                            |                            |                            |                            |
| Offloading   | 20                         | 3.57                       | 20                         | 3.36                       | 19                         | 2.40                       |
| Packing and weighing   | 35                         | 6.31                       | 27                         | 4.54                       | 30                         | 3.86                       |
| Cost of nets/ gunny bags   | 150                        | 26.77                      | 150                        | 25.21                      | 148                        | 19.07                      |
| Total marketing costs  | 560                        | 100.00                     | 595                        | 100.00                     | 778                        | 100.00                     |

Table 4.8. Distribution of Marketing Margins, Trader Profit and Return on Capital for a Bag of Wholesale Onion (Kshs/bag) from Tanzania and Kenya at Kongowea Market in Mombassa

| Category of values                                     | Tanzania –Mangola<br>(Kshs/bag) | Kenya –Karatina<br>(Kshs/bag) | Kenya –Taveta/<br>Loitokitok (Kshs/bag) |
|--|---------------------------------|-------------------------------|---|
| Mean Purchase price                                    | 1483                            | 1560                          | 1447                                    |
| Mean Selling price                                     | 2400                            | 2300                          | 2367                                    |
| Marketing margin                                       | 916.67                          | 740.00                        | 920.00                                  |
| Marketing costs  | 559.67                          | 595.00                        | 777.33                                  |
| Estimated Wholesale profit                             | 357.00                          | 145.00                        | 142.67                                  |
| Prod'r share of selling price (%)                      | 61.81                           | 67.83                         | 61.13                                   |
| Share of selling price accruing to marketing costs (%) | 23.32                           | 25.87                         | 32.85                                   |
| Wholesaler share of selling price (%)                  | 14.88                           | 6.30                          | 6.03                                    |
| Estimated return on traders investment (%)             | 17.47                           | 6.73                          | 6.41                                    |

Source: Authors Computation

Onions sold at wholesale in Wakulima market show a similar pattern as the Kongowea market in terms of cost and distribution of the selling price (Tables 4.9 and 4.10). However, the sales unit is a net of 13 kg rather than a bag of 100 kg. Also, onion wholesalers at Wakulima in Nairobi purchase Tanzanian onion from traders in Kilombero market in Arusha, rather than purchasing at the farm level as wholesalers in Kongowea do. Thus, purchase prices per kg are about 50% higher for onions destined for Wakulima compared to those destined for Kongowea in Mombasa<sup>10</sup>. The collecting wholesalers in Arusha market receive market information (about quantities and prices) through telephone from their counterparts at Wakulima market in Nairobi every morning between 4.00-5.00 a.m. This information forms the basis for price negotiation with traders from Nairobi. The onions are then transported to Nairobi in ten-ton lorries.

The cost budgets of wholesalers at Wakulima market show that the main cost component for both Tanzanian and Kenyan onion is transport and the proportion is higher for Kenyan onion than for Tanzanian onion (Table 4.9). The share of selling price accruing to farmers is lower for Tanzanian onion than for Kenyan onion (Table 4.10). However, the share of selling price accruing to wholesalers is higher for Tanzanian onion (27%) than for Kenyan onion (16%). The estimated trader profit and return on investment are also higher for Tanzanian onion than for Kenyan onion.

<sup>10</sup> The reason for this differential purchasing behavior makes for an interesting story. Wakulima onion collecting wholesalers originally sourced their onion, as they do now, at Arusha point from Tanzanian traders who had delivered the product from Kilombero market. Later on, Wakulima traders realized they could get onions more cheaply at the farm gate at Mag'ola point. As a result, Tanzanian middle men at Arusha could not sell their onion as they used to, which led to an onion "trade war". It was finally agreed that Wakulima collecting wholesalers must stop going to the farms and instead purchase their onion at Arusha. For whatever reason, this agreement did not affect traders taking onion to Kongowea market through Moshi.

Table 4.9. Distribution Of Wholesale Marketing Costs (Kshs./Net) Of A Net (13 Kg) Of Onions From Tanzania And Kenya At Wakulima Market In Nairobi

| Cost Items                        | Tanzania                   |                            | Kenya                      |                            |
|-----------------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
|                                   | Marketing costs (Kshs/net) | % share of marketing costs | Marketing costs (Kshs/net) | % share of marketing costs |
| Handling Costs at source          |                            |                            |                            |                            |
| *Assembling & loading             | 15.75                      | 12.20                      | 17                         | 20.48                      |
| Transport cost to market per unit | 66.65                      | 51.61                      | 44                         | 53.01                      |
| Customs fees or other costs       | 17.95                      | 13.90                      |                            |                            |
| Council fees per unit             | 20                         | 15.49                      | 20                         | 24.10                      |
| Handling Costs at market:         |                            |                            |                            |                            |
| Offloading                        | 8.5                        | 6.58                       | 2                          | 2.41                       |
| Security                          | 0.3                        | 0.23                       |                            |                            |
| <b>Total marketing costs</b>      | <b>129.15</b>              | <b>100.00</b>              | <b>83</b>                  | <b>100.00</b>              |

Source: Authors Computation

Table 4.10. Distribution Of Marketing Margins, Trader Profit And Return On Capital For A Net (13kg) Of Wholesale Onion (Kshs/Net) From Tanzania And Kenya At Wakulima Market In Nairobi

| Category of values                                     | Tanzania (Kshs/net) | Kenya (Kshs/net) |
|--|---------------------|------------------|
| Mean purchase price                                    | 273.00              | 168.00           |
| Mean selling price                                     | 550.00              | 300.00           |
| Marketing Margin                                       | 277.00              | 132.00           |
| Marketing Costs  | 129.15              | 83.00            |
| Estimated wholesale profit                             | 147.85              | 49.00            |
| Share of selling price accruing to farmers (%)         | 49.64               | 56.00            |
| Share of selling price accruing to marketing costs (%) | 23.48               | 27.67            |
| Share of selling price accruing to wholesalers (%)     | 26.88               | 16.33            |
| Estimated return on wholesale investment (%)           | 36.76               | 19.52            |

Source: Authors Computation

Summarizing across all four commodities, results of the collecting wholesaler analysis are quite consistent with observed trade patterns (Table 4.11; see also Table 3.6 for estimated share of each commodity in the Kenyan market). Imported bananas and tomatoes take up a very small portion of the Kenyan market, and trader profits per unit of each of these commodities were shown to be higher for Kenyan produce than for imports. Return to capital on tomatoes was also higher for the local product, while returns on bananas were comparable between the imported and local commodity. Imported oranges take up a larger share of the Kenyan market, and the wholesaler analysis shows profits per bag to be higher for the commodity from Tanzania, especially the high quality oranges from Mweza. Returns to capital are similar for imported and local oranges. Finally, onions take up as much as two-thirds of the Kenyan market, and both profit per bag and returns to capital were shown to be higher for the imported commodity.

Table 4.11. Summary marketing cost build-ups for bananas, tomatoes, oranges, and onions from Tanzania, Uganda, and Kenya to Wakulima and Kongowea markets

| Commodity and Origin      | Producer Price<br>(Ksh/unit) | Sales Price<br>(Ksh/unit) | Marketing Costs<br>(Ksh/unit) | Trader Profit<br>(Ksh/unit) | Return to Trader Working Capital |
|---------------------------|------------------------------|---------------------------|-------------------------------|-----------------------------|----------------------------------|
| <b>Bananas</b>            |                              |                           |                               |                             |                                  |
| From Uganda (Mbale)       | 20                           | 80                        | 40                            | 20                          | 33.3%                            |
| From Kenya (Kisii/Nyeri)  | 60                           | 140                       | 47                            | 33                          | 30.8%                            |
| <b>Tomatoes</b>           |                              |                           |                               |                             |                                  |
| From Tanzania             | 180                          | 638                       | 279                           | 179                         | 39.0%                            |
| From Kenya                | 386                          | 783                       | 138                           | 260                         | 49.7%                            |
| <b>Oranges</b>            |                              |                           |                               |                             |                                  |
| From Tanzania             |                              |                           |                               |                             |                                  |
| Tanga                     | 375                          | 850                       | 227                           | 248                         | 41.2%                            |
| Mweza                     | 1,009                        | 2,006                     | 349                           | 647                         | 47.6%                            |
| From Kenya (Shimba Hills) | 193                          | 650                       | 278                           | 190                         | 40.3%                            |
| <b>Onions</b>             |                              |                           |                               |                             |                                  |
| From Tanzania (Mangola)   |                              |                           |                               |                             |                                  |
| To Kongowea (Mombasa)     | 1,483                        | 2,400                     | 560                           | 357                         | 17.5%                            |
| To Wakulima (Nairobi)     | 273                          | 550                       | 129                           | 148                         | 36.8%                            |
| From Kenya                |                              |                           |                               |                             |                                  |
| To Kongowea (Mombasa)     | 1,504                        | 2,334                     | 686                           | 144                         | 6.6%                             |
| To Wakulima (Nairobi)     | 168                          | 300                       | 83                            | 49                          | 19.5%                            |

## 4.2. Border Point Traders of Fresh Fruits and Vegetables

This section deals with the socio-economic characteristics and business analysis of traders dealing with fresh fruits and vegetables at seven border points: Lunga Lunga, Taveta, Oloitoktok, and Namanga on the border with Tanzania, and Isebania, Busia, and Malaba on the border with Uganda. Fifty-one respondents were selected using systematic sampling. The survey was carried out in November 2002.

Nearly three-quarters of the traders were female, and these tended to be younger (31 years average) than the males (36 years). Three-quarters of all traders were married. Educational levels are relatively high, compared to the general population, with two-thirds having some primary education, 18% some secondary, and 6% some post-secondary. Only 10% had no formal schooling. Most of the respondents (63%) are Kenyan citizens who reside at the border town. Twelve percent are foreign traders who also reside at the border town but on the Kenyan side, and 23% are Kenyan traders who live within 20 km of the town and commute daily to the market.

The majority of the interviewed traders were retailers (53%) but others combine small scale wholesale and retail (39%). Only 8% were pure wholesalers. Transport to or from the border market to other market destinations is by lorries (69%), Public Service Vehicles (14%), bicycles and pickups (6% each, 12% total) and foot (4%).

There are no permanent market structures in the border sites. Most traders (57%) have put up simple structures made of wood, iron sheets and polyethylene where they place their commodities. Others place them on the open ground (43%). The traders complained of huge losses they incur especially during the rainy season. In Taveta, Isebania and Busia, the council had not allocated any area for traders, who therefore occupied private plots, from which they had instructions to vacate anytime the owners would decide. In Malaba, traders sold by the roadside. Forty-five percent of the traders indicated that they were members of trading groups. The majority of those who did not belong to any trading group (60%) felt that their businesses were too small to join the group (See Table 4.12). Others were willing to join but said they were not aware of any self-help group in the area. Few had fears of mismanagement of the groups.

Table 4.12. Reasons for not being a Member of Self Help Group

| Possible Reasons                                     | Frequency | Percent |
|--|-----------|---------|
| No self help group in this market                    | 6         | 21.4    |
| Have not attained the requirement for various groups | 3         | 10.7    |
| Not had need to join one                             | 17        | 60.7    |
| Fear of previous experience related to mismanagement | 2         | 7.1     |
| Total  | 28        | 100.0   |

Source: Interviews with Traders, November 2002.

Eighty-three percent of those who are members of groups indicated that the groups provided small loans to their members. Most of the traders are small-scale and hence their contribution to the groups is low. There was no collateral required and the loans were given on a rotational basis. Seventeen percent of the members indicated that their groups buy household items for the members.

The majority of the traders (90%) used their own savings while setting up their businesses. The rest borrowed money from relatives and/or friends. Only 22% tried to get credit for purposes of horticultural trading. All of them got the credit through the self-help groups. It seems that business around the borders remains low partially because of limited credit facilities.

Market information around the border markets is mainly by word of mouth (92%) from friends, relatives and business colleagues (Table 4.13). The border point traders rely on cross-border traders for market information. Few rely on the media such as newspapers. The traders said they are not aware of any market information program on the radio.

Prices of Kenyan and Tanzania/Uganda commodities appear to be comparable. However, 47% of traders interviewed indicated that Kenyan commodities are more expensive (Table 4.14). Overall, they preferred selling commodities from Tanzania/Uganda since they were more profitable unless they were out of stock. The traders complained of high transport charges on the Kenyan side. Also, 55% of traders indicated that commodities from Tanzania/Uganda are of better quality than Kenyan commodities (see Table 4.15). This has led to greater demand for these commodities coupled with their affordability. Traders seem to prefer them as they sell faster.

Table 4.13 Sources of Market Information

| <b>Information Sources</b>                               | <b>Frequency</b> | <b>Percent</b> |
|--|------------------|----------------|
| From newspapers  | 2                | 3.9            |
| By word of mouth from friends/ relatives/brokers/traders | 47               | 92.2           |
| Do not need market information for my business           | 2                | 3.9            |
| Total  | 51               | 100.0          |

Source: Interviews with Traders, November 2002.

Table 4.14. Price comparison among countries

| <b>Price comparison</b>                 | <b>Frequency</b> | <b>Percent</b> |
|---|------------------|----------------|
| Kenya' s commodities are cheaper        | 19               | 37.3           |
| Kenya' s commodities are more expensive | 24               | 47.1           |
| There is no difference in price         | 5                | 9.8            |
| Do not Know                             | 3                | 5.9            |
| Total                                   | 51               | 100            |

Source: Interviews with Traders, November 2002.

To ensure that they sell quality produce to customers, the traders selected good quality produce (86%), and maintained clean sales sites (39%). Others packed the produce for the customers (Table 4.16). When asked to list the four main challenges that they felt constrain their businesses (Table 4.17), most traders indicated low demand for fruits and vegetables (37%), lack of market space (35%), competition from neighboring country traders (22%), and harassment by town council authorities (18%). High charges of cess and licenses were mentioned by over 10%. Some of the markets (e.g. Taveta) charged sellers when bringing in produce and also charged buyers when carrying it out of the market to be taken to other market destinations.

Table 4.15. Quality Comparison of Commodities

| <b>Quality Comparison of Commodities</b>     | <b>Frequency</b> | <b>Percent</b> |
|--|------------------|----------------|
| Kenya' s commodities are better              | 14               | 29.4           |
| Tanzania's/ Uganda' s commodities are better | 29               | 54.9           |
| They are about the same quality              | 5                | 9.8            |
| Do not Know                                  | 3                | 5.9            |
| Total  | 51               | 100.0          |

Source: Interviews with Traders, November 2002.



Table 4.16. How to Ensure Quality Commodities are Sold

| <b>Action to Ensure Quality</b>    | <b>Frequency</b> | <b>Percent</b> |
|------------------------------------|------------------|----------------|
| By packing the produce             | 11               | 21.6           |
| By maintaining clean sales site    | 20               | 39.2           |
| By doing selection of good produce | 44               | 86.3           |
| Others                             | 2                | 3.90           |

Source: Interviews with Traders, November 2002.

Table 4.17. Challenges Traders are Facing

| <b>Challenges Traders are facing</b>         | <b>Frequency</b> | <b>Percent</b> |
|--|------------------|----------------|
| Competition from neighboring country traders | 11               | 21.6           |
| Lack of market space                         | 18               | 35.3           |
| High charges of cess and licenses            | 6                | 11.8           |
| Harassment by town council authorities       | 9                | 17.6           |
| Low demand                                   | 19               | 37.3           |
| Hostility from traders across the border     | 1                | 2.0            |
| Tribalism                                    | 1                | 2.0            |
| Poor exchange rate                           | 1                | 2.0            |

Source: Interviews with Traders, November 2002.

To tackle these challenges, nearly all traders referred to physical conditions in the markets: three-quarters felt that the township councils could assist them by constructing market facilities, and nearly one-quarter referred to the need to improve coordination and allocation of space within the market (Table 4.18). This could help reduce losses incurred through damage and boost security in the market. Lack of credit facility was another serious limitation to expanding business operations among traders and micro-finance institutions could intervene to uplift their businesses.

Some traders complained of high transport charges due to the poor state of roads and asked if the government could intervene to construct new roads and maintain the existing ones. They complained of harassment by custom officials when they intend to sell across the borders and asked if the government could help to allow efficient cross border trading.

Table 4.18. Opportunities for Interventions

| <b>Possible Areas for Intervention</b>                 | <b>Frequency</b> | <b>Percent</b> |
|--|------------------|----------------|
| Storage facilities at the border                       | 1                | 2              |
| Improved roads   | 2                | 4              |
| Transport availability                                 | 7                | 14             |
| Constructing a market facility                         | 38               | 76             |
| Provision of credit facilities                         | 14               | 28             |
| Supply of electricity to the border market             | 2                | 4              |
| Effective market co-ordination and allocation of space | 12               | 24             |
| Lower commission                                       | 4                | 8              |
| Cooperation by customs officials                       | 1                | 2              |
| Allow more cross-border trade                          | 1                | 2              |
| Improve prices   | 1                | 2              |

**Note:** Traders referred to more than one action, thus percentages sum to more than 100%

**Source:** Interviews with Traders, November 2002.

## 5. Conclusions, Recommendations, and Further Research

This report has shown that, despite very high growth rates in export horticulture in Kenya, the domestic market continues to absorb at least 4-5 times more produce, by value, than does the export market. If produce consumed on the farm is included, the domestic share rises to 7-8 times that of the export market. We have also shown that value added after the farm gate is at least three times greater in the domestic than in the export supply chain. At the same time, the domestic horticultural system is relatively uncompetitive in regional markets: while the country imports a substantial share of some horticultural crops, its exports of fresh produce to the region are negligible. We have thus referred to the dualistic nature of the current system, with an export sector of commercial farmers and some organized smallholder farmers closely linked to export companies, competing successfully in the highly competitive and quality conscious European market, while the domestic sector is dominated by smallholder farmers receiving little if any assistance and struggling in some instances to compete with imports.

The domestic horticultural system is also subject to strong forces of change at the present time. Continued high rates of urbanization are expected to drive increases in demand; if per capita incomes begin once again to rise, total demand growth in the domestic market could exceed 5% per year. Satisfying such increases in demand year after year would be a major challenge for any commodity supply chain.

The impact of the growth of supermarkets on the FFV production and marketing system is difficult to assess at this time. On the one hand, both major supermarket chains indicate that they are moving towards ‘preferred grower’ procurement systems which eliminate or greatly reduce procurement from brokers in favor of direct procurement with a limited number of commercial and some organized smallholder farmers.<sup>11</sup> This trend is driven by the chains’ concern with quality and cost. Safety concerns among some consumers can be expected to grow in importance over time. Supermarkets will need to respond to these concerns, and one likely result is a further decline in their reliance on smallholder farmers. On the other hand, supermarket chains’ FFV market share is currently less than 5% even in Nairobi (lower elsewhere), and essentially 0% among the bottom 80% of households in the income distribution. Rapid growth of this share is constrained by low per capita incomes, relatively low (though increasing) levels of urbanization, and high fixed costs of the new procurement systems. Based on these factors, on patterns in the rest of the world, and on the fact that the traditional marketing system is well adapted to the shopping habits and preferences of poor consumers, we anticipate that supermarket chains’ FFV market share will lie between 10% and 20% in 10 years time.

Given these current and likely market shares of supermarkets, we believe that some of the conclusions from the ‘new supermarket literature’ are overstated and risk misallocating scarce government and donor resources. For example, Reardon and Berdegue state that ‘... development agencies must internalize the fact that, increasingly, ‘product markets’ will mean ‘supermarkets.’’ Similarly, Weatherspoon et al. (2003) state for Africa that ‘...a market-demand driven approach would start by identifying the principal buyers that are leading the market ...these ...are the supermarket procurement of ficers of the leading chains ...’. Neither of these statements is supported by current data for Kenya’s FFV sector, nor by

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<sup>11</sup> Little is know of the procurement systems of hotels and high-end green grocers, but we hypothesize that they also engage in substantial and increasing direct procurement.

what we consider to be realistic assessments of the likely growth of supermarkets in the FFV sector over the next 10 years.

The fundamental challenge facing development planners focusing on FFV is how to expand domestic and regional markets for Kenyan horticultural produce, integrate the country's smallholder farmers into profitable supply chains that satisfy these markets, and ensure consumers of a growing supply of horticultural produce with falling real prices and improving quality. We suggest that the recent investment in supermarkets, though it introduces one more competitive dynamic that may lend more urgency to these issues, does not alter this fundamental challenge. Specifically, we suggest that improving quality and reducing costs in assembly, wholesale, and 'traditional' retail market outlets will be central to meeting this challenge. Any policy recommendations that pull resources away from this already neglected sector are likely to have negative effects on the welfare of poor farmers and consumers.

The level of investment needed to enhance the competitiveness of the traditional supply system is well beyond what the government alone could finance. Active partnering with donors and private sector will thus be crucial. In some cases, effective partnering will require a fundamental change of orientation on the part of government. In the rest of this chapter we briefly lay out the key issues that need to be addressed, and the knowledge gaps that need to be filled, in each of these broad areas.

## **5.1 Recommendations on Hard and Soft Market Infrastructure**

Traditional wholesale and many retail markets in Kenya are congested and unsanitary.<sup>12</sup> In their current condition, these markets are not an effective vehicle for expanding domestic and regional demand for Kenyan horticultural products by increasing quality and safety and reducing costs. Moreover, if these markets do not participate in this process, then supermarkets and other large actors will attempt to bypass them in favor of direct arrangements with large commercial growers and a limited number of organized smallholders. Such a development path will impose large direct and indirect costs on the Kenyan economy. Most visibly, the large mass of smallholder farmers and small traders will be confined to a slowly growing system with little value added, high unit costs, and low profit potential, while poor urban consumers will pay higher prices for a more limited range of poor quality produce. Market transparency will also be reduced and large players will have more opportunity to exercise market power. Wholesale markets in tropical countries play key roles in 'price discovery' by concentrating large quantities of produce from many sellers and then distributing it to many buyers, all in public space. This public balancing of supply and demand results in efficient pricing and public availability of price information. By contrast, private price negotiation between supermarkets or other large buyers and their large and organized suppliers does not provide publicly available price information. Over time, large actors operating in this less transparent system may develop market power and use it to increase prices to consumers and lower them to farmers.

Avoiding this situation will require intelligent partnering between government, donors and private sector to make selected improvements in the hard and soft infrastructure of the traditional marketing system. Traditional wholesale markets would be the central but not

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<sup>12</sup> Simon Ethangatta, former head of FPEAK, captured the situation very well when he stated in the *The Nation* in March 2004 that "All our major markets are characterized by chaos, cheating, thuggery, and dirt".

exclusive focus of these investments. Improvements in three key areas will help wholesale markets integrate small farmers into a growing and profitable horticultural marketing system while providing higher quality produce to poor- and middle-income consumers. First, improved logistical efficiency, especially for loading and unloading, will reduce costs and improve hygiene in the markets. Second, improved hygiene combined with logistical improvements will make these markets more attractive options for a broader range of retail outlets. Third, improved grades and standards, and more easily available information on prices and volume by grade of product, will increase market transparency and further attract customers.<sup>13</sup>

Achieving these improvements will require that wholesale market management take on a business orientation while recognizing that it is providing a partial public good by integrating smallholder farmers into a more dynamic and competitive system while also providing poor consumers with higher quality produce at competitive prices. These markets will have to attract business by providing loading and unloading services that reduce the time it takes for traders and farmers to arrive, load or unload, and depart. They will have to work with private sector to develop a workable system of grades and standards. Information technology could allow potential buyers and sellers to access real-time information on prices and volumes by product grade. Cooling and washing services would improve quality and hygiene. Simple value-added services such as slicing, dicing, and simple packaging would provide a broader range of produce that, along with the improved hygiene and efficient logistics, could attract supermarkets and green grocers.

This approach would be based on recognition of the potential complementary relationship between improvements that serve the traditional marketing value chain, and the small farmers and lower income consumers that use it, and those that serve the middle and upper income groups. Investments in the former can improve quality and reduce costs for the whole value chain, thereby avoiding the splintering into a dualistic system serving different clientele with vastly different qualities, choice, and costs. Growers and marketing agents who do a better job serving such an improved traditional system will also be in better positions to upgrade to meet the requirements of the higher end of the system.

Active partnering between government, private sector and donors will be crucial to mobilize the needed financial resources and knowledge to make these improvements. Existing wholesale market places will need substantial physical improvements, and may need to be moved to achieve these. In many instances throughout the world, improved or new wholesale markets have not been used by the private sector for a complex set of reasons. It is thus imperative that the decision on market location be part of a broader process that focuses on modernizing and improving FFV wholesaling, and creating better links back to the assembly and on-farm production processes (Tracey-White 2003; Tollens 1997).

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<sup>13</sup> For a good example of the type of strategic marketing information that can be provided by a proactive public agency in the service of the traditional marketing system, see Costa Rica's Mercanet web page at <http://www.mercanet.cnp.go.cr/default.htm>. Michigan State University has also done a great deal of work over the past 30 years on improving traditional agricultural marketing systems to reduce costs, improve quality, and thus facilitate demand expansion. See especially Harrison et al, 1987. Finally, FAO's agricultural marketing division has done a great deal of work on linking improvements in market infrastructure to more fundamental "market facilitating" services. See <http://www.fao.org/waicent/faoinfo/agricult/ags/AGSM/infrastr.htm>, Tracey-White 2003, and Tollens 1997.

Government and donors could also play an important role partnering with supermarkets to reduce the cost to them of dealing directly with smallholder farmers. Using government and donor funding, the extension service and national and international NGOs could bear the cost of developing viable smallholder farmer organizations and nurturing the relationships between these organizations and supermarkets. Once the organizations have developed sufficiently and the relationship with the supermarket has been stabilized, the assistance can move on to other areas. On the other hand, if investments in the traditional system are successful in improving quality and reducing costs, then traditional wholesale markets could become attractive once again to supermarkets, at least for a range of basic items. Such investments have allowed public wholesale markets in several European countries to increase their share of the FFV market (Cadilhon, et al 2003; Fresh Produce Marketing Section 7 Committee; 1999). In Mexico, nearly all fresh produce, whether destined for export, supermarkets, or traditional retail outlets, is purchased in modern, state-of-the art public wholesale markets. Thus, improvements in the traditional system and efforts to increase smallholder access to the direct procurement systems of supermarkets should be seen as complements, not substitutes.

Macro infrastructure is also key to modernizing the sector. Ahmed and Rustagi (1987) estimate that more than half of the substantial difference in marketing costs between Africa and Asia is attributable to poor physical infrastructure (as quoted in Tollens 1997). The poor condition of most of Kenya's roads implies high vehicle maintenance costs and consequently high transportation costs (Kamau, 2000). Similarly, lack of passable roads during rain seasons renders them inaccessible to collecting wholesalers and results in delayed transportation of perishable commodities. Improvement in secondary and tertiary roads is especially important. As the Ministry of Works allocates funds for the development of rural roads, a horticultural task force should be formed to lobby for targeting of areas that would most benefit horticulture. All of these efforts – improved hard and soft infrastructure in the traditional system, improved direct links between supermarkets and small farmers, and improved secondary and tertiary roads -- will have very positive implications for rural economic growth and poverty alleviation.

## **5.2 Other Recommendations**

**Duty Concessions:** Unequal duties at border points may hinder the access of Kenyan produce to Tanzanian markets. Hence there is need for harmonization of duties in EAC. Kenya Revenue Authority should also harmonize the levies charged on various horticultural commodities traded across the border points.

**Border Point Infrastructure:** All Tanzanian border points with Kenya have electricity whereas in Kenya, only two of the five border points have electricity. Electricity supply work to the remaining border points (e.g. Shimon junction to Lunga Lungu, Bisill to Namanga and Migori to Isebania) should now be completed so as to enhance computerization and installation of communication network.

**Telecommunications:** Telecommunication services in Kenya are expensive and unreliable, imposing real costs on trade. In Tanzania, due to an open sky policy, low cost communications are available at most border points. Kenya needs to liberalize its telecommunications services so as to increase competition and reduce costs.

### 5.3 Further Research

This report has provided a relatively detailed assessment of Kenya's horticultural production and marketing system from the farm up to the wholesale level. It has also identified the range of actors operating at the retail level, and has addressed the small but emerging role of supermarkets. In so doing, it has attempted to place these new entrants in the context of the broader FFV marketing system. The challenge now is to understand in more detail the behavior and performance of the traditional FFV production and marketing system, and how it can be improved to bring down the cost to a majority of consumers yet present better opportunities for growers. An additional and important question is to understand how the traditional system relates to and might be affected by emerging supermarkets. Specifically, national policy makers and municipal authorities need to understand the bottlenecks that, if relieved, could substantially reduce costs and allow this system to compete more effectively with what might be an emerging parallel and more "modern" system driven by supermarkets. If this process of identifying and relieving key bottlenecks in the traditional system is successful, then it will be possible to avoid creating an entrenched dualistic system and the ills of high costs and poor options for both consumers and farmers that such a system implies.

To help guide investments in pursuit of this goal, more information is needed in the following areas:

**Urban Retailing:** A recently completed consumer survey in Nairobi, conducted by Tegemeo Institute, will soon allow calculations of market shares for the full range of retail outlet types. In addition to these share data, one needs to establish the costs and standard operating procedures of each retailer's procurement system, and key bottlenecks that, if relieved, could reduce their costs and increase the quality of what they offer. We have estimated that the supermarket FFV share is less than 10% in Nairobi, but will have data that directly inform this issue with the new Tegemeo survey results.

**The role of product quality in the traditional marketing system:** Formal quality standards play little if any role in the traditional FFV marketing system. Is there evidence of price differentiation based on informal grading? Is there evidence that quality differences affect the allocation of commodities to alternative retail channels? Understanding the degree and specific mechanisms of quality differentiation in the traditional system is fundamental to designing a more formal system of grades and standards that is workable and that can increase transparency and create a dynamic of constant quality improvement.

**Urban Wholesaling:** The behavior and performance of urban wholesale markets affects costs, prices, and the distribution of benefits among farmers, traders, and consumers throughout the production and marketing system. We have noted how improvements in logistics, hygiene, information technology, and simple value added services could generate positive knock-on effects throughout the system (Chapter 7). Identifying useful specific investments in these areas will require applied research in close collaboration with retail and wholesale traders who use the current wholesale market or who may potentially use an improved market

**Links between urban markets and rural producers:** We know relatively little about the specific mechanisms that rural assemblers and collecting wholesalers use to procure produce for urban markets. We do know (from Chapter 4) that the production and marketing of fruits and vegetables, even among smallholder farmers, is quite concentrated. To design programs

that link small farmers more closely to market outlets and level the playing field among farmers and traders, one needs to know more about the system wide “price discovery” process: how are prices negotiated at key points in the supply chain, what information do farmers and traders have access to in these negotiations, and what additional information might they need to plan more market oriented production for both the traditional and emerging supermarket markets?

One would also want to establish how many small farmers sell through associations, what cost and other marketing advantages these associations provide, and what if any price premia these organized farmers receive. Finally, it is important to know what the share of smallholder farmers vs larger commercial farmers is for the main horticultural crops.

**Rural marketing:** We anticipate that many rural households will be net buyers of horticultural produce. If this is true, then the performance of the rural marketing system, including rural retailing, will affect the real incomes of net sellers and net buyers. A forthcoming rural survey by Tegemeo will be designed to shed some light on this issue.



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