Participation in global horticulture value chains: 
Implications for poverty alleviation in the Sub-Saharan Africa (SSA) region

A thesis submitted to The University of Manchester for the degree of 
Doctor of Business Administration 
In the Faculty of Humanities

2013

Elizabeth Afari 
Manchester Business School
# Table of contents

## Chapter One .......................................................................................................................... 12
1.1 Introduction ........................................................................................................................... 12
1.2 Research context .................................................................................................................... 14
1.3 Research objectives .............................................................................................................. 16
1.3.1 Value chain analysis ........................................................................................................ 17
1.3.2 Value chains conditions ................................................................................................. 18
1.3.4 Supplier skills and capabilities ..................................................................................... 20
1.4 Justification ........................................................................................................................... 25
1.5 Methodology ......................................................................................................................... 25
1.6 Summary contributions ....................................................................................................... 27
1.7 Outline of thesis ................................................................................................................... 28

## Chapter 2 ................................................................................................................................. 29
Literature review and hypotheses .............................................................................................. 29
2.1 Introduction .......................................................................................................................... 29
2.2 Previous research on global value chains (GVCs) ............................................................... 29
2.2.1 Global Commodity Chains (GCCs) ................................................................................ 29
2.2.2 Global value chain (GVCs) ............................................................................................ 31
2.3 Governance .......................................................................................................................... 32
2.3.1 Judicial governance ........................................................................................................ 33
2.3.2 Legislative governance .................................................................................................. 34
2.3.3 Executive governance .................................................................................................... 36
2.4 Upgrading ............................................................................................................................ 37
2.5 Absorptive capacity ............................................................................................................. 40
2.6 Transaction costs .................................................................................................................. 45
2.7 Integrated Global Value Chains (IGVCs) framework: Background and Rationale .......... 47
2.7.1 A conceptual framework – Integrated global value chains (IGVCs) ............................... 47
2.8 Conclusion ............................................................................................................................ 52

## Chapter 3 ................................................................................................................................ 54
The operating environment ......................................................................................................... 54
3.1 Introduction .......................................................................................................................... 54
3.2 Poverty in Sub-Saharan Africa (SSA) .................................................................................. 54
3.2.1 Poverty in Kenya ............................................................................................................. 54
3.2.2 Poverty in Ghana ............................................................................................................. 56
3.3 Global horticulture ................................................................................................................ 59
3.4.1 Agriculture in Kenya ..................................................................................................... 65
3.4.2 Research activities Kenya .............................................................................................. 65
3.4.3 Global Horticulture value chains – Kenya .................................................................... 72
3.4.4 Agriculture – Ghana ...................................................................................................... 73
3.4.5 Research – Ghana .......................................................................................................... 70
3.5 Institutions that support global horticulture value chain activities .................................... 79
3.5.1 Global Institutions ........................................................................................................ 79
3.5.2 Institutions in Ghana .................................................................................................... 80
3.5.3 Institutions in Kenya .................................................................................................... 81
3.6 Infrastructure necessary for global horticulture value chain activity .................................. 83
3.6.1 Infrastructure in Kenya .................................................................................................. 84
3.6.2 Infrastructure in Ghana .................................................................................................. 85
3.7 Transaction costs associated with participation in global horticulture value chains .......... 85
3.7.1 Transaction costs in Kenya ............................................................................................. 87
3.7.2 Transaction costs in Ghana ............................................................................................ 87
3.8 Conclusion ............................................................................................................................ 89

## Chapter 4 ................................................................................................................................ 91
Methodology ............................................................................................................................... 91
4.1 Introduction .......................................................................................................................... 91
5.2 Global buyers .......................................................................................................................... 109
5.2.1 Background and ownership ................................................................................................. 109
Section II .................................................................................................................................... 110
5.3 Governance in HGVCs ............................................................................................................ 110
5.3.1 Model Description ................................................................................................................ 110
5.3.2 Buyers current relationship with local suppliers ................................................................. 112
Relations with suppliers ............................................................................................................ 113
Advance payments to suppliers ................................................................................................. 113
Contracts specify all payment, delivery pricing and other details .................................................. 114
Check 100% of samples or products on delivery ............................................................................ 115
Meeting suppliers on a regular basis (Monthly) ............................................................................ 115
Share risk of unexpected contingencies in production with suppliers .............................................. 115
Reliability of suppliers .................................................................................................................. 116
5.3.3 Extent of control ................................................................................................................... 117
5.3.4 Extent of integration ............................................................................................................. 119
5.3.5 Extent of Coordination ........................................................................................................ 120
5.3.6 Supplier Development programmes for suppliers ................................................................. 121
5.4 Technology and knowledge transfer to suppliers ..................................................................... 122
5.4.1 Knowledge transfer and exchange ...................................................................................... 122
5.4.2 Technology transfer ............................................................................................................ 125
5.5 Local Suppliers ...................................................................................................................... 129
Section I ........................................................................................................................................ 129
5.5.1 Background and Ownership ................................................................................................. 129
5.5.2 Market Organisation ............................................................................................................. 129
Section III ..................................................................................................................................... 130
5.5.3 Governance in GVCs ........................................................................................................... 130
5.5.4 Extent of control ................................................................................................................... 133
5.5.5 Extent of integration ............................................................................................................. 134
5.5.6 Extent of coordination ........................................................................................................ 134
5.6 Upgrading activities ................................................................................................................. 134
5.6.1 Process upgrading ............................................................................................................... 134
5.6.2 Product upgrading ............................................................................................................... 136
5.6.3 Functional Upgrading ......................................................................................................... 139
5.6.4 Inter-chain upgrading ....................................................................................................... 140
5.7 Technology and knowledge transfer ....................................................................................... 141
5.7.1 Knowledge transfer ............................................................................................................ 141
5.7.2 Absorptive capacity ........................................................................................................... 142
5.7.3 Relations with external organisations ................................................................................ 143
5.8 Conclusion ............................................................................................................................ 143
Chapter 6 ................................................................................................................................. 145
The Operational Environment ................................................................................................. 145
6.1 Introduction .......................................................................................................................... 145
6.2 Model Description ............................................................................................................... 145
6.3 The state of infrastructure ................................................................................................. 146
6.5 The state of institutions ...................................................................................................... 147
6.5.1 Legal Institutions ............................................................................................................ 147
6.5.2 Intellectual property rights ............................................................................................ 148
6.5.3 Horticultural institutions ............................................................................................... 149
6.6 Transaction costs ................................................................................................................ 150
6.6.1 Search costs .................................................................................................................... 150
6.6.2 Negotiation and Enforcement costs ............................................................................... 150
6.6.3 Monitoring and control costs ......................................................................................... 151
6.6.4 Search costs .................................................................................................................... 151
6.6.5 Negotiation and Enforcement costs ............................................................................... 151
6.6.6 Monitoring and control costs ......................................................................................... 152
6.7 Market structure ................................................................................................................ 153
6.7.1 Oligopsony ..................................................................................................................... 155
6.7.2 Concentration in GVCs ................................................................................................. 156
6.8 Income generation 156
6.9 Employment Generation 158
6.10 Conclusion 162

Chapter 7 ................................................................................................................................ 164
Discussion and potential explanation of findings .................................................................... 164
7.1 Introduction .......................................................................................................................... 164
7.2 Challenges ........................................................................................................................... 164
7.2.1 Prevailing Institutional arrangements ............................................................................. 164
7.2.2 The lack of appropriate infrastructure .......................................................................... 165
7.2.3 Market structure ............................................................................................................ 166
7.2.4 Transaction costs ........................................................................................................... 166
7.2.5 Technology and knowledge transfer ............................................................................. 167
7.2.6 Governance in GHVCs 168
7.2.7 Income generation and Employment ........................................................................... 169
7.3 Opportunities ...................................................................................................................... 169
7.3.1 New Markets .................................................................................................................. 169
7.3.2 Employment and income generation ............................................................................ 170
7.4 Summary of findings .......................................................................................................... 171
7.4.1 Hypothesis 1: .................................................................................................................. 171
7.4.2 Hypothesis 2 .................................................................................................................. 173
7.4.3 Hypothesis 3 .................................................................................................................. 175
7.5 Conclusion .......................................................................................................................... 178

Chapter 8 ................................................................................................................................ 180
Policy Issues, opportunities for further research and significance of the research 180
8.1 Introduction .......................................................................................................................... 180
8.2 Opportunities to reduce poverty resulting in economic development .............................. 181
8.3 Challenges that have hindered poverty reduction and economic development .............. 182
8.4 Recommended strategies to optimise poverty reduction .................................................... 185
8.5 Policy proposals ................................................................................................................... 187
8.5.1 Education on the benefits of participation in global horticulture value chains ............... 187
8.5.2 Reducing the rate of exclusion (Evans, D., et al., 2006) ............................................... 187
8.5.3 Support for compliance with standards and high quality requirements ........................ 189
8.5.4 Access to Finance .......................................................................................................... 189
8.5.5 Research and Development .......................................................................................... 189
8.5.6 Promotion of technological transfer for upgrading ....................................................... 190
8.5.7 Intellectual property rights, legal and horticulture institutions .................................... 191
8.5.8 Establishment of industrial clusters ............................................................................... 192
8.5.9 Promoting the establishment of secondary industries .................................................. 193
8.5.10 Market Structure .......................................................................................................... 193
8.5.11 Infrastructure development ................................................................. 196
8.5.12 Employment generation ................................................................. 196
8.6 Implications of the research ................................................................. 196
8.7 Other considerations ............................................................................ 197
8.8 Limitations ........................................................................................ 198
8.9 Opportunities for further research ....................................................... 198
8.10 Final conclusions ................................................................................ 199
..................................................................................................................... 249

Word count: 94,988
List of tables
Table: 3.1 Human Development Indicators (HDI) Kenya 56
Table 3.2 Human Development indicators (HDI) Ghana 57
Table 3.3 Top 15 global exporters of Horticulture (%) – 2009 57
Table 3.4 Overview of a selection of standards applied to horticulture produce 63
Table 3.5 Economic upgrading and downgrading in the horticulture sector (1990-2009) 64
Table 3.6 Top 10 Food retailers in Europe (billions of euros 2009) 65
Table 3.7 Agriculture commodities (Ghana) – 2008 70
Table 3.8 Comparison of Ghana’s horticultural exports to Europe, 2001 and 2007 77
Table 4.1 Sample frame – Fruit and Vegetables value chain Kenya 91
Table 4.2 Sample frame – Fruit and Vegetables value chain Ghana 98
Table 4.3 Overview of interviewees – Kenya 100
Table 4.4 Overview of interviewees – Ghana 101
Table 4.5 Summary of research approach 107
Table 5.1 Evaluation of relationships with suppliers 112
Table 5.2 Monitoring and control in global horticulture value chains 118
Table 5.3 Overview of knowledge transfer and exchange 122
Table 5.4 Overview of Technology transfer 126
Table 5.5 Evidence of process upgrading (N=18) 135
Table 5.6 Past and current added value: Selected horticulture produce 2000-2003 136
Table 5.7 Process and product upgrading 138
Table 5.8 Functional Upgrading 139
Table 5.9 Absorptive capacity in local suppliers 142
Table 6.1 A comparison of horticulture employment in Kenya and Ghana (2004) 159

List of Figures
Figure 2.1 Integrated global value chain framework – IGVC 51
Figure 3.1 Poverty rates in Kenya 2005-2006 55
Figure 3.2 Poverty rates in Ghana (2005-2006) 56
Figure 3.3 Export market shares in selected countries (%) 58
Figure 3.4 Structure of Global horticulture value chains 60
Figure 3.5 Map of Kenya 70
Figure 3.6 Value of agricultural outputs 71
Figure 3.7 Map of Ghana 70
Figure 3.8 An overview of the Kenyan global horticulture value chains 78
Figure 3.9 Value of Agriculture Products – Ghana 74
Figure 5.1 Supplier Performance attributes 111
Figure 6.1 Factors that impact the Operational Environment 146
Figure 6.2 Average payments for sales invoice 152
Figure 7.1 Overview of findings

Box 1 Examples of concentration 67
Abstract

There are approximately one billion people predominantly in Asia and sub-Saharan Africa (SSA) who live in extreme poverty because they are adversely linked to the process of globalization and not optimally integrated in global value chains. In the SSA region, agriculture is the main occupation where most of the rural population are employed and earn incomes. The horticulture sector a subset of agriculture is one of the value creating sectors where opportunities exist for the rural population to link and connect to the global economy through participation in global value chains (GVCs). The global value chain perspective has been used in a number of studies analyze how global buyers organize and control operations with local suppliers. Kenya is a leading exporter of horticulture produce, where the large and medium suppliers are considerably linked to GVCs but not the small suppliers. Ghana is developing its horticulture sector where local suppliers are considerably small in size and adversely connected to GVCs. Effective participation and connection to GVCs is considered as a perquisite and under certain conditions opportunities for local supplier upgrading, leading to income generation and poverty alleviation. Local suppliers, especially small ones in both economies are challenged due to limited market access, stringent standards and quality requirements (conditions of participation) imposed by global buyers, and an inefficient operating environment. High exclusion levels due to non-compliance with high standard and quality requirements imposed by global buyer’s increases vulnerability and risks which tends to prolong the duration of poverty. Competitiveness remains a key issue due to the lack of investment in upgrading resulting in low performance and exclusion of a number of suppliers from participation in global horticulture value chains. High exclusion rates have a negative impact on incomes which further exacerbates the incidence of poverty. On the other hand opportunities for the acquisition of skills, learning and upgrading that would reduce exclusion depends on conditions of participation – governance in GVCs imposed by global buyers. In addition, transaction costs in both countries are high due to inefficient infrastructure and support institutions. There is evidence in the literature that participation in global horticulture valve chains does contribute to increased incomes but it is unclear if this has contributed or not to reducing poverty levels in Kenya and Ghana. Kenya is selected as a case study because the horticulture sector is mature has extensive experience in participating in global horticulture value chains but poverty levels remain very high. It currently ranks 145th out of 186 countries on the 2013 Human Development Index. Ghana is selected to complement the analysis because its horticulture sector is at an infant stage where the government is seeking to use the process as a diversification strategy to reduce poverty. On the same index it ranks 135th out of 186 countries. Data and information was collated from 25 global horticulture value chain participants and 6 informants complemented with secondary data were used for the analysis. This research argues that the GVC perspective in its current form is not capable of delivering the expected poverty alleviation outcomes because its emphasis on conditions of participation, the operational environment and ways in which these elements could adversely or not affect the effective participation of local suppliers leading to poverty alleviation is missing. The empirical evidence from the horticulture sectors in Kenya and Ghana supports the view that participation in global horticulture value chains does contribute to poverty alleviation but has been constrained due to a lack of focus on number of issues including the enabling operational environment. Strategies and policies that could inform a more inclusive model of GVCs that could improve the conditions of participation of local suppliers are proposed for consideration.
Declaration
No portion of the work referred to in the thesis has been submitted in support of an application for another degree or qualification of this or any other university or other institute of learning.

COPY RIGHT STATEMENT

(i) The author of this thesis (including any appendices and/or schedules to this thesis) owns certain copyright or related rights in it (the “Copyright”) and s/he has given The University of Manchester certain rights to use such Copyright, including for administrative purposes.

(ii) Copies of this thesis, either in full or in extracts and whether in hard or electronic copy, may be made only in accordance with the Copyright, Designs and Patents Act 1988 (as amended) and regulations issued under it or, where appropriate, in accordance with licensing agreements which the University has from time to time. This page must form part of any such copies made.

(iii) The ownership of certain Copyright, patents, designs, trade marks and other intellectual property (the “Intellectual Property”) and any reproductions of copyright works in the thesis, for example graphs and tables (“Reproductions”), which may be described in this thesis, may not be owned by the author and may be owned by third parties. Such Intellectual Property and Reproductions cannot and must not be made available for use without the prior written permission of the owner(s) of the relevant Intellectual Property and/or Reproductions.

(iv) Further information on the conditions under which disclosure, publication and commercialisation of this thesis, the Copyright and any Intellectual Property and/or Reproductions described in it may take place is available in the University IP Policy. (see http://www.campus.manchester.ac.uk/medialibrary/policies/intellectual-property.pdf), in any relevant Thesis restriction declarations deposited in the University Library, The University Library’s regulations (see http://www.manchester.ac.uk/library/aboutus/regulations) and in The University’s policy on presentation of Theses.
Acronyms

ADB    Agriculture Development Bank
AHBFI  Africa Harvest Biotechnology Foundation International
AGOA  African Growth and Opportunity Act
ACP    African Caribbean Pacific
AVRDC  Asian Vegetable Research Development Centre
CGIAR  Consultative Group on International Agricultural Research
CEO    Chief Executive Officer
CAADP  Comprehensive African Agricultural Development program
COMTRADE United Nations Commodity Trade Statistics Database
CPRC  Chronic Poverty Research Centre
DAMFA  Dangme-West Mango Farmers' Association
DFID  Department for International Development
ERSWCE Economic Recovery Strategy for Wealth Creation and Employment
EUREP GAP European Retailers Good Agricultural Practice
Eurep  European Retailer Produce
EBA    Everything But Arms
FDRF   Faculty for Development and Research Fund
FAGE  Federation of Association of Ghanaian Exporters
FAO    Food and Agriculture Organisation
FASDEP Food and Agriculture Sector Development Strategy
FPEAK  Fresh Produce Exporters Association
GAVEX  Ghana Association of Vegetable Exporters
GCC    Global Commodity Chain
GFP    Green Fluorescent Protein
GPRS   Ghana Poverty Reduction Strategy
GLOBALGAP Global Good Agricultural Practice
GAP    Good Agricultural Practices
GMP    Good Manufacturing Practices
GDP    Gross Domestic Product
GVCs   Global Value Chains
HACCP  Hazard Analysis Critical Control Point
HDR    Human Development Report
HCDA   Horticultural Crops Development Authority
HAG    Horticulturalist Association of Ghana
ICT    Information Communication Technology
IPR    Intellectual Property Rights
KARI   Kenya Agriculture Research Institute
KFC    Kenya Flower Council
KEFRI  Kenya Forestry Research Institute
KIPI   Kenya Industrial Property Institute
KIPPRA Kenya Institute for Public Policy Research and
KMFRDI Kenya Marine and Fisheries Research Institute
KEPHIS Kenya Plant Health Inspectorate Service
KESREF Kenya Sugar Research Foundation
LDC    Least Developed Countries
MDGs   Millennium Development Goals
MPI    Multi-dimensional Poverty Index
NEPAD  New Partnership for Africa's Development
NHTF   National Horticultural Task Force
OECD   Organization of Economic Cooperation and Development
PAMPEAG Papaya and Mango Producers and Exporters Association of Ghana
PRSP   Poverty Reduction Strategy Paper
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>PPP</td>
<td>Public Private Partnerships</td>
</tr>
<tr>
<td>R&amp;D</td>
<td>Research and Development</td>
</tr>
<tr>
<td>SPEG</td>
<td>Sea-Freight and Pineapple Exporters of Ghana</td>
</tr>
<tr>
<td>SSA</td>
<td>Sub-Saharan Africa</td>
</tr>
<tr>
<td>SEDEX</td>
<td>Supplier Ethical Data Exchange</td>
</tr>
<tr>
<td>TRIPS</td>
<td>Trade-Related Aspects of Intellectual Property Rights</td>
</tr>
<tr>
<td>UNCTAD</td>
<td>United Nations Conference on Trade and Development</td>
</tr>
<tr>
<td>UNDP</td>
<td>United Nations Development Programme</td>
</tr>
<tr>
<td>UNIDO</td>
<td>United Nations Industrial Development Organisation</td>
</tr>
<tr>
<td>USAID</td>
<td>United States Agency for International Development</td>
</tr>
<tr>
<td>USITC</td>
<td>United States International Trade Commission</td>
</tr>
<tr>
<td>VEPEAG</td>
<td>Vegetable Producers and Exporters Association of Ghana</td>
</tr>
<tr>
<td>VLTC</td>
<td>Volta Lake Transport Company</td>
</tr>
<tr>
<td>WDR</td>
<td>World Development Report</td>
</tr>
<tr>
<td>WIPO</td>
<td>World Intellectual Property Organisation</td>
</tr>
<tr>
<td>WTO</td>
<td>World Trade Organisation</td>
</tr>
<tr>
<td>YKMFA</td>
<td>Yilo-Krobo Mango Farmers’ Association</td>
</tr>
</tbody>
</table>
Acknowledgement
I would very much like to thank and show my immense appreciation to my supervisor Professor Philip Shapira who continuously supported and had confidence in me. Without such high level of support and guidance, I may not have been able to complete this work.

I would like to thank the MBS research degrees office, especially Daniel Wheatcroft and Lynne Barlow for their support especially during times of transition. In addition, I would also like to thank Dr. Ramlogan for accepting to co-supervise this research.

I thank my family, in particular my parents, the late Comfort Nancy Afari and Moses Kingsley Afari for their love and support during all these trial times of my education.

I would like to thank the Almighty God for his grace and mercy throughout these very difficult times.
Chapter One

1.1 Introduction

Approximately one billion people live in persistent poverty, 70 per cent of which live on less than US$1.25 a day in Asia and in the Sub-Saharan Africa (SSA) region (Alkire and Santos, 2010; Collier, 2007; Human Development Report, 2010). In both regions agriculture is the main occupation where most of the population in rural areas are employed. Recent studies suggest that under the circumstances where the characteristics of poverty tends to be multi-dimensional such as in the SSA region, the multiplier effects of agriculture activities contributes more to poverty reduction (World Bank, 2008; Meijerink & Roza, 2007; Human Development Report 2010; Christiaensen & Demery, 2007; Byerlee, et al., 2005; Staatz & Dembele, 2008; Haggblade, et al., 2009; Mellor, 1976; Timmer, 2005; Gayi & Cherel-Robson, 2009; World Bank, 2008b; Ravillion, et al., 2007; Ligon & Sadoulet, 2008; Ravallion, 2005; 2003; Kraay, 2006; Gibbon, 2001; World Bank, 2008). Rural poverty is especially problematic where approximately 30 per cent of the population is subject to chronic poverty trapped by structural and other factors that prevent escape from poverty (Hulme and Shepherd, 2003). The literature also discusses circumstances where levels of poverty have been acute in certain regions because rural populations are adversely linked to the global economy. According to this literature certain economic such as participation in Global Value Chains (GVCs) provide opportunities for low income economies to link to the global economy earn additional incomes and reduce poverty (Barrientos et al., 2010). With regards to agriculture as being the main occupation in these regions the main channel through which rural population engaged in agriculture could connect the global economy is through participation in global horticulture value chains where global buyers and local suppliers interact to produce and supply fresh produce such as fruits and vegetables (Haggblade, et al., 1991; Delgado, et al., 1998; DIFD, 2004; Byerlee, et al., 2009; Ravallion & Chen, 2004).

A number of developing locations have sought to use participation in global horticulture value chains as a diversification strategy to reduce poverty. The global value chain perspective has been used in a number of studies on poverty alleviation and economic development to explain and understand the trajectories, the role that global buyers play in determining its income generating outcomes, and the impact of value chain activity on poverty (Gereffi et al., 2005). Most notably, local suppliers that participate in global value chains must comply with high standards and quality requirements imposed by global buyers - conditions of participation (governance) which requires investment in upgrading supported by an enabling operational environment (Humphrey & Schmitz, 2002; Kaplinsky, 2005; Nadvi, 2008). Small suppliers are especially challenged due to non-compliance with standards and high quality requirements which has resulted in the exclusion from participation of number suppliers.
According to recent estimates, exclusion rates have increased amongst small suppliers to over 50 per cent and which has further exacerbated the incidence of poverty. On the other hand, such requirements have helped a number of small suppliers gain knowledge, successfully upgrade, and effectively participate in higher added value activities resulting in increased value and incomes. Most notably, a recent study on the horticulture sector of developing countries cited Uganda as an example where the horticulture sector was at its lowest during the 1990s but has since peaked and increased 78th fold which is attributed to upgrading (Bernhardt and Milberg, 2011). Furthermore, some studies suggest that households engaged in global horticulture value chains had gained higher incomes but these studies are silent on the extent to which the increase incomes have contributed or not to poverty reduction especially amongst small suppliers (McCullock and Ota, 2002; Bair and Gereffi, 2003; Kaplinsky and Morris, 2001). Given the prevalence and acute levels of poverty that persist in the SSA region despite the fact that certain economies (South Africa, Kenya, Tanzania, Uganda) are reportedly successful in this trade, it is timely given the levels of acute poverty in the region to explore and understand the trajectories and dynamics of global horticulture value chains and ways in which the process could contribute to poverty alleviation. Two economies located in the SSA region where agriculture and horticulture is the main occupation are selected as case studies.

Kenya is the second largest producer and supplier of horticulture produce in the SSA region, with the exception of South Africa and has extensive experience and competitive advantage due to its early development and rapid expansion but is reportedly one of the poorest countries in the world. Agriculture productivity increased by 6.8 per in 2010 and contributed approximately 24 per cent to GDP (Horticulture Crops Production Report, 2010). Despite problems with the volcanic ash in April 2010 and the adverse in December, Kenya’s horticultural exports increased to 77.1 billion (971 million in foreign exchange) up from 71.60 billion (Horticulture Crops Production Report, 2010). Kenya produces and exports a wide variety of horticulture produce across the country and about 75 per cent of the population in rural and urban areas depend on the sector for incomes and employment. Despite a reported expansion of activity in the sector approximately 80 per cent of rural population and 56 per cent in the urban areas live below the poverty line (Horticulture Crops Production Report, 2010). Kenya currently ranks 145th out of 187 countries on the HDI 2013 index (Beck, et al., 2007; Human Development Report, 2013). The horticulture sector in Ghana is selected as a complementary case of a medium size economy where it is seeking to use participation in global horticulture value chains to reduce poverty. Ghana exports fruits such as bananas, pineapples, mangoes and papaya to the European market and provides a number of employment and income generation activities for the rural population. Vegetable such as chillies and Asian vegetables are also exported. The sector exported approximately 80 million Euros worth of produce to the EU in 2010. As compared to the horticulture sector in Kenya, the Ghana horticulture sector is underdeveloped due
to the lack of investment, poor infrastructure and especially fragmented institutions. Ghana ranks 135\textsuperscript{th} out of 187 countries on the Human Development Index (Beck, et al., 2007; Human Development Index, 2013).

Despite the long standing participation of small local suppliers in global horticulture value chains in Kenya and Ghana, the incidence of poverty tends to be acute. Exclusion rates have increased amongst small suppliers due to non-compliance with standards and high quality requirements such as EurepGAP imposed by European Markets on fresh fruits and vegetables produced and supplied from these locations. In particular, small suppliers are finding it increasing challenging to comply with these standards due to the lack of investment in upgrading and inefficient operating environment. Adherence to standards also generates considerable costs for the supplier and which has a negative impact on income generation. According to some estimates, GlobalGAP and private audits consume up to 7 per cent of farm earnings per audit and ethical audits cost of up to 3 per cent. Exclusion rates are especially high among small suppliers due to the lack of skills and capabilities necessary for compliance and which has further contributed to vulnerability, risks and further exacerbating the incidence of poverty. The imposition of standards and high quality requirements could also serve as a learning curve providing new opportunities for suppliers to engage in higher value activities. The low performance of suppliers and the conditions of participation imposed by global buyers has further reduced the income generation capability of the sector. Recent studies argue that for participation in global horticulture value chains to contribute to reduction in poverty levels it is necessary to devise solutions and strategies to ensure the effective participation, sustainability and inclusion of small suppliers who are the most vulnerable and face higher risks of exclusion. Standards also result in higher barriers to entry especially for new suppliers (Jaffee, 2003).

1.2 Research context

A number of development policy proposals advocate that effective participation in global horticulture value chains contributes to poverty alleviation through income generating activities. These studies draw on the framework of GVCs which has mainly focused on the income generation potential of the process but its impact of poverty reduction is given less impetus. Some studies suggest that participation in global horticulture value chains has resulted in five times increase in income (Bolwig et al, 2009). Despite the increase incomes reported from participation in global horticulture value chains, acute poverty is an issue in Kenya and Ghana with no signs of it reducing in the short to medium term. A recent study on the horticulture productivity in developing countries reports Kenya as being one of the high value added countries with regards to the production and supply of horticulture produce but its ranking on the HDI index has declined (Bernhardt and Milberg, 2011). It
is therefore evident that the increase levels of activity in the horticulture sector have not contributed to reduced poverty levels, especially if this is the main occupation in rural areas where most of the poor reside and depend on for incomes. This is clear from the decline in Kenya’s ranking on the HDI index between 2009 and 2012). Within this context, the GVC framework will be used to shed understanding and explanation on factors that could influence the effective participation of local suppliers in global horticulture value chains and how the process contributes to poverty alleviation. One of the main arguments advanced in the GVC framework is that in order for local suppliers in countries that are connected to the global economy through value chains to benefit from the process as a poverty alleviation mechanism, it is a pre-condition to invest in upgrading and ensure the existence of an efficient operational environment that would facilitate the sustainability of emergent value chain activity. To enable a comprehensive evaluation on the ability of the process to contribute to poverty alleviation there is the need to include, the operational environment which can constrain or promote the fostering of inclusive value chains. This important element is currently missing from the current GVC framework.

Analysis is also limited on the extent to which exclusion from participation could exacerbate the vulnerability and risks of small suppliers. To reduce this risk which results in acute poverty, there is the need to devise mechanisms through which small vulnerable suppliers could re-enter value chains such as promoting re-entry into national and regional markets to maintain a minimum level of income generation. There exist a number of policy prescriptions, but a conceptual framework that brings together the role of the operational environment and conditions of participation which aims at maximising levels of inclusion especially with regards to small suppliers is lacking (Schmitz, 2005; Vermeulen et al., 2008). Upgrading possibilities and exclusion are not mutually exclusive but are often treated separately and considered as mainly dependent on the availability of skills and capabilities. This study argues that an evaluation of the channels through which participation in global horticulture value chains contributes to poverty reduction through the lens of GVCs requires a different approach that attempts to evaluate (i) the condition of participation (governance) (ii) upgrading opportunities and challenges that prevail in the value chain and (iii) the state of the operating environment (Teece, et al., 1997; Becker & Knudsen, 2006). This is especially relevant if the Millennium Development Goals (MDGs) of reducing poverty by 50 per cent in 2015 is to be achieved. This research draws on two indicative case studies on Kenya and Ghana to illustrate the importance of this missing analysis on poverty alleviation outcomes.
1.3 Research objectives

The demand for the production and supply of fruits and vegetables has expanded from approximately 40 per cent in 1990 to 60 per cent in 2007 (Comtrade, 2008). According to some studies, there are about 150,000 small holder farms that generate approximately 60 per cent of the horticulture produce in Kenya. Despite these developments, exclusion rates especially amongst small suppliers who form the critical mass in global horticulture value chains have increased resulting in more poverty. In Ghana small holder farms supply about 40 per cent of fruits and vegetables but the sector is in decline because the sector is not competitive with respect to pricing and variety of produce supplied. Participation in global horticulture value chains is an important source of income and employment in a number of developing countries, especially in rural areas where otherwise opportunities for earning any income is rather limited. This study focuses mainly on small suppliers because they are the most vulnerable and most likely to be excluded from participation due to non-compliance with standards and high quality requirements. Although horticulture operations consists of the production and supply of fruits, vegetables and flowers, this study will only analyse the fruits and vegetables value chains because they require similar skills and competencies. In addition, one can also draw on the synergies between both sectors. The cut flower value chains involve a different set of competencies and dynamics and are not covered in this study.

For the purposes of this study, “participation” is defined as the extent to which exclusion is minimized in the value chain and a “local supplier” is one located in a specific jurisdiction and in easy reach of any prospective buyer. This research sets out to explore and understand conditions of participation, performance of local suppliers and ways in which the process has or not contributed to poverty alleviation in Kenya and Ghana. The focus of this research on small suppliers is timely because they are the most likely to be excluded from participation with limited possibilities to re-enter value chains. High exclusion rates have a negative impact on income generation activities (Murray, 2002; Bracking, 2003; du Toit, 2004a, b; Hickey and du Toit, 2007). Furthermore, due to the dynamics of horticulture value chains, incomes are highly sensitive to global buyer strategies. Therefore it is necessary to devise strategies and policy that could inform and support the return of these suppliers back into value chain activity in national or regional markets where standards are less stringent but with some income generation potential (du Toit, 2008). Moreover, due to the lack of investment in upgrading, conditions of participation and an adverse operating environment certain small suppliers are often confined to a narrow range of tasks such as (i) the supply of standard produce with no added value and (ii) obliged by global buyers to invest in specific assets to fulfil a certain contract. According to the literature these suppliers are “captive” due to asset specificity and certain incentives provided by the global buyer to protect their investments in the specific supplier. This makes it unattractive for the supplier to search for new customers which increases vulnerability.
making the supplier less resilient and which tends to exacerbate the poverty trap for long periods of
time under the circumstances where the supplier would be excluded from participation in value chains
at short notice. This research would seek to inform policy on the issues highlighted above by
addressing the following questions:

- What are the factors driving the ability of local suppliers to effectively participate in global
  horticulture value chains?
- What are the opportunities and challenges that exist for local suppliers to improve
  performance and conditions of participation?
- To what extent do these trends contribute to the upgrading/downgrading, income and
  employment generation resulting in poverty alleviation?

It is hoped that the findings would inform and assist international organisations and academia consider
strategies and policy that could improve the conditions of participation in global horticulture value
chains especially for small suppliers who tend to be the most vulnerable and likely to be excluded
(Barrintonos, 2001; Fontana, 2011; Kaplinsky & Readman, 2001; Kleine, 2008; Henson & Jaffee, 2006).

1.3.1 Value chain analysis
Drawing on the value chain concept introduced by Micheal Porter (Porter, 1985) Global value
chains (GVCs) are defined as vertically interrelated activities that occur in different geographical
locations resulting in the production and distribution of goods and/or services including strategies
that firms can employ to join and sustain their position in a specific value chain (Gereffi, G., 1999;
Kaplinsky, 2004; Kaplinsky & Readman, 2001; Kaplinsky & Morris, 2001; Gereffi et al., 2005;
Gereffi et al., 2001). The GVC framework is the most suitable to delineate different elements that
impact the condition of participation and performance of local suppliers (Kaplinsky & Readman, 2001;
Kleine, 2008; Henson & Jaffee, 2006). A global value chain hinges on four main attributes: (i) the
nature of linkages between firms, including the identification of participants at each node of the value
chain (ii) the reduction of coordination costs through the codification of complex knowledge, (iii) the
extent to which supplier competence determines the nature of governance and (iv) identification of
value added activities (Altenburg, 2006; Morris & Barnes, 2006). The literature makes a distinction
between two types of value chains - producer and buyer driven value chains (Gereffi, 1994; 1999).
Producer driven value chains include capital and technology intensive industries where powerful
large multinational corporations, who usually have intellectual property rights on state of the art
technology and innovation monitor and control activities in production networks (Gereffi,
1994;1999). Buyer driven chains are generally characterized by decentralized value chains where
most of the global value chains are located in developing countries in different geographical
locations. Activities in buyer driven chains are located in developing countries but its activities are
monitored and controlled by global buyers located in developing countries who control logistics, design and marketing. Examples of buyer driven chains include the manufactured products as toys, footwear, electronics and horticulture operations (Gereffi, 1999; UNCTAD, 2009; Gereffi & Memedovic, 2003). Global horticulture value chains are mainly buyer driven.

1.3.2 Value chains conditions
Value chain conditions imposed by global buyers (governance) and the state of the operational environment have implications for upgrading, income generation and poverty alleviation outcomes. In what follows I discuss the conditions of participation (governance), the state of the operational environment and ways in which it has influenced value chain outcomes in the horticulture sectors of Kenya and Ghana. The discussion draws on the typology of governance (legislative, judiciary and executive) advanced in the literature (Kaplinsky, 2004).

*Legislative governance (setting the rules):* Global buyers impose governance at each node of the value chain to monitor and control activities with regards to what to produce, how to produce, which quantities to produce and what price (Fold, 2002; Gibbon, 2003; Gibbon & Ponte, 2005; Humphrey and Schmitz, 2002). Furthermore, governance is imposed by actors who are outside the value chain but have a vested interest in its outcomes. These include regulators such as government agencies, horticulture associations and certification bodies that act as facilitators in support of the sector (Ponte, 2007; Riisgaard, 2009). The type of governance imposed often driven by the skills and capabilities of the supplier have an impact on the distribution of gains and profits at different nodes of the chain (Gereffi, 1994; Kaplinsky, 2000; Ponte and Gibbon, 2005; Gibbon et al, 2008). There are five types of governance that could be imposed to monitor and control activities in a given value chain (Gereffi et al., 2005) (i) *Markets governance* is characterised by limited monitoring and coordination and imposed under the circumstances where transactions are easy to codify because suppliers have the appropriate skills and capabilities; (ii) *Modular governance* is imposed when transactions are complex to codify, suppliers have the appropriate skill and capabilities and information on transactions can be exchanged with limited coordination (iii) *Relational governance* is imposed when specifications on transactions are complex, supplier skills and capabilities are high and requires the exchange of tacit knowledge and which gives rise to mutual dependence between buyers and suppliers which is sometimes managed through reputation and/or ethnic relations. In relational governance sanctioning mechanisms can also be used to manage relationships in the case of non-compliance (Williamson, 1983); (iv) *Captive governance* is imposed when transaction specifications are complex but supplier skills and capabilities are low.
Under certain circumstances global buyers invest in suppliers and could also require suppliers to invest in specific assets to support the fulfilment of a specific contract. In this case suppliers are “captive”, transaction dependent and confined to a narrow range of tasks as global buyers seek to lock-in suppliers to exclude competitors from benefiting from their investment. Most notably, investments in specific assets represent sunk costs that have limited or no value after delivery of the specific contract because it is uncertain if the specific investment in dedicated assets could be reused for future contracts (Williamson, 1991; Williamson, 1975; 1985; Zaheer & Venkatraman, 1994). Under the conditions where a small supplier is subject to such conditions it is most likely that they may not have the resources to invest in such process and this could result in exclusion. Moreover, because barriers to entry are low due to the infinite number of suppliers, global buyers do not commit to a specific supplier and can easily shift to a new one leaving the previous supplier with the specific investments. (iv) *Hierarchy* governance is imposed when product specifications are complex, involves the exchange of tacit knowledge but supplier skills and capabilities are low. Quasi-hierarchical and captive governance is usually imposed amongst small suppliers in Kenya and Ghana due to the lack of skills, capabilities and an adverse operational environment. Similar to administrative control, quasi-hierarchical and captive governance is exerted in value chains where skills and capabilities are low, transactions are complex and there is the need for the exchange of both tacit and codified information on transactions. It requires extended levels of coordination to mitigate information asymmetry and uncertainty that could contribute to opportunism resulting in high transaction costs (Williamson, 1975; 1985; 1991). In the literature high transaction costs partly due to inefficient operational environment is one of the main factors affecting the competitiveness of global horticulture value chains in Kenya and Ghana.

In contrast, modular governance is sometimes imposed in certain suppliers in Kenya because they have made necessary investments in upgrading systems and processes. Relational governance seems to offer better conditions but is the least likely to be imposed (Cohen & Levinthal, 1990; Zahra & George, 2002; Fosfuri & Tribo, 2008; Fosfuri, et al., 2005). It is noteworthy that certain suppliers have been successful in process and product upgrading in Kenya but a considerable number have also been excluded from participation. In Ghana, and to a limited extent Kenya, the rate of exclusion especially amongst small suppliers is estimated to over 50 per cent since 2007 and is on the rise due to non-compliance with standards and high quality requirements. High exclusion rates are also influenced by the prevailing adverse operational environment such as the lack of adequate infrastructure, weak institutions and regulatory framework (Altenburg, 2006; Independent Evaluation Group, 2007; Djurfeldt, et al., 2006).
1.3.4 Supplier skills and capabilities

In order for local suppliers to effectively participate in global horticulture value chains they must exhibit certain skills and competencies. A number of value-added activities such as washing, cutting and trimming of vegetables are being relocated to developing countries which present opportunities for income generation (Weinberger & Genova II, 2005; Humphrey, et al., 2004; McCulloch & Ota, 2002; Pingali & Rosegrant, 1995; von Braun, 1995; Dolan & Humphrey, 2000; Minot & Ngigi, 2004; Reardon, et al., 2001; Bardhan, 2005). New niche markets such as the supply of organic products closely associated with horticulture also present opportunities for higher income generation but also require specific skills and capabilities (Gereffi et al., 2005; Hazell & Ramasamy, 1991; (Timmer, 1988; Haggblade, et al., 1989); Delgado, et al.,1998). According to the literature on capabilities and learning, the development relevant skills and capabilities in small suppliers does not only depend on investment in assets or expensive research and development but on levels of absorptive capacity which is defined as a firm’s ability to acquire, assimilate, exploit and transform information and knowledge (Lundvall & Johnson, 1994; Johnson & Evenson, 2000; (Cohen & Levinthal, 1990; Zahra & George, 2002). Absorptive capacity depends to a limited extent on investment in research and development but most importantly on linkages to universities and research institutions and therefore suitable for small suppliers that do not have the resources to invest in expensive R&D (Lundvall & Johnson, 1994; Johnson, et al., 2001; Argote, 1999; Ghoshal & Bartlett, 1990; Ghoshal & Bartlett, 1990; Gupta & Govindarajan, 2000; Lundvall & Johnson, 1994; Johnson, et al., 2001; Vinding, 2004; Gottardi, 2004; Sturgeon, 2000; Sturgeon, 2002, Langlois, 2003; Sturgeon & Lee, 2001; Baldwin and Clark, 2000; Fujimoto et al., 2001; Sturgeon & Lester, 2003; Davenport & Prusak, 1998). Firms that exhibit high rates of absorptive capacity are most likely to experience higher levels of technology transfer that will support upgrading and lead to improved performance. Small suppliers especially in Ghana tend to exhibit low absorptive capacity levels and are most likely to attract only expired technology which does not support upgrading and contributes to poor performance compared to the industry standards (Saggi, 1999; Maskus, 2000; Yang & Maskus, 2001; Yang & Maskus, 2009; Bell & Pavitt, 1993; Lall, 1992; Nelson, 1990).

Upgrading

It is precondition that suppliers in addition to absorptive capacity must invest in upgrading to improve capabilities and performance. Upgrading is defined as the shift from low production processes to higher added value activities (Bair and Gereffi, 2003; Drayse, 2011; Giuliani et al., 2005; Hansen and Kuada, 2006; Pietrobelli and Rabellotti, 2006). The literature on competitiveness highlights four types of upgrading: (Humphrey and Schmitz, 2000): (i) functional upgrading, which involves increasing the number of added value activities by acquiring new or superior activities (Vind,
2008; Talbot, 1997); (ii) process upgrading (Portelli and Narula, 2006) where production lines are upgraded with the introduction of new technology or moving into advanced product lines to increase unit values; (iii) product upgrading where existing products are upgraded and (iv) chain or inter-sectoral upgrading where technology is used to upgrade processes in an existing chain and replicated across different chains or shifting resources to new value chains where incomes and profit are higher (UNIDO, 2004; Kaplinsky and Readman, 2001; Humphrey and Schmitz, 2000; Meyer-Stamer et al., 2004; Vind, 2008; Humphrey and Schmitz, 2002). In Kenya, a number of small suppliers have been successful in upgrading products and processes. The case is different in Ghana where upgrading is a real challenge for small suppliers. Functional and inter-sectoral upgrading is fairly advanced in Kenya but also remains a considerable challenge in Ghana (Bair and Gereffi, 2001; Fitter and Kaplinsky, 2001). In general, global buyers do no support functional and inter-sectoral upgrading due to competition (Giuliani et al., 2005; Morrison et al., 2008; Humphrey and Schmitz, 2000; Schmitz and Knorringa, 2000; Bazan and Navas-Aleman, 2004; Giuliani et al., 2005; Bair and Gereffi, 2001; Fitter and Kaplinsky, 2001; Pietrobelli and Rabellotti, 2004; 2006; Ponte, 2008; Pietrobelli, 2008). The lack of upgrading in these higher segments of GVCs has a negative impact on the generation of higher incomes as a result of engaging in higher added value activities. Recently, some studies have argued that in addition to these types of upgrading cooperation between value chain participants that result in the establishment of long term relations are the most credible means through which poverty reduction can be achieved (Gibbon, 2001; Gibbon and Ponte, 2005; Ponte, 2009). This is plausible because relational value chains that has the best possibilities of functional upgrading and hence higher income generation depends on cooperation and trust that is only achieved through deep relationships. When possibilities to forge cooperation and deep relationships are limited amongst small suppliers in Ghana and to a limited extent Kenya due to exclusion, participation in a different or complementary value chain should be encouraged to facilitate a continuation of the relationship whiles at the same time reducing vulnerability and the risk associated with the loss of incomes. The concept of upgrading has mainly focused on added value with limited focus on conditions of participation, inclusion and the state of the operational environment necessary for optimal participation and income generation (Barrientos et al., 2010).

**Judicial governance:** An efficient operation environment is essential for participation in global horticulture value chains. The new institutional economics (NIE) perspective discusses the role of institutions specifying that because economic activities such as global value chains are characterized by a degree of uncertainty there is the need for rules and norms to reduce uncertainty (Roxas, et al., 2008; (Baum & Oliver, 1992; Hollingsworth, et al., 2002; Coase, 2000; North, 1991; 2000; (North, 1993; North, 2005; Helmke & Levitsky, 2004; Carlsson, 2002; Carney & Gedajlovic,
2002; Roxas, et al., 2008). The most relevant institutions necessary for participation in global horticulture value chains are legal and intellectual property rights institutions. Legal institutions are necessary to ensure that the legal rights of global buyers and suppliers are ensured. Intellectual property rights institutions support innovation and creativity and are necessary to ensure that copy rights and patents are not unduly copied. Weak intellectual property rights institutions reduce the transfer of technology and knowledge which has an adverse impact on upgrading (Gibbon, 2007). It also increases uncertainty because inventors are not sure if their patents would not be copied resulting in loss of income and competitive advantage (Gibbon, 2007; Korzeniewicz & Smith, 2000; Kaplinsky, 2000). The existence of institutions that are efficient is necessary to mitigate uncertainty and reduce transaction costs.

The institutional environment also has implications on the effectiveness of regulation such as EurepGAP standards\(^1\) imposed by European retail chains. In Kenya\(^2\), the application and monitoring of compliance with these standards are under the supervision of government agencies that report to agencies responsible for the monitoring and control of food safety such as Kenya Bureau of Standards (KEBS), Kenya Agricultural Research Institute (KARI), Kenya Plant Health Inspectorate Services (KEPHIS), Department of Public Health (DPH), and Horticultural Crops Development Authority (HCDA). Although these agencies have the objective to ensure compliance with all standards non-compliance is typical due to the lack of knowledge especially in small suppliers. In the event that some of these suppliers are able to export to European Markets, horticulture associations such as the Kenya Organic Farmers Association (KOFA) and Fresh Produce Exporters Association of Kenya (FPEAK) provide support and assistance. In Ghana, the Ghana Standards Board (GSB) is the national statutory responsible for the quality and standard of products and services for local consumption and export\(^3\). It was established in 2008 to provide technical assistance to exporters and importers. The Ghana Export Promotion Council (GEPC) facilitates the development and promotion of Ghanaian exports and the Ghana Export Trade Information Centre (GETIC) provides trade information and referral services to the business community, especially exporters. The Federation of Associations of Ghanaian Exporters (FAGE) is a private, non-governmental organization of Ghanaian exporters and provides supporting and extension services to exporters of fresh produce. Despite the existence of these institutions they remain fragmented and its impact on the deliverables of small supplier that interact in horticulture value chains is limited.

\(^1\) Regulation (EC) 1234/2007 and (EC) 1580/2007
\(^2\) http://www.bioline.org.br/request?nd10118
\(^3\) www.sps-tbt-ghana.org
In this regard, Kenya tends to have a better organized intellectual property regime compared to Ghana. Weak legal institutions especially in Ghana have resulted in most horticulture contracts being settled on a cash basis. Cash transactions do not support the formulation of value chains with best upgrading opportunities (Carlsson, 2002; Carney & Gedajlovic, 2002; Onodera, 2008). Relational and modular governance have the best upgrading opportunities but is least likely to be imposed because they require relationship management leading to trust. Trust in the competence of suppliers is especially important because a number of fresh produce attributes cannot be discovered in advance and global buyers must trust that high quality requirements and standards are not compromised with inferior and/or low quality products (Batt, 2003; Fischer, et al., 2007; Batt, 2003; Fischer, et al., 2007). The growing importance of trust as evidenced recently in the beef value chain when horse meat was presented as beef suggests that issue of trust is a global problem (Lee & Billington, 1992; Lee & Billington, 1993; Morrow, et al., 2004). The lack of trust results in higher transaction costs emanating from intensified monitoring and control, including enforcement where applicable.

Executive governance (making others follow the rules): The European Market is the main and only international market currently accessible to horticulture produce originating from the SSA region and is the main export market for Kenya and Ghana. Global buyers include supermarket chains, beverage manufacturers, airlines and hotel chains. The European market structure is described as an oligopoly characterized by a few large buyers and many suppliers and barriers to entry are low (Ravillion, 2004; Lopez and Serven, 2004; Bourguignon, 2003; White and Anderson, 2000); Schroeder, et al., 2000); (Cooper, 2003; Morrison-Paul, 2001; Mingxia & Sexton, 2002; Dobson, et al., 2001; Clarke, et al., 2002 ; Cox et al., 2002; Goldberg & Knetter, 1999). In an oligopoly, because elements of collusion and competition co-exist, therefore most of the incomes accrue to the very large players thus contributing to the uneven distribution of incomes and widening inequality gap (Roger & Sexton, 1994). Furthermore, powerful buyers acting as market “gatekeepers” can collude to boycott certain suppliers at short notice which increases uncertainty (Dobson, et al., 2001). As an alternative, national and regional markets are opening up but at slower pace due to infrastructural and institutional constraints. In the East African community (Kenya, Uganda and Tanzania) markets have expanded more rapidly with the establishment of retail outlet chains in the region. These new markets could either serve as permanent markets for suppliers that are excluded from participation or as temporary markets for suppliers aspiring to engage in the horticulture export market. This process is necessary for suppliers to sustain incomes but also requires investment in upgrading to enable compliance with high quality requirements but not as strictly imposed by the European Markets.
Efficient infrastructure is a necessary condition for the viability of global value chain activity. The most important infrastructure necessary for participation in global horticulture value chains include good feeder roads linking rural to urban areas, cooling facilities, refrigerated trucks to mention a few (Naylor, et al., 2004). The lack of feeder roads reduces rural connectivity to urban areas which is necessary for the timely and cost effective transportation of horticulture produce to distribution centres and airports. (Tiffin & Irz, 2006; World Bank, 1994, 2008; Aschauer, 1989; Calderon & Serven, 2008). The poor quality of feeder roads from rural areas to urban areas combined with the limited refrigeration facilities has an impact on the freshness of produce. Due to the time it takes to transport produce, most of it tends to rot and therefore would be rejected by the buyer. All this contribute to loss of income and which is not directly associated with skills and capabilities but negatively impacts the competiveness of the horticulture sector. Efficient transport infrastructure could reduce lead times between the transportation of horticulture produce from rural to urban and rejection rates which has a negative impact on incomes (Estache, et al., 2002; World Bank, 2004; 2006). Inadequate cooling facilities at airports and refrigerated trucks especially in Ghana combined with poor quality roads means that produce could rot at very short notice prior to arrival at its final destination. This means the specific consignment would not meet the high quality and sanitary requirements imposed by EurepGAP.

Apart from the lack of skills and capabilities, it is estimated that that lack of efficient infrastructure has given rise to exclusion rates above the 50 per cent threshold (UNCTAD, 2008b). This is unfortunate because recent studies illustrate how participation in global horticulture value chains generates almost five times more incomes as compared to other traditional agricultural sectors (McCulloch and Ota, 2002; Maertens & Swinnen 2007, 2008; (English et al., 2004; Humphrey et al., 2004; McCulloch and Ota, 2002; Weinberger and Lumpkin, 2007; Haggblade et al., 2002). Therefore if the infrastructure deficiencies are addressed there exists potential for income generation because rural populations can travel easily to urban areas to sell produce due to the enhanced linkages as a result of the presence of good roads. The horticulture infrastructure, more specifically feeder roads in Ghana and Kenya is considered weak which contributes to high transaction costs and reduced supplier incomes. Transportation costs are an important component of rural suppliers’ costs and have an important impact on the competitiveness of the value chains. The air-freight connections to European countries and other destinations are considered as slightly better in Kenya than Ghana. The availability of logistics and cooling facilities are much better in Kenya as compared to Ghana. The recent development and use of mobile phone technology has greatly reduced physical distances between market participants resulting in savings but has not replaced the need for feeder roads require to physical transport produce from rural to urban areas. Inefficient infrastructure reduces bargaining
power and opportunities of participation in added value chains where there are possibilities to earn higher incomes.

1.4 Justification
There is some evidence to suggest that participation in global horticulture value chains has in some cases contributed to higher income earnings, sometimes five times higher than earnings from traditional agriculture (Maertens & Swinnen, 2008). Recent studies have also highlighted its employment generation potential and suggest that because workers were previously very poor, their employment in the sector does have an impact on poverty alleviation, especially in rural areas where employment opportunities are considerably low (English, et al., 2004; Humphrey, et al., 2004; McCulloch & Ota, 2002). In addition, a number of activities and processes such as chopping, washing, labelling and bar-coding traditionally performed in developed locations are being transferred to less developed ones generating additional income opportunities in these new locations (Dolan & Humphrey, 2000; Humphrey, et al., 2004). In Ghana local supplier incomes have reduced due to the high rates of produce that are rejected because they do not comply with standards and high quality requirements. The increased rejection rates are caused not only by the lack of skills and capabilities but also the operational environment and the conditions of participation that in some cases does not support upgrading into higher nodes of the value chain. The conditions for participation (governance) have influence the upgrading and poverty outcomes of these GVCs. On the flip side investment in upgrading activities have a positive impact on GVCs where they reside. Upgrading supports the development of skills and competencies while the outright exclusion of suppliers does undermine its opportunities to upgrade. A supplier participation based GVC approach is therefore pivotal to the understanding and explanation of the function of GVCs, the different positions that local suppliers occupy along the chain. The new approach must focus on the conditions of participation and the operational environment (institutions and infrastructure) that have implications for the type of governance imposed, upgrading and/or downgrading of suppliers. The GVC perspective useful but need to be extended to include the above mentioned dimensions provide an in-depth analysis of how the conditions of participation including the operational environment impact the income generation and poverty outcomes of participation in global horticulture value chains.

1.5 Methodology
Empirical and secondary data complemented semi structured interviews with local supplier and global buyers that source horticulture produce from Kenya and Ghana and key informants were used for this research. The following eligibility criteria was used to select Kenya and Ghana as indicative case
studies: (i) in both economies agriculture, of which horticulture is a subset is an important contributor to gross national product (GDP); (ii) suppliers face challenges, that limit their ability to take advantage of opportunities that may arise and which negatively impacts performance; (iii) the exclusion of small to medium size suppliers from participation has increased due to non-compliance with standards and high quality requirement; (iv) evidence of poverty alleviation is available, but it is debatable if the process could not have contributed to more poverty alleviation compared to the current levels. In Kenya the horticulture sector is mature, and is the largest and most experienced supplier in the SSA region after South Africa. Ghana is a good indicative case of an economy where the sector is at its infant stage and is seeking to use participation in global value chains to connect local suppliers to the global economy. The case study methodology was selected for this purpose because the aim was to understand complex and meaning of social phenomena such as the conditions of participation and supplier performance (Yin, 2003; Crouch and Mckenzie, 2006). A field study took place between February and May 2004 during which a survey was conducted using questionnaires complemented by semi-structured interviews with global buyers and local suppliers to gather the relevant data and information. In particular, I tried to understand and explain why certain conditions (governance) are imposed and factors that affect the performance of small to medium size suppliers who form the critical mass of suppliers in Kenya and Ghana (World Bank, 2007a). Small suppliers were identified as those with (i) a turnover of between 50,000 US dollars to 500,000 US dollars (ii) employ between 100-500 staff and (ii) no foreign direct investment. Global buyers are defined as large international buyers that use horticultural produce as an input into production. In this study, they include retail supermarket chains, beverage manufacturers, global hotel chains and airlines.

The main research instrument employed was open-ended questionnaire complemented with extensive semi-structured interviews conducted with local suppliers, global buyers and informants. A field survey was undertaken in February 2004 when questionnaires were directly distributed to small local suppliers, global buyers and key informants such as officials employed in government agencies and horticulture associations. The focus was on small suppliers because they are the most vulnerable and most likely to be excluded from participation in global horticulture value chains. The global buyers (supermarket chain, beverage manufacturers, hotel and airlines) that participated in the survey use fresh vegetable and fruits as inputs to services/production. In Kenya, small suppliers were selected from a list provided by institutions that support the horticulture sector such as the Ministry of Agriculture & Rural Development, Horticultural Crops Development Authority, Kenya Flower Council and Export Promotion Council. In Ghana, small suppliers were identified from similar sources such as the Ministry of Agriculture and related horticulture associations. To determine if the policies established by the headquarters of global buyers have implications on how subsidiaries
source horticulture products locally, the same questionnaire was addressed to the headquarters of global buyers (Appendix C and appendix D). A total of 59 prospective respondents were contacted to participate in the survey. Upon receipt of replies from 18 local suppliers and 7 global buyers, in-depth face to face semi-structured interviews were conducted with all correspondents, including 6 informants (2 government officials and 4 officials from horticulture associations) using a separate interview schedule (appendix B). A second interview schedule to complement the questionnaire was used for this purpose. Secondary data such as industry reports, books, academic papers, articles, databases and websites were also consulted to corroborate certain facts and information.

Although the sample used in this study is small, there are no claims in the research that it covers the universe of issues and/or is representative of all constellations and/or profiles of local suppliers in Kenya and Ghana. The focus of the study is to provide some indication on how the organisation and conditions that prevail in value chains impact the effective participation of a specific profile of suppliers (small). Given the extent of homogeneity in the profile of participants, the collection of more data will not provide new information because the profile of small suppliers are similar in each country (Ritchie et al., 2003). This is justified because qualitative research concerns the interpretation of data (meanings) and not to make and/or confirm hypothesis and therefore quantity is not of relevance especially in this case where homogeneity is confirmed across the two case studies. Related to this is the principle of saturation which should also be taken into account when the collection of additional data does not provide new information (Glaser and Strauss, 1967). Saturation is a determinant of the sample size which is sometimes driven by the objective the study- factors driving the efficient participation of small suppliers in global horticulture value chains (Charmaz, 2012). A point of saturation was determined when homogeneity was established and it was clear that the collection of additional data would not provide new insights. What is clear is that the data collected through the survey and semi-structured face to face interviews is significant to help identity issues and to inform policy on the effective participation of local suppliers in global horticulture value chains leading to poverty alleviation in Kenya and Ghana.

1.6 Summary contributions
The objective of the study is to explore and understand factors impacting the performance of local suppliers leading to poverty alleviation. More specifically, the research tries to explore the opportunities that exist for local suppliers to improve performance and conditions of participation in global horticulture value chains. It is hoped that the emergent multi-dimensional framework proposed Integrated Global Value Chain (IGVCs) in this study is capable of providing such explanation and understanding, by identifying the strategies and policy recommendation necessary to address the constraints in the sector. Understanding the trajectories and how the different
elements are interlinked could also explain the path dependency of poverty alleviation. The study is expected to have economic and sociological consequences by providing academics, governments, horticultural producers, global buyers and suppliers with an understanding of how the different factors interact. The findings of this study could also be used by international organizations to further improve competition policy, especially in the area of technology transfer that is necessary for upgrading, income and profit generation in value chains.

1.7 Outline of thesis
The thesis is made up of eight chapters. Chapter 2 discusses the literature leading to the formulation of hypotheses. Chapter 3 presents the state of the operating environment in Kenya and Ghana. The methodology is outlined in Chapter 4 which begins with a discussion of the case study, research validity, reliability and ethical considerations. The selection of the case study approach, data collection procedures, the selection of companies, and how the interviews were prepared and conducted are explained. Chapter 5 and Chapter 6 present the empirical findings. Chapter 7 discusses the outcome of empirical findings and the implications for the formulated hypothesis. Chapter 8 offers policy recommendations based on the empirical findings and secondary data to address the supplier-specific conditions of participation and performance, upgrading ensuring that the benefits trickle down to the lower end of the chain leading to poverty alleviation and avenues future research.
Chapter 2

Literature review and hypotheses

2.1 Introduction

In this chapter, I discuss the relevant literature that aims to inform the main research question: factors impacting the ability of local suppliers to effectively participate in global horticulture value chains leading to the formulation of the conceptual framework – Integrated Global Value Chains (IGVCs) and hypotheses. There are number of studies that present the poverty alleviation impact of participation in global value chains but these studies mainly focus on the upgrading potential and how governance impacts the distribution of income and profits at different notes of the GVCs. A recent study on the top 15 producers and suppliers of horticulture value chains in a selection of developing countries illustrate that a number of small suppliers have been successful in upgrading and in fact this has contributed to the added value in the sector. The same cannot be said about Ghana. Despite the reported success, the number of people especially in rural areas where horticulture produce originate is on the rise. Subsequently, it appears that the added value or gain from this activity has not trickled down to the poor. The hypothesis emanating from this review is tested with empirical data collated during the field study in Kenya and Ghana in 2004. Given that the data was collected some time ago, it is further complemented with secondary data to provide a much broader and comprehensive analysis of the issues. The outcome of the empirical findings is presented in chapters 5 and chapter 6. This chapter is organized as follows: An overview of the global value chain (GVC) literature is presented in section 2.2. Sections 2.3 discuss the governance of GVCs and 2.4 discuss upgrading. Selected literature on absorptive capacity is presented in section 2.5. Sections 2.6 present the literature on transaction costs. Section 2.7 outlines the proposed new framework – Integrated Global value chains framework and section the hypotheses emanating from the literature review. Section 2.8 concludes.

2.2 Previous research on global value chains (GVCs)

2.2.1 Global Commodity Chains (GCCs)
According to the world systems tradition commodity chains are defined as labour and production processes that are combined and used to produce a commodity and/or service (Hopkins & Wallerstein, 1986; Hopkins & Wallerstein, 1994; Raikes, et al., 2000). Global commodity chains (GCCs) can also contribute to the formulation of inter-firm networks that could either be described as producer or buyer driven (Bair, 2005; Gereffi & Korzeniewicz, 1990; Gereffi, 1994). Producer-driven chains are dominated by automobile, aircraft and computer manufacturer that are capital intensive and often managed through subcontracting at a global level. In producer buyer chains, low profit activities are outsourced to local suppliers often located in developing countries (Fagan, 2006; Romero & Tejad, 2011). In buyer driven chains such as the garment, footwear, and agriculture sectors buyers control design and marketing. There are many suppliers and a limited number of large global buyers who have most of their production capacity located in developing countries (Gereffi, 1994). Four main dimensions characterize this form of value chains namely: (i) the input-output structure, (ii) the territory covered, (iii) the governance structure and (iv) the institutional framework (Gereffi, G., 1999; Hansen & Kuada, 2006; Bair, 2005), (Raikes, et al., 2000). The first dimension input output structure is where the processes used to produce goods and services such as research, technology, and knowledge are located (Frederick & Gereffi, 2011). The second dimension territory covered describes the geographical dimension of the value chain and the third illustrates how governance is used by global buyers to monitor and control activities in specific value chains (Gereffi, 1999; Humphrey & Schmitz, 2002). Barriers to entry are typically high for suppliers attempting to access the higher end of these commodity chains because it is considered the highest profit making segments which global buyers seek to protect (UNIDO, 2004; Bair, 2005; UNIDO, 2004; Gereffi, 1994; Gereffi & Korzeniewicz, 1994). The fourth dimension institutional framework depicts the state of institutions where the value chain resides (Gereffi, et al., 2005). Institutional arrangements and the structure of markets which in the case of horticulture is considered an oligopsony plays a key role in the generation and distribution of income and profits (Kaplinsky, 2000; Kaplinsky & Morris, 2001).

Critique
The definition of commodity chains illustrated above does not include the notion of power, value creation and initiation. It also does not capture the different forms of governance that have an impact on the possibilities for suppliers to upgrade (Clancy, 1998; Raikes, et al., Forthcoming; Rauniyar & Kanbur, 2010; Gereffi & Korzeniewicz, 1994). These aspects are particularly important because they have a direct impact on poverty reduction. With regards to value initiation and creation it is important that the origin where the value was initiated is identified to enable a tracking of incomes and profits to this source backwards to the micro level. This is usually the rural area where the horticulture produce was planted or harvested. This is missing from the framework. This
identification process is especially important in sectors such as agriculture and horticulture where most of the produce is sourced from rural areas but returns from added value activities remain in urban areas (front end of value chains) perhaps with large suppliers and global buyers. The distinction made between producer and buyer driven chains could be useful to facilitate an analysis of the extent of “driveness” at different nodes of the chain. In the case of horticulture value chains this distinction might not be relevant because they are by definition characterized as buyer driven (Fold, 2002; Gibbon, 2001; Gibbon, 2003; Ponte, 2002a). In addition to global buyers operational environment factors such as the regulatory framework, government policies and standards also affect the degree of “driveness” (Gibbon, 2001, 2003; Ponte, 2002b). For instance, horticulture associations do not participate directly in value chains but influence the degree of “driveness” through the provision of advice to its members. This broad approach of looking at the degree of drivenness is not addressed in the literature (Frederick & Cassill, 2009). The GCC approach has also generated very limited quantitative analysis on value initiation and creation (Patel-Campillo, 2010). These limitations resulted in further work and subsequent introduction of the global value chains (GVCs) perspective.

2.2.2 Global value chain (GVCs)

The Global Value Chains (GVC) perspective is closely related to the GCC framework but introduces analytical precision that is missing from the previous GCC framework. Drawing on the work of Porter, value chains are defined as vertically inter-related activities and complex mechanisms through which factors of production are combined in different geographical locations to make and distribute a finished product to the consumer (Porter, 1985; Porter, 1987; Gereffi, et al., 2005; Kogut, 1985; Frederick & Gereffi, 2011; Gereffi, 1999; UNCTAD, 2007). Sometimes inputs and factors to production are sourced and assembled in jurisdictions that are very distant from the sourcing base. Similar to the GCC, the value chain perspective also illustrates the extent to which global buyers drive and coordinate global production and relations in such networks (Humphrey & Schmitz, 2002b; UNCTAD, 2007; 2000; 2006; Giuliani, et al., 2005). The GVC framework attempts to depict relationships that emerge and are maintained between suppliers, designers, distributors, logistics including the disposal of the end product while at the same time providing the basis that could determine the initiation, creation and distribution of value and incomes at different nodes of the chain. In the case of the sourcing of horticulture these global buyers such as supermarket chains and global hotels are brand and/or franchise owners who source and organise value chain activities in different global locations. The different levels of power exercised and governed by global buyers has been analysed based on the transaction costs theory (Gereffi et al., 2005). The type of governance
imposed by global buyers, the power asymmetries that emerge plays a key role in determining how the value chains function, the upgrading possibilities, the inclusion of suppliers and possibilities for them to engage in higher value activities is determined by (i) the complexity of information and knowledge needed to process a specific transaction (ii) the extent to which information and knowledge can be processed without transaction-specific investments and (iii) the extent to which transactions are easily codified taking into account the rules, norms and high quality standards (Pietrobelli & Saliola, 2007; Humphrey and Schmitz, 2000; Phyne and Mansilla, 2003; UNCTAD, 2007; Morrision et al., 2008; Gereffi, 1990, 1994).

2.3 Governance
Recent studies discussing the poverty alleviation impact of global value chains highlights the opportunities and challenges that suppliers face during participation. Governance, the rules and regulations imposed by global buyers play a key role such as government institutions, regulations, horticulture associations and other support institutions (Kaplinsky, 2000). The three forms of governance that can be distinguished are legislative governance (setting the rules) where global buyers set rules for suppliers to implement etc. (Gereffi 1999; Gereffi, Humphrey, Kaplinsky and Sturgeon 2001; Gereffi and Kaplinsky 2001; Gibbon 2000). Kaplinsky, 2000), Legislative governance concerns regulations and institutions that are in place to support value chain activity. So far the influence of legislative governance which leads to a legislative environment affects how global buyers and suppliers could be organized to facilitate small supplier access to global horticulture value chains has been limited. The requirements of small suppliers are often not taken into consideration when devising policy due to their limited access to financial and technical resources resulting in weak bargaining power. This external governance is often influenced by strategies and policies of global buyers whose headquarters are located far from where value chains reside. However, it is possible for government to impose certain conditions to mitigate the power of these constellations. Recent studies discuss how changes to local level harvesting of bay leafs in Uttarakhand State in India was achieved with the support of state policy with the objective of promoting the development of the local region as the main producer of herbs as a strong basis of trust between the State department and the main stakeholders of the project (Schrekenberg and Mitchell, 2011). Because a trust relationship involves a mutual commitment between the trustor and the trustee reduces the need for written and time consuming contract negotiations resulting in lower transaction costs (Granovetter, 1985, Connell and Mannion, 2006; Morgan and Hunt, 1994). For a selection of local suppliers in SSA region, external governance is necessary for intervention to support the industry.
2.3.1 Legislative governance

Based upon the GVC constellations described above there are five basic types of governance: in *markets* the transactions are simple to codify and because the suppliers have acquired the necessary skills and capabilities, compliance is not an issue, and activities are determined by market prices. Coordination, monitoring and control do not give rise to power asymmetries because supplier capabilities reach the expectation of global buyers. Due to the frequency of transactions, switching costs are low. Hierarchical governance entails very high levels of asymmetry where transactions are not easily codified because they are complex and suppliers lack the necessary capabilities and skills to fulfil the task. In between these two extreme forms of governance are the modular, relational and captive models of coordination where the nature the transactions could be characterised as complex depending on the skills and capabilities of suppliers. In *modular* value chains, suppliers produce according to specifications and are responsible for acquiring the necessary technology and components because they have the basic skills and competencies. In *relational value chains* suppliers have the necessary skills and capabilities to codify transactions but certain transactions tend to be complex. This means that a higher degree of coordination is required and higher degree of power asymmetry develops and which is sometimes managed usually though family and ethnic ties or good reputation based on trust (Menkhoff, 1992). In *captive value chains* suppliers are confined to producing standard products to the global buyer requirements. In this type of governance the supplier is transitionally dependent on the global buyer because it is driven mainly by the level of competence and results in the lock-in of suppliers to prevent competitors from benefiting from their investments such as design, logistics, sourcing for components and product and process technology. Under certain circumstances, global buyers must invest in training by specifying the complex produce and process requirements and preserve this investment by remaining the only buyer of the product (Humphrey and Schmitz, 2000; 2002). This lock in contributes to significant switching costs to suppliers and are therefore “captive” confined to a narrow range of production. This type of organization gives rise to opportunism which is mitigated by the provision of adequate resource and market access to suppliers making switching to other buyers not a viable option.

Implementing the rules would only be efficiently implemented if there are enforcement mechanisms in place to ensure that the rules and procedures in place are complied with (Schrekenberg and Mitchell, 2011; Kaplinsky, 2004). The NIE approach is concerned with formal and informal rules that characterize institutions (Rossiaud and Locatelli, 2010; Greif, 2006). According to the NIE, institutions are defined as the rules and humanly devised constraints that consist of formal constraints (rules, laws, constitutions) and informal constraints (norms, conventions, and different codes of conduct) (North, 1990). The transaction costs economics defines institutions as governance structures that could mitigate information asymmetry and opportunism that may arise during
contractual negotiations (Rossiaud and Locatelli, 2010; Williamson, 2005; Williamson, 1991); (Williamson, 1985; Stiglitz, 2002). For example horticulture association and research institutions are examples of institutions that can play a legislative and affect policy changes in the horticulture sector. Information asymmetry occurs due to the incidence of bounded rationality where human beings by definition exhibit limited cognitive ability and which makes it impossible to address all issues during contract negotiations (Van den Berg, 2002; Rossiaud and Locatelli, 2010). The governance structures are therefore meant to minimize the risk of opportunism (Brousseau and Glachant, 2002). Recent studies also discuss the impact of institutions on economic development outcomes in constellations such as GVCs and suggest that this depends on the efficiency of existing local institutions in the specific location (North et al., 2009; Amable, et al., 2005); Sapir, 2005; (Aoki, 2001; North, 2005; (Furubotn and Pejovich, 1972; North, 1991; Levy and Spiller, 1994). The framework has also been used to illustrate how social capital as an institution contributes to economic activity (Gambetta, 1988; Axelrod & Hamilton, 1981; Axelrod, 1984; Fukuyama, 1995, 2001; 2006; Bowles and Gintis, 2002; Williamson, 1993).

Institutions that are necessary for participation in global horticulture value chains include legal, intellectual property rights, and horticultural support institutions. In SSA, inefficient legal institutions have resulted in the forging of predominantly cash transactions in horticulture value chains. Cash transactions do not result in repeated transactions which are a necessary condition for establishing trust relations leading to modular and/or relational value chains where there are opportunities to earn higher profits. Inefficient legal institutions also result in higher transaction costs because more resources are spent on legal fees and bureaucracy to settle disputes. The transfer to technology is also very low in SSA because of the lack of intellectual property rights institutions. An efficient intellectual property rights institution is necessary because it reduces the incidence of imitation that is a major cost to inventors (Ramachandran, 1993; Vishwasrao and Bosshardt, 2001; Maskus and Penumarti, 1995). Efficient institutions also contribute positively to economic development by providing incentives to mitigate opportunism and uncertainty resulting in low transaction costs (Coase, 2000; North, 2000; Easterly and Levine, 2003; Acemoglu et al., 2002; Fukuyama, 2006; Eicher and Leukert, 2009; Chu, 2003).

2.3.2 Judiciary governance
The need for regulation could be illustrated by the increasing proliferation of food safety standards imposed by European markets, especially supermarket retail chains. To ensure that fresh produce supplied is of high quality, it is important that global buyers monitor and control compliance and where necessary sanction suppliers who will be in breach of the rules. According to some estimates
the cost per supplier for compliance with GLOBALGAP certification ranges from between 1000 US dollars and 2,800 dollars. For this reason, there are economies of scale in compliance and a number of suppliers are consolidated to realise these gains. Some of this activity is being supported by the horticulture associations and the government. At the same time due to the oligopolistic nature of the markets, where a few buyers and a large number of suppliers interact, they have control all sectors of the value chain from sourcing to distribution, making substantial investments in supply chain activities resulting in increased concentration (Schroeter et al., 2000; Cooper, 2003; Morrison-Paul, 2001; Mingxia and Sexton, 2002; Dobson et al., 2001; Clarke et al., 2002; Roger and Sexton, 1994).

In recent literature, there have been discussions on the emergence of market power as global buyers have become increasingly concentrated (Goldberg and Knetter, 1999). This power tends to manifest itself in structures such as global horticulture value chains where concentration in high in the quest to maximize economies of scale. Under oligopsony, both elements of collusion and competition are present resulting in increased opportunities to engage in price fixing. Oligopsony gives rise to opportunism and uncertainty, due to the increased power of global buyers. For instance, supermarket retail chains do fix prices above competitive level (Barrientos, 2008). This price fixing activity can be very detrimental to supplier profits because prices would be set at a level to maximize global buyer returns.

The creating of rent seeking opportunities sometimes makes it complex to implement or enforce regulation through judicial governance. The enforcement of the rule does impact both global buyers and suppliers. Due to the oligopsony nature of horticulture value chains coupled with the fact that fresh produce is perishable, suppliers are obliged to sell produce at prices below cost (Azzam, 1998; Clarke et al., 2002; McDonald, 2006; Morrison-Paul, 2001). It is also consistent with the argument in the literature that as gatekeepers, powerful buyers also can collude to boycott certain suppliers by switching to new suppliers at short notice (Dobson et al., 2001). Due to the low barriers to entry and highly competitive environment for suppliers global buyers can decide to source from a new supplier to lower costs. Global buyers also dictate specifications to suppliers, and transfer operational risks down the chain to suppliers. Because there is no specific surveillance or monitoring of such practices, it can go undetected for a very long time to the detriment of local suppliers. The transaction costs economics defines institutions as governance structures that could mitigate information asymmetry and opportunism that may arise during contractual negotiations (Rossiaud and Locatelli, 2010; Williamson, 2005; Williamson, 1991; Williamson, 1985; Stiglitz, 2002). Given that suppliers of horticulture produce are price takers, this increases transactions costs and reduces revenues for suppliers.
2.3.3 Executive governance

Executive governance requires that resources are available such as new technologies to fulfil a specific contract or the provision of infrastructure such as roads, communication and electricity that are prerequisites for both national and rural development (Haggblade et al., 2002). Infrastructure is defined in the literature as the availability of basic physical systems such as roads, railways and communication that support economic activity (Arrow and Kurz, 1970; Barro, 1990, 2000; Aschauer, 1989; Munnell, 1990; 1992; World Bank, 1994; Calderon and Serven, 2008; Calderon and Chong, 2004; Estache et al., 2005; Estache, 2006; Sahoo and Dash, 2008; 2009; Sahoo et al., 2010; Kamara, 2006b; Boopen, 2006). In particular, road infrastructure has positive effects on productivity and consumption especially in rural areas that would otherwise not be connected to urban areas where most of the markets are established (Calderon and Serven, 2008; Khandker et al., 2006; Mu and van de Walle, 2007; 2011; Escobal and Ponce, 2002; Lokshin and Yemtsov, 2005; Jalan and Ravallion, 2002; Fan and Chan Kang, 2004; Ayogu, 1999; 2000, 2007; Estache, 2006; Romp & de Haan, 2007; López, 2004; Estache et al., 2002; Estache, 2004). Infrastructure development is also a mechanism through which the poor can be linked to locations where value is added to products that generate higher incomes (Easterly, 2007). Some studies argue that although the existence of infrastructure reduces transaction costs it can at the same time result in an increase in asset value prices therefore neutralizing gains from infrastructure development (Estache et al., 2002; Estache, 2003; Calderón and Servén, 2008; López, 2004). However, the overall impact of infrastructure development is positive because the outcome depends on the type of infrastructure, its location and how accessible it is to the poor (Estache et al., 2000, 2002; Estache & Goicoechea, 2005). Reduced infrastructure development does affect the transport of horticulture produce from rural to urban areas and limits supplier participation in value chains. The increased of mobile phones especially in rural areas has reduced the dependency of intermediates for market information and has increased the power of suppliers. Transportation costs are also very significant for suppliers and have an effect on the competitiveness of rural value chains. Legislative, judicial and executive governance support upgrading as they are sometimes imposed by actors outside the value chain but are operationalized in institutions such as horticulture association that ensure compliance with standards and high quality requirements.

The literature discusses the strong correlation between physical infrastructure, productivity and firm performance (Ayogu, 1999; Straub 2008; Demurger, 2001; Ding and Haynes, 2006). In particular road infrastructure has positive effects on participation in value chains and consumption especially in rural areas (Jalan and Ravallion, 2002; Fan and Chan Kang, 2004). This is especially the case with the transport of horticultural produce from rural to urban areas. Without good road and logistical infrastructure, produce will rot due to delays which have resulted in extensive losses for a
number of suppliers in Kenya and Ghana. In particular, logistics infrastructure is necessary for participation in higher value added chains that have the potential to earn higher incomes and profits. The lack of logistics infrastructure especially amongst suppliers in Ghana has resulted in the loss of market to competitors (Estache & Vagliasindi, 2007). Other studies draw similar conclusions that roads, power and telecommunications infrastructure contribute significantly to economic development and can be a meaningful mechanism through with the poor can be linked to the global value chains (Estache, 2005; Estache & Goicoechea, 2005; Boopen, 2006; Reimikka and Svensson, 1999). The positive effects on value chain activity result in higher incomes and wages for the poor through increased demand for horticultural produce (Khandker et al., 2006; Mu and van de Walle, 2007; Escobal and Ponce, 2002; Lokshin and Yemtsov, 2005; Valdivia, 2009). However, the impact of increased consumption on poverty alleviation will depend on where the infrastructure is developed and how accessible it is to the poor (Estache et al., 2000; Mu and van de Walle, 2011).

2.4 Upgrading
The literature on GVCs has particularly focused on governance and the ways in which the process contributes to upgrading. Upgrading is defined as the process through which firms shift from low to high value activities (Drayse, 2008; Giuliani et al., 2005; Hansen and Kuada, 2006; Pietrobelli and Rabellotti 2006). The literature on competitiveness highlights four types of upgrading namely (Humphrey and Schmitz, 2002) (i) process upgrading that results in improved efficiency (Portelli and Narula, 2006) (ii) product upgrading that results in the introduction of new or improved products or moving into advanced product lines to increase per unit values, (iii) functional upgrading that involves increasing value added by acquiring new or superior activities (Vind, 2008; Talbot, 1997) and (iv) chain or inter-sectoral upgrading that involves shifting resources to new value chains where incomes and profit are higher (UNIDO, 2004; Kaplinsky and Readman, 2001; Humphrey and Schmitz, 2000; Meyer-Stamer et al., 2004; Vind, 2008). Due to competitive reasons, functional and inter-sectoral upgrading where local suppliers could earn higher incomes are not supported by global buyers (Giuliani et al., 2005; Morrison et al., 2008; Humphrey and Schmitz, 2000; Schmitz and Knorringa, 2000; Bazan and Navas-Aleman, 2004; Giuliani et al., 2005; Bair and Gereffi, 2001; Fitter and Kaplinsky, 2001; Pietrobelli and Rabellotti, 2004). Some local suppliers have been successful in their attempts to upgrade (Bair and Gereffi, 2001; Fitter and Kaplinsky, 2001). For example, in quasi-hierarchical value chains it is more feasible to upgrade processes and/or products but functional upgrading does pose challenges for small to medium size suppliers (Humphrey and Schmitz, 2000, Pietrobelli and Rabellotti, 2006; Ponte, 2008; Pietrobelli, 2008). It is also argued that participation in global value chains does not grant automatic upgrading
status and in fact could also result in the downgrading of suppliers but this depends on how and in what forms suppliers are linked in the value chains and the extent to which relationships are influenced by the power asymmetries that prevail within a specific chain (Dolan and Humphrey, 2000; Humphrey, 2005; Humphrey and Memedovic, 2006). Participation in these value chains could result in the upgrading or downgrading of supplies and which has implications for incomes and profits (Frederick & Gereffi, 2011; Gereffi, 1999; Gereffi & Kaplinsky, 2001); (Humphrey & Schmitz, 2002a; Humphrey & Schmitz, 2002b; Kaplinsky, 2000; Kaplinsky, 2004); (Kaplinsky & Morris, 2001; Arndt & Kierzkowski, 2001). The ability for knowledge, technology and the suppliers’ ability to develop absorptive capacity depends to the type of governance. In modular value chains, the impact of power asymmetries is reduced because of the high skills and capabilities of suppliers with leads to increased flow of knowledge from both upstream and downstream. The opposite is true for captive value chains where the flow of knowledge and technology is unidirectional from the global buyer to the supplier. The GVC approach also highlights the extent to which participation in GVCs could provide subordinate suppliers with access to the value chains of global buyers which are key channels for innovation and upgrading.

Critique
The GVC framework makes important contributions to the literature by illustrating how the different participants in value chains are involved in specific industries. It is also a useful framework that can be used to identify and link the fragmentation of production processes (Frederick & Gereffi, 2011; Gereffi and Korzeniewicz, 1994). It has also gained momentum in highlighting issues such as the proliferation of standards and high quality requirements in the case of horticulture and the impact it has had on the exclusion of suppliers, poverty alleviation and economic development (Sturgeon and Memedovic, 2011; Lee, 2010; Mayer and Gereffi, 2010; Frederick & Gereffi, 2011). The framework focuses on upgrading at the level of the firm but the mechanisms through which it can be transformed down to the micro level where the poor reside is not addressed in the literature (Bair, 2005).

Economic development prospects depend on how far down the benefits of participation in global value chains can reach the poor and which also has an impact on their connectivity to the global economy (Bair, 2005, Bair and Gereffi, 2001; Gereffi, 1995). This is important especially for locations in the SSA region where the process has been used unsuccessfully in a number of countries as a diversification strategy to alleviate poverty.

Second, the framework is subject to a certain level fallacy where value creation at a specific location is viewed as an opportunity cost in another location (FAO, 2008). A produce might be harvested in a certain location, but where value added occurs is different compared to its
origin (FAO, 2008). For instance, in the case of cut flowers supplied by local suppliers in Kenya, the
Dutch auction in the Netherlands is an important location where value creation takes place, but it is
outside the physical value chain. This is not taken into account in the GVC framework and which is
important for local supplier connectivity to the global economy. Third, discussions on income
distribution give no indication of how to measure value added and incomes or how suppliers that are
excluded from participation could re-enter value chains and sustain their income levels.
Subsequently, empirical studies on the agriculture sector have been polemical rather than scholarly in
highlighting the low share of profits and incomes of suppliers in developing countries (Daviron &
Ponte, 2005; Talbot, 1997; Kaplinsky and Morris, 2001; Oxfam, 2002a, 2002b). The trajectories of
upgrading and its conceptualisation of how absorptive capacity is acquired is rather limited. A
number of studies have also noted that it is unclear if the definition of upgrading encompasses
existing technology and knowledge in local suppliers and takes into account the institutional context
of value chains (Meyer-Stamer, et al., 2004; (Morrison et al., 2008; Sato & Fujita, 2009; Pietrobelli &
Rabellootti, 2011; Nadvi, 2011).). Recent studies have highlighted the importance of technology and
knowledge for upgrading but so far there is no recommendation on how this could be achieved in
small to medium size suppliers (Kishimoto, 2004; Schmitz and Knorriga, 2000; Schmitz, 2004).

The literature on technological capabilities has illustrated how to develop innovative capabilities at
the local and national level and how these developments could be socially embedded in specific
locations (Lall, 1992; Bell & Pavitt, 1993; Ernst & Kim, 2001; Nelson, 1993; Cooke et al., 1997;
Edquist, 1997; Mytelka, 2000; Lundvall, 2007). This is important for levels of absorptive capacity
that is a necessary condition for the transfer of knowledge and technology (Gereffi et al., 2005;
Giuliani et al., 2005). To understand and explain these dynamics of governance within GVCs
with regards to development of the skills and competencies of suppliers there is the need to
expand the upgrading construct. Upgrading requires the acquisition of capabilities and which
requires certain actions by suppliers. The GVC framework tends to focus on the ability of global
buyer to provide knowledge and technology by fails to address in which local suppliers could develop
absorptive capacity that is necessary for innovation, efficiency, increase productivity and upgr ading
activities. This requires a deeper analysis on how local suppliers develop knowledge and capabilities
internally (Bell and Albu, 1999; Nadvi & Halder, 2005). In addition, future studies should focus on
identifying the beneficiaries of upgrading because the process does not necessarily result in
higher profits because less profitable activities are transferred to vulnerable suppliers in developing
countries who assume all the risks with very uncertain rewards (Bair and Gereffi, 2001; Fitter and
Kaplinsky, 2001; Gibbon, 2001; Schrank, 2004; Binswanger-Mkhize and McCalla, 2009a,b ; Bair,
2005). There is also evidence that upgrading contributes to the exclusion of local suppliers in cases
where they do not have sufficient resources to invest in systems and processes (Dolan and Humphrey,
For instance, studies on the horticulture value chains in Kenya and the textile value chains in India conclude that the upgrading of large suppliers could result in the “crowding out” of small to medium size suppliers (Gibbon, 2001; Bair and Gereffi, 2005). “Crowding out” is one of the major concerns of small to medium suppliers in the SSA region but remains largely unaddressed in the GVC literature. Conceptualizing governance strictly in terms of coordination does not take into account economic relations such as the quality of institutions, trust environment and the structure of markets (Gibbon and Ponte, 2005). Evidence from the apparel chain suggests that supplier capabilities is closely associated with social construction of where value chains originate and reside but this issue is not considered in the current GVC framework (Gibbon, P., et al., 2008). Reduced rents and profits are presented as a source of socio-economic problem but in the absence of causal linkages it is not easy to devise solutions that will address these challenges (FAO, 2008). Participation in GVCs is also considered a risk mitigation mechanism through which transaction costs could reduce but the opportunistic view of transaction cost economics is not addressed in the GVC framework (Williamson, 1985). Despite the significance of governance, the flow of technological and knowledge capabilities that exist in local suppliers is also of importance including the institutional context within which it is developed and nurtured. This research advocates that a more comprehensive and extended view of the global value chains concept is necessary to determine how local supplier upgrade, ways in which they are integrated and/or excluded from value chain participation and the impact the process has on poverty alleviation. This will be illustrated through empirical and secondary evidence gathered from Kenya and Ghana.

### 2.5 Absorptive capacity

Absorptive capacity has also been identified as the most significant determinant of knowledge transfer in a number of other studies (Lane and Lubatkin, 1998; Gupta and Govindarajan, 2000). Furthermore, it is suggest that small firms can acquire and exploit external knowledge if they are well connected to universities and research institutions (Lundvall and Johnson, 1994; Johnson et al., 2001; Vinding, 2004; Gottardi, 2000). There is also evidence that investment in training enhances the quality of human capital that increases the capabilities in the firm to use knowledge for innovation (Delaney and Huselid, 1996; Koch and McGrath, 1996). Some studies also advocate devoting more attention to the transformation and exploitation of knowledge because it is possible to acquire and assimilate knowledge but the firm might not have the capability to transform and exploit it for upgrading purposes (Zahra and George, 2002). It is also argued that knowledge transfer is enhanced when there is more collaboration between value chain participants which is especially relevant for the type of value chain such as modular types that determined by the extent of relationships (Scarborough, 2003; Cavusgil et al., 2003). The literature also discusses the “stickiness of knowledge” such as the content and source which does influence the propensity of transfer
(Szulanski, 2003). Knowledge “stickiness” is more prevalent in business relationships where there are differences in culture, levels of skills and competencies. When these attributes tend to be on the same level, the rate of “stickiness” would be reduced considerably. However, the effectiveness of this process depends on the existence of efficient transmission channels and levels of absorptive capacity in local firms (Saliola and Zanfei, 2009). Factors such as proximity to research centers, relations with entities engaged in similar activities and the extent of local firms’ embeddedness in specific locations also enhance knowledge transfer (Turok, 1993; Vaccà and Zanfei, 1995; Andersson et al., 2002; Cantwell, 1989, Cantwell & Janne, 1999; Kokko, 1994; Kokko et al., 1996; Saliola and Zanfei, 2009). The prior existence of local knowledge is also an important determinant of knowledge transfer that will ensure that recipient firms are able to transform and use it for innovation and/or upgrading (Kaplinsky and Morris, 2001; Dacin et al., 1999).

The literature on the capabilities of the firm and learning explains why are willing to participate in global value chains despite the incidence of asset specificity Penrose (1959). According to this study that draws on the resource view of the firm the extent to which firms can internalize and capture value depends on how efficient they are in creating and maintaining skills and capabilities including all the technology and management skills. According to the transaction cost economics if an input is required frequently it is most likely that its production would be internalized due to scale economies. On the contrary, the literature on firm capabilities and learning, argues that upgrading required to participate in added value chains could be difficult for certain suppliers to obtain regardless of frequency or transaction or scale economies. Therefore these suppliers must reply to external sources to obtain such capabilities and according to the doctrine of ‘core competence’ focusing more on their own areas of competence leads to better performance (Prahalad and Hamel, 1990). In this study absorptive capacity is defined as a firm’s ability to search, acquire and exploit external knowledge (Cohen and Levinthal, 1990; Zahra and George, 2002; Lane et al., 2001; Zanfei, 2004; Sturgeon, 2000, 2002; Langlois, 2003; Sturgeon and Lee, 2001; Baldwin and Clark, 2000; Fujimoto et al., 2001; Howells, 2006; Cohen, and Levinthal, 1990; Lane and Lubatkin, 1998; Gupta and Govindarajan, 2000; Szulanski, 1996, 2000; Van Wijk et al., 2008; (Argote, 1999; Ghoshal and Bartlett, 1988, 1990). Knowledge transfer and exchange occurs when data and information are transferred between persons and organizational units (Lavis et al., 2003b; Kiefer et al., 2005). The literature distinguishes between two forms of knowledge transfer namely tacit where information is embedded in a person and not easily transferred and (ii) explicit where knowledge is easily communicated and transferred between recipients (Nonaka, 1991; 2000, 2006). Explicit knowledge is where the contents can be communicated processed and stored in an easy manner, shared with different sources. Intellectual property such as patents and copy rights are examples of explicit knowledge registered by inventors (Kikoski and Kikoski, 2004; Nonaka, 2003).
Knowledge transfer be it tacit or codified is quite complex is difficult to exchange or identify and can only be acquired by experience or through meetings and discussions (Kikoski and Kikoski, 2004; Hall and Andriani, 2002). Both sources of knowledge, tacit and codified knowledge complement each other. Knowledge transfer is important for value chain activities because it supports learning and upgrading (Davenport and Prusak, 1998; Kaplinsky and Morris, 2008). According to Transaction costs economics view, governance structures such as value chains are efficient means to transfer knowledge (Kogut & Singh, 1988; Tallman, 2005; Yan, 2000). This is especially the case with the transfer of tacit knowledge that is enhanced due to the prior relationships in value chains emanating from the frequency of knowledge exchange and communication (Hennart, 1988; 2001; Kogut and Zander, 1992, 1993). Because interaction tends to be intensive in relational or modular value chains, tacit knowledge could be exchange more effectively and efficiently that in arrangements where there was less cooperation between participants (Killing, 1983). According to the resource base view, firms participate in arrangements such as value chains because it is a more effective means of transferring tacit knowledge which also contributes to the competitive advantage of the firm (Penrose, 1959; Kogut and Zander, 1993; Barney and Clark, 2007). According to the knowledge based view, the ability of a firm to receive, transform and exploit knowledge determines its competitive advantage but this depends on certain attributes of the knowledge transfer (Barney and Clark, 2007; Barney & Tyler, 1991; Kogut, 1988).

Technology transfer is defined as the sharing high level technology suitable for the delivery of products of high technology content or suitable for innovation (Almeida and Fernandes, 2008; Harris and Li, 2005; Tybout, 2000; Keller, 2004; Alvarez and Lopez, 2005; Djankov and Hoekman, 2000; Kasahara and Rodrigue, 2008; Markusen, 2002; Blomström and Kokko, 1996; Young and Lan, 1997; UNCTAD, 2004; Acharya and Keller, 2007; Almeida and Fernandes, 2008). Technology transfer could occur if local firms have high absorptive capacity, invest in R&D and have links with universities and research institutions (Hoekman et al., 2004). The level of transfer of technology is characterized by information asymmetry, market power and externalities that sometimes results in high transaction costs and my constrain transfer (Hoekman et al., 2004). In addition patent owners tend to be powerful because of intellectual property ownership. With regards to externalities, the efficiency of the process is not fully captured due to emergence of spillovers that are not fully captured (Fischer & Newell, 2008). The level of uncertainty that comes with technology transfer is rather high emanating from the quality of technology and the required inputs should they be environmentally friendly or not. However, some studies argue that registered patents can indeed confer power to innovators, but at the same time it also nurtures a competitive technology environment (Park and Lippoldt, 2008). Technology transfer
is also constrained by institutional and regulatory constraints including the prevailing trade policy regime that could have implications for the type of technology to be transferred (Chandrashekar and Basvarajappa, 2001). According to the literature, the relationship between the different channels of technology transfer is complex (Hoekman et al., 2004). Despite this complexity, a number of studies argue that technology transfer encourages investment in R&D and which in turn encourages transfer (Blackman, 1999). According to the growth theory the transfer of technology can be a major contributor to economic development (Lucas, 1988; Grossman and Helpman, 1991, 1994; Romer, 1994; Aghion and Howitt, 1998; Solow 1956, 1957; Arora and Vamvakidis, 2005; Coe and Helpman, 1995; Dollar and Kraay, 2004; Feenstra, 2004; Frankel and Romer, 1999; Keller, 2002). However, for the transfer of technology to contribute to development, economies must develop an enabling technology environment that would support the dissemination and use of the technology transfer (Mergenthaler et al., 2009). Local technological development and similarities between the receiving firm and the innovator could also encourage technology transfer (Keller, 2004; Pray, 1981). Poor countries such as those located in SSA are constrained by the lack of resources to invest in research activities and develop a sustainable technology environment and which has a negative impact on such economies (Sachs, 2003). Research and development is defined as investment and engagement in innovation to increase value (Pavitt, 2001; 2002).

The literature on R&D in developing countries is very limited but it is argued in the few studies that when governments invest in research and development activities it has a positive impact on economic growth and development (Salter and Martin, 2001). For this reason, because developed countries spend more in absolute and relative terms on R&D than developing countries they tend to experience increased economic development as compared to developing countries (Barro and Sala I-Martin, 1995; Salter and Martin, 2001; Ayogu, 2000). Levels of education, intellectual property rights (IPRs) and the quality of academic and research institutions all have implications for differences in R&D investment. Increased R&D activity also has an impact on the quality of exports leading to higher incomes and earnings especially in the agriculture sector. The ability of use technology transfer to innovate depends on specific capabilities that the firm must develop and retain within and outside the firm (Cohen and Levinthal, 1990; Kogut and Zander, 1992). According to the literature there are five factors that impact technology transfer: relative advantage, compatibility, complexity, trialability and observability (Tidd, 2006; Tidd & Bessant, 2009). Compatibility means the technology must be suitable for the local environment. The less complex the technology the more easy it is for local suppliers to adopt it. The technology transfer should be user friendly and testable under all conditions and must be easy to alter or adopt in parts or sections if the entire system is not required. The propensity with which technology
would be adopted depends on the risk/uncertainty of the process. The levels at which a technology would be adopted depends on the price, because new technology is resource intensive that depends on economies of scale (Purvis and Outlaw, 1995). The rate of adoption especially in developing countries that have limited resources to spend on research would depend on the risk/reward associated with the technology (Boehlje, 1992). The absence of linkages between research institutions and local communities exacerbated by weak intellectual property and legal regimes is also a major constraint to the transfer to technology. In particular, efficient intellectual property rights institutions (IPR) encourage technology transfer and reduce imitation which is a major cost to inventors (Ramachandran, 1993; Vishwasrao and Bosshardt, 2001; Maskus and Penubarti, 1995). Firms that exhibit low levels of absorptive capacity attract the transfer of expired technology (Saggi, 1999; Maskus, 2000; Yang & Maskus, 2001).

**Critique**

The transaction cost approach does not address other qualitative aspects of knowledge transfer such as the quality of human resources and the culture that may persist in different locations and could have an impact on the process (Alter and Hage, 1992; Kogut & Singh, 1988). Most of the studies focus on the difference between tacit and explicit knowledge but there are very few studies that address the mechanisms through which knowledge transfer could be enhanced, especially in small firms that have limited absorptive capacity. It is crucial to shed understanding on how and if knowledge transfer has indeed taken place. These considerations have rarely been discussed in the literature especially in the case of SSA. The technology gap between developing and developed counties is a challenge to any discussion on technology transfer (Dunning, 1977, 1995, 1998). This is especially the case in SSA where technology transfer is very limited and very little effort is being made to develop a technology environment. Although it is argued in some studies that the development of capabilities is important indicator of technology transfer, but there is no illustration of small suppliers such as the ones in SSA that do not invest in expensive R&D could develop absorptive capacity (Harris and Trainer, 2011). The transfer of technology impact performance and productivity in firms this is not discussed in the value chain perspective (Morrison et al., 2008; de Velde, et al., 2006). Most of the studies on technological transfer focus on how the process is influenced by the nature of the firms. Missing from the discussions is the impact of weak institutions and regulatory framework that has considerable consequences on the transfer of technology (Blackman, 1999). Due to the limited number of studies the link between the extent to which R&D investments and economic development is spurious and not very clearly defined (Guellec & Van Pottelsbergh de la Potterie, 2004). Because there are very few studies where empirical data was drawn from very large firms and small samples its makes the generalisation of findings rather difficult (Varsakelis 2001, 2006; Bebczuk 2002). This is especially the case in SSA where the
industrial sector is plague with many small to medium size firms. For this area of research to impact poverty alleviation and economic development in SSA, there is the need to take into account evidence from small firms and the role of institutions in supporting research and development.

2.6 Transaction costs
Transaction costs are one of the main competitive issues with participation in value chains. The transaction costs that can occur during participation in global horticulture value chains include search, negotiating, monitoring and enforcement costs and asset specificity. Asset specificity is the most significant dimension of transaction costs theory and where opportunism could arise resulting from vulnerable suppliers being obliged by global buyers to invest in specific assets necessary for the codification of complex transactions (Williamson, 1975, 1985, 1991). Because investment in specific assets cannot be used for the delivery of other contracts they are sunk costs that also contribute to the lock-in of suppliers into standard or low value activities where incomes and profits are lowest (Zaheer and Venkatraman, 1994; Coeureroy and Duplat, 2008). The view of how global value chains are organized with regards to the complexity of inter-firm relations and the extent to which it could involve investments on specific transactions (asset specificity) could be explained by transaction costs economics (Williamson, 1975). The transaction costs approach provides an understanding on the reasons why certain production inputs are sourced internally as most standard products/services do generate considerable transaction-specific investments. Asset specific increases the risk of opportunism which increases costs because the inputs and designed used requires coordination (Fine, 1998; Langlois and Robertson, 1995). The incidence of opportunism can be managed through repeat transactions, reputation, and social norms that create trust, and mutual dependence in specific locations or social groups and which creates opportunities for the co-existence of more complex networks (Jarillo, 1988; Lorenz, 1988; Powell, 1990; Thorelli, 1986).

The transaction cost theory was initially used to study how the firm that is considered as a governance structure uses the price mechanism to minimize costs (Coase, 1937). Transaction costs occur at the point of collecting information, negotiating, monitoring and enforcing the terms of a contract (Connell and Mannion, 2006; Boger, et al., 2001). The key concepts that underpin the transaction cost theory are uncertainty, bounded rationality, opportunism and asset specificity (Banarjee and McGovern, 2004; Rindfleisch and Heide, 1997; Simon, 1957). Economic activities such as participation in global horticulture value chains impose costs because transactions are characterized by uncertainty and bounded rationality and which increases when activities are complex (Clemons et al., 1993). Complexity is further exacerbated if the number of linkages in the value chain and risks associated with specific transactions are high (Loader, 1997). According to
the literature, bounded rationality acknowledges the limits of individual judgments and concludes that because of this they may only be partially successful in being rational and which might increase transaction costs (Coase, 1937). Asset specificity is the most significant dimension of transaction costs and where opportunism could arise from suppliers obliged by global buyers to invest in specific assets necessary for the codification of complex transactions (Williamson, 1975, 1985, 1991; Shelanski & Klein, 1995; Klein and Shelanski, 1996; Klein, 2005). Because investments cannot be used for the delivery of other contracts they are sunk costs, and in cases where the local supplier is predominantly engaged in the supply of standard produce at the very bottom of the chain, it contributes to the lock-in of suppliers into standard or low value activities where incomes and profits are lowest (Zaheer and Venkatraman, 1994; Coeurderoy and Duplat, 2008). The firm capabilities and learning literature also contributes to the transactions costs theory and argues that rate of knowledge development in value chains depends on the frequency of participation (Penrose, 1959; Gereffi et al., 2005; Lall, 2001). The frequency of participation has a positive impact on the formulation of relationships that is pre-condition for the imposition of relational or modular governance that has higher upgrading and income generation prospects.

Critique

Transaction cost theory suggests that asset specificity contributes to increased transaction costs and opportunism (Jones et al., 1997). However this development could be beneficially mutual as both global buyers and suppliers could engage in opportunism (Jones et al., 1997). The approach pays limited attention to this reciprocal behaviour that could develop during value chain participation (Zaheer and Venkatraman, 1994; Mukhopadhyay and Kekre, 2002; Goshal and Moran, 1996). Although there are generally five types of governance discussed in the literature the transaction cost theory does not make a distinction between the different types governance. This distinction is important because they have different cost implications for local suppliers and global buyers. For example, the transaction costs are much higher for local suppliers when captive or quasi-hierarchical governance is imposed by the global buyer. Therefore differentiating between the various governance types would facilitate an analysis of the costs and benefits that accrue to each participant and which is very important for income generation and distribution. The framework has also been noted as lacking in generality because American and British firms appear to confirm the transaction cost theory but firms in Japan on the contrary might tend not to do so (Williamson, 1979). This is because a prevailing trust environment is risk mitigating and according to the literature will result in reduced transaction costs. This aspect of the impact of a trust environment on transaction costs has tended to undermine the framework but remains
unaddressed in the literature (Nooteboom, 2004; Nooteboom, 2002; Moellering, 2005; Woolthuis et al., 2005)

2.7 Integrated Global Value Chains (IGVCs) framework: Background and Rationale

In order for developing country suppliers to improve conditions of participation, performance and earn higher incomes resulting in poverty reduction, strategies should be in place to address the high levels of exclusion rates and the inefficient operational environment (Bair, 2005; Humphrey and Schmitz, 2000; Gereffi and Kaplinsky, 2001; Gereffi et al., 2005). This is necessary to reduce the risk of exclusion amongst small suppliers and vulnerability in terms of remaining in poverty for long periods of time due to loss of income they have either been “crowded out” by large suppliers or excluded from participation (Stringer & Ge, 2010). The impact of the operational environment especially in developing countries plays a key supporting role in economic activities such as value chains but this is unaddressed in the prevailing GVC framework. An effective operational environment is a necessary condition for local suppliers in the rural areas to connect to urban areas where added value activities such as marketing and logistics tend to be higher (Maxwell, 2004). Therefore there is the need to propose a framework that complements the existing GVC framework with the important operational environment attributes necessary for optimal participation in global horticulture value chains. As evidenced in the literature, the operating environment is cited as one of the main constraints hindering the development of the agriculture sector and constraining the optimal functioning of the horticulture value chain (van den Berg et al., 2009). While the impact of the inter-linkages between upgrading and income generation is clear, the poverty reduction aspect needs to be further explored. In particular the impact of exclusion on small suppliers, possibilities of their return to complementary value chains, and effects of the operational environment has to be further explored. Understanding the interrelationships and associations between these elements is central to the formulation of policy that could inform strategies on effective participation leading to poverty reduction. The new framework contributes to the literature by providing analytical precision that is lacking in the current GVC framework.

2.7.1 A conceptual framework – Integrated global value chains (IGVCs)

The proposed integrated global value chains are structured based on the following five elements:

*Governance: Conditions of participation imposed by global buyers but sometimes driven by supplier capabilities and the operational environment*
Upgrading activities: The extents to which local suppliers upgrade processes and products

Absorptive Capacity: Capabilities of local supplier to acquire, generate and use knowledge gained for competitiveness

Transaction costs: investment in specific assets and costs of regular operations

Market structure: Oligopsony and supplier concentration

Governance is imposed to monitor and control activities in value chains. As illustrated in the literature, the type of governance has implications for upgrading (Fold, 2002; Gibbon, 2003; Gibbon and Ponte, 2005; Sturgeon et al., 2008). Quasi-hierarchical governance is predominantly imposed in the SSA region due to the lack of skills and capabilities in small to medium size suppliers. This form of governance creates opportunities for product and process upgrading but not for functional and inter-sectoral upgrading where suppliers could earn higher profits and income. This lack of earning capacity has implications for poverty alleviation through lost incomes. Similarly, the exclusion rates amongst small to medium size suppliers are high due to the lack of skills and capabilities resulting in the non-compliance with standards and high quality requirements (Özatagan, 2010). The lack of investments in systems and processes necessary for compliance and upgrading has also contributed to the high incidence of exclusion. High exclusion rates have negative implications for income generation and profits.

Upgrading: Some local suppliers especially in Kenya, Tanzania and Uganda have been successful in their attempts to upgrade (Bair and Gereffi, 2001; Fitter and Kaplinsky, 2001). For example, in quasi-hierarchical value chains it is more feasible to upgrade processes and/or products but functional upgrading does pose challenges for small to medium size suppliers (Humphrey and Schmitz, 2000, Pietrobelli and Rabellotti, 2006; Ponte, 2008; Pietrobelli, 2008). It is also argued that participation in global value chains does not grant automatic upgrading status and in fact could also result in the downgrading of suppliers (Dolan and Humphrey, 2000; Humphrey, 2005; Humphrey and Memedovic, 2006). The GVC approach also highlights the extent to which participation in GVCs could provide subordinate suppliers with access to the value chains of global buyers which are key channels for innovation and upgrading.

Absorptive capacity: Firms that exhibit high rates of absorptive capacity are able to use knowledge transfer effectively (Cohen and Levinthal, 1990; Teece et al., 1997; Zahra and George, 2002; Lane and Lubatkin, 1998; Gupta and Govindarajan, 2000; Van Wijik et al., 2008). The transfer of knowledge also depends on the prior existence of local knowledge and the firms’ absorptive capacity. Absorptive capacity contributes to improved supplier performance and which is reportedly higher in large suppliers in Kenya compared to Ghana (Minbaeve et al., 2003; Minbaeve, 2007). It is also
highlighted in recent studies that increased levels of absorptive capacity are associated with linkages to
universities and research institutions (Lundvall and Johnson, 1994; Johnson et al., 2001; Vinding,
2004; Gottardi, 2000). The transfer of technology contributes to supplier performance but this
depends on the extent of R&D (Bell and Pavitt, 1993; Lall, 1992; Nelson, 1990). The
literature also discusses differences in technology transfer that could explain performance levels
in firms (Acemoglu et al., 2010). Other studies discuss different channels of technology transfer and
argue that R&D investment does encourage technology transfer (Keller, 2004). Increased R&D
activity also has an impact on technology transfer where suppliers have better opportunities to link
with national research agendas and in turn engage in firm level research. There is also
evidence of the link between absorptive capacity and the ability to use new technology (Narula and
Dunning, 2000). When absorptive capacity is low, technology transfer does not occur or expired
technology is transferred. Technology transfer is important because it increases the possibility
for suppliers to engage in higher value added chains resulting in better performance and higher
profits (Saggi, 1996; Yang & Maskus et al., 2001; 2009).

Market structure: Global horticulture value chains are an oligopsony market where there are a
few buyers and a large number of suppliers. Oligopsony power tends to be high in horticulture
value chains because global buyers are the only purchasers of fresh produce and have also invested
extensively in supply chains (Roger and Sexton, 1994). These types of settings are becoming
increasingly common in Kenya and Ghana where a few large global buyers dominate the demand for
horticultural produce. Buyer concentration is high due to the perishable nature of fresh produce,
which forces suppliers that do not have storage facilities to sell most of their produce often at a given
lower price and which has in turn increased concentration at different nodes of horticulture value
chains (Azzam, 1997; Clarke et al., 2002; McDonald, 2006; Morrison-Paul, 2001). As suppliers
are price takers, oligopsony markets have also resulted in the reduction of profits and incomes of
suppliers which has implications for poverty alleviation

Transaction costs: The transaction costs that can occur during participation in global horticulture
value chains include search, negotiating, monitoring and enforcement costs. Asset specificity is
the most significant dimension of transaction costs theory and where opportunism could arise
resulting from vulnerable suppliers being obliged by global buyers to invest in specific assets
investment in specific assets cannot be used for the delivery of other contracts they are sunk costs that
also contribute to the lock-in of suppliers into standard or low value activities where incomes and profits
are lowest (Zaheer and Venkatraman, 1994; Coeurderoy and Duplat, 2008). Low trustworthy
environments attract higher transaction costs. Uncertainty arising from unanticipated changes in
contractual conditions such as awarding of contracts and late payments of invoices also contribute to increase transaction costs. These cost rises due to considerable amounts of resources invested on debt collection with regards to the late payment of invoices and the loss of income as a result of changes in contractual conditions that involve substantial investment from suppliers. The horticulture value chains are also characterized by low barriers to entry which increase opportunism and risk all of which contribute to higher transaction costs for suppliers. In a trustworthy environment, transaction costs tend to be low because of the reduced incidence of uncertainty and opportunism. Trust environments are also a necessary condition for relational or modular governance that has greater possibilities for upgrading. Trust is important for value chain activity because a number of high quality aspects of fresh produce are difficult to discover based only on visual inspection. Subsequently, global buyers must trust that produce comply with standards and high quality requirements (Batt, 2003, Fischer et al., 2007). This is especially relevant for new suppliers with whom global buyers have no prior experience and where information about their operations is limited. Similarly, suppliers must also trust that their produce will be priced fairly and invoices paid without long delays (Hornibrook and Fearne, 2003).
Figure 2.1 – Integrated global value chain framework – IGVC

**Participant**
- Global buyers

**Conditions of participation**
- Governance
- Captive
- Quasi-hierarchical
- Modular
- Relational
- Markets

**Participant**
- Local suppliers

**Operational Environment**
- Institutions
- Infrastructure

**Absorptive Capacity**
- Knowledge transfer
- Technology transfer
- Research and Development
- Links to universities and research institutions

**Market Structure**
- Oligopoly
- Concentration

**Transaction costs**
- Asset Specificity
- Negotiation
- Enforcement
- Monitoring and control

**Poverty reduction**
- Income generation
- Employment

**Re-entry**
- Value chains
- Income generation activities

**Exclusion**

**Value chains**
- Income generation activities
The framework illustrated in Figure 2.1 outlines the operational environment and value chain attributes necessary for the functioning of global horticulture value chains leading to poverty alleviation. Linked together, they provide a multi-dimensional framework that is capable of explaining and understanding the interaction between the different variables. In this proposed integrated global value chains framework it is suggested to evaluate the poverty reduction impact of horticulture value chains in relation to both conditions of participation and the operational environment as presented in figure 2.1 which illustrates the value chain participants and elements at each node of the chain. The arrows in both directions show the flow of each elements and its deliverables. The external elements (institutions, infrastructure and market structure) are represented by circles while the factors that are considered internal to the value chains are represented by squares. The participants (global buyers and local suppliers) and conditions of participation are also influenced by the external environment. Furthermore understanding the poverty reduction of exclusion, re-entry and income generation requires further analysis of certain elements such as the conditions of participation and the operational environment that could lead to generation of additional transaction costs and thus render certain value chain uncompetitive. Taking into consideration the research objectives, this enhanced framework will inform strategy and policy proposals that could improve the conditions of participation leading to poverty alleviation. The proposed framework would be used to test the following 3 hypotheses: (Ivarsson, and Alvstam, 2009).

**Hypothesis 1**

Opportunities for local suppliers to engage in higher added value activities and the creation of higher value employment is associated with additional income generation leading to poverty alleviation

**Hypothesis 2**

Transaction costs such as costs of compliance and asset specificity is associated with upgrading and the state of the operational environment

**Hypothesis 3**

Opportunities for local suppliers to engage in higher added value activities and the creation of higher value employment is associated with additional income generation leading to poverty alleviation

**2.8 Conclusion**

This review has discussed eight relevant bodies of literature associated with participation in global value chains, poverty alleviation and economic development. There are a number of gaps and issues that have been highlighted by this review and that require further analysis. The GVC literature highlights the need for local firms to be linked to the global economy but fails to address the
mechanism through which this to occur to impact on poverty (Mergenthaler et al., 2009). Most notably the type of governance that has an impact on the income generation is dismally addressed in the literature. Low supplier skills and capabilities resulted in the increased rate of exclusion of a number of suppliers and affected incomes. Because most of the local suppliers in the SSA region are small to medium size, they are often excluded due to the lack of skills and competencies caused by reduced absorptive capacity. This low income earning capacity has contributed to the increase in the levels of poverty amongst suppliers. Studies have also demonstrated the importance of efficient institutions that replace missing markets and support economic development (Bardhan, 2005). The lack of efficient institutions and infrastructure also contribute to high transaction cost.

The existence of good infrastructure also has the ability to reduce inequality by linking rural areas to cities (Calderon and Serven, 2008). Oligopsony market structures also contribute to reduced profits and incomes of local suppliers because participation in horticulture value chains benefits large suppliers but could be detrimental to small fragmented suppliers (Barrientos, 2008). The employment creation effect of participation in horticulture value chains is evident from the literature, but this also depends on the quality of employment and level of wages all of which have implications for poverty alleviation. With regards to economic development, the unequal distribution of incomes has further exacerbated the incidence of poverty amongst local suppliers. What is therefore required is a re-conceptualization of the global value chain perspective that incorporates dimensions of the operational environment that is currently missing from the GCC and GVC framework. Improving the conditions and performance of suppliers in value chains will depend on the conditions of participation in value chains and the state of the operational environment. By specifying and analyzing these dimensions it is hoped to deliver understanding and explanations on the evolution of factors that determine optimal inclusion in global horticulture value chains leading to poverty alleviation in Kenya and Ghana.
Chapter 3
The Operating Environment

3.1 Introduction
In this chapter I depict the state global horticulture value chains, its impact on poverty and the operational environment that currently prevails in Kenya and Ghana. Section 3.2 describes the poverty situation in SSA region including Kenya and Ghana. Section 3.3 presents evidence on the state of the global horticulture sector. Section 3.4 discusses the agriculture and the horticulture sector in Kenya and Ghana. Section 3.5 presents the state of institutions and 3.6 the state of infrastructure. Section 3.7 illustrates the incidence of transaction costs and its impact on horticulture value chain activity. Section 3.8 concludes.

3.2 Poverty in Sub-Saharan Africa (SSA)
Although poverty levels have reduced below 50 percent and expected to reach 40 percent by 2015, approximately 30 percent of the population in the SSA region are very poor and/or experience multidimensional poverty resulting in increased inequality (UNDP, 2010; Chandy and Gertz, 2013). The fight to reduce poverty in the SSA region has been challenging and it clear from recent studies that by 2030, 23.6 per cent of the population could still be living below the poverty line because the prevailing gap between the poor and poverty line is widening due to unequal access to resources (inequality gap). Because of this, it is argued that locations in SSA are less sensitive to economic growth and poverty reduction mechanisms than in India and China that have a moderate to average record on poverty reduction Chandy and Gertz, 2013). According to a recent report published by the Brookings Institute poverty levels are declining in a number of countries but at a slower rate in the SSA region (Chandy and Gertz, 2011).

3.2.1 Poverty in Kenya
Approximately 20 percent of the population in Kenya live on less than US$ 1.25 a day (Human Development Report, 2010; Timmer and Dawe, 2007; Chen and Ravillion, 2008). Urban poverty is of particular concern where in Kisumu over 63% and in Nairobi 50% of the population are considered poor (Human Development Report, 2010). Over 80% of the rural poor live within the Lake Victoria and Mount Kenya regions. The incidence of poverty is
especially high in the North Eastern Province (58%), the highest in Kenya, followed by Eastern (57%) and Coast Province (55%). An overview of the distribution of poverty is illustrated in Figure 3.1. Kenya ranks 128 out of 169 countries on the Human Development Indicators (HDI) index (Human Development Report, 2009). The statistics used as an estimate to evaluate human development in specific economy is illustrated in table 3.1.

**Figure 3.1   Poverty rates in Kenya 2005-2006**

Source: Human Development Report, 2009
<table>
<thead>
<tr>
<th>Table: 3.1 Human Development Indicators (HDI) Kenya</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health – Life expectancy at birth (years)</td>
</tr>
<tr>
<td>Education (Mean years of schooling for adults)</td>
</tr>
<tr>
<td>Income (GNI per capita (2008 PPP US$) LN</td>
</tr>
<tr>
<td>Inequality (adjusted HDI value)</td>
</tr>
<tr>
<td>Poverty (Multidimensional poverty index)</td>
</tr>
<tr>
<td>Gender (Gender inequality index)</td>
</tr>
<tr>
<td>Sustainability (adjusted net savings (% of GNI)</td>
</tr>
<tr>
<td>Human security (refugees by country of origin in thousands)</td>
</tr>
<tr>
<td>Human Development index rank</td>
</tr>
</tbody>
</table>

Source: Human Development Report, 2010

3.2.2 Poverty in Ghana

Poverty reduction rates in Ghana are so far good in the SSA region but there are still regional variations (Africa Economic outlook, 2011). According to figures reported by the Ghana Living Standards Surveys (GLSS) poverty continues to be a rural phenomenon with the northern region experiencing the highest incidence of poverty (Figure 3.2). From 2005-2006 income poverty reduced to 28.5 percent but the inequality and income distribution remained at the same level (Whitfield, 2009). This is caused by the lack of investment in the core sector of the country – agriculture and the underdevelopment of the financial and support institutions (Whitfield, 2009). Between 1980 and 2010 Ghana ranked 130 out of 169 countries on the Human Development Index (HDI) (Africa Economic Outlook, 2011). The elements used to calculate the index is illustrated in table 3.2.

![Figure 3.2 Poverty rates in Ghana (2005-2006)](image)

Figure 3.2 Poverty rates in Ghana (2005-2006)

Figure 3.2 Source: Ghana Living Standard Survey: National household survey GLSS5 2005-2006 (GLSS5)
Table 3.2 Human Development indicators (HDI) Ghana

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health – Life expectancy at birth (years)</td>
<td>57</td>
</tr>
<tr>
<td>Education (Mean years of schooling for adults)</td>
<td>7.1</td>
</tr>
<tr>
<td>Income (GNI per capita (2008 PPP US$))</td>
<td>7.2</td>
</tr>
<tr>
<td>Inequality (adjusted HDI value)</td>
<td>0.349</td>
</tr>
<tr>
<td>Poverty (Multidimensional poverty index)</td>
<td>0.140</td>
</tr>
<tr>
<td>Gender (Gender inequality index)</td>
<td>0.729</td>
</tr>
<tr>
<td>Sustainability (adjusted net savings (% of GNI))</td>
<td>-6.6</td>
</tr>
<tr>
<td>Human security (refugees by country of origin in thousands)</td>
<td>13.2</td>
</tr>
<tr>
<td>Human Development index rank</td>
<td>130</td>
</tr>
</tbody>
</table>

Source: Human Development Report, 2010

3.3 Global horticulture

According to the 2011 Global Agricultural Productivity Report, agriculture productivity increased by an average of 1.74 percent compared to 1.4 percent in previous years (GHI, 2011). Development of the agriculture sector in the SSA region remains a challenge due to demographic factors such as the lack investment in agriculture research, technology and inability to attract private investment in the sector (GHI, 2011). As illustrated in table 3.3 the three highest export horticulture supplies are all from advanced countries. However, almost 50% of the 15 top exporters are located in developing countries. Latin is dominant in the horticulture trade with about 30 per cent of supplies originating from Mexico (5.32%), Chile (3.67%), Ecuador (3.12%), Colombia (2.40%) and Costa Rica (2.32%) (Bernhardt and Milberg, 2011). China has the fifth largest export horticulture market and Turkey ranks tenth globally (Bernhardt and Milberg, 2011).

Table 3.3 Top 15 global exporters of Horticulture (%) - 2009

<table>
<thead>
<tr>
<th>Rank</th>
<th>Country</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Netherlands</td>
<td>13.34</td>
</tr>
<tr>
<td>2</td>
<td>Spain</td>
<td>9.78</td>
</tr>
<tr>
<td>3</td>
<td>USA</td>
<td>7.94</td>
</tr>
<tr>
<td>4</td>
<td>Mexico</td>
<td>5.82</td>
</tr>
<tr>
<td>5</td>
<td>China</td>
<td>4.30</td>
</tr>
<tr>
<td>6</td>
<td>Italy</td>
<td>4.17</td>
</tr>
<tr>
<td>7</td>
<td>Chile</td>
<td>3.67</td>
</tr>
<tr>
<td>8</td>
<td>Ecuador</td>
<td>3.12</td>
</tr>
<tr>
<td>9</td>
<td>France</td>
<td>2.91</td>
</tr>
<tr>
<td>10</td>
<td>Turkey</td>
<td>2.90</td>
</tr>
<tr>
<td>11</td>
<td>Canada</td>
<td>2.87</td>
</tr>
<tr>
<td>12</td>
<td>Colombia</td>
<td>2.40</td>
</tr>
<tr>
<td>13</td>
<td>Belgium</td>
<td>2.40</td>
</tr>
<tr>
<td>14</td>
<td>Costa Rica</td>
<td>2.32</td>
</tr>
<tr>
<td></td>
<td>Germany</td>
<td>2.06</td>
</tr>
</tbody>
</table>
None of the countries in Africa or Sub-Saharan Africa are significant players in the horticulture export market according to the data illustrated above. Kenya is the most successful and competitive but its market share is only 0.44 percent according to 2009 figures as compared to Thailand and Vietnam who are significant players with a market share of approximately one percent of the global export horticulture market (Bernhardt and Milberg, 2011).

**Figure 3.3 - Export market shares in selected countries (%)**

![Export market shares in selected countries (\%)](source)

*Source:* Bernhardt and Milberg, 2011 ‘Capturing the Gains: Economic and Social Upgrading in Global Production Networks and Trade’, funded by the UK DFID and the Brooks World Poverty Institute at the University of Manchester – Working paper 6

**Fresh and chilled vegetables**

With regards to percentage increase in values, approximately 30 per cent of the top plays including locations in Africa (Kenya, Tanzania, Uganda were successful in making extra gains in export. Trend on recent receipts for fresh or dried citrus illustrated an increase in value for a number of locations.
All Asian countries and three countries in Africa did gain higher values for exports. However, this was not the case for Location in Central America, with the exception of Panama. Prices of horticulture produce from Latin America are very competitive and could explain the deteriorating levels of gains across the sector (Bernhardt and Milberg, 2011).

3.3.1 Global horticulture value chains

Horticulture involves the production and supply of fruits, vegetables, processed foods and vegetables and cut flowers (English et al., 2004). The global horticulture value chains comprise of global buyers in the supermarket retail, beverage manufactures, hotel chains and airline catering, local suppliers (wholesalers, intermediaries etc) and external support associations who are not directly involved in value chain activity. According to World Bank estimates, the total volume of fruits and vegetables (horticulture produce) traded globally increased five-fold from US$56.1 billion to US$ 139.6 billion in 2008 (UN Comtrade, 2011; Fernandez-stark et al., 2011; World Bank, 2009; (Diop and Jaffee, 2005; Weinberger and Lumpkin, 2005; Brown and Sander, 2007). As a high value generation sector, horticulture has the potential to contribute substantially to the economy, (Weinberger and Lumpkin, 2005). The global horticulture value chains are buyer driven where participation in these chains presents new opportunities as well as challenges to suppliers in the SSA region (Gereffi & Lee, 2009).
A typical global horticulture value chains is depicted in figure 3.3 (Fernandez-Stark et al., 2011). The most important production inputs are seeds, fertilizers, agrochemicals, farm and irrigation equipment and labour (Fernandez-Stark et al., 2011). Horticulture infrastructure such as transport, refrigerated trucks, cold storage facilities and professional association provide a key supporting function to the sector. Both large and small suppliers participate in value chains grade, washing, trim, chop, pack and label produce for export or domestic markets. The demand for fresh produce is increasing at approximately 20% per annum due to health reasons, improved life styles, rising incomes, urbanization and changing labor practices such as the increase of women in full time employment (Diop and Jaffee, 2005; Weinberger and Lumpkin,2005). The United States, European Union and Japan are the world’s leading importers of horticulture produce (Diop and Jaffee, 2005; Weinberger and Lumpkin, 2005.). The increase in wages and transaction costs has significantly impacted profitability in the developed and therefore some activities have now been transferred to
developing countries such as Kenya and Ghana. This development has contributed to the ten-fold net increase in imports of horticultural products from developing countries.

The sector also generates employment because horticulture activities such as washing, trimming, chopping and packing are more labour intensive than traditional agriculture (Joshi et al., 2004; Weinberger & Lumpkin, 2005; World Bank, 2009). However, the employment impact on poverty alleviation has been constrained because the low skills of rural workers. Participation in global value chains has increased in complexity due to proliferation of standards and high quality requirements. Participation in global horticulture value chains also requires adherence to standards and high quality requirements which small suppliers find challenging due to the lack of skills and capabilities (World Bank, 2008; Nango Dembele and Staatz, 2008). For instance, GLOBALGAP is a voluntary 'pre-farm gate' standard that applies to processes used to plant and harvest horticultural produce and has been adopted by many leading global supermarkets retail chains in the European Union.

Various process controls that are verified through record-keeping and auditing must be established to ensure compliance which requires substantial financial resources which most small suppliers cannot afford (Asfaw et al., 2010; Mithofer et al., 2006; Carey and Lawson, 2011). The supplier must have in place a Quality Management System (QMS) including documentation on traceability, quality control and internal audit. However, most small to medium size suppliers cannot afford the upfront investment into these processes. Therefore non-compliance has resulted in the exclusion or subordination of vulnerable suppliers into lower value high-risk segments of horticulture value chains resulting in the loss of income (Gibbon and Ponte, 2005; Dolan and Humphrey, 2004; Thrupp et al., 1995; Hamilton and Sullivan, 2001). It is estimated that, in 2005, non-compliance with standards resulted in lost revenues of over US$400 million in Kenya. The proliferation of standards has been driven by the low quality of supplies that emanate from certain countries and inefficient inspection regimes that prevail in certain jurisdictions (Gulati et al., 2006); (Henson & Humphrey, 2009). Participation in global horticulture value chains creates opportunities for small to medium size supplies in terms of income generation whiles at the same time presenting challenges with regards to compliance with standards and high quality requirements because both the risks and responsibilities have been shifted to local suppliers (English et al, 2004).

Global standards on the safety of food on the processes such as the application of the Hazard Analysis and Critical Control Point (HACCP), ISO 9000 quality systems and GLOBALGAP has been imposed...
by a number of European Supermarkets in the UK and the Netherlands. As evidenced in the literature compliance with standards and high quality requirements is challenging for small suppliers. For instance in Kenya, efforts are made to support suppliers, especially small suppliers with certification. Challenges that suppliers face include high costs of investment in facilities on farm sites such as a place for storing chemicals and pesticides, water, adequate facilities for grading and sorting, including the availability of cooling facilities. Recently studies on the costs of compliance on an number of suppliers who export to European markets argue that its cost approximately between £100 per farm to £2,800 and it could be likely that these costs are quite high for a small supplier (Graffham, Karehu and Macgregor, 2007; Asfaw et al. 2007; Mithöfer et al. 2007). There exists economies of scale in the certification process but this is only achieved with medium to large suppliers who have merged operations to comply with EUREPGAP certification in Kenya at reduced costs. This has resulted in the concentration of suppliers at different nodes of the chain and has further increased the incidence of marginalisation of a number of small suppliers (Humphrey, 2009).
Table 3.4: Overview of a selection of standards applied to horticulture produce

<table>
<thead>
<tr>
<th>Public</th>
<th>Voluntary</th>
<th>Private</th>
</tr>
</thead>
<tbody>
<tr>
<td>National</td>
<td>Mandatory</td>
<td>Voluntary</td>
</tr>
<tr>
<td>National legislation (pesticide use, labor regulations, sanitary inspections etc)</td>
<td>Hazard Analysis Critical Control Point (HACCP) USDA National organic program</td>
<td>Nature’s Choice (Tesco) Field-to-Fork (M&amp;S) Terre et Saveur (Casino) Conad Percorso Qualità (Italy) Albert Heijn BV: AH Excellent (Netherlands)</td>
</tr>
<tr>
<td>U.S. Department of Agriculture (USDA) standards</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regional</td>
<td>EU Regulations</td>
<td>Filières Qualité (Carrefour)</td>
</tr>
</tbody>
</table>


In addition to these standards, non-tariff barriers such as special duties, quotas, and subsidies to farmers have further impacted the sector (Diop et al., 2005). These non-tariff barriers have direct implications for the processing of fruits and vegetables and affect the value added opportunities of local suppliers due to restrictive market access. This situation has affected the diversification of
agriculture sector in the SSA region (Brenton & Ikezuki, 2005). The development of the horticulture sector has important implications for the upgrading of local suppliers because sustaining a position in value chains depends on the forging of long term relationships and closer linkages with global buyers (Dolan & Humphrey, 2004; Humphrey, 2005; Reardon et al., 2009).

Table 3.5 - Economic upgrading and downgrading in the horticulture sector (1990-2009)

<table>
<thead>
<tr>
<th>Countries (Economic upgraders)</th>
<th>Growth (%) market share</th>
<th>Growth (%) unit value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bangladesh</td>
<td>276.04</td>
<td>47.32</td>
</tr>
<tr>
<td>Chile</td>
<td>23.06</td>
<td>53.87</td>
</tr>
<tr>
<td>Ecuador</td>
<td>13.59</td>
<td>149.99</td>
</tr>
<tr>
<td>Ethiopia</td>
<td>656.11</td>
<td>55.28</td>
</tr>
<tr>
<td>Kenya</td>
<td>228.39</td>
<td>113.44</td>
</tr>
<tr>
<td>Uganda</td>
<td>7835.39</td>
<td>7529.47</td>
</tr>
</tbody>
</table>

| Economic downgrades           |                         |                      |
| Thailand                      | -39.93                  | -24.52               |

| Intermediate downgrades       |                         |                      |
| Belize                        | 2148.48                 | -42.66               |
| Brazil                        | 71.08                   | -29.25               |
| Colombia                      | 7.45                    | -26.76               |
| Costa Rica                    | 15.66                   | -24.02               |
| El Salvador                   | -24.95                  | 86.14                |
| Guatemala                     | 48.59                   | -40.19               |
| Honduras                      | -53.40                  | 5.21                 |
| Mexico                        | 42.97                   | -30.90               |
| Nicaragua                     | -2.26                   | 93.29                |
| Panama                        | -70.03                  | 20.26                |
| Tanzania                      | 5.39                    | -82.90               |
| Vietnam                       | 549.93                  | -75.09               |

Source: Bernhardt and Milberg, 2011 “Capturing the Gains: Economic and Social Upgrading in Global Production Networks and Trade”, funded by the UK DFID and the Brooks World Poverty Institute at the University of Manchester.- working paper 6

As shown in the table 3.5 six countries out of the population experienced economic upgrading in the global horticulture sector between 1990 and 2009. Uganda seems to be the most salient and successful after being at a very low level in the early 1990s but increasing its production 78 times in 2009 and export values have increased over six times in the last 20 years (Bernhardt and Milberg, 2011) Ethiopia and Kenya are also singled out as exceptionally high performers and more than doubled per unit value, and increasing their market shares more than seven-fold and three-fold, respectively Bernhardt and Milberg, 2011. Between 1990 and 2009 Chile and Ecuador were the only economic upgraders with an increase of export unit values of approximately 150 per cent within this period. The same can be claimed in economies such as Brazil, Mexico and Nicaragua. Thailand lost almost 40 per cent of its market share but is beginning to recover from the decline and has since
gained about 10 per cent since 2000. On the contrary, Bangladesh and Vietnam experienced economic upgrading in the horticulture sector.

3.3.2 Global governance
Standards are applied to meet the qualitative aspect of demand from importers, especially from the European Union. For instance, the European market has revised its requirements on maximum residue levels under EUROP GAP posing challenges especially to small suppliers. Therefore it is highly unlikely that small suppliers can continue to participate in global horticulture value chains that are also linked to the growth of the sector. The emergence of global horticulture value chains also requires adherence to standards and high quality requirements on traceability that require relatively high fixed costs, making it difficult for small suppliers holders to participate in these markets. For instance, GLOBALGAP is a voluntary 'pre-farm gate' standard that applies to processes used to plant and harvest horticultural produce and has been adopted by many leading global supermarkets retail chains in the European Union. Various process controls that are verified through record-keeping and auditing must be established to ensure compliance which requires substantial financial resources (Asfaw et al., 2010; Mithöfer et al., 2006). The supplier must have in place a Quality Management System (QMS) including documentation on traceability, quality control and internal audit (Carey and Lawson, 2011). Non-compliance has resulted in the exclusion or subordination of small to medium size suppliers into lower value high-risk segments of horticulture value chains resulting in the loss of income (Gibbon and Ponte, 2005; Dolan and Humphrey, 2004; Thrupp, 1995; Hamilton and Sullivan, 2001). It is estimated that, in 2005, non-compliance with standards resulted in lost revenues of over US$400 million in Kenya.

Governance is imposed by global buyers to monitor and control activities to ensure compliance with high standards and quality requirements for horticultural produce. The process also results in the transfer of risks to less powerful suppliers while at the same time creating opportunities for upgrading (Dinham, 2003). There are five types of governance namely: markets, modular, relational, hierarchical and captive. The type of governance imposed depends on the complexity of information and supplier capabilities (Gereffi et al., 2005; Özatagan, 2011). For instance, market governance is imposed when information required for a given transaction is easy to codify and where suppliers have the skills and capabilities. When modular governance is imposed, suppliers are made responsible for technological innovation. Because this form requires limited monitoring and coordination suppliers must be highly skilled. Similarly, relational governance tends to rely on reputation, trust and mutual dependence. Because trust and mutual dependence take time to develop, relational governance is imposed under the circumstances of repeated interaction which in the case of SSA is only possible among large suppliers. Captive governance is imposed when
suppliers have limited capabilities to enable the delivery of standard supplies. This form of governance is common in SSA due to the lack of capabilities among suppliers, especially the small to medium ones. With regards to hierarchical governance the modulus operandi is simply to exert control on all aspects of the value chain. This form of governance is usually combined with captive governance to monitor and control activities in value chains where transactions are complex, but suppliers do not have the skills and capabilities to codify information.

### 3.3.3 Market structure of global horticulture value chains

The structure of global horticulture value chains is described as oligopsony dominated by a few buyers and many suppliers (Swinnen, 2004). Most of the buyers are large supermarkets, hotel chains or airlines that purchase fresh produce in large quantities and dominate the European market for fruits and vegetables dictate the terms and conditions of participation in value chains through the imposition of standards and high quality requirements (Humphrey, 2005; Reardon & Berdegue, 2006). The banana value chain is dominated by three multi-national buyers (Dole, Del Monte and Chiquita) and account for around 58% of global banana exports. Similarly, the top 10 supermarket chains dominate about 70 percent of the market for fresh produce. Less than 20% of horticultural produce is sourced from small and medium size suppliers (Vander Stichele et al., 2005; Minot and Ngigi, 2004). Table 3.6 illustrates the market shares of the top 10 supermarket retail chains in Europe in 2009. Carrefour and Metro are the two largest supermarket chains with annual turnover estimated at €102.6 billion and €73.5 billion respectively (Reportlinker.com/horticulture, 2009). An illustration of the extent of concentration is provided in box 1. Non-compliance would result in the exclusion of local suppliers (Barrientos et al., 2003; Dolan & Humphrey, 2004; Henson & Humphrey, 2009; Jaffee & Masakure, 2005; Lee et al., 2010; Reardon et al., 2009).
Table 3.6: Top 10 Food retailers in Europe (billions of euros 2009)

<table>
<thead>
<tr>
<th>Group</th>
<th>Turnover</th>
<th>Market Share %</th>
<th>Origin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carrefour</td>
<td>102.6</td>
<td>16.1</td>
<td>FRANCE</td>
</tr>
<tr>
<td>Metro</td>
<td>73.2</td>
<td>13.0</td>
<td>GERMANY</td>
</tr>
<tr>
<td>Schwarz Group</td>
<td>54.0</td>
<td>11.1</td>
<td>GERMANY</td>
</tr>
<tr>
<td>Tesco</td>
<td>52.3</td>
<td>10.7</td>
<td>UK</td>
</tr>
<tr>
<td>Total</td>
<td>50.0</td>
<td>10.3</td>
<td>GERMANY</td>
</tr>
<tr>
<td>Aldi GMBH</td>
<td>47.0</td>
<td>9.6</td>
<td>GERMANY</td>
</tr>
<tr>
<td>Edeka</td>
<td>43.0</td>
<td>8.8</td>
<td>GERMANY</td>
</tr>
<tr>
<td>Auchan</td>
<td>40.0</td>
<td>8.2</td>
<td>FRANCE</td>
</tr>
<tr>
<td>ITM</td>
<td>33.0</td>
<td>6.8</td>
<td>FRANCE</td>
</tr>
<tr>
<td>Leclerc</td>
<td>26.7</td>
<td>5.5</td>
<td>FRANCE</td>
</tr>
<tr>
<td>TOTAL TOP 10</td>
<td>487.80</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Source: Reportlinker.com/horticulture 2009

Box 1: Examples of concentration

Concentration Ratio is used by economists to describe the level of concentration in a market. The concentration ratio is the market share of the top 4, 8, or 20 firms in an industry by sales. Often used to examine the market share of the top four firms, it is commonly referred to as the CR4 but is not recognised on its own as evidence of an adverse impact of concentration (Baumol and Blinder, 2006). When the CR4 ratio is 20% a market is considered concentrated, 40% highly concentrated, and when the proportion reaches 60% it is considered likely that firms exercise market power. Currently, the CR4 for supermarket retailers is 50.9%. The top 4 supermarket retailers in Europe control more than 60% of fruit and vegetables sales. When the level of concentration is assessed by the share of total sales, the concentration ratio (CR4) is about 50.9%.

<table>
<thead>
<tr>
<th>Top Four supermarket retail chains in Europe (CR4) 2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retailer</td>
</tr>
<tr>
<td>Carrefour</td>
</tr>
<tr>
<td>Metro</td>
</tr>
</tbody>
</table>
### Top Four supermarket retail chains: Market share and HHI – 2009

<table>
<thead>
<tr>
<th>Retail Chain</th>
<th>Market Share</th>
<th>HHI (MS Squared)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carrefour</td>
<td>16.1</td>
<td>259.21</td>
</tr>
<tr>
<td>Metro</td>
<td>13.0</td>
<td>169</td>
</tr>
<tr>
<td>Schwarz Group</td>
<td>11.1</td>
<td>123.21</td>
</tr>
<tr>
<td>Tesco</td>
<td>10.7</td>
<td>114.49</td>
</tr>
<tr>
<td><strong>HHI Top 4 retailers</strong></td>
<td><strong>50.9</strong></td>
<td><strong>665.91</strong></td>
</tr>
</tbody>
</table>

The HHI for the horticulture sector was about 1,000 in 2008. Obtaining all the information necessary to calculate this measure is not easy because although the supermarkets are publicly listed, most of the market information is not readily available.


The level of concentration is 50.9% and the HHI is 665.91 which are considered medium to high although the relationships between participants could be more complex and most likely not captured in this model. However, the concept is able to demonstrate that concentration in horticulture value chains has contributed to the reduction of supplier bargaining power implying that there are fewer opportunities to negotiate the terms of a contract even in cases where they are not favorable (Zheng and Vukina, 2009). Due to the perishable nature of horticulture produce small to medium size suppliers are especially vulnerable to the pricing and demand driven characteristics of horticulture value chains. This situation is particularly challenging for small to medium size suppliers who do not have the resources to invest in expensive storage facilities or engage in semi processing to add value to produce. Opportunism and uncertainty in terms of pricing and awarding of contracts where large global buyer could take advantage of supplier vulnerability and award very low prices or contracts with very low margins tend to be prevalent under such conditions. For example supermarket chains through large bulk purchases tend to lower prices and margins. Moreover, because only very large suppliers could potentially fulfill such large orders, this raises barriers to entry especially for small to
medium size suppliers (da Silva et al., 2009). This means that the small to medium size suppliers are excluded from large contracts resulting in the loss of incomes. The high dependence on a few global buyers for markets means that any change in price would result in a large fluctuation in supplier incomes and profits (Barrientos & Perrons, 1999; Barrientos and Kritzinger, 2004). There is also evidence that increasing concentration in European retail supermarkets is forcing small suppliers to merge to gain economies of scale especially with regards to compliance with standards and higher quality requirement. Some contracts also contain confidentiality clauses that prevent suppliers from sharing the terms and conditions with other suppliers which further reduce market transparency.

The demand for environmentally sustainable products has also led to a reduction in the demand for horticultural produce air freighted from SSA. Global retailers such as Marks and Spencer and Tesco label products that are air freighted from SSA with a logo or number indicating the total carbon footprint which sometimes discourages consumers from purchasing produce from SSA (Riungu, 2007). FPEAK and KFC have argued that a number of studies illustrate that horticultural produce air freighted from SSA actually has a lower carbon footprint because it is less energy intensive than produce from Europe. The ongoing food miles debate poses challenges which suppliers in Kenya are mitigating by exploring new market opportunities in the Middle East and the United States. The search for new markets is very much dependent on good infrastructure and institutions. Price transparency is especially important in an environment where horticultural produce is priced upon delivery at the warehouse. There are a number of databases but they are limited in scope and not updated on a regular basis. The lack of access to cheap financial resources, inadequate rural infrastructure and institutions and the absence of technological knowledge and transfer have also contributed to the under-development of the sector.

3.4 Agriculture – SSA
Agriculture is the most important economic activity in the SSA region where over 80 percent of the population is employed. The sector contributes approximately 30% to GDP but productivity remain considerably low (Gabre-Madhin and Haggblade, 2004; Staatz & Dembélé, 2007; World Bank, 2008). Low investments in agriculture research, inefficient use of land resources, low quality soil caused by over-farming and/or erosion meant that the average agriculture productivity rate in the SSA region was only 0.85% as compared to the global average of 2.5 percent (USAID, 2005; World Bank, 2005; Cervantes and Brooks, 2008; GHI, 2011). Institutions such as USAID supported by AVRDC are some of the main contributors to agriculture research in the SSA region (Wienberger and Lumpkin, 2007). The Consultative Group on International Agricultural Research (CGIAR) has expressed interest in horticulture research in the SSA region but there must be infrastructure, institutions, and technology for the region to benefit from this initiative (Wienberger and Lumpkin, 2007). China, India, and Brazil have also expressed interest in investing in the sector and some suppliers have since benefited
from subsidized equipment in sugar and tea production in Mali (Pardey et al., 2005; Staatz & Dembélé, 2007; World Bank, 2008). The Brazilian agricultural research institutes Embrapa has cooperative ventures in Mozambique, Angola, and Nigeria has recently open a new office in Ghana (CGIAR, 2006, World bank, 2008; Staatz & Dembélé, 2007). Return on agricultural investment is also due to poor design, monitoring, weak agricultural infrastructure and inadequate working conditions of well-trained agricultural scientists in the SSA region (African Development bank et al., 2006; Independent Evaluation Group, 2007, World Bank, 2008; Staatz & Dembélé, 2007). The main countries in SSA that export horticultural produce are South Africa, Kenya, Cote d’Ivoire and Senegal to mention a few. The EU market is the only accessible market to suppliers from SSA where more than 95% of horticultural produce is exported. Due to the lack of infrastructure, it has not been feasible to explore regional and/or alternative markets in the region and beyond (Labaste, 2005; Dembele and Staatz, 2008.

3.4.1 Agriculture – Kenya
Kenya is situated in the North Eastern part of Sub-Saharan Africa (SSA) (figure 3.3). The Agriculture sector in Kenya contributes approximately 26 percent to (Gross Domestic Product) GDP (Africa Economic Outlook (AEO), 2011). The sector contributes to the generation of employment in the rural and urban areas. The main products from the agriculture sector in Kenya include maize, beans, potatoes and tea (Africa Economic Outlook (AEO), 2011; FAOSAT, 2008). Horticultural exports increased by 5.7% in 2010 (Africa Economic Outlook (AEO), 2011).

Figure 3.5: Map of Kenya
3.4.2 Agriculture research activities in Kenya

According to the agricultural science and technology indicators (ASTI) investment in agricultural
R&D has varied considerably (Lall and Pietrobelli, 2005); (Flaherty et al., 2010). In 2008, the sector employed 1,011 full-time research staff lower than in previous years to improve efficiency (Beintema et al., 2006). The main agriculture research institute is the Kenya Agriculture Research Institute (KARI) (Lall and Pietrobelli, 2005) (Flaherty et al., 2010) Other government research agencies include the Kenya Forestry Research Institute (KEFRI), the Kenya Marine and Fisheries Research Institute (KMFRI), the Kenya Institute for Public Policy Research and Analysis (KIPPRA), and the Kenya Sugar Research Foundation (KESREF) (Flaherty et al., 2010). KESREF relies mainly on sugar levies for funding (Flaherty et al., 2010). With the exception of the government, the World Bank and the European Union are the main sources of funding for agriculture research in Kenya (World Bank, 2009). The government has established a national research fund where proposals are accessed for funding purposes (Lall and Pietrobelli, 2005; Flaherty et al., 2010). The government also supports university research and which accounted for almost 25% of research in 2008; (Flaherty et al., 2010). New agriculture institutions have established by the government to support research activities (Flaherty et al., 2010). Other contributors that tend to fund some university research include donors, and the Council for Scientific and Industrial Research (Flaherty et al., 2010), Flaherty et al., 2010). There is continuous collaboration with regional and international agencies but the participation of the private sector in agriculture R&D is limited (Flaherty et al., 2010).

3.4.3 Global Horticulture value chains – Kenya
Kenya is the second largest exporter of horticulture produce to the European Union contributing about 33% to GDP and generating about 70 percent of employment (K'Aol & Wambalaba, 2011) (McCulloch and Ota, 2002; Weinberger and Lumpkin, 2007; Gioe, 2006). The sector contributes approximately US$1 billion to gross domestic product (GDP) which represents 21% of export revenue for the entire economy (Kenya National Bureau of Statistics, 2009; UN Comtrade, 2011; Fernandez-Stark et al., 2011). Floriculture is currently the fastest growing and second highest source of foreign exchange (DFID, 2007). Over the last several years horticulture production has increased at an average rate of between 15% and 20% each year. An overview of horticulture exports by

Table 3.6 – Export Analysis – 2008-2010
<table>
<thead>
<tr>
<th>Commodity</th>
<th>2008 Kg</th>
<th>2008 Value (US$)</th>
<th>2009 Kg</th>
<th>2009 Value (US$)</th>
<th>2010 Kg</th>
<th>2010 Value (US$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fresh Vegetables</td>
<td>78,157,022</td>
<td>251,152,253</td>
<td>73,872,358</td>
<td>214,734,740</td>
<td>123,813,087</td>
<td>267,707,023</td>
</tr>
<tr>
<td>Processed Vegetables</td>
<td>24,056,365</td>
<td>62,824,570</td>
<td>14,442,302</td>
<td>24,789,312</td>
<td>35,633,456</td>
<td>114,829,343</td>
</tr>
<tr>
<td>Dried Vegetables</td>
<td>17,090,863</td>
<td>13,037,700</td>
<td>4,169,053</td>
<td>3,007,097</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Other Vegetables</td>
<td>6,290,137</td>
<td>78,397,021</td>
<td>6,652,819</td>
<td>69,224,400</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Spices</td>
<td>4,182,433</td>
<td>8,496,920</td>
<td>4,974,646</td>
<td>9,056,481</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total Vegetables</td>
<td>129,776,820</td>
<td>413,908,464</td>
<td>104,111,178</td>
<td>320,812,030</td>
<td>159,446,543</td>
<td>382,536,366</td>
</tr>
<tr>
<td>Fresh Fruits</td>
<td>25,053,946</td>
<td>25,052,559</td>
<td>35,266,454</td>
<td>29,776,307</td>
<td>29,501,074</td>
<td>34,864,187</td>
</tr>
<tr>
<td>Nuts</td>
<td>29,463,369</td>
<td>16,371,501</td>
<td>27,410,997</td>
<td>15,988,585</td>
<td>11,827,980</td>
<td>24,968,952</td>
</tr>
<tr>
<td>Processed Fruits</td>
<td>121,208,724</td>
<td>96,398,496</td>
<td>73,290,517</td>
<td>65,069,129</td>
<td>79,029,278</td>
<td>84,536,386</td>
</tr>
<tr>
<td>Total Fruits</td>
<td>174,726,039</td>
<td>137,822,556</td>
<td>135,967,968</td>
<td>90,834,021</td>
<td>123,358,332</td>
<td>144,369,525</td>
</tr>
<tr>
<td>Grand Totals</td>
<td>423,129,503</td>
<td>1,031,813,922</td>
<td>360,474,114</td>
<td>895,492,519</td>
<td>403,025,721</td>
<td>971,374,107</td>
</tr>
</tbody>
</table>


volume and value is presented in (table 3.6).

In Kenya’s horticultural exports was estimated to be approximately $ 971 million in foreign exchange) representing an increase of 7.7% as compared to 2009. Major vegetables exported were Asian Vegetables (55%), French beans (25%), carrot and turnips (5%), peas (4%) and others (7%) as beans the second largest vegetable exported from Kenya was destined for United Kingdom (59%), France (20%), Germany (7%), Netherlands (7%), Belgium (3%) and countries like Bahrain, Norway, Canada, China, Georgia, France among others (4%). The Asian vegetables were destined for United Kingdom (69%), Netherlands (14%), Belgium (3%), United Arabs Emirates (3%), South Africa (2%) and other countries (9%) like Uganda, Sudan, Somalia, Sweden, United States of America, China, Iran and Israel among others. Major fruits trading at the export market were avocados (62%), mangoes (26%), passion fruits (8%) and others (4%) (K’Aol & Wambalaba, 2011; Horticulture Crops Production Report, 2010, Kenya). The main export destination for cut flowers are the Netherlands (65%), UK (25%), Germany (7%) and France (2%) and demand is increasing at 4% per annum (Hale and Opondo, 2005; Horticulture Crops Production Report, Kenya, 2010.). The expansion and success of the sector is attributed to the favorable climate that supports all year-round production, the availability of agricultural land, cheap labour and foreign direct investment from the private sector (Bolo, 2006; English et al., 2004). Synergy with the tourism sector has further contributed to the increase in demand for horticultural produce from domestic hotels, restaurants, supermarkets, and in-flight catering by demanding “ready to eat” repacked fruits and vegetables (Gioe, 2006; Fresh Produce Exporters Association of Kenya, 2010). Early development of the sector driven by foreign direct investment availed Kenya with an important source of competitive advantage in creating an experienced workforce in horticulture (English et al., 2003).

Figure 3.4 - An overview of the Kenyan global horticulture value
3.4.4 Agriculture - Ghana

Ghana is located on the West coast of Sub-Saharan Africa. The agriculture sector contributes about one third to the economy, employs more than half of the labor force and contributes almost 50% to GDP (Africa Economic Outlook (AEO), 2011; Bertow and Schultheis, 2007). In 2010, agriculture productivity was recorded at 4.8% as compared to 6.1% in the previous year (African Economic Outlook (AEO), 2011). Although agriculture productivity in Ghana has improved, it is still considerably low similar to levels in SSA region due to poor infrastructure and the lack of research and development in the sector.

Figure 3.8. Map of Ghana
The main agriculture food crops are cassava, yam, maize, rice, sorghum, millet, cowpea and groundnuts (table 3.7). Productivity is low due to low quality of soil caused by over-farming and the limited use of fertilizer (Dixe, 2005).

Table 3.7 Agriculture commodities (Ghana) – 2008

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Production (Int $1000)</th>
<th>Production (MT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yams</td>
<td>987731</td>
<td>4894850</td>
</tr>
<tr>
<td>Cassava</td>
<td>817960</td>
<td>11351100</td>
</tr>
<tr>
<td>Plantains</td>
<td>740333</td>
<td>3337690</td>
</tr>
<tr>
<td>Cocoa beans</td>
<td>539126</td>
<td>729000</td>
</tr>
<tr>
<td>Chillies and peppers, dry</td>
<td>240583</td>
<td>93641</td>
</tr>
<tr>
<td>Groundnuts, with shell</td>
<td>214162</td>
<td>470100</td>
</tr>
<tr>
<td>Taro (cocoyam)</td>
<td>173931</td>
<td>1688330</td>
</tr>
<tr>
<td>Maize</td>
<td>155876</td>
<td>1470080</td>
</tr>
<tr>
<td>Game meat</td>
<td>104803</td>
<td>64951</td>
</tr>
<tr>
<td>Chillies and peppers, green</td>
<td>96280</td>
<td>282194</td>
</tr>
<tr>
<td>Oranges</td>
<td>84355</td>
<td>495428</td>
</tr>
<tr>
<td>Rice, paddy</td>
<td>62409</td>
<td>301920</td>
</tr>
<tr>
<td>Indigenous Chicken Meat</td>
<td>46151</td>
<td>42334</td>
</tr>
<tr>
<td>Okra</td>
<td>44585</td>
<td>89731</td>
</tr>
<tr>
<td>Tomatoes</td>
<td>42647</td>
<td>238913</td>
</tr>
<tr>
<td>Sorghum</td>
<td>40046</td>
<td>330950</td>
</tr>
<tr>
<td>Palm oil</td>
<td>38753</td>
<td>128000</td>
</tr>
<tr>
<td>Indigenous Cattle Meat</td>
<td>33091</td>
<td>22235</td>
</tr>
<tr>
<td>Millet</td>
<td>32733</td>
<td>193840</td>
</tr>
<tr>
<td>Coconuts</td>
<td>28579</td>
<td>316300</td>
</tr>
</tbody>
</table>

Source: FAOSTAT, 2008

Figure 3.9 Value of agricultural products
3.4.5 Agriculture research activities in Ghana

Agriculture research investments in Ghana are one of the highest in West Africa. The Council for Scientific and Industrial Research (CSIR) is the main government research institution (Pardey et al., 2005). It comprises 13 research agencies, nine of which conduct agriculture-related research and employs a total number of 537 full-time staff (Flaherty et al., 2010). Given its importance the government has increased investment in line with the national development agenda by providing incentives to support the fostering of research-supplier linkages and involvement in agriculture research (Essegbey, 2009). The largest agricultural research education institute is the College of Agriculture and Consumer Sciences at the University of Ghana (Flaherty et al., 2010). Such institutes have gained prominence in recent years but linkages with the private sector and suppliers are limited. Similar to Kenya, agriculture research is mainly funded by the government and the World Bank provide that in addition provide loans to fund agriculture infrastructure, training and institutional management (World Bank 2007). According to a report published by the Ministry of Food and Agriculture (MOFA) in Ghana, the World Bank has contributed to the Agric development policy operation to support policy and institutional reform that will support the development and adaptation of technology (MOFA, report, 2012). Other donors include the Faculty for Development and Research Fund (FARF), the Ghana Education Trust Fund (GET Fund) and Agriculture development bank. The concept of demand driven research has been introduced but its impact is limited as the sector faces a number of challenges such as the lack of knowledge, technology and private sector investment in the commercialization of R&D (Essegbey, 2009, Flaherty et al., 2010; ). Private firms have limited collaboration with research programmes and
minimum involvement in agricultural R&D. However, this is to be encouraged to foster innovation and upgrading especially in horticulture value chains (Essegbey, 2009).

### 3.4.6 Horticulture value chains - Ghana

Ghana is the fourth largest supplier of horticulture produce to the EU. There is increased demand for horticulture produce from Ghana but the sector is plagued by capacity constraints caused by long term underinvestment in the sector. Horticultural produce exported include pineapples, mango, papaya, and chilies (Danielou and Ravry, 2005; Jaeger, 2008). The export of pineapples that dominates the sector is to a large extent driven by small local suppliers who supply an estimated 45% of produce (Goldstein and Udry, 1999; Jensen, 2005). The shift in favour of MD2 pineapples and EUREP GAP certification affected production because the new variety required compliance with higher standards that small suppliers could not adhere to due to the lack of investment in upgrading Goldstein and Udry, 1999; Jensen, 2005). Subsequently, in 2007, pineapple exports reduced from 44,000 tonnes in 2003 to 35,000 tonnes (table 3.8).

<table>
<thead>
<tr>
<th>EU Vegetable Imports</th>
<th>2001 Tonnes</th>
<th>2007 Tonnes</th>
<th>2001 C&amp;F Value (Euros)</th>
<th>2007 C&amp;F Value (Euros)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capsicums (Chillis)</td>
<td>418</td>
<td>2,947</td>
<td>732,980</td>
<td>5,835,875</td>
</tr>
<tr>
<td>Other vegetables</td>
<td>6,511</td>
<td>2,565</td>
<td>9,740,472</td>
<td>4,140,256</td>
</tr>
</tbody>
</table>

Table 3.8 Comparison of Ghana’s horticultural exports to Europe, 2001 and 2007
Baby Corn 1 8 6,955 9,283
Ravaya 97 174 119,080 357,125
Yams 7,756 11,048 5,242,715 5,372,009
Casava 117 2,076 83,294 1,388,888
Sweet Potatoes 51 26 33,962 26,891
Total 15,959,458 17,130,327

EU Fruit Imports

<table>
<thead>
<tr>
<th>Fruit</th>
<th>2001 Tonnes</th>
<th>2007 Tonnes</th>
<th>2001 C&amp;F Value (Euros)</th>
<th>2007 C&amp;F Value (Euros)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bananas</td>
<td>3,458</td>
<td>33,404</td>
<td>2,897,132</td>
<td>20,304,496</td>
</tr>
<tr>
<td>Pineapples</td>
<td>33,209</td>
<td>35,463</td>
<td>30,651,756</td>
<td>37,553,172</td>
</tr>
<tr>
<td>Papaya</td>
<td>1,937</td>
<td>1,042</td>
<td>2,272,874</td>
<td>1,910,112</td>
</tr>
<tr>
<td>Mangoes, guavas etc</td>
<td>62</td>
<td>983</td>
<td>107,291</td>
<td>2,802,090</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>35,929,053</td>
<td>62,569,870</td>
</tr>
</tbody>
</table>

Source: Accord Associates LLP based on Eurostat data taken from World Bank Sustainable Development Network (WB-SDN), Africa Region, Agriculture and Rural Development (AFTAR), The Republic of Ghana Ministry of Food and Agriculture, and European Union All ACP Agricultural Commodities Programme (EU-AAACP), Accord Associates LLP (Jaeger, P., 2008)

Figure 3.10 Global horticulture value chains - Ghana
Global horticulture value chains in Ghana are dominated by quasi-hierarchical governance due to low supplier skills and capabilities. Non-compliance is reportedly high due to the lack of investment in systems and processes that are required to process complex information on standards and high quality requirements. Moreover, supplier linkages with universities and research institutions are considered weak due to the large number of participants that are either illiterate or not as educated as the workforce in competitor countries. Highly educated horticultural work is critical for the adaptation of knowledge on seeds and crops. While some progress on education has occurred in recent years, the quality of education, in particular adult literacy programmes to help farmers and suppliers understand and use knowledge transfer and absorb new methods of agriculture remain unaddressed. Local suppliers also have limited links with NGOs and trade associations that disseminate information on the development of the sector. The websites of most local suppliers, associations and government agencies are not updated on a regular basis. Small suppliers dominate the pineapple export market, but they are not able to cope with increasing demand from expanding European markets due to compliance with standards. However the processing of fresh produce has increased where the private sector has made substantial investments in systems and processes (Jaeger, P. 2008). Ghana also supplies to supermarkets such as Tescos and Marks and Spencer who participate in fair trade are making good progress in this niche market.

3.5 **Institutions that support global horticulture value chain activities**

Institutional arrangements such as collective action, NGOs, and producer organizations viewed are instrumental in reducing transaction costs and strengthening the bargaining power of suppliers are missing (World Bank, 2008). The legal institutions are not very effective due to limited confidence in the legal system. Value chain participants are under the impression that the courts are not transparent, and could further be subject to political interference or corrupt practices.

3.5.1 **Global Institutions**

The World Bank (WB), United Nations Conference on Trade and Development (UNCTAD), the Food and Agriculture Organization (FAO), World Trade Organization (WTO), World Intellectual Property Organization (WIPO) and the International Labour Organization (ILO) are examples of global institutions that directly support initiatives such as horticulture value chains with a view to addressing poverty. One of the major objectives of the WB is to devise policies that would contribute to poverty reduction and support sustainable economic development through the provision of loans, policy advice and technical assistance. UNCTAD is mandated to promote the integration of developing and poor countries into the global economy through the provision of research, policy and technical
assistance to member states. FAO is mandated to improve agricultural productivity leading to poverty alleviation and economic development. The WTO is responsible for the global rules on trade between countries to ensure the smooth functioning and flow of goods and services. It provides a legal, institutional framework and forum for the implementation and monitoring of trade agreements on disputes. WIPO is an agency of the United Nations mandated to monitor the use of intellectual property (patents, copyrights, trademarks and design) to encourage innovation. Intellectual property rights (IPRs) are rights given over intangible creations of the mind that subsequently exclude others from using or copying such creation, for a certain period of time. Such IPRs include patents, copyrights and trademarks. Patents have the highest impact on value chain because the TRIPS agreement does not set any limits on patenting. Governments are extending patent rights with the aim of creating incentives to encourage more research and innovation particularly in biotechnology (Staatz and Dembélé, 2008). However patent rights have only acted as a means through which global buyers protect and recoup investments in R&D. For instance, the monopoly control over seeds is a challenge and is an area where suppliers have found it difficult to penetrate the market as the first entry point of horticulture value chains. The introduction of new multilateral IPR agreements is setting new global standards which are further eroding the flexibility required for developing countries to establish IPR systems commensurate with their level of development. IPR regimes are intended to provide incentives for innovation to promote ideas and information in society but large global buyers are using this advantage for competition purposes to make more profits (Tansey & Rajotte, 2008, Nooteboom et al., 2007). Global buyers also use regional and bilateral trade agreements to establish effective property rights regimes to their advantage while increasing the cost of access to technology (World Bank, 2009). The ILO is mandated to promote internationally recognized human and social rights that support a good working conditions leading to prosperity and development.

### 3.5.2 Institutions in Ghana

The National Horticultural Task Force (NHTF) was established in 2003 and provides information on business opportunities, regulations, markets and technology. The NHTF has been instrumental in promoting the National Quality Assurance Scheme leading to the definition of the Ghana GAP standard. The Federation of Associations of Ghanaian Exporters (FAGE) acts as an umbrella group for the various trade associations and continues as the private sector institution for export development. The VEPEAG - the Vegetable Producers and Exporters Association of Ghana - was formed in 1997. This has formed a marketing company and now exports as a single group similar to a cooperative. GAVEX - the Ghana Association of Vegetable Exporters - formed in 2006 mostly represents the larger exporters. This association looks for support for its members in obtaining Global GAP and other standards (Jaeger, 2008). Mango producers have created three organizations since
2003. Two are regional farmers’ associations; Yilo-Krobo Mango Farmers’ Association (YKMFA) and Dangme-West Mango Farmers’ Association (DAMFA) while one is national, the Papaya and Mango Producers’ and Exporters Association of Ghana (PAMPEAG) formed in 2003 (USAID, 2005). The growers’ associations have focused on achieving EUREP GAP for all members (Jaeger, 2008). Contrary to the situation in Kenya, the fragmentation of institutions poses a major challenge for the development of the sector, which contributed to the slow shift to the MD2 variety of pineapples. The slow response to consumer led to a loss in market share to Central America (Zahra et al., 2000). Similar circumstances have plagued the papaya market with the introduction of the Golden Papaya variety.

3.5.3 Institutions in Kenya

The institutional frameworks that support participation in global horticulture value chains include the Horticultural Crops Development Authority (HCDA) and the Fresh Produce Exporters Association (FPEAK). In addition, the Kenya Plant Health Inspectorate Service (KEPHIS) ensures that regulations and compliance with standards as per EU approval (EC) No 431/2006 of 15 March 2006 are adhered to by suppliers (Mwangi, 2011, Kenya, 2010-2020.; HCDA, 2006). Suppliers require approval certification to EU markets and a number of suppliers are ISO certified or comply with Kenya GAP and in 2009 Kenya became a member of the OECD Fresh fruits and Vegetable (FFV) scheme (Mwangi, 2011). All local suppliers that participate in global horticulture value chains must register with the HCDA. For instance, EU Regulation 1148/2001 Article 7 recognizes conformance checks and certification by approved third countries that currently includes Kenya, Morocco, South Africa, Senegal, India, New Zealand, Turkey (Mwangi, 2011). The Kenyan Agriculture Research Institute (KARI) is a government institution that undertakes research on crop and livestock production and transfers knowledge to local suppliers in the form of seminars (Oloo, 2010). The Seed Trade Association of Kenya (STAK) represents the seed industry in Kenya. The seed industry is crucial because it is the first entry point in value chains for suppliers. Large global seed companies such as Syngenta and Monsanto have been developing varieties for horticultural products. Horticultural institutions in Kenya are well organized and effective in providing support to local suppliers in a number of areas and this has contributed to the success of the sector. NGOs such as Econ News Africa, Action Aid and Biotechnology Trust Africa are also active in the Kenyan horticulture sector.

Producer and exporter associations such as Fresh Produce Exporters Association of Kenya (FPEAK) and Kenya Flower Council (KFC) are examples of support institutions that represent the interests of local suppliers in Kenya. KFC in collaboration with other regional associations forms a key source of knowledge transfer on the three quality certifications (silver, gold
and platinum) which are benchmarked to European Market standards (Disdier et al., 2008). FPEAK facilitated the establishment of the Kenya GAP, which has recently been accepted as a standard for EU markets. The association also contributes to the dissemination of reliable market data, and promotes industry standards, training and technical assistance to its members (Minot and Ngigi, 2004). The Kenya Institute of Organic Farming offers extension services to small local suppliers and assists them in decontaminating their land to support organic crops. Horticultural suppliers have continued to diversify and upgrade in response to market demand into the niche market of organic certification (GFP, 2008). As a result, small local suppliers are regaining a presence in global horticulture value chains.

The intellectual property rights (IPR) regime in Kenya is developing, but well established. It is administered by the Kenya Industrial Property Institute (KIPI). IPRs covered include the Industrial Property Act 2001 that includes patents, trademarks, service marks, industrial designs and utility models. Copyright is administered by the Copyright Board of Kenya under the Copyright Act 2001 of Kenya. The Kenya Plant Health Inspectorate Services (KEPHIS) is responsible for administering the Seed and Plant Varieties Act and the National Council for Science and Technology is charged with the responsibility of granting research licenses for research in Kenya, including IPRs. The Kenya Forest Research Institute (KEFRI) is engaged in intellectual property activities but faces constraints due to the absence of intellectual property regimes regarding ownership of knowledge. It is also quite expensive and takes a considerable amount of time if one decides to enforce the terms and conditions of a contract using the legal system. As discussed above, Kenya does have a reasonably developed framework regarding intellectual property, but enforcement mechanisms are weak. This could be the reason why global buyers only source produce that requires low technology because they are not sure if their intellectual property can be duly protected under weak legal regimes. The IPR regimes are not optimal, and must be strengthened in Kenya. There is generally a lack of sufficient resources in the judiciary, including knowledge and information on intellectual property laws. The cost of litigation and the length of time it takes to decide on infringement cases are lengthy and expensive. Fragmentation of institutions is a major challenge for the development of the horticulture sector in Ghana. Poor roads, inadequate cooling facilities, and the lack of a universal working power grid limit interaction in global horticulture value chains. Institutional arrangements such as collective action, NGOs, and producer organizations viewed as instrumental to reducing transaction costs and strengthening the bargaining power of suppliers are also missing (World Bank, 2008). The lack of cold room facilities such as refrigerated storage on farms, trucks, airports and sea ports are important to maintain the quality of highly perishable products but are further constraining the development of the sector.
Enforcement costs can be high depending on the supplier. Small to medium size suppliers tend to attract higher enforcement costs due to non-compliance and, reportedly, uncertainties with the legal system where country specific norms are known to influence the outcome of legal proceedings. As a result disputes are often settled outside the legal framework to avoid the high costs and uncertain outcomes of litigation can contribute to higher risks reflected in transaction costs. The legal institutions are not very effective due to limited confidence in the legal system (Jenkins, 2005). Value chain participants are under the impression that the courts are not transparent, and could further be subject to political interference or corrupt practices. In a reported study on the horticulture value chains sector Malawi, Benin and Madagascar, recourse to legal institutions was not common due to lack of trust (Fafchamps, 2004). It is also quite expensive and takes a considerable amount of time if one decides to enforce the terms and conditions of a contract using the legal system. As discussed above, Kenya does have a reasonably developed framework regarding intellectual property, but enforcement mechanisms are weak. This could be the reason why global buyers only source produce that requires low technology because they are not sure if their intellectual property can be duly protected under weak legal regimes. The IPR regimes are not optimal, and must be strengthened in Kenya. There is generally a lack of sufficient resources in the judiciary, including knowledge and information on intellectual property laws. The cost of litigation and the length of time it takes to decide on infringement cases are lengthy and expensive. Institutional arrangements such as collective action, NGOs, and producer organizations that can reduce transaction costs are missing (World Bank, 2008). The government of Kenya in response to this with funding from European institutions including NGOs collaborated with private companies to promote compliance. Horticulture association such as FPEAK (the Fresh Produce Exporters Association of Kenya), KEPHIS (Kenya Plant Health Inspection Services) and KEBS (Kenya Bureau of Standards) were also involved in this process of conforming to public and private food standards imposed by UK and European Supermarkets. This was done through the establishment of technical working groups to work on establishing a domestic standard called KenyaGAP that is equivalent to EUREPGAP standard.

3.6 Infrastructure necessary for global horticulture value chain activity

Economic development has not occurred due to poor infrastructure, and inappropriate policy and regulatory frameworks (World Bank, 2005; Cervantes and Brooks, 2009). Most notably, rural infrastructure such as roads that are necessary for the transportation of produce to airports and ports are virtually non-existent. Schools, health centers and electrification have been set up or extended to where commercial horticultural farms have been set up by global buyers but it has not been enough to support commensurable amounts of development in rural locations. Economic
development emanating from the horticulture sector is very limited in Ghana. The lack of cold room facilities such as refrigerated storage on farms, trucks, airports and sea ports are important to maintain the quality of highly perishable products but are further constraining the development of the sector. Although Kenya is a major hub in East Africa, it suffers from significant infrastructure problems, and as a result, transportation costs amount to 40%-50% of the total cost of production. These high transaction costs make it difficult for local products to compete on global markets. The poor state of ICT infrastructure is also constraining the sector’s ability to disseminate market information on prices, quantities, qualities, standards, and requirements in a timely manner and this has further hindered transparency in the sector. Infrastructural gaps such as scarcity of cold storage and processing centres, well organized wholesale markets, and the lack of value added processing has further contributed to the under-development of the sector. Horticultural infrastructure such as good roads, electricity, airports, and sea ports that could facilitate investments in irrigation, refrigerated transport, cold storage, and communications technology also limits the development of the sector (Labaste, 2005). The lack of air cargo space and delays in shipments are cited as the most common reasons for failed horticultural transactions (OECD-FAO, 2007). Economic development has not occurred due to the lack of infrastructure which does not make rural locations attractive for investments. Poor roads, inadequate cooling facilities, and the lack of a universal working power grid limit interaction in global horticulture value chains. Small scale suppliers also lack the technologies and inputs, such as cold chains and refrigerated trucks that would preserve the freshness of produce. This is the result of the low upgrading environment that attracts arms-length or quasi-hierarchical governance that have limited opportunities for upgrading. Therefore suppliers are captive at the very low end of the chain supplying standard produce. The lack of a continuous cold chain also limits compliance with EUREP GAP certification, which results in reduced interaction and therefore lower incomes and profits for local suppliers (Voisard and Jaeger, 2003).

3.6.1 Infrastructure in Kenya
The quality of roads and ports is important for the transportation of horticulture produce. The road and ports infrastructure is not efficient and according to the 2011 African Economic outlook report on Kenya and there is still the need to improve infrastructure to increase capacity and productivity in the horticulture sector (African Economic outlook report, (AEO) 2011). In a similar vein, it is necessary to expand the airport capacity to support the gaps in the roads and ports sector (African Economic outlook (AEO) report, 2011). The supply of electricity that is necessary for horticulture cold chains logistics also remains inefficient (African Economic outlook report (AEO), 2011). Information and communication technology has improved but prices remain high which makes it not accessible to small suppliers (African Economic outlook report (AEO), 2011). The inefficient
infrastructure contributes to high transaction costs and the high prevalence of non-compliance with standards and high quality requirements that depends on the availability of efficient horticulture infrastructure.

### 3.6.2 Infrastructure in Ghana

The roads and port infrastructure is consistently under development in Ghana. This is because the project is capital intensive and therefore must be prioritized in accordance with the budget and available resources despite its importance. According to a recent published report in 2011 African Economic Outlook – Ghana highlighted that the poor condition of roads, ports and railways infrastructure increases transaction costs (African Economic Outlook, (AEO), 2011). The airport remains quite efficient with regards to handling airline passengers but horticulture facilities especially cooling chains remain non-existent and which have implications for compliance with standards and high quality requirement on horticulture produce. The development of infrastructure continues to be work-in-progress. The supply of energy has been increased through investments in thermal, solar and windmills (African Economic Outlook (AEO), 2011). The on-going West African Gas Pipeline and the Bui Hydroelectric Dam project has further improved capacity (African Economic Outlook (AEO, 2011). Information and communications technology is improving but delivery sometimes tends to be erratic resulting in overall high costs (AEO, 2011). The logistical capacities at airports have remained the same for some time resulting in an overall lack of capacity and which has an impact on the quality of fresh produce. This has contributed to the high rejection rates and the exclusion of a number of suppliers due to non-compliance with standards and high quality requirements.

### 3.7 Transaction costs associated with participation in global horticulture value chains

Transaction costs arise during the contact, contract and control phase of any transaction. Examples of transaction costs that could arise in global horticulture value chains include search costs, monitoring and control, negotiation and enforcement costs. Transaction costs are high in Ghana and further exacerbated by the rapid proliferation of standards which also lead to uncertainty (Hallam et al., 2004). Uncertainty during the contract phase generates additional costs, especially in cases where adherence to standards would require asset specific investments that tend to create additional transaction costs. Enforcement can result in substantial transaction costs where there are reportedly uncertainties regarding the legal system and country specific norms are known to influence the outcome of legal proceedings. As a result disputes are often settled outside the legal framework to avoid the high costs and uncertain outcome of litigation. This contributes to additional transaction costs in terms of risks as settlement out of court is not binding and could lead to repeated non-
compliance. There are also monitoring costs such as for audits and agents who perform on-the-spot random checks to ensure compliance with high quality. The costs of introducing GlobalGaP are substantial ranging from £100 per farm to £2,800 (Graffham et al., 2007). Costs for GlobalGap certification is about 30% of supplier income in cases where the global buyer contributed to external auditing, certification and training requirements (Asfaw et al., 2010). The higher the incidence of non-compliance in a specific location, the more random checks and the higher the transaction costs. Global buyers incur comparatively high search costs in Ghana. This is partly due to the fragmentation of horticultural institutions which does not allow the aggregate collection of information, the lack of Internet access and the non-existence of reliable databases. The influence of culture further impacts communication all of which attract additional costs. This is further exacerbated by the fact that most suppliers are not educated and therefore the quality of personnel employed in the sector is much lower than in Kenya where most of the personnel are highly trained in horticulture. This has been a competitive advantage in Kenya compared to competitor countries like Ghana. Similar to Kenya, enforcement and negotiation costs are also high due to the high incidence of non-compliance with standards and high quality requirements, and there are uncertainties with the legal system which contributes to risks and further contributes to transaction costs (Cayer and Minkler, 1998; Wolter, 2009).

Global buyers incur high search costs during the search for information on prospective suppliers in Kenya. This is due to the lack of high speed Internet access, and the existence of databases that are not updated frequently. Information on local suppliers is available from various sources but it is not of high quality and some of the sources cannot be trusted to have the updated information (Casson, 1997). In addition, cultural and language differences play a role in the complexity of accessing information. The human resources employed in Kenyan horticulture are educated but sometimes communication has to be done through an interpreter. The influence of culture further impacts communication, due to the different ways in which information is disseminated all of which attract additional costs. An empirical study supporting this premise discusses the role of co-ethnic business networks in solving information gaps (Rauch and Trindade, 2002). The study suggests that the sharing of knowledge and information on existing and future chain participants contributes to lower transaction costs. As the sharing of knowledge and information is limited, transaction costs remain high in Kenya. Enforcement costs can be high depending on the supplier. Small to medium size suppliers tend to attract higher enforcement costs due to non-compliance and, reportedly, uncertainties with the legal system where country specific norms are known to influence the outcome of legal proceedings. As a result disputes are often settled outside the legal framework to avoid the high costs and uncertain outcomes of litigation can contribute to higher risks reflected in transaction costs.
Trust is perceived as the extent to which suppliers and buyers comply with the rules of engagement with limited monitoring and control. In both economies non-compliance is quite prevalent especially amongst small supplier. Due to this buyers must inspect all produce and which generates high transaction costs. In the same breath, because fresh produce is priced at the warehouse after inspection, suppliers do not trust that they are given fair value. This is the case because there is no recognized pricing source for fresh produce. In addition they are delays in payment on the part of buyers so suppliers are often not sure when to expect payment of their invoices. All these factors do impact the extent of trust in these value chains. It seems to be an issue on both sides especially with small suppliers who form the critical mass of suppliers in this sector.

3.7.1 Transaction costs in Kenya
The market for export horticulture promises higher incomes but high transaction costs and the lack of necessary technological innovation reduces participation (Haakonsson, 2009). Participation in local and regional markets is also significantly reduced due to poor infrastructure, support institutions and weak regulatory frameworks (Reardon et al., 2003; Haakonsson, 2009). The global increase in demand for horticultural products and cheap labour in developing countries offer significant opportunities for income generation and poverty alleviation. The expansion in horticulture offers substantial economic, social, health and environmental benefits to small suppliers, the rural poor (especially women) and the environment. However this outcome depends on supplier performance, level of technical skill and expertise and market access (World Bank, 2009).

3.7.2 Transaction costs in Ghana
Global buyers incur comparatively high search costs in Ghana. This is partly due to the fragmentation of horticultural institutions which does not allow the aggregate collection of information, the lack of Internet access and the non-existence of reliable databases. Cultural differences and language differences also play a role in the complexity of collecting and accessing information. The influence of culture further impacts communication all of which attract additional costs. This is further exacerbated by the fact that most suppliers are not educated and therefore the quality of personnel employed in the sector is much lower than in Kenya where most of the personnel are highly trained in horticulture. This has been a competitive advantage in Kenya compared to competitor countries like Ghana. Similar to Kenya, enforcement and negotiation costs are also high due to the high incidence of non-compliance with standards and high quality requirements, and there are uncertainties with the legal system which contributes to risks and further contributes to transaction costs. The recent discovery of oil in Ghana also risks diverting attention again from the commercial potential of agriculture. There is potential to develop the agriculture
sector as income growth in many Asian countries may result in increased demand for horticultural produce. To take advantage of such opportunities, Ghana must increase agricultural productivity and support the local agro-industry to regain domestic market shares and expand interaction in global horticulture value chains.

Enforcement costs can be high depending on the supplier. Small to medium size suppliers tend to attract higher enforcement costs due to non-compliance and, reportedly, uncertainties with the legal system where country specific norms are known to influence the outcome of legal proceedings. As a result disputes are often settled outside the legal framework to avoid the high costs and uncertain outcomes of litigation can contribute to higher risks reflected in transaction costs. The legal institutions are not very effective due to limited confidence in the legal system (Jenkins, 2005). Value chain participants are under the impression that the courts are not transparent, and could further be subject to political interference or corrupt practices (Jenkins, 2005). In a reported study on the horticulture value chains sector Malawi, Benin and Madagascar, recourse to legal institutions was not common due to lack of trust (Fafchamps, 2004). It is also quite expensive and takes a considerable amount of time if one decides to enforce the terms and conditions of a contract using the legal system. As discussed above, Kenya does have a reasonably developed framework regarding intellectual property, but enforcement mechanisms are weak. This could be the reason why global buyers only source produce that requires low technology because they are not sure if their intellectual property can be duly protected under weak legal regimes. The IPR regimes are not optimal, and must be strengthened in Kenya. There is generally a lack of sufficient resources in the judiciary, including knowledge and information on intellectual property laws. The cost of litigation and the length of time it takes to decide on infringement cases are lengthy and expensive. The horticulture sector does contribute to economic development through the establishment of local business, and associated services and industries. Such supply related business can include the provision of seeds, agrochemicals, development of value-added industries such as jams, pickles, dried product, packaging, storing and transportation. Women could potentially benefit most from horticultural employment opportunities because they comprise the majority (50 to 91%) of the horticultural labour supply in most developing countries and are the most likely to be impoverished (Barrientos & Perrons, 1999; Hamilton et al., 2001; Korovkin, 2003; Dolan and Humphrey, 2004). In Mexico, 80 to 90% of all individuals involved in packaging are women; evidence from Africa illustrates a similar pattern (Dolan and Sorby, 2003) Additional opportunities for income generation and production diversification could reduce the risks for small suppliers. Despite the development of the horticulture sector, very limited economic development has occurred through the establishment of secondary industries in Kenya. Industries such as bar-coding horticulture produce have been established but the technological content is low. Post-harvest operations such as cleaning,
washing, waxing, grading and packing have provided job opportunities for a large number of people increasing the participation of women in the labour market.

3.8 Conclusion
This evaluation has revealed the fragile state of the operating environment in Kenya and Ghana due to the capacity constraints that have not been addressed to date. The poor state of horticultural infrastructure is of particular concern and therefore to maximize poverty alleviation, a number of challenges must be addressed through a combination of targeted research, human capacity enhancement, institutions, infrastructure, knowledge and technology which can contribute to the reduction in transaction costs. Issues of trust also have to be addressed in order to foster a trust business environment. Given the technical nature of horticulture, investment in research, infrastructure, institutions and human resources is of critical importance. The operational environment remains precarious due to the lack of agricultural research, fragmentation of supporting horticultural institutions, infrastructure and the organization of markets, and low absorptive capacity levels in local suppliers. The lack of access to cheap financial resources, inadequate rural infrastructure and institutions, and the absence of technological knowledge and transfer have also contributed to the under-development of the sector. The horticulture sector in Kenya was constrained by political violence in January and February 2008 after a contentious presidential election during which local suppliers could not export horticulture produce (GFP, 2008). Horticultural produce was left to rot in fields, which contributed to the loss of incomes for many suppliers leading to reduced interaction. Overall, the performance of Ghana’s horticultural exports has been disappointing, failing to expand its exports more rapidly than the market has grown (Jaeger, P., 2008). A reduction in demand for the Smooth Cayenne pineapple variety and strict standards has further constrained the development of the sector to the benefit of competitor countries such as Ecuador and Panama (MIR: Pineapple, 2008; Wolter, 2009).

Global horticulture value chains have contributed to the generation of employment but poverty levels remain acute in the SSA region (Jütting & de Laiglesia, 2009). Currently wages are quite low which also limits poverty alleviation (Weinberger, and Lumpkin, 2005). It is estimated that if the horticulture sector expands in line with demand it could result in the generation of additional 20,000 jobs resulting in incomes and profits that have an impact on poverty (Humphrey, 2005). Although it has created employment for a number of people, its impact on poverty is minimal. To optimize the poverty alleviation and economic development impact on participation in global horticulture value chains, it is important to address the constraints in the operational environment and value chain attributes identified in this chapter. The employment generated should also be accompanied by
conditions that contribute to welfare and inequality. Given the complexity and multidimensional aspects of horticulture value chains, the efficiency and effectiveness of development interventions will depend on the design of optimal and sustainable strategies that address the local supplier at the micro level (rural areas) to locations where value is created and beyond.
Chapter 4

Methodology

4.1 Introduction
In this chapter I discuss the methodology used for this thesis. Sections 4.2 and 4.3 discuss the quantitative vs qualitative methods and explanatory vs exploratory research. Section 4.4 is an overview of the research design (Suzuki et al., 2008) Section 4.5 depicts various issues regarding the research validity and reliability including the limitations of using the case study methodology. Section 4.6 concludes.

4.2 Quantitative vs Qualitative methods
The two most commonly used approaches to test theory are the deductive approach which represents the positivist paradigm and inductive approach which represents the phenomenological paradigm (Easterby-Smith et al., 1991; Thrope et al., 2002; Perry, 1998; Lewis & Stubbs, 1999). The positivist views the world objectively through the collection and measurement of data which includes survey methods, laboratory experiments and mathematical modelling (Burrell & Morgan, 1979; Ciborra, 1998; Thrope et al., 2002). The inductive approach considers that methods used in science are not appropriate where human beings are concerned because different people will interpret a situation in different ways (Braa and Sorgaard, 1997). Qualitative research methods were developed in the context of social sciences to facilitate the study of social and cultural phenomena, human behaviour and motivations and place emphasis on understanding, explanation and interpretation (Myers, 1997; Neuman, 2003). Qualitative data relies on what is said and non-verbal communication such as body language. Both qualitative and quantitative approaches are used either to support or create new theory (Punch, 1998). It is usually more efficient to combine or triangulate both methods to obtain optimal results.

4.3 Explanatory and Exploratory research
Explanatory research concerns making statements about certain phenomena to make sense out of them (Blaxter et al., 2001). The focus is on testing hypotheses in line with the positivist approach (Silverman, 2001; Yin, 2002). Exploratory research, on the other hand, promotes understanding and is suitable for new areas of study where knowledge of the phenomenon under investigation is limited (Patton, 2002). This study attempts to deliver explanation and understanding of the impact of participation in global horticulture value chains on poverty alleviation and economic development. Therefore it can be argued that this study is explanatory in nature as it attempts to explain and
understand interaction and how the process is linked to poverty alleviation and economic development (Yin, 2002).

4.4 Research Design

In formulating an appropriate research design the problem or issue that is under investigation should guide the selection of methodology. This study’s main preposition is that participation in global horticulture value chains contributes to poverty alleviation (Almeida and Fernandes, 2008). The ten hypotheses were formulated based on a comprehensive review of the literature. The ten hypotheses are tested based on an analysis of the following elements: governance, technology and knowledge transfer, market structure, transaction costs, trust, infrastructure, institutions and absorptive capacity (Yin, 1994; Miles and Huberman, 1984). Before this research, I conducted a pilot study in Ghana to acquire some insight into the sourcing. The process also helped to test the proposed research instrument, the questionnaire (Graebner, 2004). The participants were firms and individuals who had experience in dealing with global horticulture value chains. The pilot studies revealed the complexity and multi-faceted nature of the process and which prompted the need for a more dynamic methodology.

The case study methodology was selected for this study because it can accommodate multiple methods of data collection and as such is suitable for the delivery of explanations and understanding of issues that are complex and multi-faceted in nature, such as the impact of interaction on poverty alleviation and economic development. As a method, it is capable of illustrating themes in a descriptive manner within simple and multiple settings (Hussey and Hussey, 1997). Interaction in global value chains, the phenomenon under study, is a good example of complexity that the case study is well equipped to handle. It is also a holistic method that can be used to describe and analyze complex sets of case data (Merriam, 1998). Case study research mostly relies on qualitative data but can sometimes include quantitative data as well (Perry, 1998). Furthermore it is suggested in the literature that the case study method is usually used to analyze phenomenon within a specific social context (Yin, 1994). It is therefore a ‘meaningful method’ that can also be used to evaluate both quantitative and qualitative information. Due to this flexibility, it is recommended as a method for social science and business research where the objective of the study is to provide explanation and understanding on a given phenomenon within a specific context (Hussey and Hussey, 1997). The evidence may be qualitative and/or quantitative and involves using cases to establish theoretical constructs and propositions from empirical evidence derived from a variety of data sources (Yin, 1994). Techniques such as theoretical sampling and/or replication logic necessary for data analysis are sometimes used for the selection of cases, but which also depends on the conceptual framework (Eisenhardt & Graebner, 2007; Perry, 1998). The selected cases could be similar to other cases but
the main objective is to end up with a set that could inform the phenomenon under investigation (Karhu et al., 2009; Patton, 2002; Eisenhardt and Graebner, 2007).

The case data sets the boundary within which the theory can be developed, and can be compared with formulas used in models in deductive research. Developing theories from case studies focuses on building constructs and therefore can be perceived as a balance between inductive and deductive research (Eisenhardt & Graebner, 2007). Both approaches are complementary as inductive research results in the emergence of new theory while deductive research focuses on testing existing theory (Eisenhardt & Graebner, 2007). Compared to the single case study, the multiple case study approach tends to deliver better results with regards to its contribution to existing or new theory (Eisenhardt & Graebner, 2007). Yin, 1994). Moreover, it allows for the generalisation of theory and provides the means through which a researcher can confirm if a finding or explanation on a certain phenomenon is either idiosyncratic to the specific single case or could be replicated across different settings (Eisenhardt, 1991, Eisenhardt & Graebner, 2007). Because propositions are well established from empirical evidence, multiple case studies tend to deliver better theory through an exploration of research questions and propositions (Brown and Eisenhardt, 1997; Eisenhardt & Graebner, 2007).

4.5 Data collection

The research draws on field data collected on horticulture value chain participants in Kenya and Ghana between February and May 2004. The formation of the questionnaires and interview schedules were informed by the literature review in Chapter 2. Two sets of data were collected using open-ended questionnaires and semi-structured (Miles and Huberman, 1994; Yin 1994; Kvale, 1996). Open-ended questions provide the basis upon which a wide range of questions and answers could be collated and processed. I organized the survey myself by contacting the horticulture institutions in Ghana and Kenya and informed respondents of the purpose of the research to ensure that they understood and agreed to participate. The survey is made up of the following sections: (i) Questionnaire addressed to global buyers; (ii) questionnaire addressed to local suppliers and (iii) informants and interview scheduled used for the semi structure interviews. Section 1 of the questionnaire addressed to global buyers gathers information on the background and ownership of the company. The questions in section 2 are structured in likert scale format and seek to gather information on how the governance of global horticulture value chains with a combination of multiple choice questions and minimum of five choices of replies from “very much so” to “not at all”: “definitely true” to “definitely not true”; “very reliable to very unreliable”; “very controlled to “very uncontrolled”; “very important to “very unimportant”. Similarly section 3 presents a combination of multiple choice questions and likert scale choices: “very much so” to “not at all” on the transfer on the
extent of knowledge and technology transfer to local suppliers. Section 4 consists of multiple choice questions on the bio data of participants.

Section 1 of the questionnaire addressed to local suppliers gathers information on the background and ownership of the company and levels of employment using multiple choice questions. The questions in section 2 are structured in likert scale format and seek to gather information on how the local suppliers are inserted in global horticulture value chains and managed with a combination of multiple choice questions and minimum of five choices of replies from “very much so” to “not at all”; “definitely true” to “definitely not true”; “very reliable to very unreliable”; “very controlled to “very uncontrolled”; “very important to “very unimportant” and focus on how production is organised and how value chain activities are monitored and controlled. Similarly section 3 presents a combination of multiple choice questions and likert scale choices: “very much so” to “not at all” on the transfer of knowledge, technology absorptive capacity and upgrading activities. Section 4 consists of multiple choice questions and a likert scale “definitely true to “definitely not true” to find out the extent to which local suppliers are linked to external organisations (absorptive capacity). Section 5 is multiple choice questions that collate the bio data on repondents. The interview schedules are multiple choice questions that seek information on the operational environment. The questionnaire and interview schedule were formulated using likert scales which is commonly used in research related to agriculture processes (Calson and Dormody, 1994). In this survey the likert scales relied on typically have five response alternatives to gather data from participants (Likert, 1932). In each of the multiple choice questions the respondent must indicate a certain extent of agreement or not with a given phenomenon which makes it easy for respondents and the interviewer. There is considerable debate on the limitations on the use of likert scales as a method because it not clear if the information should be classified as continuous variables of if should be assumed that the replies were directed by the interviewee (Allen & Seaman, 2007; Clason & Dormody, 1993). Another complexity with use of likert scale questions is that some respondent would only provide extreme replies by simply ticking the first or last box or even the middle box throughout the survey (Dittrich et al., 2008).

Given the complex interaction between the variables likert scale made it easy for the data collection process. Given that it is important to acknowledge the discrete nature of the replies, the empirical data is presented as numbers and percentages under different headings to acknowledge this fact. Some of the draws backs of using likert scales are that there could be vast differences in responses – extremely high or extremely low that could result in data manipulation and hide the actual meaning of variables because of the unintended limitations by dint of the design of likert questionnaires. Furthermore it is sometimes not possible to make specific and well-founded statements even they
could be extreme and present the true picture and due the number of options, data collection could be open to manipulation. There is no right or wrong way of analysing data using likert scale but what is important is that the outcome addresses the research question of hypothesis in a meaningful way. However, given the complexity of the phenomena under study it was decided to use this method as it easy to adapt it to attitude measurement if the scales are well defined and are well suited for analysis on a case by case basis. Sometimes respondents are not honest, but this is not only a limitation in likert scales but can also occur using other research methods. The distances between for instance “very coordinated” and “very uncoordinated” is different for each respondent and does not reflect equal perceptions towards a given phenomenon. A contrary argument is that because scales are used to process the replies respondents are not forced to stick to an opinion but instead providing the forum for neutral positions or ideas. However, previous replies could also influence the replies to additional questions and the outcome could be influenced by the expectations of the interviewer. As indicated above, it is by no means a perfect tool for data collection but provides a general overview of the issue being addressed which in most cases is sufficient for explaining and understanding a given phenomenon.

4.5.1 Invitations
A one-page letter of invitation was addressed to the Operations Manager, the Managing Director or Chief Executive Officer. The invitation letter (appendix A) contained an introduction and objectives of the proposed research including the extent to which outcomes could inform existing or new policy proposals.

4.5.2 Sample frame and Selection criteria
Given that there are no specific prescriptions in the literature on which samples sizes are appropriate to derive meanings, research that relies on sampling methods often relies on a limited number of surveys between 10-50 with the objective of seeking rich data based upon which meanings could be assigned to complex phenomena meanings based on in depth studies (Rubinstein, 1994; Baum 2000; Patton 1990; Miles & Huberman 1994; Patton 1990; Reed et al. 1996; Mays & Pope 1995; Ezzy 2002). Although there are not specific rules on sample size, in qualitative research the sample sizes are small because the aim of the study is to collect rich, in depth and in detail that is capable of addressing a given problem and/or issue. (Baum, 2002; Patton, 1990; Miles & Huberman, 1994) Typically the criterion for qualitative sampling is defined in a way as to facilitate a flexible research design because the sampling criteria could change as the study progress. It is assumption that sampling will continue until a point of saturation where it is obvious that new data would not provide additional insights (Lincoln & Guba 1985) (Baum 2002; Miles & Huberman 1994; Reed et al. 1996; Kuzel, 1992). The sampling process for this research is described below:
A decision on the sampling was made based on the objective of the research. Initially, the organisation and the research participants were selected according to the research aim and objectives (Ezzy 2002; Reed et al. 1996; Miles & Huberman 1994). On the size of sample used for the research (25 plus 6 informants = 31 respondents), the most important thing was the richness of the descriptions of the issues surrounding local supplier effective participation in global horticulture value chains. This is not a quantitative study there the focus of large numbers or data samples was limited (Morse, 1995). With regards to this study the sample size was determined by the quest to find out detailed information from local suppliers on their experience. Subsequently, the a decision on the number of samples was made when it was clear from the data collection phase through continuous comparison of data to additional information the repeated patterns and themes and that there is no new significant data that would emerge from further investigations (Higginbotham et al. 2001; Glaser, 1999; Cutcliffe & McKenna, 2002)

**Selection criteria**

4.5.3 Participants

The list of participants was compiled from a number of sources, including the Foreign Companies registered at UNCTAD and other country specific sources. I contacted each company through private persons or contacts who either introduced me to the CEO, head of operations or administration. Subsequently, through the same channel employees who directly source horticultural produce where also identified. Furthermore, informants related to horticulture associations and government institutions also participated in the survey. To confirm the identity of the persons recommended to participate in the interview, I requested that they provide me contact details of the next relevant person engaged in the sourcing of horticulture produce (Graebner, 2004). This selection resulted in the selection of a group of persons that included senior managers from local suppliers and global buyers (Graebner, 2004).

**Step 1:** A total of 59 questionnaires were distributed to key participants including local suppliers (exporters), global buyers (importers), horticulture associations and government officials to be completed by the most relevant persons who understood the functioning of horticulture value chains (Sailola and Zanfei, 2009). The respondents were to provide replies to the questionnaire within one week. In cases where it was not possible to complete the questionnaire during the physical meeting, time was allowed and I returned to collect the completed questionnaire in person. A total of 25 questionnaires were returned completed - 18 from local suppliers and 7 from global buyers.
### Table 4.1 Sample frame – Fruit and Vegetables value chain - Kenya

<table>
<thead>
<tr>
<th>Supplier</th>
<th>Commodity</th>
<th>Production (kgs)</th>
<th>Price/kg</th>
<th>Quantity exported (kgs)</th>
<th>% of production exported</th>
<th>Value in Euros(000)</th>
<th>Destination</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1</td>
<td>Pineapple</td>
<td>1,019,550</td>
<td>0.51</td>
<td>662,708</td>
<td>65%</td>
<td>337,980.00</td>
<td>France, Netherlands, UK, Spain, Denmark, Belgium</td>
</tr>
<tr>
<td>S2</td>
<td>Mango</td>
<td>1,500,119</td>
<td>0.58</td>
<td>1,050,083.30</td>
<td>70%</td>
<td>609,048.31</td>
<td>France, Netherlands, UK, Spain, Denmark, Belgium</td>
</tr>
<tr>
<td>S3</td>
<td>Avocado</td>
<td>3,500,000</td>
<td>0.52</td>
<td>1,225,000.00</td>
<td>35%</td>
<td>637,000.00</td>
<td>France, Netherlands, UK, Spain, Denmark, Belgium</td>
</tr>
<tr>
<td>S4</td>
<td>Pawpaw</td>
<td>1,650,000</td>
<td>0.57</td>
<td>792,000.00</td>
<td>48%</td>
<td>453,440.00</td>
<td>France, Netherlands, UK, Spain, Denmark, Belgium</td>
</tr>
<tr>
<td>S5</td>
<td>Passion fruits</td>
<td>2,148,500</td>
<td>0.25</td>
<td>1,396,525.00</td>
<td>65%</td>
<td>349,131.25</td>
<td>France, Netherlands, UK, Spain, Denmark, Belgium</td>
</tr>
<tr>
<td>S6</td>
<td>Cabbage</td>
<td>3,000,000</td>
<td>0.79</td>
<td>1,200,000.00</td>
<td>40%</td>
<td>948,000.00</td>
<td>France, Netherlands, UK, Spain, Denmark, Belgium</td>
</tr>
<tr>
<td>S7</td>
<td>Tomato</td>
<td>1,450,000</td>
<td>0.27</td>
<td>942,500.00</td>
<td>65%</td>
<td>254,475.00</td>
<td>France, Netherlands, UK, Spain, Denmark, Belgium</td>
</tr>
<tr>
<td>S8</td>
<td>Carrots</td>
<td>1,250,000</td>
<td>0.67</td>
<td>750,000.00</td>
<td>60%</td>
<td>502,500.00</td>
<td>France, Netherlands, UK, Spain, Denmark, Belgium</td>
</tr>
<tr>
<td>S9</td>
<td>French beans</td>
<td>2,500,000.00</td>
<td>0.29</td>
<td>1,750,000.00</td>
<td>70%</td>
<td>507,500.00</td>
<td>France, Netherlands, UK, Spain, Denmark, Belgium</td>
</tr>
</tbody>
</table>


### Participants bio data - Kenya

<table>
<thead>
<tr>
<th>Gender (Male=M); (Female=F)</th>
<th>Age group</th>
<th>Educational background</th>
<th>Position in company</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1</td>
<td>F</td>
<td>20-29</td>
<td>Polytechnic</td>
</tr>
<tr>
<td>S2</td>
<td>F</td>
<td>40-49</td>
<td>University</td>
</tr>
<tr>
<td>S3</td>
<td>M</td>
<td>30-39</td>
<td>University</td>
</tr>
<tr>
<td>S4</td>
<td>M</td>
<td>50-59</td>
<td>University</td>
</tr>
<tr>
<td>S5</td>
<td>M</td>
<td>30-39</td>
<td>University</td>
</tr>
<tr>
<td>S6</td>
<td>F</td>
<td>40-49</td>
<td>University</td>
</tr>
<tr>
<td>S7</td>
<td>M</td>
<td>30-39</td>
<td>University</td>
</tr>
<tr>
<td>S8</td>
<td>F</td>
<td>50-59</td>
<td>University</td>
</tr>
<tr>
<td>S9</td>
<td>M</td>
<td>40-49</td>
<td>University</td>
</tr>
</tbody>
</table>
Table 4.2 Sample frame – Fruit and Vegetables value chain - Ghana

<table>
<thead>
<tr>
<th>Supplier</th>
<th>Commodity</th>
<th>Production (kgs)</th>
<th>Price/kg</th>
<th>Quantity exported (kgs)</th>
<th>% of production exported</th>
<th>Value in Euros(000)</th>
<th>Destination</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1</td>
<td>Pineapple</td>
<td>2,000,000.00</td>
<td>0.83</td>
<td>1,300,000</td>
<td>65%</td>
<td>1,079,000</td>
<td>UK</td>
</tr>
<tr>
<td>S2</td>
<td>Pineapples</td>
<td>2,500,000.00</td>
<td>0.83</td>
<td>1,475,000</td>
<td>59%</td>
<td>1,224,250</td>
<td>Germany and UK</td>
</tr>
<tr>
<td>S3</td>
<td>Bananas</td>
<td>3,000,000.00</td>
<td>0.82</td>
<td>1,680,000</td>
<td>56%</td>
<td>1,377,600</td>
<td>Belgium &amp; France</td>
</tr>
<tr>
<td>S4</td>
<td>Bananas</td>
<td>1,500,000.00</td>
<td>0.82</td>
<td>750,000</td>
<td>50%</td>
<td>615,000</td>
<td>Netherlands &amp; UK</td>
</tr>
<tr>
<td>S5</td>
<td>Mangos</td>
<td>1,250,000.00</td>
<td>0.50</td>
<td>875,000</td>
<td>70%</td>
<td>437,500</td>
<td>Germany and UK</td>
</tr>
<tr>
<td>S6</td>
<td>Mangos, guavas &amp; Mangosteens</td>
<td>3,000,000.00</td>
<td>0.50</td>
<td>1,860,000</td>
<td>62%</td>
<td>930,000</td>
<td>Belgium</td>
</tr>
<tr>
<td>S7</td>
<td>Papaya</td>
<td>890,000.00</td>
<td>1.59</td>
<td>534,000</td>
<td>60%</td>
<td>849,000</td>
<td>UK</td>
</tr>
<tr>
<td>S8</td>
<td>Capsicum (chilies)</td>
<td>1,260,000.00</td>
<td>1.59</td>
<td>504,000</td>
<td>40%</td>
<td>781,200</td>
<td>UK</td>
</tr>
<tr>
<td>S9</td>
<td>Babycorn</td>
<td>1,500,000.00</td>
<td>0.78</td>
<td>585,000</td>
<td>39%</td>
<td>456,300</td>
<td>UK</td>
</tr>
</tbody>
</table>

Source: Researchers compilation, 2004 and complimented by Euro/Ghana Exports Horticulture Cluster Strategic profile study Part II - Recommendation actions part III. Background papers prepared by Natural resources institute, 2010


Participants bio data - Ghana

<table>
<thead>
<tr>
<th>Gender</th>
<th>Age group</th>
<th>Educational background</th>
<th>Position in company</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1</td>
<td>M</td>
<td>30-39</td>
<td>University</td>
</tr>
<tr>
<td>S2</td>
<td>M</td>
<td>40-49</td>
<td>University</td>
</tr>
<tr>
<td>S3</td>
<td>M</td>
<td>30-39</td>
<td>University</td>
</tr>
<tr>
<td>S4</td>
<td>F</td>
<td>30-39</td>
<td>University</td>
</tr>
<tr>
<td>S5</td>
<td>M</td>
<td>30-39</td>
<td>University</td>
</tr>
<tr>
<td>S6</td>
<td>F</td>
<td>40-49</td>
<td>University</td>
</tr>
<tr>
<td>S7</td>
<td>F</td>
<td>40-49</td>
<td>polytechnic</td>
</tr>
<tr>
<td>S8</td>
<td>M</td>
<td>40-49</td>
<td>polytechnic</td>
</tr>
<tr>
<td>S9</td>
<td>M</td>
<td>30-39</td>
<td>University</td>
</tr>
</tbody>
</table>

Step 2:

4.5.4 Interviews

The semi-structured interview process is described in the literature as an appropriate method of data gathering that can be used to analyze how a person thinks or feels about a situation. The semi-structured interviews was conducted with all respondents (n=31) in this study based on replies to the questionnaire (appendix C and appendix D) was for a duration between 45 min to 1 hour each. In addition, further empirical evidence was collated on how participants evaluated the operational environment in Kenya and Ghana (appendix B). Before the interview took place, I introduced the topic with a view to highlighting the objectives of the research to each participant. The questions focused on facts and the aims of the research, rather than the respondents’ interpretation or understanding of such facts (Eisenhardt, 1989). Clarification was sought on the background and ownership of global buyers and local suppliers. It then continued with questions on supplier development programmes to determine the extent to which global buyers transfer knowledge and technology. Questions were posed and ideas exchanged during between interviews. At the end of the
interviews, I again confirmed the aim and provided an estimated date for completion the thesis. I took notes when the respondents were being interviewed

Semi structured interviews as an efficient means through which tacit information is collect and interpreted was used to complement the questionnaires (Walsham, 1995; Kvale, 1996). The main selection criteria used for indicative case studies in value chains that supply fruits and vegetables was (i) cases where replies were omitted or certain misunderstanding prevailed and further clarity was required and (ii) all the 25 participants and 6 informants that returned completed questionnaires also participated in semi structures interviews on the state of the enabling operating environment. In addition, open-ended questions were addressed to key stake holders such government officials and horticulture associations specifically aimed at gathering information on the operating environment. Time constraints and busy schedules of executives meant that certain key participants were not available for personal interviews. However, a number of interviewees did provide replies using the survey questionnaires previously distributed and which I collected at a later stage in person. Interviewees provided valuable insights into the functioning global horticulture value chains and how it has so fact impacted poverty reduction (Eisenhardt, 1989). An overview of interviewees in Kenya is provided in table 4.3 and Ghana in table 4.3. The research design is presented in figure 4.2.
Table 4.3: Overview of interviewees - Kenya

<table>
<thead>
<tr>
<th>No of interviews</th>
<th>Month</th>
<th>Year</th>
<th>Location</th>
<th>Position of informant</th>
<th>Type of business</th>
<th>Date of establishment</th>
<th>Follow-up phone calls</th>
<th>Follow-up visits</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1</td>
<td>1</td>
<td>Feb 2004</td>
<td>Nairobi</td>
<td>Sales manager</td>
<td>Vegetable export</td>
<td>1980</td>
<td>Yes</td>
<td>Yes</td>
<td>Collect questionnaires Interview on operating environment</td>
</tr>
<tr>
<td>S2</td>
<td>1</td>
<td>Feb 2004</td>
<td>Nairobi</td>
<td>Marketing manager</td>
<td>Vegetable export</td>
<td>1974</td>
<td>Yes</td>
<td>Yes</td>
<td>Interview on operating environment</td>
</tr>
<tr>
<td>S3</td>
<td>1</td>
<td>Feb 2004</td>
<td>Nairobi</td>
<td>Production manager</td>
<td>Vegetable export</td>
<td>1962</td>
<td>Yes</td>
<td>Yes</td>
<td>Interview on operating environment</td>
</tr>
<tr>
<td>S4</td>
<td>1</td>
<td>Feb 2004</td>
<td>Nairobi</td>
<td>Chief executive</td>
<td>Fruit and vegetable export</td>
<td>1960</td>
<td>Yes</td>
<td>Yes</td>
<td>Interview on operating environment</td>
</tr>
<tr>
<td>S5</td>
<td>1</td>
<td>Feb 2004</td>
<td>Nairobi</td>
<td>Chief executive</td>
<td>Fruit and vegetable export</td>
<td>1975</td>
<td>Yes</td>
<td>Yes</td>
<td>Collect questionnaire Interview on operating environment</td>
</tr>
<tr>
<td>S6</td>
<td>1</td>
<td>Feb 2004</td>
<td>Nairobi</td>
<td>Administrative officer</td>
<td>Fruit and vegetable export</td>
<td>1980</td>
<td>Yes</td>
<td>Yes</td>
<td>Interview on operating environment</td>
</tr>
<tr>
<td>S7</td>
<td>1</td>
<td>Feb 2004</td>
<td>Nairobi</td>
<td>Assistant manager</td>
<td>Fruit export</td>
<td>1976</td>
<td>Yes</td>
<td>Yes</td>
<td>Interview on operating environment</td>
</tr>
<tr>
<td>S8</td>
<td>1</td>
<td>Feb 2004</td>
<td>Nairobi</td>
<td>Overseas operation manager</td>
<td>Fruit export</td>
<td>1972</td>
<td>Yes</td>
<td>Yes</td>
<td>Collect questionnaire Interview on operating environment</td>
</tr>
<tr>
<td>S9</td>
<td>1</td>
<td>Feb 2004</td>
<td>Nairobi</td>
<td>Sales manager</td>
<td>Fruit export</td>
<td>1975</td>
<td>Yes</td>
<td>Yes</td>
<td>Interview on operating environment</td>
</tr>
<tr>
<td>HA1</td>
<td>1</td>
<td>Feb 2004</td>
<td>Nairobi</td>
<td>Chief executive</td>
<td>Support association</td>
<td>1975</td>
<td>No</td>
<td>No</td>
<td>Interview on operating environment</td>
</tr>
<tr>
<td>HA2</td>
<td>1</td>
<td>Feb 2004</td>
<td>Nairobi</td>
<td>Administrative officer</td>
<td>Support association</td>
<td>1999</td>
<td>No</td>
<td>No</td>
<td>Interview on operating environment</td>
</tr>
<tr>
<td>GoV1</td>
<td>1</td>
<td>Feb 2004</td>
<td>Undisclosed</td>
<td>Undisclosed</td>
<td>N/A</td>
<td>N/A</td>
<td>No</td>
<td>No</td>
<td>Interview on operating environment</td>
</tr>
<tr>
<td>Gov2</td>
<td>1</td>
<td>Feb 2004</td>
<td>Undisclosed</td>
<td>Undisclosed</td>
<td>N/A</td>
<td>N/A</td>
<td>No</td>
<td>No</td>
<td>Interview on operating environment</td>
</tr>
</tbody>
</table>
### Table 4.3: Overview of interviewees - Ghana

<table>
<thead>
<tr>
<th>S1</th>
<th>1</th>
<th>Feb 2004</th>
<th>Accra</th>
<th>Sales manager</th>
<th>Vegetables</th>
<th>1975</th>
<th>Yes</th>
<th>Yes</th>
<th>Interview on operational environment, Pick up questionnaire</th>
</tr>
</thead>
<tbody>
<tr>
<td>S2</td>
<td>1</td>
<td>Feb 2004</td>
<td>Accra</td>
<td>Administrative manager</td>
<td>Vegetables</td>
<td>1972</td>
<td>Yes</td>
<td>Yes</td>
<td>Interview on operational environment</td>
</tr>
<tr>
<td>S3</td>
<td>1</td>
<td>Feb 2004</td>
<td>Accra</td>
<td>Chief Executive</td>
<td>Vegetables</td>
<td>1980</td>
<td>Yes</td>
<td>Yes</td>
<td>Pick up questionnaire</td>
</tr>
<tr>
<td>S4</td>
<td>1</td>
<td>Feb 2004</td>
<td>Accra</td>
<td>Assistant Manager</td>
<td>Fruits and vegetables</td>
<td>1963</td>
<td>Yes</td>
<td>Yes</td>
<td>Interview on operational environment</td>
</tr>
<tr>
<td>S5</td>
<td>1</td>
<td>Feb 2004</td>
<td>Accra</td>
<td>General manager</td>
<td>Vegetables</td>
<td>1990</td>
<td>Yes</td>
<td>Yes</td>
<td>Pick up questionnaire</td>
</tr>
<tr>
<td>S6</td>
<td>1</td>
<td>Feb 2004</td>
<td>Accra</td>
<td>Sales manager</td>
<td>Fruits</td>
<td>1960</td>
<td>Yes</td>
<td>Yes</td>
<td>Interview on operational environment</td>
</tr>
<tr>
<td>S7</td>
<td>1</td>
<td>Feb 2004</td>
<td>Accra</td>
<td>Administrative officer</td>
<td>Vegetables</td>
<td>1970</td>
<td>Yes</td>
<td>Yes</td>
<td>Pick up questionnaire</td>
</tr>
<tr>
<td>S8</td>
<td>1</td>
<td>Feb 2004</td>
<td>Accra</td>
<td>Chief executive</td>
<td>Fruits and vegetables</td>
<td>1968</td>
<td>Yes</td>
<td>Yes</td>
<td>Interview on operational environment</td>
</tr>
<tr>
<td>S9</td>
<td>1</td>
<td>Feb 2004</td>
<td>Accra</td>
<td>Marketing manager</td>
<td>Vegetables</td>
<td>1983</td>
<td>Yes</td>
<td>Yes</td>
<td>Pick up questionnaire</td>
</tr>
<tr>
<td>HA1</td>
<td>1</td>
<td>Feb 2004</td>
<td>Nairobi</td>
<td>Chief executive officer</td>
<td>Support association</td>
<td>1985</td>
<td>No</td>
<td>No</td>
<td>Interview on operating environment</td>
</tr>
<tr>
<td>HA2</td>
<td>1</td>
<td>Feb 2004</td>
<td>Nairobi</td>
<td>Chief executive officer</td>
<td>Support association</td>
<td>1982</td>
<td>No</td>
<td>No</td>
<td>Interview on operating environment</td>
</tr>
<tr>
<td>GoV1</td>
<td>1</td>
<td>Feb 2004</td>
<td>Nairobi</td>
<td>Undisclosed</td>
<td>Official</td>
<td>N/A</td>
<td>No</td>
<td>No</td>
<td>Interview on operating environment</td>
</tr>
<tr>
<td>GoV2</td>
<td>1</td>
<td>Feb 2004</td>
<td>Nairobi</td>
<td>Undisclosed</td>
<td>official</td>
<td>N/A</td>
<td>No</td>
<td>No</td>
<td>Interview on operating environment</td>
</tr>
</tbody>
</table>

### 4.6 The analysis of Data

The analysis of data analysis in any given research is continuous and which can be done in a number ways (Bradley et al., 2007; Cresswell, 2005). Data analysis is crucial in cases studies where the research problem such as participation in global horticulture value chains is open-ended. The data analysis was mainly guided by techniques described in past studies on qualitative approaches (Miles...
and Huberman, 1994). Various techniques such as note taking, sketching ideas, summarising and data reduction, coding, noting relations among variables and building a logical chain of evidence, summarising field notes, identifying data patterns and comparing data were used to support the analysis. The transformation of tacit knowledge into formal knowledge is complex and requires some judgement and which could be influenced by the research participants (Kvale, 1996). The process depends on the objective of the research, the intended use of the knowledge and the intended audience. All interviews were transcribed checked to ensure that the logic of the conversation and replies to questions was maintained. Data analysis was achieved by reading of the transcripts to gain an overall understanding of the content and identify emerging themes (Crabtree and Miller, 1999; Graebner, 2004; Bradley et al., 2007). This facilitated the reduction of data to select, simplify, abstract and transform the raw case data (Miles and Huberman, 1994). Detailed case study summaries were prepared for each interview which contained descriptions of observations and responses to questions that could be critical to theory generation (Gersick, 1988; Pettigrew, 1990). I organised, coded and assembled the information. Themes and patterns evolved from the assembly of the conceptual codes which link concepts to each other. This enabled me to draw conclusions and meaning from data and to build a logical chain of evidence. The assembly of the information also enabled me to see repeated patterns within the collected data and reveal the hidden motivations and behaviours behind interaction in global value chains. Prior specifications of constructs are also useful for theory building research because they facilitate the measurement of specific constructs critical to the corroborate and development of theory. Important constructs identified for this study include issues such as control, power and supplier capabilities, and are addressed in the questionnaires and interview protocols. In order not to limit the findings and reduce the incidence of bias the research problem was defined with reference to existing literature. The research design was based on 59 questionnaires addressed to global buyers and local suppliers in Kenya and Ghana. 25 questions were returned completed 18 from local suppliers and 7 from global buyers. To increase generality, the cases were into four namely supermarkets, beverage manufacturing, global hotels and airlines (Graebner, 2004)

Each interview summary was organised into individual case histories and groups of cases were also compared to identify similarities and differences. Through replication logic, I defined new relationships by reviewing the data once again to find out if a specific case exhibited the same pattern. I checked the original interview data to verify if the emergent themes were consistent with the empirical data (Graebner, 2004). There was some consistency amongst global buyers and local suppliers on issues such as conditions of interaction imposed by global buyers. When I perceived that information on a concept contradicted previous understandings or if I was not certain of the
importance or validity of an emerging pattern, I collected more data (Marshall and Rossman, 1999). Once the data was analysed emergent themes were illustrated using tables and diagrams that provided the basis for testing the hypothesis advanced in chapter 2 (Marshall and Rossman, 1999; Miles and Huberman, 1984). The summaries revealed trends in each case pattern and facilitated cross-case comparison of each case from different perspectives. In addition, categories and dimensions were defined making reference to the research problem and existing literature, which was used to search for similarities (Bourgeois and Eisenhardt, 1988). The cross-case analysis improved the possibilities for an accurate and reliable theory which matches the data and enhances the probability of revealing new insights that might not be obvious at first sight from the data.

The mix of the research methods enabled me to view the emerging themes from different angles and to identify complementary concepts. For example, the focus on local suppliers and global buyers provided me with rich data and allowed me to identify how local suppliers perceived governance and which in their view is the most important driver of poverty reduction. Detailed analysis of the transcripts provided a comprehensive understanding of interaction. Replication of findings is also very important to ensure reliability (Yin, 2002). To fulfil these criteria, a small database of the cases was created. This occurred at all stages and which facilitated the review and editing of contents (Yin, 2002). Content analysis was achieved by codifying and arranging data to highlight the relevant themes of the data (Burnard, 1991). To simplify this process, all data was organized into case records in a database to facilitate the management of the data during analysis (Yin, 2002).

4.7 Research Validity and reliability
The quality of empirical research can be tested by assessing the internal validity, external validity and reliability of the data (Yin, 1994; Kvale, 1996). These tests are used to evaluate the soundness of the research methodology in terms of data collection and analysis.

4.7.1 Construct validity
Construct validity relates to the application and use of appropriate measures to concepts in a given study (Yin, 1994). In this study construct validity was achieved through the use of different sources of information and transcribing it into formal knowledge and which was verified by the participants (Yin, 1994). Construct validity was enhanced in this study by using the following techniques (Yin, 1994; Brownell, 1995):

(a) Using multiple sources of evidence:

• interviews with four different global buyers (beverage manufacturers) and global retailers (supermarkets, global hotel chains, global airlines)
• Topical issues on competition and high quality requirements from company reports (e.g. annual reports) and data from external sources such as the media, government, industry associations (e.g. FPEAK), and review of academic journals.

(b) Using multiple methods for data collection.

(c) Using open-ended and semi structured interview questions.

(d) Establishing a chain of evidence.

(e) Compiling interview transcripts and writing replies to questions at various stages of the data analysis.

4.7.2 Internal validity
Internal validity is present when there is a causal relationship to analyse the extent to which an independent variable produced the observed effect i.e. if event X led to event Y. It also indicates that the researcher has evidence that what was done during the research caused what was observed or the outcome. It is necessary to establish internal validity in explanatory case studies but in exploratory or descriptive studies (Yin, 1994). Internal validity attempts to analyse if the observed changes is due to the research being undertaken. As this study is of an explanatory nature and does not set out to establish causality, internal validity is not applicable (Yin, 1994).

4.7.3 External validity
External validity relates to the extent to which the research can be generalised (Brownell, 1995, Creswell, 2009. In case study research, the issue under investigation is the case and therefore external validity is not applicable (Yin, 2002).

4.7.4 Reliability
Reliability ensures that procedures are documented to allow the study to be reproduced should the same research be undertaken by another researcher. It also illustrates the consistency of the results (Yin, 1994; Brownell, 1995; Kvale, 1996). To obtain and maintain reliability, it has been suggested that a database of all the empirical information is established (Yin, 1994; Brownell, 1995,). The database consists of hand-written case notes, transcribed interviews and related documents. The documents include those from global buyers and local suppliers’ interviews such as annual reports and references to statistical databases in cases where the requested information was not readily available. The database contained the transcribed interviews of 25 horticulture GVC participants. Information was also recorded in an Excel spread sheet which facilitated access and analysis of the data. The research files maintained included:
• Transcriptions and case notes;
• Originals or photocopies of documentary data;
• Notes and comments;
• Originals of interview questions (printed and electronic copies);
• Electronic and hand-written copies of data summary tables, and figures from the analysis of interview data.

For instance information on a specific case helps plan the different stages of the study, and a record of what was done and how it was done. The protocol for this research consisted of a list of field procedures, research questions and a timetable for completion of the thesis (Yin, 1994; Brownell, 1995). Once semi-structured interviews were completed notes were kept on each questionnaire. Questions asked during semi-structured interviews were checked against pre-defined criteria to maintain the logic and to ensure that the questions were coherent and comprehensive.

4.7.5 Ethical issues
Ethical issues that need to be considered include informed consent, confidentiality and consequences (Kvale, 1996; Fontana and Frey, 2000). Each is addressed below and how it was dealt with in this.

4.7.6 Confidentiality
Confidentiality and anonymity were very important for participants, and I had to guarantee this from the beginning. I did not share information from prior interviews with any participant. All interviews were transcribed on the questionnaires, and where necessary, additional sheets were appended to the questionnaire to record additional input. I also complemented the information with follow-up phone calls and visits. Interviewees were assured that all information including the name of the firm would be kept confidential. No reference would be made to an individual or company to ensure the confidentiality of opinions expressed and the accompanying data.

4.7.7 Consequences
The questionnaires were formulated to obtain specific information on how the chain participants were addressing particular issues. This ensured that questions did not address personal issues so that the data obtained could provide insight into how specific global buyers are coordinating activities in global horticulture value chains (Kvale, 1996). Benefits that accrue to interview participants were communicated by informing them that if they will be provided with a copy of the studies if they are interested.
4.7.8 Presenting Empirical Evidence
Data was collated from a selection of global buyers from the beverage manufacturing sector, the retail sector and the tourism-related services sector (hotels and airlines), and local suppliers who supply fresh produce. These sectors were selected because (i) horticultural produce is used as inputs to production/services and (ii) the horticulture sector is where local suppliers have the best possibilities of participation in the global economy. How interaction has facilitated the inclusion of local suppliers into global horticulture value chains and its implications for poverty alleviation and sustainable economic development were discussed in semi-structured interviews. In deductive studies, it is normal to present empirical evidence in tables but this can be complex when presenting qualitative data on case studies (Eisenhardt & Graebner, 2007). Cases typically are made up of information from informants and then compared to existing theory to illustrate is closeness to the emerging theory (Eisenhardt & Graebner, 2007). It is important to remain within the boundaries of the study while at the same time presenting the emergent theory supported by the data pertaining to the specific case under investigation (Eisenhardt & Graebner, 2007). Tables and figures that are discussed in the text are used to summarise the case evidence, which further emphasises the rigour of empirical evidence from which a theory is developed (Eisenhardt & Graebner, 2007).

The case study method helps investigates a contemporary phenomenon in context rich (Yin, 2002; Eisenhardt, 1989). Therefore, selecting participation as a measure of poverty alleviation and economic development brings to the fore the opportunities and challenges that suppliers are confronted with. The emergent theory linking the constructs and prepositions was initially set in the introduction and each proposition was linked to the supporting empirical evidence (Eisenhardt, 1989; Graebner, 2004).

4.7.9 Limitations of the case study method
The case study approach is often criticised because it draws heavily on empirical evidence to develop theory. Since the data analysis does not contain quantitative data it not always simple to determine the most crucial relationships that could result from idiosyncratic theory which could impact generalisation. It also suggested in the literature that the approach is holistic because is possible to combine methods that further promotes the validity and reliability of the study. There are also concerns about the impartiality of the researcher because a certain mind set could influence the outcome of the study and possibly impact the formulation of hypothesis (Glasser and Strauss, 1967; Perry, 1998; Denzin and Lincoln, 2003). This could reduce the reliability of the data that is connected to bias that could emerge as a result of presumptive prior knowledge of the researcher. Due to this limitation, appropriate measures such as coding and the establishment of databases should be in place to process data accurately to ensure that findings can be replicated across similar cases (Hussey and Hussey, 1997). Understanding the phenomena under study requires an understanding of related cases,
activities, events and differences. To provide such and in depth understanding and explanation the case study method tends to rely heavily on describing and contextualizing cases to support the findings. Issues associated with the use of qualitative approaches of which case study is an example such as reliability and validity have further contributed to concerns on the use of this method (Yin, 1994). Despite the limitations discussed above, the case study methodology is an appropriate method for this study because it is comprehensive, robust and capable of generating explanations and understanding of a complex phenomenon such as the impact of participation in global horticulture value chains on poverty alleviation.

4.8 Conclusion
One of the main objectives of this study is to deliver explanation and understanding on how participation in global horticulture value chains impacts poverty and contributes to economic development in Kenya and Ghana. Contrasting philosophies have been discussed including the justification on the selection of qualitative research methods such as case studies. The use of case studies to develop theory on such multifaceted phenomena is feasible but there are certain constraints such as the dependence on qualitative data that need to be addressed. However these limitations are mitigated by the type of research design that limits bias and facilitates presentation of data using tables and theoretical arguments (Graebner, 2004). This process results in the building of a theory that is as close as possible to what could have been derived from deductive research. The phenomena studied are the drivers of potential and actual interaction and how it impacts poverty alleviation and economic development. The units of analysis are drivers of potential and actual interaction. The evidence and data collected are presented in the form of a case study. An outline of the research approach is presented below in Table 4.5:

<table>
<thead>
<tr>
<th>Phenomena</th>
<th>Interaction in global horticulture value chains</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research problem</td>
<td>Impact of interaction on poverty alleviation and economic development</td>
</tr>
<tr>
<td>Epistemology</td>
<td>Inductive, Interpretative</td>
</tr>
<tr>
<td>Unit of analysis</td>
<td>Rate of interaction, poverty alleviation and economic development</td>
</tr>
<tr>
<td>Data presentation</td>
<td>Potential interaction, actual interaction, poverty alleviation and economic development</td>
</tr>
<tr>
<td>Data analysis</td>
<td>Descriptive, interpretive, pattern, coding</td>
</tr>
<tr>
<td>Theoretical constructs that guided analysis and interpretation</td>
<td>Transaction costs theory, Global value chains Perspective, New Institutional Economics</td>
</tr>
</tbody>
</table>

Building theory from case studies involves continuous review of the data derived from the questionnaires and field interviews. There is some perception that theory-building from case studies is limited by the researcher’s preconceptions, but cross reference of cases means that theory is generated with reduced bias and empirically valid because the process of theory development is very closely linked with the empirical observations (Mintzberg, 1979, Mintzberg & McHugh, 1985). When there is
limited knowledge about a phenomenon, the case study method is the most suitable because it relies on current empirical evidence. The approach is very suitable for investigations into new phenomena or existing phenomena such as global value chains theory that in its current state is limited in application. The procedure is especially useful when a fresh perspective is required on a specific phenomenon or concept development.
Chapter 5
Performance of suppliers in GHVCs

5.1 Introduction
This chapter brings together the empirical data on the governance, absorptive capacity and upgrading that have an impact on the performance and effective participation of suppliers in global horticulture value chains (Sievers, 2009). Empirical data was collated from value chain participants in Kenya and Ghana. In addition, data and information was collated on the operational environment in both economies. Section 5.2 to section 5.4 presents the empirical evidence as reported by global buyers. Section 5.5 to 5.7 presents the evidence as reported by local suppliers. Evidence from informations are illustrated in all sections. 5.8 concludes.

Section 1

5.2 Global buyers
Global buyers that participated in the survey use fresh fruits and vegetables as inputs to production and services. Global supermarket chains retail fresh fruits and vegetables, including pre-packed and processed produce. Beverage manufactures use fresh produce in a number of products and outputs such as canned tomatoes, cow peas etc. Hotel chains and airlines source fresh produce for catering services.

5.2.1 Background and ownership
The 2 beverage manufactures that participated in the survey were subsidiaries with headquarters outside the host nations. Both of them are public owned establishments that have been operating in the host nation for over 40 years. The 2 supermarket chains are both located in Germany and the UK respectively. They source fresh fruits and vegetables from suppliers globally. They were established in the late 1940s and employ staff all over the European Union. The two global airlines that participated in the survey have their headquarters in Europe but have subsidiaries in Kenya and Ghana. Fresh produce is sourced at headquarters level and also in the host nations for inflight services on airlines. They are publicly listed companies run by professionals. Global hotel chains sourcing strategies are similar to the global airlines and in fact some of them belong to the same alliance such as one world or star alliance. They were established in the early part of the century and employ staff all over the world. Similar to global hotel chains, they are both publicly listed companies run by professionals.
Section II

5.3 Governance in HGVCs

The empirical data complemented with secondary data collated in Kenya and Ghana is used to analyse ways in which small suppliers participate in global horticulture value chain, its implications for upgrading. An analysis of the evidence starts with an illustration of the factors that influence supplier performance. The relationship between governance, upgrading, technology, knowledge transfer and absorptive capacity and how this has an impact on supplier performance is evaluated. During the field study, data and information was collated from eighteen (18) local suppliers, seven (7) global buyers’ two (2) government officials and 4 officials from horticulture associations using questionnaires and semi structured interviews. The 7 global buyers comprised two global supermarket retail chains, two beverage manufactures, two global hotel chains, and one global airline all of which use horticulture produce as inputs. With the exception of two local suppliers in Kenya, the remaining 16 suppliers were all locally owned with no foreign investment. An illustration of the model description is presented in figure 5.1.

5.3.1 Model Description

For the purpose of this research the performance of local suppliers is dependent on: governance, absorptive capacity and upgrading activities.

**Governance:** a process through which activities are monitored and controlled in value chains and which has impact on upgrading possibilities (Humphrey and Schmitz, 2000).

**Absorptive capacity:** is defined as the ability of a firm to assimilate, exploit and transform knowledge and technology for innovative purposes.

**Upgrading:** the ability to invest and move into higher value added activities
Global buyers and local suppliers were asked to describe the type of governance imposed to monitor and control activities in global value chains. Questions were asked about the extent of control, the extent of local supplier integration and extent of coordination. Participants were presented with a list of pre-defined variables on a Likert scale where 1 = very much the case to 5 = not the case at all. The questionnaire and interview schedule were formulated using likert scales which is commonly used in research related to agriculture processes (Calson and Dormody, 1994). In this survey the likert scales relied on typically have five response alternatives to gather data from participants (Likert, 1932). In each of the multiple choice questions the respondent must indicate a certain extent of agreement or not with a given phenomenon which makes it easy for respondents and the interviewer. Given the complex interaction between the variables likert scale made it easy for the data collection process. Given that it is important to acknowledge the discrete nature of the replies, the empirical data is presented as numbers and percentages under different headings to acknowledge this fact. Some of the draws backs of using likert scales is that there could be vast differences in responses – extremely high or extremely low that could result in data manipulation and hide the actual meaning of variables because of the unintended limitations by dint of the design of likert questionnaires. Furthermore it is sometimes not possible to make specific and well-founded statements even they could be extreme and present the true picture and due the number of options, data collection could be open to manipulation. There is no right or wrong way of analysing data using likert scale but what is important is that the outcome addresses the research question of hypothesis in a meaningful way. A summary of replies obtained from global buyers are presented in the next section in Table 5.2.
5.3.2 Buyers current relationship with local suppliers

Buyers were asked to describe relationships with local suppliers on a Likert scale of 1 = definitely true to 5 = definitely not true. An overview of replies is presented in Table 5.1. Global buyers were requested to evaluate the reliability of suppliers on a Likert scale of 1 = very reliable to 5 = very unreliable (Henson, 2011). An overview of replies is illustrated in Table 5.1.

Table 5.1 – Evaluation of relationships with suppliers

<table>
<thead>
<tr>
<th>Variable</th>
<th>Global Retailers (GR)</th>
<th>Global Beverage Manufacturers (GBM)</th>
<th>Global Hotel chains (GH)</th>
<th>Global Airlines (GA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Establish long term relations with suppliers</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>2. Always make advance payments to suppliers</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>3. Contracts specify all payment, delivery pricing and other details</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>4. Always check 100% of samples or products on delivery</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>5. Meet suppliers regularly (monthly)</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>6. Share risk of unexpected contingencies in production with suppliers</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>

Source: Researchers field study, 2004
Likert scale: 1 = definitely true; 5 = definitely not true
Relations with suppliers
Retailers/supermarkets were asked to what extent they hoped to establish long term relations with major suppliers. The indication was a “3”, where they explained that reliability and adherence to the stringent quality standards was a prerequisite to forging relations and that the establishment of long term relations would depend on this competency. The extent to which beverage manufacturers hoped to establish long term relations with suppliers was indicated as being “2”. As they source directly from local suppliers, it is important to forge longer term relations to foster trust, reduce coordination and result in lower transaction costs. Global hotels were asked to what extent they hoped to establish long term relations with suppliers. They both indicated a “2” explaining local hotel chains source fresh produce locally, with the exception of selected produce and therefore it is important to establish relations with local suppliers to share information on quality requirements and standards. The global airline (in-flight catering) was asked to what extent they hoped to establish long term relations with suppliers. They indicated a “2” explaining that in their view the forging of long term relations also improves trust, which has positive spillover effects on the quality of produce supplied. Accordingly, increased levels of trust would reduce transaction costs and lead to governance types such as relational or modular that has more upgrading potential. Relational and modular value chains have higher value added activity that contributes to higher income generation and the establishment of better-paid, higher level employment. Its local business-generating potential is also higher compared to quasi-hierarchical governance.

Advance payments to suppliers
Global retailers asked if they always make advance payments to suppliers; the indication was “5”. Global retailers do not make advance payments to suppliers except under very exceptional circumstances where very large off-season supplies are demanded. According to one beverage manufacturer, there have been cases where small local suppliers require financial assistance, so a fund has been set up to support such requests and deducted from the final invoice payment. Beverage manufactures were asked if supplier contracts specified all payment, delivery pricing and other details. Both indicated a “2” and said that all contract information is included on a best effort basis. The hotel chains were asked if they at all times make advance payments to suppliers. The indication was “4” meaning they seldom do so. However, if there is a large off-season demand for fresh produce they do consider making some advance payment, but this is done on a very exceptional basis. Airline catering firms sometimes make advance payments to suppliers which they indicated as a “2” especially in cases where suppliers can prove investments in innovation that facilitate the processing
of complex transactions. The indication by local suppliers was “5” meaning advance payments are rarely made to them.

Contracts specify all payment, delivery pricing and other details

According to global retailers all purchases are made by establishing written contracts that specified all payment, delivery, pricing and other details where both retailers indicated a “2”. There have been cases where fruits did not meet the high quality standards and exceeded tolerance levels, so had to be rejected. Provisions would be made in future contracts to cover such cases. Asked if retailers checked all suppliers on delivery they indicated a “1” and explained a thorough inspection of all fresh produce is conducted in accordance with quality control procedures and standards. Beverage manufacturers were asked if all supplies are checked on delivery; they indicated a “1” and explained that when deliveries arrive, a complete inspection of all fresh produce is conducted in accordance with quality control procedures and standards. Hotel chains were asked if supplier contracts specified all payment, delivery pricing and other details. Hotels chains indicated a “1” and said all contracts specify full information. Asked if they checked all suppliers on delivery the indication was “1” similar to the retail and beverage manufacturers. Hotel chains explained that as they provide catering services, which are experienced goods, it was of paramount importance that all fresh produce supplied were of the highest quality. Furthermore, quality also has implications for branding and the supply of sub-standard produce could have significant consequences for their brand.

Asked if contracts specified all payment, pricing and other details, the indication was “1” and confirmed that all contracts specify complete information (Key & Runsten, 1999). Catering firms checked all supplies on delivery and indicated a “2”, but the quality of supplies has improved given the trust environment they hope to have established through long term relations with major suppliers.

The indication was “4” in Kenya and “3” in Ghana. In Ghana most horticultural produce is purchased from small suppliers on a cash basis. Few contracts specify all payment, delivery and pricing information. In Kenya, most of the contracts are written and do specify all elements, with the exception of a few cases where price information was missing. For instance, while contracts typically specify the quality and quantity in advance, the final price is often only agreed once the produce reaches a distribution centre. Global buyers deduct their fees for marketing, packing, distributing and then pay suppliers the residual of the price. This exposes local suppliers to considerable risk as the trend in prices for a number of horticultural products is falling in real terms. Local suppliers have limited choice but to accept a given price because fresh produce already been dispatched and once the growing season starts, it is difficult for suppliers to find alternative buyers for their produce.
Check 100% of samples or products on delivery

Global buyers indicated “1” meaning all samples is checked on a best effort basis. Random checks take place and there is also a policy to check the whole of at least 80% of deliveries of fresh produce due to the low trust environment which contributes to high transaction costs. According to the literature high trust environments reduce the incidence of higher transaction costs and lead to governance types such as relational or modular which have more upgrading potential. In addition, the tendency for the establishment of local business increases. Similar to hotel chains, airline catering firms explained that as they provide catering services for airlines which are experienced goods, it is crucial that all fresh produce supplied is of the highest quality. Furthermore, the quality of in-flight catering is a critical element of airline competitiveness. Local suppliers confirmed this.

Meeting suppliers on a regular basis (Monthly)

Retailers were asked if they met suppliers on a regular basis. They indicated a “4” and explained that meeting with suppliers does not happen frequently, but they do meet with importers who source on their behalf. Information relating to the application of standards and quality requirements are channelled through importers. Global hotel chains were asked if they meet supplier on a regular basis. They indicated a “4” and explained that meeting with suppliers does not happen frequently, but when the need arises, they organise ad hoc meetings with major suppliers. Caterers meet suppliers on a regular basis, indicated by a “3”.

Share risk of unexpected contingencies in production with suppliers

Retailers were asked if they meet suppliers on a regular basis. They indicated a “4” and explained that meeting with suppliers does not happen frequently, but they do meet with importers who source on their behalf. Information relating to the application of standards and quality requirements are channelled through importers. On an exceptional basis, suppliers could meet retailers at fairs and trade forums. Suppliers are met on a regular basis indicated by a “3” and supplier development programmes are established where issues pertaining to standards and high quality requirements are discussed. Global hotel chains indicated a “4” and explained that meeting with suppliers does not happen frequently, but when the need arises, they organise ad hoc meetings with major suppliers. Caterers meet suppliers on a regular basis, indicated by a “3”.

Global retailers were asked if they shared the risks of unexpected contingencies in production with suppliers, both indicating a “5” meaning they never share such risks. The risk of unexpected contingencies falls on suppliers at the very end of the chain. Large importers assume minimum risk and retailers almost no risk at all. According to beverage manufacturers the sharing of risks of unexpected contingencies in production with suppliers was indicated by a “5”. Although such risks are not shared, innovative initiatives to reduce such risks are supported by providing information
during supplier development programmes. Hotel chains were asked if they shared the risks of unexpected contingencies in production with suppliers. The indication was a “5” meaning they never share such risks. This is consistent with replies from global retailers and manufacturers. According to airlines, the risks of unexpected contingencies are not shared, indicated by a “5”. One of the catering firms interviewed said that a procurement team is responsible for identifying operational risks, which might have serious implications for the operations of the airline. In addition, the financial standing of key suppliers is monitored to provide information on financial risks, including business continuity and contingency plans that are also in place to address supply failures.

Reliability of suppliers

Both global retailers rated the top three suppliers as very reliable by indicating a “2”. They both explained that reliability is a necessary condition for participation in horticulture value chains, as they had to ensure all year round supplies of fresh produce to remain competitive. Beverage manufacturers were asked to rate the top three major suppliers on a likert scale (1=very reliable; 5 = very unreliable). The two beverage manufacturers rated the top three suppliers as very reliable by indicating a “2”, with one sourcing from more than 160,000 suppliers in 2004. They both explained that reliability is a necessary condition for participation in horticulture value chains especially in developing locations like Kenya and Ghana where non-compliance tends to be prevalent and monitoring costs are high.

The local hotels sourced directly from local suppliers. The top three suppliers were rated very reliable indicating a “2”. The global hotel chains explained that reliability is a necessary condition for participation in horticulture value chains especially in the hospitality industry where reliability and the delivery of quality catering can only be determined by experience and not before consumption by consumers. Therefore, it was absolutely essential that suppliers are reliable and deliver quality produce. Similar to global hotel chains, the global airlines engage in non-equity expansion through code-sharing and the formation of alliances. The industrial organisation of airlines comes in the form of an oligopoly where a number of airlines have formed alliances, which have consolidated the industry into four main sectors. In cases where fresh produce is sourced locally, to make up for shortfalls in catering supplies, the top three suppliers were rated as very reliable indicating a “2”. The assistant manager of one of the catering firms explained that suppliers ensure that fresh produce is delivered in a timely manner. Moreover, in-flight services are one of the main reasons why a customer would decide to fly with a particular airline and therefore reliability and reputation are necessary conditions for the industry. Furthermore, in-flight services are similar to the provision of catering services provided by hotels where a product or service cannot be inspected before consumption. They are both experienced goods and therefore the highest quality of produce at all times must be ensured. Airlines have also selected some of the best suppliers of fresh produce in the market who deliver
consistently high quality produce at the best prices and also formed strategic alliances with leading suppliers in the retail and food sector.

Reasons for sourcing from suppliers and searching for new suppliers
All the global buyers stated that they would maintain contracts with suppliers if they comply with standards and high quality requirements. They confirmed that they continue to look for new suppliers could supply good quality produce at a competitive price. Social standards are a major concern and most of the buyers admitted that it is one of the main reason why a consumer would shift to a competitor. Given that margins are very thin and competition is intense they give very high priority to such issues.

Type of contract awarded
Awarding contracts will usually depend on the competitive strategy of the buyer which is sometimes directed from headquarters. Nevertheless subsidiaries do operate independently in line with local legislation so their sourcing is sometimes driven by such concerns. Price and length of service (reputation) were some of the factors that buyers would consider when awarding contracts most notably repeated contracts where transactions could be complex.

5.3.3 Extent of control
Global supermarket chains: The two global supermarket retailers who participated in the study were asked to describe how activities are controlled in horticulture value chains. Both retailers indicated a “1” showing very high degrees of control. The most important control mechanisms include the provision of broad guidelines, costs and quality control. According to them this is necessary to ensure adherence to standards and high quality requirements for fresh produce. The administrative manager said that his outfit had adopted a set of benchmarks and audit methodology to ensure that suppliers adhere to the respective guidelines on the supply of fresh produce. In addition to meeting basic CODEX standards, horticultural produce must also meet phytosanitary and pesticide residue standards. The supermarket chains have also established their own standards which are more stringent than the CODEX (Thankappan and Marsden, 2006). It was also explained by both global buyers that the quality of produce was of strategic importance and that according to market intelligence the quality and availability of fresh produce are reliable indicators of whether a customer would remain with a particular supermarket or shift to a competitor. In Ghana the governance was mainly quasi-hierarchical in all cases. In Kenya, the most predominant governance was modular and quasi-

---

4 Codex is provides minimum standards required to protect the consumer.
hierarchical depending on the size, skills and capabilities of the supplier. The two supermarket retail chains indicated that top executives visit major suppliers at least once a year. During these visits issues pertaining to compliance and ethics are discussed.

Table 5.2 Monitoring and control in global horticulture value chains

<table>
<thead>
<tr>
<th>Control mechanisms</th>
<th>Global Retailers (GR)</th>
<th>Global Manufacturers</th>
<th>Beverage Manufacturers</th>
<th>Global Hotel chains</th>
<th>Global Airlines</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>GR1 Yes</td>
<td>GBM1 Yes</td>
<td>GBM2 Yes</td>
<td>GH1 No</td>
<td>GA1 No</td>
</tr>
<tr>
<td>Extent of Control</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Extent of Alignment</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Most important control mechanism</td>
<td>Provision of broad guidelines costs control inventory and quality control</td>
<td>Provision of broad guidelines including standards, costs and quality control</td>
<td>Provision of broad guidelines</td>
<td>Broad guidelines, quality controls</td>
<td>specific guidelines on standards stringent quality requirements</td>
</tr>
<tr>
<td>Frequency of visits to suppliers (audit)</td>
<td>Frequent At least every six months</td>
<td>Frequent At least every six months</td>
<td>Frequent At least once a year</td>
<td>Not very frequent</td>
<td>Not very frequent</td>
</tr>
</tbody>
</table>

(a) Likert scale: 1= definitely true; 5= definitely not true – Source: Researchers compilation

Beverage manufacturers: Both beverage manufacturers indicated a “2” and confirmed that control mechanisms were not as strict compared to global supermarket chains. It was explained that because beverage manufacturers do not sell fresh produce for direct consumption but rather use it as an input to production, the extent of control does not have to be that rigorous, although produce supplied must fulfill all the necessary standards and high quality requirements. The most important control mechanisms include the provision of broad guidelines, costs and quality control. Similar to global supermarket chains, the main form of governance was quasi-hierarchical in Ghana, and modular or quasi-hierarchical in Kenya depending on the size, skills and capabilities of the supplier. To ensure compliance, top executives visit major suppliers at least once a year. However, one of the beverage manufacturers reported that it conducted 3,400 audits of suppliers’ facilities in 2003 to ensure compliance with standards and high quality requirements.

Hotel Chains: The hotel chains indicated a “3” in Kenya and a “2” in Ghana. The high degree of control in Ghana was due to the lack and skills and capabilities in suppliers and was therefore necessary to closely monitor and control activities in the chains. With regards to Kenya, they have a competitive advantage over Ghana due to the mature stage of their horticulture sector. The most important control mechanism applied includes on-the-spot checks, provision of specific guidelines with regards to standards, and stringent quality requirements. In Kenya, broad guidelines and quality controls are also applied but suppliers tend to be more experienced because the horticulture sector is more developed. The main form of governance is quasi-hierarchical because most of the hotel chains
are either franchises or under management contract and therefore do not lead to the forging of modular governance in specific locations. Given their mode of operation which is non-equity, top executives rarely visit major suppliers.

*Global airline:* The one global airline that participated in this study had outsourced its in-flight services to two separate catering facilities in the UK. Thus, the questionnaire was addressed to the two catering outfits and the parent company. The catering firms indicated a “2” on the extent of control indicating a very high degree of control due to the stringent quality standards on food hygiene that have to be closely monitored. This is similar to the global supermarket and hotel chains. The most important control mechanisms include provision of specific guidelines and quality control. The main form of governance is quasi-hierarchical. The global airline that participated in this study does not have direct contact with suppliers because catering operations are outsourced. The catering companies of the airlines visit major suppliers at least once a year. Importers are audited more frequently; at least once a year.

### 5.3.4 Extent of integration

Participants were asked to what extent, in their view, local suppliers were integrated into horticulture value chains on a Likert scale of 1 = highly integrated to 5 = very limited integration (Minbaeva, 2007).

*Supermarket retail chains:* Both retailers indicated a “2” and explained that according to their experience large suppliers tended to be more integrated than medium suppliers and that integration was also reduced in small suppliers indicating a “4”. Small suppliers are not able to fully integrate in value chains due to the lack of skills and capabilities required to codify and process complex transactions resulting in high exclusion rates.

*Beverage manufacturers:* Beverage manufacturers indicated a higher rate of integration of suppliers at “2” explaining that integration forms a key part of their competitive strategy due to the form of expansion that tends to be equity. They also explained that the integration and development of suppliers would result in increased demand for products that they manufacture therefore it was in their interest to ensure that such a process is feasible.

*Hotel Chains:* The indication was a “3” in Kenya and a “2” in Ghana. They explained that due to their form of expansion that is non-equity, they do not have direct relations with suppliers and therefore integration is not part of their competitive strategy.
Global airlines: They both indicated a “2” as integration was necessary for innovation of major suppliers who are also importers or wholesalers located in Europe. Caterers have set-aside days on which innovative activities are discussed and shared with major suppliers.

5.3.5 Extent of Coordination

Participants were asked to describe their coordination activities on a Likert scale of 1 = very coordinated to 5 = very uncoordinated (Minbaeva, 2007)

Supermarket retail chains: Both retailers indicated “1” and explained that the very extensive coordination results from the increase in non-compliance especially in small suppliers. The respondents also said that the competitive strategies and increasing regulatory requirements such as the 1990 Food Safety Act in the UK and European Union rules on pesticide residues make supermarkets responsible for food safety lapses that occur in the supply chain. Therefore the high level of coordination is necessary to ensure that all participants are fully compliant with the relevant rules and regulations. According to them, these standards are often viewed by customers as an indication of quality. As the horticulture business also entails risks, retailers said that they have had to engage in extensive monitoring and audit that requires tight coordination at different nodes of the supply chain to mitigate risks.

Beverage manufacturers: The extent of coordination was indicated by “2” which is still intensive but less so than supermarket chains. The high degree of coordination results from a rise in non-compliance experienced in recent years and which has to be addressed. This coordination is especially relevant when sourcing direct from farmers and when there is limited use of intermediaries and/or wholesalers that screen suppliers on behalf of global buyers for non-compliance.

Hotel chains: According to the hotel chain in Kenya the extent of coordination could be indicated by “3”. The respondent explained that due to their form of investment being non-equity, they did not need to coordinate activities in value chains. Sometimes they purchased produce direct from farms and this does not require any coordination. The hotel chain in Ghana indicated “2”. The operations manager of the hotel chain explained that the extensive coordination of suppliers is due to poor quality of produce and the need for on-time deliveries. Most of the hotels are owned by local investors who source directly from local farms.

Global Airlines: The extent of coordination was indicated by a “2”, similar to the hotel chains and typical of captive or quasi-hierarchical governance.

Important control mechanisms
Respondents confirmed that a number of suppliers have indeed invested in upgrading but still fell short of minimum requirements confirmed by a reported increase in non-compliance. For instance, the GLOBALGAP\(^5\) is a widely used private sector standard established by the European Retailer Produce (Eurep) and is especially relevant for small to medium size suppliers. Although obtaining GLOBALGAP is not a legal requirement, it is a minimum standard that suppliers must comply with. To date most suppliers have not invested in upgrading to ensure compliance with these standards. Supermarket chains such as Tesco’s and Marks and Spencer’s have also so established brand standards\(^6\) requirements which suppliers have difficulties complying with due to the lack of upgrading. This has prompted the use of random audits conducted by agents to monitor activities of suppliers. This has further added to transaction costs that are quite high in Kenya and Ghana due to infrastructural and institutional gaps. Additional transaction costs are incurred to pay agents and auditors that monitor and keep records on various activities. Due to the lack of upgrading the most common form of governance was quasi-hierarchical or captive.

*Frequency of visits to suppliers*
All 7 buyers would visit suppliers at least twice a year.

### 5.3.6 Supplier Development programmes for suppliers

There are also explicit supplier development programmes established by global beverage manufacturers. They also maintain a database to keep the list of eligible suppliers up to date. Seminars are organised where compliance issues on the supply of horticulture produce such has adherence to GlobalGAP and other market intelligence are discussed with suppliers. Global hotel chains do not have explicit supplier development programmes consistent with their expansion strategy which is non-equity in nature. However, quality assurance seminars and promotion of cooperative learning are organised, where the sharing of technology- and market-related information is discussed. Similarly, global airlines did not have explicit supplier development programmes but one of the catering firms had established development programmes though the introduction of eGate solutions, regular visits to suppliers and quality audits.

---

\(^5\) The mostly widely used private sector standard was established in 1997 by the Euro-Retailer Produce (Eurep) working group. It was re-named as GlobalGAP 2007 (Henson and Jaffee, 2006).

\(^6\) For example Tesco’s “Nature Choice” and Marks and Spencer’s “Field to Fork” (Henson, 2011)
5.4 **Technology and knowledge transfer to suppliers**

5.4.1 **Knowledge transfer and exchange**

Participants were asked the extent to which knowledge transfer and exchange occurs in value chains. An overview of the replies is illustrated in Table 5.3.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Global retailers/supermarkets (GR)</th>
<th>Global beverage manufacturers (GM)</th>
<th>Global hotel chains (GH)</th>
<th>Global airlines (GA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Knowledge transfer to suppliers Yes/No</td>
<td>GM1 Yes</td>
<td>GM2 Yes</td>
<td>GH1 Yes</td>
<td>GAT</td>
</tr>
<tr>
<td>2. Most important kind of knowledge transferred</td>
<td>Management</td>
<td>Production</td>
<td>Management</td>
<td>Production</td>
</tr>
<tr>
<td></td>
<td>Marketing</td>
<td>Marketing</td>
<td>Management</td>
<td>Marketing</td>
</tr>
<tr>
<td></td>
<td>Accounting</td>
<td>Production</td>
<td>Management</td>
<td>Production</td>
</tr>
<tr>
<td>3. Most important channel of knowledge transfer</td>
<td>Learning by doing</td>
<td>Learning by doing</td>
<td>Learning by doing</td>
<td>Learning by doing</td>
</tr>
<tr>
<td></td>
<td>Training of staff from suppliers</td>
<td>Training of staff from suppliers</td>
<td>Training of staff from subsidiaries</td>
<td>Training of staff from suppliers</td>
</tr>
<tr>
<td>4. Most important incentives provided to encourage knowledge development of suppliers</td>
<td>More knowledge transfer</td>
<td>Joint training with parent company</td>
<td>Provision of long term supply contracts</td>
<td>Provision of long term contracts</td>
</tr>
<tr>
<td></td>
<td>Provision of long term contract</td>
<td>Joint training with parent company</td>
<td>Provision of long term contracts</td>
<td>Provision of long term contracts</td>
</tr>
<tr>
<td></td>
<td>Joint training with parent company</td>
<td></td>
<td></td>
<td>Joint training with parent company</td>
</tr>
<tr>
<td>5. Most significant contribution of knowledge development by suppliers</td>
<td>Quick response time</td>
<td>Better product modifications</td>
<td>Better product performance</td>
<td>Quick response time Better product design Better product modifications</td>
</tr>
<tr>
<td></td>
<td>Better product modifications</td>
<td>Better product modifications</td>
<td>Use of cheaper local inputs</td>
<td></td>
</tr>
<tr>
<td>Likert scale: 1=very much so; 5=not at all</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Importance of Knowledge transfer in enhancing the performance of suppliers</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>7. Involvement of global buyers in the knowledge development of suppliers</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>8. Extent to which</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>
Type of knowledge transfer - Global buyers: The two global retailers who participated in the survey confirmed that the most important kinds of knowledge transferred are production, management and marketing. The most important channel through which knowledge is transferred is learning by doing and training of staff from suppliers. According to global buyers absorptive capacity determines the extent of knowledge transfer which is also confirmed in a number of other studies (Lane and Lubatkin, 1998; Gupta and Govindarajan, 2000; Minbaeva et al. 2003). They also cited the importance of local supplier competencies as a necessary condition for knowledge transfer which is also argued in a number of studies (Cantwell, 1989; 1999; Kokko, 1994). The exchange of information on purchase orders and invoices improves services and leads to lower expenses and increased productivity. Knowledge transfer is not automatic but requires the existence of capable suppliers and supporting institutions that facilitate the transfer (Zanfei, 2004). According to beverage manufacturers, the most important types of knowledge transferred are production, management, marketing and accounting, again through learning by doing and training of staff from suppliers. Global airlines and hotel chains transfer knowledge on quality and consumer preferences. Global buyers acknowledged that they are a vital source of knowledge transfer especially in developing countries such as Kenya and Ghana where there is a general lack of knowledge but which in turn depends on the rate of absorptive capacity in local suppliers (Saliola and Zanfei, 2009)

Channel of knowledge transfer: The most important channel of knowledge transfer is learning by doing and supplier development programmes that include quality assurance seminars and promotion of cooperative learning. There is also some sharing of market related information. One supermarket global chain had started to source directly from Kenya enhancing its links with local suppliers by establishing supplier clubs and liaison systems.
Incentives provided to encourage knowledge development in local suppliers:

Global buyer incentives to encourage knowledge development include joint training with importers, provision of long term supply contracts and knowledge transfer. The most important incentive provided by supermarkets to encourage knowledge development is the provision of long term supplier contracts, more knowledge transfer and possibilities of joint training with supermarkets/retailers. Beverage manufacturers indicated that incentives given to encourage knowledge development are the provision of long term supplier contracts and joint training with the parent company leading to better product modifications and the use of cheap local inputs. The most important incentives provided by hotel chains to encourage knowledge development are the provision of long term supplier contracts. According to airlines, the most important incentives provided to encourage knowledge development are the provision of long term supplier contracts and joint training with the parent company.

Contribution of knowledge development in enhancing the competitive advantage of horticulture produce:

Global buyers confirmed that the development of knowledge enhances the competitive advantage of a product. Developments can occur through product modifications, design, performance and inventory management.

Importance of knowledge transfer in enhancing the performance of suppliers:

On a Likert scale of 1 = very much so to 5 = not all, global buyers were requested to indicate the importance of knowledge transfer in enhancing the performance of suppliers and their involvement in the knowledge development of the suppliers (Minbaeva, 2007). All global buyers – supermarket retailers, beverage manufacturers, airlines and hotel chains – indicated a “2” confirming that knowledge transfer is very important for the performance of major suppliers. One of the beverage manufacturers, through the introduction of a Business Partner Code, communicates areas of potential operational risk to suppliers. In developing countries such as Ghana and Kenya, the Business Partner Code is included in the sourcing agreement or contract and disseminated through a Supplier Ethical Data Exchange (SEDEX) to promote responsible sourcing. With regard to knowledge development, one global retailer provides an electronic link through where information allows a supplier to plan resulting in better services. All suppliers are required to participate in the electronic link. The software is provided and supported by the retailer.

Extent to which global buyers use knowledge transfer to control suppliers:

The extent to which global buyers use the transfer of knowledge to control suppliers is limited. However, global buyers can use knowledge transfer to control suppliers if the specific knowledge could impact their reputation or competitive strategies. Local suppliers did not agree and stated that
knowledge transfer is used to control activities in value chains. For instance, knowledge of prices and markets are not readily available to suppliers but global buyers are well informed and are the price setters. They use this information to control demand, supply and the pace of the market.

**Extent to which supplier initiatives in knowledge development determine sourcing decision:**
Supplier initiatives in knowledge development are very welcome, but this alone does not determine the sourcing decisions of global buyers as these depends on a number of factors including product development, consumer tastes and preferences. Knowledge transfer that supports the development of knowledge in suppliers occurs on a continuous basis but it does not determine if a product or service would be sourced from the specific supplier in future.

**Extent to which more knowledge transfer would take place in the next five years**
Global buyers indicated that transfer of more knowledge in the future would depend on the evolution of the markets. Beverage manufacturers confirmed that knowledge transfer occurs on a continuous basis through the gathering and dissemination of market intelligence. This was confirmed by local suppliers; they are challenged by the lack of IT communication and energy supplies where the websites of some local suppliers have not been updated for a while due to the non-availability of electricity and database managers

### 5.4.2 Technology transfer

To determine the extent of technology transfer participants were asked questions about (i) type of technology transfer, (ii) channel of transfer, (iii) incentives provided to encourage technological development in local suppliers, (iv) contribution of technological development in enhancing the competitive advantage of horticultural produce and (v) importance of technology transfer in enhancing the performance of suppliers. An overview is presented in Table 5.4. (Cayer and Minkler, 1998).
Table 5.4 - Overview of Technology transfer

<table>
<thead>
<tr>
<th>Variable</th>
<th>Global retailers/supermarkets (GR)</th>
<th>Global beverage manufacturers (GM)</th>
<th>Global hotel chains (GH)</th>
<th>Global airlines (GA)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>GR1</td>
<td>GM1</td>
<td>GH1</td>
<td>GA1</td>
</tr>
<tr>
<td>1. Technology transfer to suppliers</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>2. Most important kind of technology transferred</td>
<td>Direct transfer of process technology/expertise</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>3. Most important channel of transfer</td>
<td>Licensing technology to suppliers</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>4. Most important incentives provided to encourage technology development of suppliers</td>
<td>Technology transfer</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Provision of long term contracts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Most significant contribution of technology development by suppliers</td>
<td>Better product modifications</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>6. Importance of technological transfer in enhancing the performance of suppliers</td>
<td>1</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>7. Involvement of global buyers in the R&amp;D activities of suppliers</td>
<td>4</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>8. Extent to which global buyers use technology transfer to control suppliers</td>
<td>3</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>9. The extent to which initiatives in technology development determine the likely hood of using suppliers</td>
<td>3</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>10. Extent to which more technology transfer would take place in the next 5 years</td>
<td>2</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Questions 6-10 – Likert scale 1=very much so; 5= not at all., Reserchers compilation (Cayer and Minkler, 1998) (Gibbon, P., 2008); Mayer, J. and Fajarnes, P. 2008); Kurian, M. and Dietz, T. 2004)

Global buyers - The most important type of technology transfer (Lall & Pietrobelli, 2005)

Global buyers were asked to indicate the type of technology transferred to local suppliers. One supermarket chain did not transfer any technology. The other supermarket chain did transfer technology pertaining to preservation and cooling to its major suppliers in the UK, but not to local suppliers in Kenya and Ghana. The two global beverage manufacturers do not transfer technology, however one engages in extensive R&D in close collaboration with business partners and local universities. This ensures that R&D is implemented locally to meet consumer tastes and preferences. Global hotel chains do not transfer any technology to suppliers as their main mode of expansion is...
through franchising and/or management contracts where relationships with local suppliers are indirect. Global airlines do not transfer technology to suppliers but do support innovative initiatives of suppliers. For example, catering firms have innovation days where ideas from suppliers are discussed and synergies identified. The actual transfer of technology does not take place.

**Channel of technology transfer:** For the catering firms of global airlines, innovation days are hosted where ideas from suppliers are discussed and synergies identified. The actual transfer of technology does not occur but some supermarkets chains have transferred basic operations such as washing, trimming to locations such as Kenya. This has resulted in a large number of suppliers exporting ready-made fresh produce, which requires increased levels of hygiene and has higher added value.

**Most important incentive provided to encourage technological development in local suppliers**

Global retailers provide incentives such as provision of long term contracts to encourage technological development in local suppliers. The other global buyers might consider technology transfer but they are not sure. Local suppliers on the whole did not confirm this incentive. They see large investments as a sunk cost leading to high risks, as contracts are never guaranteed and the provision of long term contracts no longer exist in the horticulture trade.

**Contribution of technological development in enhancing the competitive advantage of horticulture produce**

Global buyers said that the technological development of local suppliers would greatly enhance interaction and the competitive advantage of fresh produce. For example, investment in processes and systems that support the codification of complex information would greatly reduce additional investments in monitoring and coordination. This results in a reduction in transaction costs that are linked to lower prices. Local suppliers share this view, but said that since there is virtually no technology transfer they have limited capacity to develop technology. They confirm that technological development in local suppliers would enhance upgrading, leading to competitive advantage.

**Importance of technology transfer in enhancing the performance of suppliers:**

Global buyers indicated “1” illustrating that the transfer of technology is very important for the development of suppliers. Local suppliers were of the same view. Technology transfer is critical as innovation required by global buyers does require substantive investments.
Involvement of global buyers in supplier R&D activities:

On a Likert scale of 1 = very much so to 5 = not at all, global buyers were asked to indicate if the global buyers were involved in the R&D activities of suppliers (Pardey et al., 2005; Minbaeva, 2007). The indication was a “4” which is very limited. Local suppliers confirmed this limited participation.

Extent to which global buyers use technology transfer to control suppliers:

Global buyers if they use technology transfer to control major suppliers. Here the indication was a “3”. As there was virtually no technology transfer, it was not used as a control mechanism. However, it was important that local suppliers invested in appropriate technology necessary for interaction in horticulture chains. Local suppliers confirmed that if they did not have the right technology, contracts would be awarded to competitor suppliers. This means that global buyers use the availability of technology to control the awarding of contracts.

Extent to which supplier initiatives in technological development determine sourcing decisions of global buyers:

Global buyers indicated a “2” illustrating those supplier initiatives in technological development determine the sourcing decisions of global buyers. Local suppliers confirmed this stance.

Extent to which more technology transfer would take place in the next five years:

The extent to which more technology transfer would occur in the next five years was indicated by “2”. The chances are remote as technology is the competitive edge of global buyers, which they would protect. One of the beverage manufacturers confirmed that they would in the near future establish an R&D centre in SSA where innovation takes place and more technology can be shared. Local suppliers were of the view that once efficient institutions are in place, more technology transfer could take place, but this would also depend on their extent of technology and absorptive capacity. Global buyers acknowledged the importance of technology transfer as being necessary for innovation leading to the export of produce with high technological content (UNCTAD, 2006; Acharya and Keller, 2007; Markusen, 2002; Blomström and Kokko, 1998). However, decisions on the transfer of technology will depend on the capacity of local suppliers to use new technology. When this is not the case, global buyers would not engage in technology transfer or would simply transfer old technology (Saggi, 1999; Yang & Maskus 2009).
5.5 Local Suppliers

Section I

5.5.1 Background and Ownership
The 18 local suppliers that participated in the survey were small private firms either run by professional managers and/or family members. The year of establishment ranges between 10 to 25 year and employ up to 500 personnel depending on the season. A number of employees are temporary workers who reside predominantly in rural areas.

Section II

5.5.2 Market Organisation
In Kenya 3 each of the suppliers supplied vegetables, fruits and 3 supplied fruits and vegetables to export markets in the European Union. In Ghana, 6 suppliers were engaged in the supply of vegetables, 2 in the supply of fruits and 1 supplied both fruits and vegetables for export. For an overview of suppliers see tables 2 and tables 3 in chapter 4). The main buyers of fresh produce are global beverage manufacturers, supermarket chains, global hotels and airlines. Suppliers confirmed that they do actively seek new buyers for more stable and longer contracts due to the low barriers to entry, high rates of exclusion and high frequency of short contracts with no guarantee of repeated contracts that depend on length of service, repeated order and price. Buyers would sometimes tend to commit or depend on suppliers if it is able to supply unique products and/or services to protect the brand name and reputation of the buyer. Off peak supplies are one of the competitive edges that a supplier could use as a dependency. Sourcing policies are mainly influenced by the above mentioned factors including specific indigenous sourcing requirements if they exist as a social responsibility on the part of the buyer. Global buyers also dictate the price suppliers receive and the conditions under which they award contracts and distribute risk during interaction. Suppliers are especially vulnerable to buyer power because horticultural produce is highly perishable. The most evident form of buyer power occurs when a single buyer offers a take-it-or-leave-it price to a supplier. It is also known that global buyers can offer lower prices for horticultural produce that do not meet standards or refuse to buy them altogether and in cases where there is only one global buyer, suppliers’ profits are driven very low (Martinez and Zering, 2004).

Given the structure of global horticulture value chains that is characterised by oligopsony, suppliers could not predict exactly what the short or long term prospects of buyers could be. This oligopoly has given global buyers the opportunity to earn super-normal profits at the expense of locals suppliers. Oligopsony conditions in global horticulture value chains have given rise to buyer power leading to concentration whereby local suppliers are forced to accept the terms and conditions of the global
buyer (Zheng and Vukina, 2009). Global buyers use strategies such as auctions and threats of de-listing that force suppliers to sell at reduced prices (Humphrey and Memedovic, 2006). Increased competition in European horticultural imports is already evident as prices in supermarkets stagnate in spite of rising costs and shrinking profit margins. The market for prepared fruit and vegetables is increasing especially in Europe where demand has doubled in value since 2004. It is now estimated to be worth €155 million/year in the UK with other countries trailing well behind (Table 6.3). However, it is expected that demand in other European countries will increase in a similar fashion to prepared vegetables. The drivers for consumption of prepared fruit and vegetables in the EU are increased disposable income, the promotion of healthy eating, enjoyment and convenience – with convenience and enjoyment being the most important.

Small local suppliers have difficulty in marketing their products as they are increasingly bypassed in favour of larger suppliers, despite the price competitiveness of small local suppliers. Retailers and global buyers demand a continuity of supply that small local suppliers are incapable of providing due to a lack of advanced technology. Moreover, the burden of verifying GLOBALGAP compliance and recording crop origins falls on the supplier and the costs of these measures rise as the numbers increase since they must in turn perform more audits and track produce from more farms (supermarkets require standards compliance and traceability back to individual farms).

Section III

5.5.3 Governance in GVCs
To determine the characteristics of governance in global horticulture value chains in Kenya and Ghana a survey complemented with secondary and semi-structured interviews were conducted with all 18 local suppliers, 7 global buyers and 6 informants. All the suppliers who participated in the survey are 1st tier suppliers. The empirical evidence from the two economies are indicative samples that illustrate the different modes of governance and upgrading trajectories. Given that the number of buyers are few, they all had prior relations as either existing suppliers or sub-contractors representing buyers. According to some suppliers, prior relations could be very important in sourcing decisions due to reputation and dependency. On a likert scale 1=definitely true to 5=definitely not true, local suppliers were asked in the survey to indicate to indicate the type of relationship they would wish to establish with buyers.
Suppliers - Establish long term relations with suppliers

The indication was “3” in Kenya and Ghana. They would like to establish long term relations with global buyers, but due to the low barriers to entry, they are also constantly searching for new buyers to secure their position in the chain.

Always make advance payments to suppliers

Global buyers never make advance payments to suppliers.

Contracts specify all payment, delivery pricing and other details

Suppliers at all levels of the chain also come under pressure where buyers increase their demands, but with no commensurate increase in price. For instance, one local supplier of green beans in Kenya describes how they had to introduce expensive new packaging requirements demanded by UK supermarkets, but the prices they received remained the same. They explained that:

“The UK supermarket demanded changes in green beans packaging. The new packaging bags were three times as expensive and the productivity in the pack house was reduced it took 25 to 40 per cent longer to seal those packages but the price remained at the same level”

Local suppliers also complained of global buyers, especially global retail supermarkets, negotiating prices below the cost of production, charging fees to suppliers and running promotions to capture market share, but passing the cost for these onto local suppliers.

Always check 100% of samples or products on delivery

All samples are checked at the farm and in the warehouse.

Meet suppliers regularly (monthly)

On an exceptional basis, suppliers could meet retailers at fairs and trade forums. Suppliers are met on a regular basis indicated by a “3” and supplier development programmes are established where issues pertaining to standards and high quality requirements are discussed.

Share risk of unexpected contingencies in production with suppliers

Local suppliers confirmed that they have to bear all the risks deriving from interaction such as financial risks and post-harvest losses as a number of horticultural products deteriorate rapidly after being picked. For instance, the supermarket shelf life of a lettuce or packet of strawberries is just a
few days. This feature creates significant demands and risks throughout the chain. An example is the Kenya-UK vegetable trade, where a Kenyan vegetable exporter will typically pick, pack and airfreight produce to the UK on the same day the order is received. Costly, specialist technology and transport, and very rapid and efficient links between the different functions, are critical in order to maintain freshness, avoid spoilage and ensure timely delivery. Without these, suppliers face very high post-harvest losses and limited interaction. Perishability also exposes suppliers to the risk of market downturns, since they are unable to store products and wait until prices rise as suppliers of other products may do.

Horticultural produce such as bananas experience very limited seasonal effects, so that planting, harvesting and processing activities take place on a daily, year-round basis. However, other crops, like apples, grapes and pears, do have seasonal production cycles. Seasonality can create new opportunities for suppliers, while at the same time introducing significant risks. Profits and incomes depend on unpredictable and varying market and weather conditions during a few months of the year. Despite technological advances such as drip-feed irrigation systems, cool chain storage, seed technology, fertilisers and pesticides horticultural produce is susceptible to damage from pest infestations or extreme weather. Perishability, seasonality, climate and natural hazards contribute to the unpredictable market and price fluctuations that create risks solely borne by local suppliers. Global buyers also use their buying power to off-load risk onto local suppliers such as transferring inventory management responsibilities to suppliers, requiring just-in-time supply and the various pricing and payment methods. Small to medium size suppliers often do not have a written contract; agreements are verbal which makes them very vulnerable to sudden changes in demands or product rejection.

**Purchasing policy of buyers**

According to the replies, buyers do not have specific policy on how much to source from a specific supplier but such decision could be driven by social responsibility concerns and buyers could distance themselves from suppliers who for instance are seen as using slave labour at very short notice.

**Reliability**

Local suppliers in Kenya rated the top three global buyers as reliable. In Ghana, local suppliers were of a different opinion. The three large global buyers are the investors in the sector and therefore it was complex to determine the extent of their reliability as relations were merely at arm’s length.
5.5.4 Extent of control

The two local suppliers in Kenya with some FDI indicated the least control with a “3” which is a reflection of the limited control due to investment in processes that ensures adherence to standards and high quality requirements. The governance type was therefore modular. In the small to medium size suppliers the extent of control was higher, indicated by a “2”, due to the high incidence of non-compliance with standards. The governance type was quasi-hierarchical or captive where suppliers are engaged to supply standard produce in Ghana. Suppliers confirmed that the most important control mechanisms were the provision of specific guidelines and random audits. Supermarket chains have also set performance standards to ensure compliance with environmental, labour and food safety standards which also confirms discussions in the literature (Thrupp, 1995; Dolan & Humphrey, 2004; Gibbon and Ponte, 2005). Because a very high share of fruits and vegetables are own-label, global retailers insist on additional controls on quality, uniformity, differentiation, and consistency of supply.

The most important control mechanism was the provision of specific guidelines and random audits by local agents contracted by the global buyers, and exclusion from integration for repeated infringements. Compliance is controlled by a third-party audit that provides the certification. According to local suppliers, adherence to GLOBALGAP is challenging because they have to establish risk identification, management and control systems associated with the process standard. As GLOBALGAP is a quality management system, suppliers have to prove that it has the capacity to operate this system through documentation on skills and record-keeping systems. Respondents said that in response to the high investment costs, the GLOBALGAP Option 2 was established as a certified audit that could be used by a group of suppliers. Group certification known as Option 2 is particularly important for small suppliers and places further requirements on individual suppliers forming the group to ensure compliance. Suppliers also confirmed that most of the challenges emanate from compliance with standards and high quality requirements where random checks have revealed that some produce contain substances that are banned resulting from the rejection of produce (Ali, 2008). Breaches of standards are more prevalent in small suppliers who do not have the resources to invest in upgrading (Ali, 2008). Non-compliance with standards and high quality requirements has led to the marginalisation and exclusion of a number of small to medium size suppliers from interaction. Global buyers have also managed to transfer coordination tasks such as sourcing, ordering, delivery, and monitoring to groups of preferred suppliers who they trust can ensure compliance. For instance, the UK retailer Asda/Walmart now uses only one citrus supplier in order to ensure control of processes. Suppliers confirmed the replies provided by global buyers on the frequency of visits but in addition also indicated that random audits are more frequent accompanied with requests to establish procedures to monitor and control activities that sometimes results in asset specificity.
5.5.5 Extent of integration
Suppliers indicated the extent of integration at “4” which is very low and also indicative of quasi-hierarchical or captive governance. The prevalence of this form of governance was confirmed by most suppliers especially the small ones who argued that global buyers are of the view that they do not have the necessary capabilities and logistical infrastructure such as cooling systems and automatic inventory to process complex transactions.

5.5.6 Extent of coordination
Suppliers confirmed the high degree of coordination resulting from retail supermarket specifications on product quality and food safety requirements that warrants the exchange of technical information. The extent of coordination was indicated as “4” for large suppliers and “2” for small to medium size suppliers. This high degree of coordination is also discussed in the literature where it is argued that retail supermarkets benefit from this process but do not assume all the costs and risks associated with such processes (Dolan and Humphrey, 2000, 2004; Gibbon and Ponte, 2005).

*Frequency of visits from buyers*
Global buyers would visit suppliers once or twice a year

5.6 Upgrading activities
The main types of upgrading relevant for participation in global horticulture value chains are process, product and functional upgrading. It allows suppliers to participate in higher value chains and earn additional incomes. Local suppliers were asked to provide their perception of upgrading activities to ensure compliance with standards and high quality requirements (Hallin and Holmström, 2008). Drawing on studies on evidence obtained on the Tanzanian horticulture sector (USAID, 2008) this study set out to evaluate upgrading in the Kenya and Ghana horticulture value chains using the following 2 indicators on processing upgrading (the use of pesticides and drip irrigation), 2 indicators on product upgrading (EureGAP certification and the number and types of HVEV produced and 1 indicator on functional upgrading if the supplier did supply produce they sourced from other farms or suppliers of fresh produce.

5.6.1 Process upgrading
Process upgrading involves making improvement in processes to improve productivity and efficiency. In horticulture this involves the ability to produce and supply similar levels of fresh produce with the
same amount of existing resources. The literature describes how certain value chains such as the garments sector because suppliers have invested in process upgrading (Gereffi et al., 2005). The same is claimed for the electronics sector where it is suggested that suppliers have improved capabilities and moved from hierarchical value chains to modular chains. In the global horticulture value chains in Kenya there is some evidence to suggest that some suppliers have moved from hierarchical to modular value chains due to investment in upgrading. In the case of Ghana, there is evidence of captive and hierarchical governance that continues to persist. Local suppliers reported that the horticulture market has become quite sophisticated due to the proliferation of high quality standards and requirements such as EuroGAP imposed by global buyers but the market can be quite profitable. This has increased the operational risks while at the same time resulting in the exclusion of a number of suppliers from participation due to non-compliance. The use of hybrid seeds pesticides could improve processes but this is constrained due to lack of financial resources knowledge in small suppliers on the use and precautions to take which handling such chemicals. Most of the seeds are imported and can imposed heavy financial burdens of small suppliers with limited access to capital. Seeds that are available locally could be of poor quality or imitation which can lead of loss of revenue or exclusion from participation in value chains due to non-compliance. All 9 suppliers in Kenya made use of some form of drip irrigation techniques such as such as furrow and pan, natural channel and drip and are therefore able to supply produce all year. In Ghana 4 suppliers had permanent drip irrigation facilities.

Table 5.5  Evidence of process upgrading (N=18)

<table>
<thead>
<tr>
<th>Pesticides</th>
<th>Kenya (N=9)</th>
<th>Ghana (n=9)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All 9 suppliers kept records on the use of pesticides</td>
<td>5 suppliers kept records on the use of pesticides 4 suppliers had partial records but promised to update them during the survey</td>
</tr>
<tr>
<td>Type of irrigation techniques</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Rain</td>
<td>1 (Rain, Drip)</td>
<td>2 (rain and drip)</td>
</tr>
<tr>
<td>2. Furrow and pan</td>
<td>0</td>
<td>4 (Rain and furrow and pan)</td>
</tr>
<tr>
<td>3. Natural Channel</td>
<td>1 (Drip, natural channel)</td>
<td>3 (Natural channel, drip)</td>
</tr>
<tr>
<td>4. Drip</td>
<td>7 (Drip and rain)</td>
<td></td>
</tr>
</tbody>
</table>


Some of the associations and local supplier groups provided assistance to suppliers. Typical rural suppliers whom were not close or do not have access to horticulture associations mainly use furrow and pan and/or natural channel forms of irrigation. 4 local suppliers in Ghana fell into this category. According to informants, pan irrigation which involves sprinkling water directly onto crops is the
most favoured method but the most inefficient. Given the costs associated with natural channel and
 drip irrigation a number of suppliers tend to pool resources and invest in such technology. Two
 suppliers in Kenya, one who has in fact also engaged in functional upgrading reported that such
 collaboration does exist facilitated by FPEAK and HCDA. According to suppliers drip and natural
 irrigation methods are very important especially for vegetable production limited resources and the
 lack of institutional support especially in Ghana does not facilitate investments in such procedures.

5.6.2 Product upgrading

*Added value:* Product upgrading involves changing the appearance and form of a product according to
 buyer specifications. During discussions with suppliers a number of possibilities for product
 upgrading were discussed: (ii) production and supply of fruits and vegetables with additional added
 value (ii) application of phyto-sanitary standards (iii) organic farming and (iv) possibilities to upgrade
 and sort products in line with high standards and quality requirements. One of the main upgrading
 that small holders had in mind was to be able to supply organic or high value fruits and vegetables.
 Figures on past and current added values were not readily available from all suppliers, except 7 of the
 suppliers interviewed (5 from Kenya and 2 from Ghana). An overview of current added value is
 illustrated in Table 5.6.

*Table 5.6: Past and current added value: Selected horticulture produce 2000-2003*

<table>
<thead>
<tr>
<th>Market</th>
<th>Supplier</th>
<th>Product</th>
<th>Year</th>
<th>Upgrading</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>(Average wholesale price UK£/Kg)</td>
<td>Product</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2000</td>
<td>2003</td>
</tr>
<tr>
<td>UK</td>
<td>S1</td>
<td>Avocado</td>
<td>1.13</td>
<td>1.88</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UK</td>
<td>S2</td>
<td>Green chillies</td>
<td>2.79</td>
<td>2.63</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UK</td>
<td>S3</td>
<td>Fine beans</td>
<td>2.40</td>
<td>2.53</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UK</td>
<td>S4</td>
<td>Okra</td>
<td>2.88</td>
<td>3.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UK</td>
<td>S5</td>
<td>Passion Fruit</td>
<td>3.13</td>
<td>3.21</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UK</td>
<td>S6</td>
<td>Pineapple</td>
<td>4.52</td>
<td>4.65</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UK</td>
<td>S7</td>
<td>Papaya</td>
<td>2.76</td>
<td>3.12</td>
</tr>
</tbody>
</table>
Out of the 18 local suppliers that participated in the survey only 1 supplier in Kenya did not have the opportunity to supply added value products. Some of the leading vegetable exports from Kenya are French beans, mixed vegetables, runner beans, okra, snow peas and Asian vegetables. Fresh fruit include avocados, mangoes, passion fruit and pineapples. Kenya also exports cashew and macadamia nuts. The leading fruit and vegetables exported by Ghana are pineapples, papaya and some Asian vegetables, including chillies. In Ghana, 4 suppliers (25% of the respondents) were engaged in the supply of high value products mainly emanating from organic farming. Most suppliers aim to supply only export markets due to the high earning capacity had the primary objective to supply the export market. A selection of suppliers 3% also supplied to the local market produce that they could not export. Local suppliers also report different levels of product and process upgrading. Respondents suggested that they would only invest their capital which is limited into an upgrading activity if it is assured that they would secure a continuous contract with a specific buyer. Local suppliers were very award to the oligopsony and low barriers to entry of the sector characterised by uncertainty and would not increase operational risk, uncertainty and vulnerability by making investments into upgrading that could not be replicated in other contracts. This leads to asset specificity and increases transaction costs. The impact of increased transaction costs on local supplier participation in global horticulture value chains is elaborated in chapter 6.

Suppliers were asked to assess the profitability of horticultural produce. Most suppliers noticed increases in profitability with 77% saying they had recorded increased productivity and 82% recorded increases in profits. The more product and process upgrading they engage in, the more likely the global buyer would select them for a specific contract. Only a limited number of suppliers 0.5% (located in Ghana) said they have not seen any increase in profits. All suppliers indicated that they have upgraded processes to cope with standards and quality requirements. Large suppliers in Kenya have invested in systems and processes to meet basic CODEX and GLOBALGAP standards which include farm management (67.5% of suppliers) and post-harvest management (78.2% of suppliers). A large proportion of suppliers (81.6%) have also introduced quality standards which have contributed to process upgrading. A smaller proportion of suppliers (25.4%) have invested to some extent in integrated services and 15.5% have acquired machinery to process complex transactions, realise economies of scale and gain efficiency. Approximately 22.5% of suppliers had implemented new production processes that contributed to the value added to a product and 11.5% have outsourced certain activities (Table 5.5). Only a small number of suppliers (7.8%) invested in advertising as it was viewed as less strategic since the initial investments are quite high with limited returns in the
short run (Table 5.7). Respondents said that the increased upgrading environment resulted in reduced incidence of non-compliance and lower rates of exclusion due their improved capabilities to handle complex transactions.

### Table 5.7 Process and product upgrading

<table>
<thead>
<tr>
<th></th>
<th>Farm management</th>
<th>Post-harvest management</th>
<th>Adoption of standards</th>
<th>Integrated services</th>
<th>Machinery</th>
<th>Advertising and marketing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>12</td>
<td>14</td>
<td>15</td>
<td>5</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>67.5%</td>
<td>78.2%</td>
<td>81.6%</td>
<td>25.4%</td>
<td>15.5%</td>
<td>7.8%</td>
</tr>
<tr>
<td>No</td>
<td>6</td>
<td>4</td>
<td>3</td>
<td>13</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>32.5%</td>
<td>21.8%</td>
<td>19.4%</td>
<td>74.6%</td>
<td>84.5%</td>
<td>92.2%</td>
</tr>
<tr>
<td>Total</td>
<td>18</td>
<td>18</td>
<td>18</td>
<td>18</td>
<td>18</td>
<td>18</td>
</tr>
</tbody>
</table>

Researcher’s compilation

Suppliers also confirmed non-compliance has resulted in the exclusion of a number of suppliers from horticulture value chains (Ali, 2008). The field study found that almost 50% of small to medium size suppliers have been excluded due to non-compliance with standards and high quality requirements. Exclusion has direct implications for profits, incomes, employment generation, poverty alleviation and economic development. Suppliers also criticised GLOBALGAP for being too focused on the European market and not taking full account of the specific problems of small farmers in SSA. It is also unclear from interviews and replies to the questionnaires if suppliers have indeed benefited from product and process upgrading in terms of earnings. Suppliers reported that the upgrading had led to increases in added value but it was not clear if the opportunity costs and high asset specificity merited the costs of investment since added value activities are restricted to standard washing, cutting and packing which are of low value.

**Phyto-sanitary standards:** One of the conditions necessary to enable small suppliers insert and participate in global horticulture value chains is the requirement to comply with sanitary and phyto-sanitary (SPS) standards. Out of the respondents interviewed only one supplier (5%) in Kenya and 3 suppliers (12%) in Ghana were not fully SPS certified in accordance with the EUREP GAP which is an important condition for buyers who source fresh produce from these suppliers. Given that the sanitary compliance of vegetables and fruits cannot be visually verified there is the need to either test compliance using scientific techniques or ensure that supplier produces some sort of certification to proof compliance. Some of the local suppliers especially in Ghana indicated that they have realised that there is a market regional or local for fresh produce so they can also sell produce that European buyers declare as not eligible for export. In general local suppliers did not have issues with compliance but due the limited income they find the investments in process such as initial start-up costs, monitoring and control and renewal costs (1000 US dollars to 4,500 US dollars) that would
ensure compliance with SPS and EurepGAP certification very challenging. In particular, organic certification, although the market is quite lucrative is very expensive according to suppliers. Due to this, some suppliers use certain practices that may qualify produce as organic but may not have the required certification for export markets. For this reason, such produce are sold at reduced rates either to certain local chains or directly in the domestic market. Out of the 18 suppliers interviewed 14 of them engage personnel in technical assistance and quality control to ensure that procedures are complied with. Traceability and record keeping on all processes including the use of fertilisers and chemicals used during production and the supply of the produce must be systematically recorded and documented. A number of suppliers indicated that they would which to acquire more knowledge on some of the chemicals and pesticides that are used during the production process. The quality standards such as appearance of fresh produce such as the size, colour and shape are important control elements for buyers which according to respondents are clearly specified in supply contracts from global buyers. According to one informant these requirements are monitored and controlled at warehouses where 100% of all produce are checked for compliance. Produce that do not meet the minimum compliance standards are rejected. Global supermarket chains such as Tesco collaborate with suppliers in Kenya based on long term relationships. Buyers and suppliers both confirmed that the quality of produce that will protect the reputation the global buyer to ensure its competitiveness is one of the main drivers of repeated contracts and effective participation in value chains.

5.6.3 Functional Upgrading

A selected few suppliers (14.4%) had invested in integrated services (Table 5.6). Approximately 26.5% of suppliers, mostly in Kenya, have implemented functional upgrading by adding new activities and supply produce supplied by a different supplier as a means to earn higher incomes. While most of the suppliers had engaged in product and process upgrading, functional upgrading was predominantly undertaken by medium to large suppliers which as a result are those where modular or relational governance with high upgrading possibilities are imposed.

<table>
<thead>
<tr>
<th>Reply</th>
<th>New value added activities</th>
<th>Market functions</th>
<th>Integrated services (logistics)</th>
<th>Management functions</th>
<th>Outsourcing of non-profitable processes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>22.5%</td>
<td>8.9%</td>
<td>14.4%</td>
<td>14.4%</td>
<td>11.5%</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>2</td>
<td>4</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>No</td>
<td>77.5%</td>
<td>91.1%</td>
<td>85.6%</td>
<td>85.6%</td>
<td>88.5%</td>
</tr>
<tr>
<td></td>
<td>13</td>
<td>16</td>
<td>14</td>
<td>14</td>
<td>15</td>
</tr>
<tr>
<td>Total</td>
<td>18</td>
<td>18</td>
<td>18</td>
<td>18</td>
<td>18</td>
</tr>
</tbody>
</table>

Researcher’s compilation
According to respondents, the prospects for functional upgrading in Ghana are quite low due to low skills, high transaction costs and limited product differentiation.

5.6.4 Inter-chain upgrading
Respondents confirmed that they currently do not have access to the value chains of global buyers although it could be of benefit. Standards do influence inter-chain upgrading opportunities as local suppliers who meet standards such as Eurepgap can also reduce their dependency on a single chain by supplying other large global buyers. Especially interesting for local suppliers in Kenya and Ghana is the potential link between local, global and regional value chains. This is especially relevant for local suppliers in Ghana where the horticulture sector is in its infancy. Suppliers can initially upgrade to supply regional chains and subsequently meet the higher standards of global value chains. The proliferation of standards for horticultural produce does have profound implications for local suppliers that are unable to meet quality requirements and risk marginalisation or exclusion from participation in value chains. Local suppliers also reported that downgrading is particularly explicit in the market governance value chain where competing local suppliers are relatively small in size and the market is highly fragmented. Here access to the value chains of global buyers is crucial which largely depends on concentrated market power along different nodes of the global horticulture value chains.

This finding is similar to suggestions in the literature that the type of governance has implications for upgrading but this depends on the skills and capabilities of the supplier (Schmitz and Knorringa, 2000; Humphrey and Schmitz, 2000; 2002a; Doz et al., 2001; 2006). For example, quasi-hierarchical governance offers appropriate conditions for process and product upgrading but not functional upgrading (Humphrey and Schmitz, 2002b). Moreover, participation in value chains does not lead to automatic upgrading, and could also result in downgrading depending on the nature of governance (Dolan and Humphrey, 2000; Humphrey, 2005; Humphrey and Memedovic, 2006). The literature also highlights that suppliers are kept dependent by discouraging the acquisition of capabilities that result in upgrading (Giuliani et al., 2005; Schmitz and Knorringa, 2000). Most of the supplier interviewed argued that they are able to engage in higher value chains if the investment yielded the expected returns.
5.7 Technology and knowledge transfer

5.7.1 Knowledge transfer

Type of knowledge transfer: Local suppliers confirmed that global buyers transfer knowledge of processes such as drip irrigation and market information about where to find inputs.

Incentives provided by global buyers to encourage knowledge development in local suppliers: Local suppliers indicated the most important incentive was the provision of long term contracts and participation in supplier development programmes.

Contribution of knowledge development in enhancing the competitive advantage of horticultural produce:
Local suppliers confirmed that knowledge development does enhance the competitive advantage of horticultural produce. For example, knowledge of standards results in the supply of high quality fresh produce, leading to higher profits and incomes.

Importance of knowledge transfer in enhancing the performance of suppliers:
Respondents said that knowledge transfer relating to standards and high quality requirements is important in enhancing performance.

Extent to which global buyers use knowledge transfer to control suppliers:
This depends on the type and content of the specific knowledge (Cirera and Masset, 2010). For example, global buyers can use price information to control the supply chain. Pricing is not transparent and is often used by global buyers to curtail the income of suppliers.

Extent to which supplier initiatives in knowledge development determine sourcing decisions:
Such initiatives enhance levels of absorptive capacity but have limited influence on the sourcing decisions of global buyers which are mainly based on arbitrary decisions such as price and all year round supplies.

Extent to which more knowledge transfer would take place in the next five years:
According to suppliers, the transfer of knowledge will continue in its current form. However, it would become more accessible with the use of the Internet and the development of other research sources.

Suppliers: Respondents said that there is hardly any technology transfer. This is due to the sourcing of products with low technology content. They also agreed with global buyers that weak intellectual property rights (IPR) regimes also affect technology transfer. However, suppliers were also aware that
global buyers use patents and copyrights as a competitive mechanism to keep small suppliers out of innovation and thus have a monopoly over high value added chains. The existence of patents and copyrights creates an unfair advantage in favour of global buyers.

5.7.2 Absorptive capacity

To determine the rate of absorptive capacity participants were asked to evaluate the extent of acquisition, assimilation, transformation and exploitation of knowledge transfer. Absorptive capacity is defined as the ability to search, acquire and exploit external knowledge and technology by a given firm (Cohen and Levinthal, 1990). Global buyers reported that suppliers in Kenya had the highest rate of absorptive compared to their counterparts in Ghana who exhibited average to low rates perhaps linked to the infant stage of the horticulture sector (Abdeldader, 2004)

*Acquisition:* refers to a supplier’s capability to identify relevant external information and their ability to know where to source information. Local suppliers in Kenya exhibited the highest rate of acquisition with an indication of “1” by global buyers. As the horticulture sector is mature moving from the infant stage to maturity required investments in systems and processes to acquire and manage information. In Ghana, the ability of local suppliers to acquire information was very good, indicated by “1”. As the horticulture sector is developing, it was important to identify relevant external knowledge. An illustration of levels of absorptive capacity in local suppliers is presented in table 5.9.

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Definition</th>
<th>Kenya</th>
<th>Ghana</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acquisition</td>
<td>To find and acquire external information.</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Assimilation</td>
<td>Ability to process and understand information</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Transformation</td>
<td>Ability to process new knowledge using existing internal knowledge</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Exploitation</td>
<td>Ability to use knowledge for upgrading systems and processes</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

Likert scale: 1=very good: 5= not at all. Researchers compilation, (Forsman, 2009), (Posfun and Trib, 2008) (Zamorano, 2009)

*Assimilation:* Assimilation is the ability to absorb and exchange information obtained from external sources (Zamorano, 2009). In Kenya, the extent to which local suppliers assimilated information was also very good complementing the acquisition phase. In Ghana, the extent to which local suppliers assimilated information was indicated by “3”. This was due to on-going investments in systems and databases to support the processing of knowledge transfer (Colombo and Piva, 2012).
Transformation: Transformation is the ability to process knowledge transfer using existing internally
knowledge (Fosfuri and Tribo, 2008). In Kenya, the transformation abilities of suppliers were
indicated by a “2”. This was only feasible in large suppliers and a few medium size suppliers. In
Ghana, the ability to transform was indicated by a “3,” completing the on-going assimilation process.
This was again only feasible in large suppliers and a few medium size suppliers.

Exploitation: Exploitation is the ability to use knowledge transfer for upgrading (Fosfuri and Tribo,
2008). In Kenya, the ability to transform knowledge into competitive advantage was present in most
suppliers, except subordinate ones. In Ghana, this ability was not feasible in most local suppliers as
investment in systems and processes was on-going. Global buyers believe this competence would be
further developed in the future.

Subsequently, the governance selected for monitoring and coordinating activities in Ghana is quasi-
hierarchical whilst that selected for Kenya tends to be modular with variations of quasi-hierarchical.
This is because suppliers that exhibit higher levels of absorptive capacity are more capable of
processing complex information, and codifying standards and high quality requirements, but require
less monitoring of activities.

Absorptive Capacity – Suppliers: Suppliers in Kenya confirmed that they have the required levels of
absorptive capacity due to strong linkages with universities and research institutions. Suppliers in
Ghana said that because the horticulture sector is developing, such linkages are much weaker.
However they recognise the importance of the relationship and the government is taking steps in this
direction to enhance linkages of suppliers with universities and research institutions.

5.7.3 Relations with external organisations
Local suppliers have relations with a number of horticulture associations that facilitate the
dissemination of data and information on fresh produce. They also facilitate the introduction of new
regulatory framework and provide assistance to farmers and suppliers as and when required.

5.8 Conclusion
The evidence suggests the governance type imposed is predominantly quasi hierarchical where there
is limited scope for functional or inter chain upgrading. Although there was some evidence of product
and process upgrading, this was limited to larger suppliers, mainly located in Kenya. Monitoring and
control is very stringent due to the high incidence of non-compliance with standards and high quality
requirements on horticulture produce. A common problem cited by global buyers was the lack of local supplier capacities that has led to proliferation of non-compliance amongst all suppliers.

According to local suppliers, adherence to GLOBALGAP is challenging because they have to establish risk identification, management and control systems associated with the process standard. As GLOBALGAP is a quality management system, suppliers have to establish documentation on skills and record-keeping systems all of which require considerable resources. The extent of integration was also reduced for small suppliers due to the high rate of exclusion. Value chains are also highly coordinated to ensure adherence to rules and standards on environmental and labour matters at different nodes of the chain. According to them these social standards are very important for customers and sometimes can determine if a customer would switch to another competitor should they find out that labour standards or the environment have been negatively affected during the production of a specific product. This was also confirmed by suppliers who mainly indicated that this high degree of coordination is driven by supermarkets traceability and audit requirements. Although quasi-hierarchical governance is associated with a low upgrading environment in the literature, the empirical data suggests it could also be a driver for process and product upgrading. Most of the respondents confirmed that they had engaged in the upgrading of processes to improve compliance and to reduce exclusion. Transaction costs tend to be high due to non-compliance, the time it takes to collect information and the fact that most contracts have to be written to enhance reliability. Suppliers in Kenya reported higher absorptive capacity due to their higher linkages with universities and research institutions. Hence they were able to assimilate and exploit knowledge transfer more than their counterparts in Ghana.

According to respondents, there is a positive correlation between R&D activities and technology transfer. Due to the low research environment, technology transfer is minimal. Technology transfer is necessary for participation in higher value added chains. Suppliers also noted that produce sourced is of low technology content. This may be due to the weak intellectual property regimes and the lack of upgrading in a number of small suppliers. Suppliers are also of the view that patents and copyrights create an unfair advantage in favour of global buyers, but did admit that the current technology environment in Kenya and Ghana certainly has to be improved to increase participation in higher value added chains and enhance supplier performance. In sum, issues mentioned by survey respondents varied between participants: global buyers complained about the high level of non-compliance, lack of upgrading, local supplier capacity and high transaction costs. Similarly, suppliers highlighted issues such as global buyer power, costs of compliance, risk sharing, price transparency and time taken to settle invoices all of which add to the high transaction cost environment in Kenya and Ghana.
Chapter 6

The Operational Environment

6.1 Introduction

This is the second and final empirical chapter that depicts factors that impact the efficiency of operational environment. An interview scheduled was designed to gather information on the state of the operational environment. The research instrument (appendix B) is made up of 5 questions addressed to all participants who were visited for a second time to collect the questionnaires distributed during the survey. All 6 informants provided opinions and information on the state of the operational environment. The evidence is presented in the subsequent sections. Section 6.2 is a model description of the operational environment elements that supports horticulture value chain activity. Section 6.3 presents the empirical findings on the state of infrastructure and Section 6.4 illustrates the relevance of institutional arrangement for horticulture value chain activity. Section 6.5 discusses the factors that contribute to the high transaction costs and section 6.6 evaluates the impact of oligopoly market structures on supplier participation and Section 6.7 access the income generation capacity of global horticulture value chains in terms of job creation and incomes for suppliers. Section 6.8 concludes.

6.2 Model Description

The efficiency of the operational environment that is necessary for the functioning of global horticulture value chains are categorised into five elements: infrastructure, institutions, transaction costs and market structure.

*Infrastructure:* the physical infrastructure necessary for the production and delivery of horticultural produce. It can include road and railways, air transport ICT and energy.

*Institutions:* institutional arrangements such as legal and intellectual property regimes necessary for participation in horticulture value chains.

*Transaction cost:* costs incurred from the production to the supply of fresh produce

*Market structure:* How specific markets are organised in relation to the number of participant. Examples include monopoly, perfect competition and oligopoly.

A stylised model describing the various elements that impact the efficiency of the operational environment is presented in figure 6.1.
6.3 The state of infrastructure

The existence basic infrastructure such as communication, roads, seaports, airports and basis support horticulture infrastructure is necessary for value chain functioning and upgrading activity. Weak infrastructure renders value chain participation inefficient and less able to deliver poverty alleviation outcomes. Global buyers were asked in semi-structured interviews to evaluate the state of infrastructure in each location and how and in what ways it impacts value chain activity.

Road and railway networks

Infrastructure is seen as one of the major determinants of the economic integration process which is vital for the movement of goods between countries (Vickerman, 2002; Kuroda et al., 2007; Venables 2007; Francois et al., 2009). It suggested in the literature that if countries in a region are not linked through efficient infrastructure facilities, then this could negatively impact trade (Olubode-Awosola et al., 2008). To understand the impact of infrastructure on value chain activity and market access, it is necessary to evaluate the efficiency of the particular infrastructure, in this case the horticultural infrastructure that prevails in each location (World Bank, 2004; 2006). In the case of Ghana and Kenya where produce has to be transported from remote rural areas and where technological progress is limited both transportation and telecommunication infrastructures are of particular relevance. Airports and sea ports tend to be located far away from where horticultural produce is sourced, hence, without the basic infrastructure that links global buyers to suppliers, inefficiencies and competitiveness have an impact on economic development. Road access to where horticultural produce is supplied is very complicated as most farm areas are not accessible by feeder roads. Transport is high because of the poor quality of roads further adding to the costs of production (Poulton et al., 2008). The poor quality of roads results in the damage of fresh produce during
transportation. In Ghana, the lack of such horticultural infrastructure contributes to inconsistent and delayed shipments and adds about 23% to transaction costs. The poor state of the roads continues to add to the costs of export, not only in direct vehicle costs but also in time and damage to the produce. The road system is a particular concern for investors relying on out growers, such as Pinora who buy throughout Central Region and into neighbouring regions. They report the need for head loading to position produce where their trucks can collect. EMQAP and MiDA have infrastructural components aimed at upgrading roadways.

**Airports and seaports**
Logistics infrastructure that includes direct and quick links to Europe and other markets are prerequisites for a successful horticulture sector. Investments in upgrading pack housing facilities and air freight facilities at airports is lacking in Ghana.

**Horticulture infrastructure**

**Pack houses and Cooling Facilities:** There are now a number of pack houses and cold stores around the southern producing belt. To date these are all, with the exception of Shed 9, private facilities built by a number of companies such as Bomarts, VREL, Milani and Golden Exotics. These will be supplemented shortly by EMQAP, EDIF and MiDA all of whom are planning public facilities. With the demise of some operations there are also facilities not in use; examples include the cold stores of John Lawrence Farms as well as the Equatorial and Farnimapine packing facilities. Suppliers basically agreed with the observations of global buyers but also insisted that the lack of infrastructure contributes to high transaction costs and also reduces possibilities of participation in higher value added chains. In addition, the lack of infrastructure in rural areas has constrained the development of local business such as the drying of fruits or jam production that could substitute for the lack of cooling facilities. This has further eroded the income earning capabilities of suppliers.

6.4 The state of institutions

Participants were asked in semi-structured interviews to evaluate the existing legal, intellectual property and horticultural institutions and their impact on value chain activity.

6.4.1 Legal Institutions in Kenya and Ghana

According to global buyers, support institutions are necessary to support the efficient functioning of value chains as this reduces transaction costs leading to higher profits. It also contributes to economic development through the establishment of local businesses. The institutions they cited as relevant for interaction are (i) legal institutions, (ii) intellectual property institutions and (iii) horticultural associations. Beverage manufacturers, one of the global buyer groups, said that the existence of effective contractual institutions is very important for interaction in global horticulture value chains as
they engage in equity forms of investment and must ensure that their rights, especially intellectual property, are protected. All global buyers (beverage, retail, hotel and airlines) found legal institutions inefficient and indicated it was one of the main reasons why they would not engage in equity forms of expansion in Kenya and Ghana. Equity forms of expansion are more conducive for poverty alleviation and economic development. In most developing countries, property rights and contracts laws are weakly implemented. It is therefore efficient and less expensive to engage in cash transactions and which has contributed to underdevelopment of markets in locations such as Kenya and Ghana.

Local suppliers confirmed that they also found the legal framework quite inefficient and expensive to access. Although local suppliers are highly exposed to the abusive behaviour of global buyers, they would not secure their rights in the court because this could harm relationships with global buyers which can be costly to a small supplier. This also translates into higher negotiation and enforcement costs. They also confirmed that instead of depending on the legal framework, they would on certain occasions resort to social networks and traditional authority to resolve disputes resulting from contracts.

6.4.2 Intellectual property rights in Kenya and Ghana
The Kenya Industrial Property Institute (KIPI) administers the Industrial Property Act 2001 covering patents, trademarks and industrial designs. The Copyright Board of Kenya is responsible for copy rights under the Copyright Act 2001. The same impression was provided as of the intellectual property environment. Global buyers would not engage in sourcing of products that required the transfer of technology. They are not confident that there is an efficient intellectual property framework to protect patents and registered copyrights. There is also lack of capacity, knowledge and information on intellectual property laws. Counterfeit and pirated products also occur on a cross border basis which is fuelled by weak or non-existent laws and enforcement mechanisms. The length of time it takes to establish infringement cases are lengthy and costs prohibitive. In a number of circumstances, participants do not pursue the intellectual property issues in court due to these factors. Despite the number of institutions, global buyers report that the legal framework and IPR regimes are not optimal and must be strengthened in Kenya. There is generally a lack of sufficient resources in the judiciary, including knowledge and information on intellectual property laws. The cost of litigation and the length of time taken to determine infringement cases are lengthy and expensive.

Ghana passed copyright law PNDCL 110 in 1985 to regulate the copyright industry, setting up the Copyright Society of Ghana (COSGA) in 1986. Ghana adhered to the Berne Convention in 1991 and has established scientific and technological capabilities in R&D, industry and the provision of
essential services. The Intellectual property rights regime in Ghana is developing, but at a slow pace (US Commercial service, 2008). It has ratified the WIPO Copyright Treaty and Performance and Phonograms Treaty in 2004. Six new bills with the objective of Ghana being compliant with WTO TRIPS (Trade-Related Aspects of Intellectual Property Rights) requirements have recently been ratified by parliament (US Commercial service, 2008). The skills and competencies to preside over copyright and infringement cases seems to be limited and therefore it takes a long time for cases to be heard and concluded in a timely manner (US Commercial service, 2008).

Some of the missing institutional arrangements mentioned by suppliers include collective action, NGOs and producer organisations that are instrumental in reducing transaction costs and strengthening the bargaining power of suppliers. Others include the lack of input, output, financial and insurance markets (Eaton, et al., 2008). Local suppliers describe IPR regimes in Kenya and Ghana as a barrier to the transfer of knowledge and technology. They said that, as they are not able to access technology because global buyers would simply not transfer it, they find themselves trapped in the supply of standard produce or produce with very limited technological content. As a result internalisation does not occur, leading to a sub-optimal outcome during interaction. Local suppliers acknowledge the advantages of having an efficient intellectual property regime but in their view this should be balanced with action to tackle the lack of resources which constrains investment in innovative activities.

6.4.3 Horticultural associations
The selected few associations that represent supplier interests in Kenya are the Fresh Produce Exporters Association of Kenya (FPEAK), the Kenya Flower Council (KFC) and the Horticulture Crops Development Authority (HCDA). These institutions support supplier activities by the dissemination of reliable market data, promotion of industry standards, provision of training and technical assistance, and legal representation of members (Thomas et al., 2009; Riisgaard, 2009). The activities of these associations are funded by local suppliers. Both global buyers and local suppliers rely on these professional associations for information and market intelligence. The quality and timeliness of information has not been optimal in the opinion of global buyers. A number of databases exist, but they are not updated frequently. This gives rise to search costs, as searching for information on a prospective supplier or crop can be time consuming due to language barriers and difficulties gaining access to information. However, these professional associations are well organised and do serve the local suppliers quite well.

---

7 Ghana is a party to the Universal Copyright Convention and a member of the World Intellectual Property Organization (WIPO), the English-speaking African Regional Industrial Property Organization (ESARIPPO), and the World Trade Organization (WTO).

8 The new laws are: Copyright, Trade Marks, and Patents, Layout-Designs (Topographies) of Integrated Circuits, Geographical Indications, and Industrial Designs.
The Federation of Association of Ghanaian Exporters (FAGE), Sea-Freight and Pineapple Exporters of Ghana (SPEG), Horticulturalist Association of Ghana (HAG) Vegetable Producers and Exporters Association of Ghana (VEPEAG) and the National Horticulture Task Force (NHTF) are some the associations that support interaction in global horticulture value chains in Ghana (Wolter, 2009). According to both local suppliers and global buyers, one of the major issues limiting interaction in global horticulture value chains is the fragmentation of support institutions in Ghana. Both local suppliers and global buyers report that there is a need for greater collaboration between horticultural support associations, which includes providing the most relevant service to local suppliers and updating websites with information and knowledge on a regular basis. Subsequently, search costs are much higher than in Kenya resulting in uncertainty and higher transaction costs. Horticultural support institutions Global buyers were of the view that local horticultural institutions could be better organised and disseminate information to reduce search costs, uncertainty and risks during transactions.

6.5 Transaction costs
Participants were asked to demonstrate the transaction costs that arise during participation in global horticulture value chains.

6.5.1 Search costs
Respondents said that they incur transaction costs during the contact, contract and control phases. Costs arise during the contact phase when global buyers search for information on price and potential suppliers. Search costs are reportedly high in Kenya and Ghana where communication is not straightforward due to differences in ethnicity and languages. Moreover, the quality and source of information is not always guaranteed, and therefore global buyers must invest additional resources on complementary data sources to search for information. The high search costs have resulted in buyers having to deal with a few selected suppliers linked by ethnic groups, and social and family relationships where it is hoped reliable information can be obtained.

6.5.2 Negotiation and Enforcement costs
During the contract phase global buyers incur costs on negotiation and enforcement where most of the contracts have to be written due to trust issues. Costs of negotiations can be quite high depending on the extent to which the contract is written and the complexity of the transaction due to the high levels of uncertainty. They cited non-compliance with high quality requirements and standards as their main source of uncertainty. The level of uncertainty increases when transactions are of a complex nature and require close monitoring and control. Enforcement costs are high due to poor domestic
infrastructure and high incidence of non-compliance that has increased the frequency of random checks. Most of the contracts are verbal, but price negotiations do take some time as they only take place when produce is delivered at the warehouse. Verbal contracts also have an element of trust which is an issue in both Kenya and Ghana.

6.5.3 Monitoring and control costs
Global buyers incur costs during the monitoring and control of activities. They confirmed that one of the necessary conditions for interaction is to adhere to standards and high quality requirements which require intensive coordination and monitoring due to the high incidence of non-compliance. In addition, it is more cost-effective for them to source standard supplies from suppliers due to the poor infrastructure that makes it expensive to monitor and coordinate activities in value chains. The high quality attributes and standards required for horticultural produce have to be closely monitored because non-compliance entails reputation risks especially for supermarket chains.

6.5.4 Search costs
During the contact phase suppliers incur high costs searching for prices and reliable partners. In this context, local suppliers were asked how long it takes to discover price information. They said that price discovery was a continuous exercise where they are never sure of the correct market price. This is why they are also price takers and would take whatever price global buyers offer for their produce. They also informed me that gaps in prices have contributed to reductions in profits and incomes. It also transpired that actual prices paid to suppliers for horticultural produce were much lower than the prevailing market price. This also confirms the findings in the literature that price transparency is an issue in the horticulture trade.

6.5.5 Negotiation and Enforcement costs
During the contract phase suppliers incur costs related to negotiations. The main costs derive from uncertainty, compliance and enforcement. The high uncertainty is caused by the insistence of global buyers that suppliers invest in specific assets that are necessary to comply with standards and high quality requirements. These investments cannot be replicated for other contracts and there is no guarantee that the same global buyer would award a new contract to use the acquired assets. Such investments represent sunk costs which tie up resources and lead to the reduction of profits and incomes of local suppliers. At the same time, because suppliers have limited financial resources, they remain captive in the supply of standard supplies where all resources are invested to fulfil a specific contract. They also viewed asset specificity as a deliberate strategy of global buyers in their quest for higher returns to keep vulnerable suppliers at the very low end of the horticulture chain. Moreover,
asset specificity also results in captive value chains where local suppliers only supply to a dedicated global buyer.

The second source of uncertainty is the low barriers to entry of horticulture chains. Global buyers are always searching for new suppliers to supply all year round at reasonable prices. The erratic nature of contracts awarded, continuous changes in standards, prices and exclusion from interaction are also of concern. They rarely award long term contracts so suppliers are not sure of repeated interaction that can also contribute to trust. In the very few cases where long term contracts are awarded, prices are fixed at a very low level. Price changes also contribute to uncertainty as prices of horticultural produce are only determined when the produce is actually delivered, all of which add to transaction costs and reduce supplier incomes and profits. This level of uncertainty is especially troubling for vulnerable small suppliers who face the highest possibility of exclusion.

According to respondents, the costs of compliance can be quite high which further exacerbates levels of transaction costs. For instance the cost of introducing GLOBALGAP standards ranges between 200 to 3,000 US dollars. Furthermore, the implementation of Kenya Gap ranges between 250 to 300 US dollars a year which suppliers consider to be high and have therefore allowed certification to lapse. The level of implementation costs vary depending on the stage of upgrading of the supplier. The more upgraded the supplier the less the costs of implementation. Respondents said that some global buyers provide assistance in the form of information and data. It is also not cost-effective due to the lack of economies of scale. Suppliers also argued that even with subsidies from global buyers the financial viability of compliance is marginal, especially in small to medium size suppliers.

### 6.5.6 Monitoring and control costs

Enforcement costs from debt collection occur during the control phase mainly arising from time invested in debt collection which varies between 2 and 4 weeks (Figure 6.2).

---

**Figure 6.2 Average payments for sales invoice**
6.6 Market structure

Participants were asked in semi-structured interviews to evaluate the existing market structure and its impact on value chain activity. Competition from Latin America and East Asia has increased partly due to the expiration of the African, Caribbean, and Pacific (ACP) and the Least Developed Countries (LDC) trade preferences (Najam, et al., 2007). This has provided countries such as Costa Rica and China equal access to the European market. Economic Partnership Agreements (EPAs) are being negotiated which would create a free trade area between the EU and ACP countries including horticultural producers like Kenya and Ghana. Increased competition in European horticultural imports is already evident as prices in supermarkets stagnate in spite of rising costs and shrinking profit margins. The market for prepared fruit and vegetables is increasing especially in Europe where demand has doubled in value since 2004. It is now estimated to be worth €155 million/year in the UK. It is expected that demand in other European countries will increase in a similar fashion to prepared vegetables. The drivers for consumption of prepared fruit and vegetables in the EU are increased disposable income, the promotion of healthy eating, enjoyment and convenience – with convenience and enjoyment being the most important.

In the case of prepared pineapple it would be interesting to know the comparative environmental impact of sea-freighting three tonnes of fresh pineapple as opposed to air-freighting one tonne of fresh cut product. In summary, the market for prepared fruit is growing very rapidly.

According to suppliers, the market structure is important when analysing income generation, barriers to entry and concentration because this has an impact on the inclusion or exclusion of suppliers. Local suppliers described the horticulture market as an oligopsony where a few global buyers dominate activities with a high degree of concentration along different nodes of the horticulture value

---

9 ACPs have had preferential and non-reciprocal access to the EU under the Lomé Convention (1976) and Cotonou Agreement (2001).
chains. This oligopoly has given global buyers the opportunity to earn super-normal profits at the expense of locals suppliers. Oligopsony conditions in global horticulture value chains have given rise to buyer power leading to concentration whereby local suppliers are forced to accept the terms and conditions of the global buyer (Zheng and Vukina, 2009). Global buyers use strategies such as auctions and threats of de-listing that force suppliers to sell at reduced prices (Humphrey and Memedovic, 2006). Instances are also reported where suppliers, through certain clauses in the contracts are prevented from supplying to competitors Humphrey and Memedovic, 2006). These issues are further exacerbated by the limited market access to certain markets because produce does not comply with stringent quality standards.

Global buyers also dictate the price suppliers receive and the conditions under which they award contracts and distribute risk during interaction. Suppliers are especially vulnerable to buyer power because horticultural produce is highly perishable. The most evident form of buyer power occurs when a single buyer offers a take-it-or-leave-it price to a supplier. It is also known that global buyers can offer lower prices for horticultural produce that do not meet standards or refuse to buy them altogether and in cases where there is only one global buyer, suppliers’ profits are driven very low (Martinez and Zering, 2004). Another well documented form of buyer power derives from captive supply and the lack of spot markets which raises concerns about true price discovery and whether prices offered represent fair market prices. In part, this is because large buyers can exert undue influence on prices and they have an interest in doing so because the spot price plays a significant role in determining the prices buyers pay to suppliers. This is a clear indication that small to medium size suppliers are especially vulnerable to large global buyers. This has implications for supplier incomes and profits. The dominant position of global buyers has resulted in high barriers to entry and large volume purchases that suppliers are often not able to fulfil.

Local suppliers cited the banana sector as a classic example of an oligopoly, where a few global buyers are involved in producing, sourcing, shipping, ripening and packaging. The top three companies, Chiquita, Dole and Del Monte Fresh Produce, account for 65% of global banana imports and 60% of exports. These global buyers use technologically sophisticated production techniques, owned or contracted by global buyers, which small suppliers cannot afford. Approximately 50 per cent of bananas supplied by Dole, Del Monte and Chiquita are from the company’s own plantations (Arias, P. et al., 2003). The global over-supply and declining prices of bananas and consolidation in the retail sector means the balance of power and profits are shifting upwards into the retail segments meaning reduced profits for suppliers reflected in the widening income disparities between retailers and banana suppliers. The situation was such that the small suppliers are not expected to increase interaction nor will new suppliers be able to interact and maintain their position in GHVCs.
Trends within the European, and especially the British, food industry are the source of demand pressures that have excluded small supplier participation. Consequently, European supermarkets are increasingly purchasing from large suppliers where compliance with standards is more easily monitored, product origins are more easily traced, output is more consistent, and quality is more uniform. In particular, large suppliers can obtain GLOBALGAP certification, the minimum requirement for retail supply with reduced costs. At the level of domestic transport, small local suppliers are unable to deliver produce consistently and with minimal damage. This is not only a consequence of inadequate infrastructure, which affects the whole sector, but of the inability to finance refrigerated trucking. The high costs involved in compliance with GLOBALGAP and related standards are exacerbated by the lack of access to credit (Altenburg, 2006). Small local suppliers trying to obtain GLOBALGAP certification are caught in a vicious cycle in which bankers are unwilling to provide credit because they are not linked to a major global buyer or retail chain, although this is a consequence of not being GLOBALGAP certified.

Small local suppliers have difficulty in marketing their products as they are increasingly bypassed in favour of larger suppliers, despite the price competitiveness of small local suppliers. Retailers and global buyers demand a continuity of supply that small local suppliers are incapable of providing due to a lack of advanced technology. Moreover, the burden of verifying GLOBALGAP compliance and recording crop origins falls on the supplier and the costs of these measures rise as the numbers increase since they must in turn perform more audits and track produce from more farms (supermarkets require standards compliance and traceability back to individual farms). In Kenya, the costs of pesticide residue tests for individual farms are cited as the main reason that exporters have reduced sourcing from small local suppliers. Some local supplier exporter associations, in an effort to limit these costs without compromising the integrity of their exports, have rules designed to discourage small supplier membership. Some Kenyan small suppliers who were unable to obtain GLOBALGAP certification continued to export but were limited to wholesalers and other low-end markets. Not only do these buyers offer lower prices, and more erratic demand, but this option is becoming less viable as the remaining wholesalers also increasingly require higher standards. Dependence of low end markets is not guaranteed, as local suppliers must be able to supply to high-end retailers.

6.6.1 Oligopsony

Global horticulture value chains are an oligopsony market where there are a few buyers and a large number of suppliers. Oligopsony power tends to be high in horticulture value chains because global buyers are the only purchasers of fresh produce and have also invested extensively in supply chains (Roger and Sexton, 1994). These types of settings are becoming increasingly common in Kenya and Ghana where a few large global buyers dominate the demand for horticultural produce.
Buyer concentration is high due to the perishable nature of fresh produce, which forces suppliers that do not have storage facilities to sell most of their produce often at a given lower price and which has in turn increased concentration at different nodes of horticulture value chains (Azzam, 1997; Clarke et al., 2002; McDonald, 2006; Morrison-Paul, 2001). As suppliers are price takers, oligopsony markets have also resulted in the reduction of profits and incomes of suppliers which has implications for poverty alleviation.

### 6.6.2 Concentration in GVCs

The high concentration is further exacerbated by the fact that, due to the perishable nature of fresh produce, suppliers that do not have storage facilities are forced to sell most of their produce at any given price resulting in reduced profits and incomes. In some cases suppliers report that that they are constantly under pressure supply produce at reduced prices, sometimes below costs which has affected incomes and profits (UNIDO, 2004) Local suppliers also report that the economies of scale emanating from concentration favour large suppliers and has resulted in the exclusion of a number of suppliers (UNIDO, 2004). Local suppliers said that the supply of horticultural produce remains increasingly fragmented and small scale resulting in reduced profits and incomes. Suppliers are price takers, because they do not have access to alternative markets and resources to invest in cooling facilities to keep produce fresh (UNIDO, 2004). Furthermore, they have limited capabilities to search for new global buyers resulting in the European Union being the only accessible market for horticultural exports. As a result, market power arising from concentration increases transaction costs, reduces efficiency and lowers local supplier profits resulting in increase income poverty amongst a number of small to medium size suppliers. In the worse case, they are completely excluded from participation.

### 6.7 Income generation

Participants were asked to determine the income generation capability of participation in global horticulture value chains with regards to employment creation, income for suppliers and local business generation. According to global buyers, participation in global horticulture value chains has contributed to increased incomes for suppliers as those who are able to upgrade can engage in higher value added chains where profits are higher. They do not agree that participation in value chains has resulted in reduced incomes although there is a consensus that competition is intense due to the imposition of strict quality standards. Local suppliers stated that they have higher returns during interaction compared to other suppliers that are not engaged in horticulture. This finding is also confirmed in the literature (McCulloch and Ota, 2002; Minot and Ngigi, 2004). Small local suppliers are also constrained by the requirements of GLOBALGAP standards which have recently resulted in the exclusion of approximately 65% of small local suppliers from participation in global horticulture
value chains. Exclusion rates are high because these small suppliers are not eligible for funding from the commercial and investment banks necessary for upgrading processes. The high perishability of horticulture produce warrants for instance a highly advanced cold chain facility that requires investment in upgrading. Due to the lack of financial and technical resources, participation in global horticulture value chains was reduced by 50% during the first three years of the introduction of EurepGAP. The establishment of cooperatives and out-grower systems has not contributed to the reduction in the rate of exclusion due to the proliferation of standards and high quality on food quality and safety. According to chain participants the rate exclusion from determines income generation and subsequent poverty alleviation impact of participation in global horticulture value chains (Jenkins, 2005). Local suppliers report reduced interaction, with activity reduced by 50% as reported in a number of studies (UNCTAD, 2008b). Trends in European markets have limited the participation of small local suppliers. As the EU food industry consolidates and supermarkets and hypermarkets vie for additional market power through branding, horticulture supply chains are increasingly buyer-driven (UNCTAD, 2000, 2008b). Consequently, European supermarkets are increasingly purchasing from large suppliers, where standards compliance is more easily monitored, product origins are more easily traced, output is more consistent and quality is more uniform. In particular, large suppliers can obtain GLOBALGAP certification with fewer costs and difficulties than local suppliers.

These costs of meeting GAP standards are more significant for local suppliers due to scale economies of compliance. The main initial costs include employee training and the construction of pesticide/fertiliser storage facilities, and recurrent costs such as auditing fees. In Kenya, farmers pay 36% of initial costs and 14% of annual recurrent costs. In Ghana, where initial costs are only 6-11% of annual revenue and recurrent costs are less than 1% of annual sales, extremely slim profit margins undermine the feasibility of GLOBALGAP compliance. Similarly, in Kenya recurrent costs are a small fraction of turnover but can erode profit margins by 50% or more. Even GLOBALGAP Option 2, which was specifically formulated to permit smallholder participation in horticulture chains through group membership, is criticised for imposing unreasonable financial and technical constraints on local suppliers. In particular, certification does not account for differences in farm-specific levels of risk and thus applies the same measures to all suppliers although small suppliers do not have the complex machinery or chemicals that the standard was designed to regulate.

These problems are further exacerbated by complex and sometimes incomprehensible Quality Management Systems (QMS), manuals and record-keeping requirements. In Ghana, local suppliers fail to obtain certification despite compliance because of their inability to refer to specific QMS procedures and regulations during audits. The poor infrastructure also affects the ability of local suppliers to deliver produce consistently and with minimal damage due to the inability to finance refrigerated trucking. The costs of compliance are further exacerbated by the lack of access to credit
Small local suppliers also have difficulty in marketing their product as they are increasingly bypassed in favour of large suppliers. Global buyers demand a continuity of supply that local suppliers are incapable of providing due to a lack of advanced farming technology. Moreover the burden of verifying GLOBALGAP compliance and recording crop origins falls on the supplier and the costs of these measures rise as the number of suppliers increases since the global buyer must in turn perform more audits and track produce from more farms (supermarkets require standards compliance and traceability). In Kenya, the costs of pesticide residue tests are cited as the main reason that global buyers have reduced sourcing from local suppliers. In Kenya local suppliers who were unable to obtain GLOBALGAP certification continued to interact in horticulture value chains, but were limited to wholesalers and other low-end markets. These global buyers offer lower prices and demand is erratic and therefore more risky for suppliers (de Velde et al., 2006). In Ghana, household incomes of suppliers are 110% higher than average income (Weinberger and Lumpkin, 2007). However, given that global buyers opt to source from large suppliers, the poverty alleviation impact of interaction is limited.

However, the intense competitive pressure on suppliers is resulting in falling incomes and the exclusion of many small suppliers from interaction. The causes of declines in agricultural incomes are complex but could mainly be attributed to the global over-supply of horticultural produce which is driving down prices, increased vertical coordination of supply chains, buyer influence over suppliers, high concentration levels and the imposition of increasingly stringent standards (Vorley & Fox, 2004; UNIDO, 2004).

### 6.7.1 Employment Generation

Global buyers confirmed that this is indeed the case as fresh produce in the past was supplied without any processing but now supplies are prepared and sold in packaged forms and this has generated additional employment opportunities in Kenya (Jenkins, 2005). Employees at these farms, especially very large foreign-owned operations, often receive additional benefits, including healthcare and paid leave. The sector directly employs over 100,000 Kenyans in the pre and post farm value chains (von Braun, 1995). For example Vegpro is currently one of the largest private employers with 6500 employees and has constructed a cold chain with refrigerated storage sites on farms, insulated trucks, and processing facilities at the airport (Reardon et al., 2009). Interaction in global horticulture value chains impacts poverty through employment especially in rural areas where produce originate. The extent to which employment reduces poverty depends on the level of wages and the availability of alternative forms of employment. Given the lack of job opportunities in rural areas, it is most likely that employment in this sector does provide wages to unskilled workers (Booth, 2002). The transfer
of processes such as chopping, washing, labelling, and bar-coding also help to add more employment in specific SSA locations (Weinberger, K. and Lumpkin, T., 2007). Fruit and vegetable suppliers in India earn five to eight times more in profits than other agriculture sectors (Subramanian et al., 2000).

In Ghana, Golden Exotics employs approximately 2000 employees and Blue Skies employs 1500 workers, the majority of whom are female. These global buyers have not only created new employment opportunities but have also provided important physical and knowledge infrastructure to the local community (Weinberger, K. and Lumpkin, T., 2007). There have been additional employment opportunities in chopping, washing, labelling, and bar-coding horticultural produce as these functions are increasingly being transferred to Kenya (Weinberger & Genova, 2005). It is estimated that if exports of prepared vegetables continue at the same rate, up to 14,000 more pack-house jobs could be created in the next five years (Humphrey et al., 2004). Harvest and post-harvest operations like field heat removal (in mangoes), cleaning, washing, waxing, grading and packing provide job opportunities for a large number of the population especially women.


<table>
<thead>
<tr>
<th></th>
<th>Smallholders (fruits and vegetables)</th>
<th>Processing industry workers (fruits and vegetables)</th>
<th>Pack-house and farm labourers (fruits and vegetables)</th>
<th>Cut flower industry</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ghana (pineapple export)</td>
<td>10000-20000</td>
<td>2000-5000</td>
<td>1000-2000</td>
<td>1000</td>
<td>28,000 approx</td>
</tr>
<tr>
<td>Kenya fruits and vegetables</td>
<td>40000-50000</td>
<td>10000-15000</td>
<td>10000-25000</td>
<td>13000-28000</td>
<td>118000 approx</td>
</tr>
</tbody>
</table>

Researcher’s compilation field study, 2004

Impact on poverty alleviation: Interaction in global horticulture value chains also benefits the poor through the sale and purchase of produce from local suppliers. Small to medium size suppliers are especially important in addressing rural poverty. Furthermore, since small suppliers have limited access to credit and extension services, the opportunity to produce high value fresh produce and interact at the higher end of the chain where profits are more is unlikely under the current circumstances (DFID, 2004).

Global retailers said they contribute to economic development by creating jobs and community programs. For example, one global retailer contributes to CARE\(^{10}\), that whose objective is to empower young poor women\(^{11}\) through education, job training and entrepreneurial support programs.

---

\(^{10}\) CARE works with poor women and families to alleviate poverty through education

\(^{11}\) According to the United Nations Population Fund, three fifths of the world’s one billion poorest people are women and girls who cannot read or write
The second global retailer has developed relationships with the governments and the local community to support compliance with standards and high quality requirements, especially on how to improve food hygiene. In collaboration with the ministry of trade and the Association for Technical Cooperation, the global retailer facilitates a nationwide distribution network for mangoes, dragon fruits (pitahaya), pomelos and litchis (lychees) in Kenya. In Ghana, one supermarket chain supports suppliers of pineapple to gain GLOBALGAP certification. Both global retailers do not have operations in Kenya or Ghana.

Global retail supermarket chains indicated that they have constructed processing facilities to support the establishment of secondary industries. In Ghana, Golden Exotics established a facility to cut and prepare fresh pineapple and Vegpro Ltd recently built a processing facility at Jomo Kenyatta International Airport for beans and baby corn exports from Kenya. However, the establishment of secondary industries in rural locations are low, due to poor infrastructure and the lack of highly qualified employees who refuse to relocate to these locations (ILO, 2008). This is especially the case in Ghana. Beverage manufactures do not own agricultural land in Kenya or Ghana but they contribute to the improvement of living standards of farmers, which in turn results in the delivery of high quality fresh produce and increases in income. Sourcing directly from farmers helps them to obtain a better price for their produce. The two beverage manufactures have invested in additional operations in Africa in 2004. These additional operations have added more than 11,500 jobs and an estimated 50,000 additional jobs generated from supply chain activities. According to local suppliers the establishment of local business is slow which could be attributed to the poor state of infrastructure, and the lack of knowledge and efficient institutions to provide incentives for the functioning of value chains.

Employment also tends to be seasonal in nature. Managers are reported to be manipulative, requiring workers to put in overtime without additional pay and firing workers for committing minor mistakes. Job insecurity is high for casual workers or seasonal workers who are hired without a written contract and typically have little understanding of their legal rights. Despite the positive development in employment creation, particularly amongst the unskilled in rural locations, the lack of job security poses a challenge to employees. As well as reports of managers requiring workers to work overtime without additional compensation, discrimination against female workers is quite prevalent (Tallontire et al., 2005). Very few permanent skilled workers, plus a larger periphery of low skilled workers on flexible arrangements are hired who can be pulled in and out of work as required (Barrientos & Perrons, 1999; Barndt, 1999; Dolan and Sorby, 2003; Barrientos and Kritzinger, 2004). These results in the ‘permanent temporary’ syndrome, where workers are continually hired, dismissed and rehired.
on a series of back-to-back short-term contracts (Dolan and Sorby, 2003). This provides access to a skilled, reliable workforce, but without the commitment to incur the costs of employment and benefits due to permanent workers. In Kenya, where most of the workers are not permanent, this has meant that the majority of the pack house workforce have no access to a pension, maternity and annual leave, sickness benefit and so on (Dolan and Sutherland, 2002). Where benefits are provided these can be sub-standard. In the United States just over a quarter of crop workers live in employer-provided housing. Surveys have identified major problems of over-crowding, lack of hygiene, poor facilities and exposure to toxic substances all of which pose real health hazards to workers and their families (Oxfam, 2004a). Wages are not high but typically above the minimum wage rate. A survey by Barron and Rello (2000) finds that the earnings of migrant workers in Mexico’s tomato sector are sufficient for their families to live at a basic subsistence level (Dolan, and Sorby, 2003). In Kenya, workers’ incomes are also mainly spent on daily subsistence for themselves and their family members back home (e.g. rent, food, school fees). In addition, workers report using wages/remittances for purchasing household goods (kerosene lamps, gas stoves, furniture, radios) and investing in assets such as sewing machines, agricultural tools, land and livestock (Dolan and Sorby, 2003).

Notwithstanding these positive impacts, income poverty among horticultural workers is widespread. Even where wage levels exceed minimum wages or local alternatives, these may still fall below a level necessary to meet basic needs. For instance, in the study of migrant workers in Mexico’s tomato industry mentioned above the authors found that few families were able to invest in substantial assets such as land and argued that the positive impact of wages had to be seen as relative to the extreme poverty in the rural areas where migrants originated (Barron and Rello, 2000). A local supplier said the temporary nature of the employment in the horticulture sector is some of the problems inherent in the horticulture sector (Jenkins, 2005). With regards to workers on permanent contracts earning are stable but the same cannot be said for casual and seasonal workers (Jenkins, 2005). In Kenya, most of the employees are on temporary contacts meaning the source of income is not stable (Jenkins, 2005). Employment is the sector is most beneficial to workers in rural areas who otherwise might not have any opportunity of earning incomes but this also implies that they are very vulnerable to the fluctuation in wages and the lack of opportunities in temporary contracts (Jenkins, 2005).

In addition, workers’ wages vary significantly, according to where they are located in the production process, their employment status, skill levels and gender (Dolan and Sorby, 2003). Research on the fruit growing region of South Africa’s Western Cape gives an insight into this variability. On average, farm workers earned US$63 per month, which was above average for whole country (US$48) and above the household poverty line (US$57) (Lund and Nicholson, 2003). However, among contract workers there was considerable variability according to the task and stage of the season; wages ranged
from a high of $115.79 per month to as little as $38.60, putting some households below the poverty line (Lund and Nicholson, 2003).

Participation in horticulture value chains offers prospects for poverty alleviation through the creation of employment and generation of incomes (McCulloch and Ota 2002; Pingali and Rosegrant, 1995; von Braun, 1995; Weinberger and Genova, 2005; Gebremedhin, Hockstra, 2008). However, there is evidence of disparities between wages paid which place a number of workers below the poverty line (Du Toit, 2003). Most jobs offered are also of a temporary nature (Barndt, 1999; Dolan and Sorby, 2003; Barrientos and Kritzinger, 2004). Regarding income generation, there is evidence of increased exclusion of suppliers from participation in horticulture value chains due to non-compliance with standards and high quality requirements and which has a negative impact on incomes. This has resulted in reduced incomes that have further contributed to poverty. The loss of income has further exacerbated the levels of poverty especially in rural areas. Participation in horticulture value chains could result in the establishment of local business in rural areas leading to job creation. These types of employment pay more than basic labour and also generate higher quality jobs in terms of skills. The increased earnings can be used to purchase goods from other sectors (Van Den Berg, 2002). An example of such a service is the demand for mobile phone services that serves the purpose of linking suppliers with the global economy and generating incomes in the telecommunication sector that in turn could be used to purchase items such as ready-made jams and dried fruits from the horticulture sector (Thomsen, 2007).

6.8 Conclusion

This chapter has analysed the operational environment in Kenya and Ghana. The findings suggest that the lack of infrastructure constrains suppliers’ participation in higher value added chains where incomes are higher which is important as higher incomes contribute to the reduction in poverty. It also constrains the establishment of secondary industries, especially in rural areas. This contributes to higher transaction costs due to the high incidence of non-compliance and the fact that global buyers have to deploy additional resources to monitor and control the quality of produce supplied. The oligopsony nature of horticulture value chains also has implications for supplier profits as most of the profits accrue to global buyers due to their size and power. Legal and intellectual property rights institutions are also not efficient which has resulted in predominantly cash transactions or sourcing of standard produce with limited technology both of which provide limited possibilities for participation in higher value chains leading to upgrading. Participation in global horticulture value chains does result in the generation of incomes but its poverty alleviation effect is considerably muted in Kenya.
and Ghana due to the quality of employment and income generation activities such as added value that are contingent on a number of elements highlighted in chapter 5 and this chapter. The lack of infrastructure, knowledge, efficient institutions and regulatory frameworks are all factors that affect value chain participation. The next chapter discusses this outcome and its implications on policies that aim to inform policy on how to address some of the constraints in the sector.
Chapter 7

Discussion and potential explanation of findings

7.1 Introduction
In this chapter, I bring together the empirical evidence in chapter 5 and chapter 6 the hypotheses emanating from the literature review. In addition, opportunities and challenges that local suppliers face during participation in global horticulture value chains are presented. The chapter is organised as follows: Sections 7.2 and 7.3 present the challenges and opportunities of participation in global horticulture value chains. Section 7.4 presents the summary findings of the 3 hypotheses. Section 7.5 concludes.

7.2 Challenges

7.2.1 Prevailing Institutional arrangements
Institutions and institutional arrangements provide incentives for efficient participation in global horticulture value chains resulting in reduced transaction costs. According to the empirical evidence horticultural associations that support value chain activity are well organised in Kenya, but fragmented in Ghana. As a result almost all support institutions are not effective and which does negatively impact the ability to respond flexibly to market changes. This was typically the case in Ghana, where the fragmentation of institutions contributed to the slow shift from Smooth Cayenne to MD2 pineapples and resulted in the loss of market share to competitor countries such as Ecuador and Chile. With regards to the legal framework, contractual laws are either non-existent or poorly enforced in both economies. All global buyers (beverage, retail, hotel and airlines) found legal institutions inefficient and very expensive to access. Accessibility was cited as one the main reasons why they would not engage in equity forms of expansion in Kenya and Ghana, but rather interact at arm’s length where relationships might not require the application of a specific legal framework. Equity forms of expansion result in the formation of value chains and governance types such as modular or relational that has the best upgrading possibilities but because of the prevailing weak institutional environment captive and quasi-hierarchy are typically imposed and which have limited opportunities to added value. Similarly, suppliers also found legal institutions to be inefficient and expensive to access. As they have limited financial resources, they would prefer not to secure their legal rights in the court because of the prohibitive costs and uncertain outcomes that could have an adverse effect on relationships with global buyers. Instead, they would resort to social networks and traditional authority to resolve disputes. The use of social networks and traditional authority as
dispute settlement mechanisms has its drawbacks as it leads to uncertainty and opportunism that gives rise to high transaction costs.

The intellectual property rights (IPR) regimes in both economies are developing but at a slow pace. Global buyers confirmed that it is the main reason why they are unable to transfer technology because of the expected high incidence of copy right violations in an environment that does not have a well-established IPR regime. Therefore they would instead resort to the sourcing of produce with low technology content where the risk of copy right violations is considerably reduced. Given that global buyers believe that given the resources invested in R&D, there should be effective intellectual property rights institutions to protect copyrights and patents. On the other hand, suppliers argue that global buyers use intellectual property rights to monopolise markets without considering the interests of suppliers and other stake holders such as consumers. The non-existence of efficient intellectual property regimes coupled with low R&D environments in both economies pose major challenges. The transfer of knowledge and technology are also negatively affected as most of these are now protected by copy right. The low technology environment has only encouraged personalised exchange or cash transactions that do not result in the formulation of relationships necessary for the development of trust leading to the formulation of modular or relational value chains where there are possibilities to engage in added value resulting in higher incomes and profits (Easterly and Levine, 2003; Acemoglu et al., 2002; Fukuyama, 2006; Eicher and Leukert, 2009).

7.2.2 The lack of appropriate infrastructure
The lack of infrastructure has a negative impact on supplier performance and the establishment of secondary industries that support agric processing. With regards to performance, the lack of road and rail networks, especially feeder roads that link rural and urban areas means that produce cannot be transported efficiently and in a timely manner to airports. Communications, roads and railways must be adequate to facilitate the transportation of goods and services. Delays in transportation have an impact on the freshness of produce as they are unlikely to comply with high quality standards due to exposure to humidity (Tungodden et al., 2004). Suppliers are especially challenged because logistical infrastructure such as refrigerated trucks and cooling facilities at airports are also limited, especially in Ghana and where a number of consignments have been rejected due to non-compliance with standards and high quality requirements caused by excessive exposure to humidity. Such rejections have an impact on supplier incomes. Given that airports and sea ports tend to be located far away from where horticulture is produced, this further adds to transaction costs. There is also evidence the lack of appropriate horticulture infrastructure imposes additional transaction costs of over 40% each year. Under these conditions, more resources are invested in monitoring and control because all samples
have to be checked to ensure compliance all of which add to transaction costs. Suppliers are unable to alternative national and regional markets where produce that does not comply with high standards imposed the European Union could be sold for less. Incomes from such sales could supplement supplier incomes all of which contribute to poverty alleviation. The development of regional markets has been a challenge due to the lack of roads and railways.

7.2.3 Market structure
Global horticulture value chains are characterised by oligopsony where concentration is high and economies of scale is the main operating objective. In the type of market structure “crowding out” of weak players such as suppliers in SSA is a key feature and where global buyers monitor and control the entire value-added chain because they are considerably very powerful and influence value chain outcomes. Barriers to entry are low meaning suppliers have to compete with a large number of participants given global buyers competitive advantage resulting in increased incidence of opportunism. Information asymmetries also tend to persist due to the lack of technology and knowledge transfer as a result of low supplier capabilities. Due to the oligopolistic nature of global horticulture value chains, suppliers face intense competition due to the high concentration, global buyer power and low barriers to entry. Local suppliers are price takers because horticultural produce is perishable and there is often only one buyer, or two at a maximum. Furthermore, because prices are not transparent and produce is only priced once it arrives at the warehouse this forces supplier to sell and accept any given price (Azzam, 1998; Clarke et al., 2002; McDonald, 2006; Morrison-Paul, 2001). Price transparency has negatively affected the incomes and profits generation of the sector. Concentration has also increased at certain nodes of the horticulture value chain due to global buyer investments in supply logistics and the quest for large suppliers to merge and gain economies of scale and remain competitive. This has further contributed to the crowding out of weak and vulnerable suppliers. Suppliers in SSA are further challenged as the expiration of regional trade agreements such as AGOA means that they have to compete for market access with more experienced advanced developing countries such as Costa Rica and China. As local suppliers from Asia and Latin America are more technology-oriented such equal access gives them a competitive advantage over SSA and which has affected the income generation capacity of horticulture value chains.

7.2.4 Transaction costs
High transaction costs have a negative impact on supplier incomes and profits. The lack of appropriate infrastructure and inefficient institutions all contribute to high transaction costs. In addition, unanticipated changes in contractual conditions by global buyers give rise to uncertainty as
suppliers could become vulnerable to opportunism (Williamson, 1975). Opportunism does frequently occur as suppliers are often obliged to invest in specific assets to supply a given contract. According to the literature, and confirmed in semi-structured interviews, expensive investments in asset-specific assets are not cost efficient because they invariably cannot be used for other contracts (Zaheer and Venkatraman, 1994). Suppliers also face high enforcement costs caused by the delay in payment of invoices. Due to the lack of efficient legal institutions unofficial channels used for debt collection that can take a long time and considerable resources. Enforcement costs are also high due to non-compliance with standards and quality requirements that is especially difficult for small to medium size suppliers to comply with. Local suppliers are also not able to meet the costs of GLOBALGAP compliance due to scale economies of compliance where costs are two to three times higher for small than for large suppliers. The lack of data and information from horticultural institutions also adds to high search costs. The hypothesised link between low trust environment and high transaction costs is supported. This is analysed in Section 6.4. Trust is essential for participation in global horticulture value chains as a number of high quality aspects are difficult to discover in advance and therefore global buyers must trust that produce supplied complies with high standards and quality requirements (Batt, 2003, Fischer et al., 2007). As a consequence, global buyers require a trust environment based on which decisions are made to source fresh produce (Hornibrook and Fearne, 2003). Horticultural products are experienced goods, and therefore the highest quality of produce must be ensured. The empirical evidence showed that the low trust environment in Ghana and Kenya cited by global buyers is the reason why non-compliance tends to be high and therefore 100% of produce supplied has to be inspected which adds substantially to monitoring and control costs. It is also one of the reasons why produce is only priced at the warehouse i.e. they cannot trust that all produce is compliant. This has contributed to the loss of income for a number of suppliers because they are not able to determine the break-even point of supplies due to the non-availability of prices in advance. Suppliers have reported ways in which the low trust environment contributes to high transaction costs. Local suppliers said that they tend to experience delays in payments ranging from one week to three weeks and following up on payments requires resources that create transaction costs. An additional monitoring cost cited by local suppliers is the loss incurred when the final sale price of horticultural produce is less than the sale price agreed. Sometimes the final amount paid was less than what was agreed, especially in cases where global buyers inspect 100% of supplies and find that some fruits or vegetables have started to decay.

7.2.5 Technology and knowledge transfer

The transfer of technology presents challenges for suppliers in SSA. With the exception of a few large suppliers in Kenya, there is virtually no transfer of technology due to the low agricultural
research environment and inefficient intellectual property rights (IPRS) institutions. The agricultural research environment in Kenya is much better than Ghana because most of their horticulture institutions have close linkages with academic institutions. The low research and innovation environment, ineffective institutions such as the lack of appropriate intellectual property rights regimes also negatively affects the transfer of technology (Littleton, 2008). Technology is an important input to upgrading and innovation and because this is lacking it has contributed to the performance or suppliers and as a result are only confined to the supply of standard produce at the very low end of the chain or at worst are excluded from participation. In addition to appropriate institutions and a conducive technology environment, technology transfer is also highly dependent on level of absorptive capacity in a given firm (Tybout, 2000; Keller, 2004; Alvarez and Lopez, 2005; Djankov and Hoekman, 2000; Kasahara and Rodrigue, 2008; Saliola, and Zanfei, 2009) Bell and Pavitt, 1993; Lall, 1992;2001; Nelson, 1990). According to the empirical evidence, most small to medium size suppliers do not have the necessary levels of absorptive capacity to transform the new technology because they have not invested systems and processes that would support such initiatives. Subsequently, only expired technology if at all would be transferred and this does not contribute to state of the art innovation (Almeida, and Fernandes, 2008; Saggi, 1999; Yang & Maskus, 2001; Yang and Maskus, 2009).

7.2.6 Governance in GHVCs
Horticulture value chains in SSA tend to attract only captive and quasi-hierarchical governance due to the lack of capable suppliers that are required for complex transactions (Gereffi et al., 2005; Gibbon et al., 2008; Saliola and Zanfei, 2009; Sturgeon, 2008;). Modular or relational governance is not imposed due to the low trust and technology environment, weak institutions, infrastructure and low rates of absorptive capacity. This has also negatively impacted the income generation of suppliers (Fold, 2002; Gibbon, 2003; Gibbon and Ponte, 2005; Sturgeon et al., 2008). Relational and modular governance could offer good prospects for upgrading but are not imposed in locations such as Ghana and to a limited extent Kenya due to the lack of skills and support institutions. The lack of skills contributes to the high incidence of non-compliance resulting in high exclusion rates that have implications for supplier incomes and profits (Pietrobelli, 2008; Humphrey and Schmitz, 2000; Pietrobelli and Rabellotti, 2006; Giuliani et al., 2005). The capabilities required to interact in global horticulture value chains have increased because of the continuous inclusion of new standards and quality requirements driven by consumer tastes and preferences in developed countries. One of the biggest challenges that global constellations such as the formulation of global value chains are subjected to in the business environment is trust. High trust environments contribute to reduced transaction costs because it would no longer be necessary to establish every detail of the supply
contract in written form to ensure that its terms are met. In SSA, the low trust environment has contributed to the high cost of doing business (transaction costs). In global horticulture value chains the role of trust is important as a number of high quality aspects of fresh produce are difficult to discover therefore global buyers must trust fresh produce would comply with standards and high quality requirements without having to invest additional resources in monitoring and controlling (Batt, 2003; Fischer et al., 2007). The empirical evidence suggests that because of the low trust environment all produce are checked 100% each time there is a delivery. At the same time suppliers also alleged that either they are not paid on time or contracts that have been pre-negotiated are cancelled without notice all is which add to transaction costs (Hornibrook and Fearne, 2003). In addition, it increases uncertainty which also leads to opportunism thus exacerbating the incidence of low trust. Because trust environments are a challenge in Kenya and Ghana, it is most likely that transaction costs will continue to rise if measures are not taken reduce the incidence of mis-trust.

7.2.7 Income generation and Employment
Participation in global horticulture value chains has resulted in the creation of employment in Kenya and Ghana but the quality of employment has been questioned. The empirical evidence suggests that the temporary nature and lack of full welfare benefit for workers means that the employment generation has limited effect on poverty alleviation (Dolan & Sorby, 2003). The establishment of secondary industries is also very minimal due to the lack of appropriate institutions and infrastructure.

7.3 Opportunities
7.3.1 New Markets
The development of regional and domestic markets can serve as alternative markets to the high value European markets. Local suppliers must also have the opportunity to upgrade as quality issues are also of concern but can be achieved through GAP certification. In 2005, the Fresh Produce Exporter Association of Kenya (FPEAK) initiated a national GAP benchmarking process in an effort to reduce the high exclusion rate of small suppliers (UNCTAD, 2008b). The KenyaGAP, approved by GLOBALGAP is the first successful development of a national GAP in Africa. The National Horticulture Task Force (NHTF) in Ghana is pursuing a similar objective. In addition, there are opportunities to access the unexplored niche market of herbs which offer lucrative possibilities in the EU market. The organic market is also another important niche opportunity in Europe where products sell for between 40 and 150% more than conventional products.
7.3.2 Employment and income generation
Interaction in global horticulture value chains offers opportunities for poverty alleviation and also contributes to the rural economy through employment (McCulloch and Ota, 2002; Pingali and Rosegrant, 1995; von Braun, 1995) (Sections 6.8 and 6.9). Interaction in global horticulture value chains leads to employment creation in urban and rural areas. Recent studies have also highlighted the employment generation potential of horticulture value chains asking whether participation in the horticulture sector contributes to poverty alleviation (English et al., 2004; Humphrey et al., 2004; McCulloch and Ota, 2002). Wages tend to be low but at least the sector provides a source of income for a number of long-term unemployed who reside in both rural and urban areas (English et al., 2004). An overview of the findings is presented below in figure 7.1.
7.4 Summary of findings

7.4.1 Hypothesis 1: Opportunities for local suppliers to engage in higher added value activities and the creation of higher value employment is associated with additional income generation leading to poverty alleviation

The empirical evidence supports the view suggested by Hypothesis 1 that quasi-hierarchical governance is associated with reduced upgrading. Local suppliers have opportunities in the quasi-hierarchical governance to upgrade process and product systems but opportunities for functional upgrading where higher profits could be earned are limited (Humphrey and Schmitz, 2000). Evidence from the field study confirms this finding where quasi-hierarchical governance was imposed in a majority of the horticulture value chains especially in small to medium size suppliers. The literature on GVCs argues that quasi-hierarchy governance is common in developing countries such as Kenya and Ghana due to the lack of skills and capabilities in suppliers (Humphrey and Schmitz, 2000) and this is confirmed by the empirical evidence. Upgrading possibilities are also low in quasi-hierarchical...
governance because the skill and capabilities such as selecting, washing, and packing are low technology that requires limited upgrading. On the other hand, it is precisely the sourcing of low technology content products that is stifling upgrading opportunities and has contributed to the lock-in of a number of suppliers into standard supplies at the very low end of the chain. Suppliers tended to be less skilled in Ghana, which could be linked to the infant stage of the horticulture sector and the low R&D environment. Suppliers in Ghana tended to be predominantly small and have not invested in integrated systems, resulting in reduced capabilities compared to their counterparts in Kenya. Suppliers in Kenya tended to be larger and more skilled because the horticulture sector is mature and suppliers have invested in upgrading. Kenya also has a better agricultural R&D environment compared to Ghana which has given it a comparative advantage over most of the SSA economies that participate in horticulture. The empirical evidence confirms the hypothesised link between quasi-hierarchical governance and reduced upgrading. Upgrading is especially challenging in small to medium size suppliers that have not invested in systems and process to process complex transaction. The low upgrading environment combined with the lack of skills and capabilities attracts quasi-hierarchical governance that has the lowest possibilities for upgrading (Mankiw et al., 1995; Nieto and Quevedo, 2005)

Suppliers that have invested in upgrading activities are less likely to be excluded from participation in global horticulture value chains. The horticulture sector is increasingly consolidated and dominated by high-end retailers in Europe that demand strict compliance with food safety standards, therefore upgrading has become a necessary condition for participation because global buyers demand high quality produce that conforms to high standards and quality requirements. These standards include Good Agricultural Practices (GAPs) that go beyond legal requirements but are mandatory for local suppliers who supply to EU markets. Investments in process and product upgrading are particularly required to process complex information on horticultural produce. Small to medium size suppliers are most likely to be excluded from participation because they cannot afford to invest in upgrading activities. Suppliers also confirmed that meeting high quality and stringent food quality and safety standards such as GAPs, Good Manufacturing Practices (GMP) like ISO 9000, Hazard Analysis Critical Control Point (HACCP), and environmental standards like ISO 14000 is a big challenge, especially for small suppliers. Due to the high incidence of non-compliance amongst small suppliers, global buyers tend to perform random audits which lead to the rejection of considerable amounts of produce. The rejected produce is a loss of income for suppliers. Most notably, suppliers that are non-compliant risk marginalisation or exclusion from value chains.

Developments in the European market, especially the British food industry that demand high quality standards have led to the exclusion of many small suppliers due to non-compliance with standards and
high quality requirements (UNCTAD, 2000, 2008b). In the same breath the emergence of such standards presents upgrading opportunities and complemented with appropriate strategies suppliers should be able to participate in higher value chains and earn higher profits. Highly skilled suppliers also attract the establishment of local business such as secondary processing. The empirical evidence confirms the hypothesised link between upgrading and exclusion as suppliers that have invested in upgrading have the best chances of inclusion. Due to the high rate of non-compliance exclusion rates have increased due to the lack of upgrading in a number suppliers. Small suppliers face the highest probability of exclusion because global buyers with few large suppliers where compliance can be easily monitored and controlled. This development has further given rise to consolidation amongst the few large suppliers to gain economies of scale on compliance which has further worsened the position of small and some medium size suppliers.

7.4.2 Hypothesis 2

Transaction costs such as costs of compliance and asset specificity is associated with upgrading and the state of the operational environment

In cases where suppliers have upgraded, global buyers invest fewer resources in monitoring and controlling activities. The resources invested in negotiation and enforcement is also reduced due to the limited need to follow up on compliance issues. Infringement costs are also lower amongst upgraded suppliers contributing to reduced transaction costs. The most frequently used control and monitoring mechanisms employed by global buyers include random audits and the provision of broad guidelines. Upgrading reduces transaction costs because global buyers do not have to invest more resources in compliance issues. In addition, resources spent on negotiation, search and enforcement are also reduced when processes are upgraded to ensure compliance with standards and high quality requirements. Suppliers also spend considerable amounts of resources on debt collection and price discovery. Because prices are not transparent they do not trust that global buyers are offering them a fair price. Trust also results in the awarding of long term contracts, repeated transactions, and modular and relational governance which have the highest upgrading possibilities. Global buyers in this study tended to award short term contracts because the environment within which they operate is considered to be one of low trust. The awarding of short term contracts has limited effects on the formulation of durable relationships upon which trust can develop. Typically in Ghana there is no commitment to one specific supplier.

Transaction costs are high because global buyers do not trust that suppliers are fully compliant with standards. They therefore spend considerable amounts of resources on inspection and random checks all of which contribute to high transaction costs. Suppliers also spend considerable amounts on debt collection and price discovery all of which again contribute to high transaction costs. The high level of transaction costs is related to inefficient or the lack infrastructure.
The lack of infrastructure development especially in rural areas has negatively affect supplier performance and the establishment of local business (Anwar and Phi Nguyen, 2010). The low quality of infrastructure has implications for the level of transaction costs through increased monitoring and coordination. Local suppliers confirmed that reportedly high exclusion rates were due to the low quality of physical and horticulture infrastructure that contribute to high transaction costs and affect the quality of produce. The hypothesised link between infrastructure development, supplier performance, transaction costs and local business establishment is confirmed. The lack of infrastructure such as roads and access to airports affects the quality of produce which has implications for supplier performance. Transaction costs also increase due to the high incidence of non-compliance. Reduced business development is due to the lack of physical infrastructure to support business activities. This was the case in both Kenya and Ghana and has implications for poverty alleviation and economic development.

The empirical evidence supports the view that efficient institutions are associated with lower transaction costs and inefficient institutions, contributing to under-development. Efficient property rights institutions are important to secure the intellectual property and patents owned by global buyers. Due to the inefficiency of these institutions in Kenya and Ghana, global buyers are reluctant to transfer the technology necessary for upgrading. Technology transfer contributes to enhancing supplier performance and is also an input of upgrading activities that contributes to the reduction of non-compliance, monitoring and enforcement costs. Upgrading reduces the incidence of non-compliance as it enables the processing of information on complex transactions with limited errors. Therefore global buyers would not have to increase monitoring and control which leads to lower transaction costs. Efficient horticultural associations also reduce search costs. These professional associations provide data and information that is necessary for participation in global horticulture value chains. Where they are fragmented or inefficient, it takes longer to obtain relevant information resulting in higher search and transaction costs.

Legal institutions are necessary in cases where there is the need to enforce the terms and conditions of a given contract. Efficient legal rights institutions reduce the costs of enforcement by providing a framework that is equitable and accessible to all parties at a reasonable price. According to the empirical evidence legal rights institutions are not efficient resulting in high transaction costs. It is expensive and also takes a considerable amount of time and resources to resolve disputes all of which add to transaction costs. Due to the inefficiency inherent in institutions, this has also contributed to the under-development reported in Ghana and Kenya. It is further argued in the literature that state of institutions could also explain why some countries develop and others remain under-developed (Chu,
The more efficient the institutions, the more likely an economy is to experience rapid development. The empirical evidence confirms the hypothesised link between efficient institutions and lower transaction costs. This is especially the case for property rights, legal institutions and horticultural associations. Horticultural institutions are critical, especially in the dissemination of information and market intelligence as it contributes to the reduction of search costs, particularly for small and medium size suppliers who do not have the resources to engage in expensive research.

It also seems that there exist links between oligopsony market structures, reduced supplier incomes. It is confirmed that global horticulture value chains are characterised by oligopsony where there are a few large buyers and many suppliers. This has resulted in very powerful buyers and to counteract this imbalance suppliers have also consolidated resulting in high concentration in the value chain (Patel Campillo, 2010). It is further argued in recent studies that market concentration results in reduced profits to participants (Kaplinsky and Morris, 2008; Cox, 2002). Concentration at specific nodes of the chain could lead to increased market power at the expense of other participants. These power asymmetries negatively impact vulnerable small to medium size suppliers (Feenstra, 2004). Oligopsony market structure results in the accumulation of super-normal profits to global buyers due to concentration at different nodes of the chain resulting in reduced profits to suppliers. This means that suppliers would pay less for produce sourced from rural areas resulting in reduced incomes to farmers which has caused income poverty among many. Reduced incomes to farmers have implications for poverty alleviation and economic development. Concentration in horticulture value chains tends to be driven by the competitive strategies in the home countries of global buyers over which suppliers have no control. Yet these developments have profound implications for the income generation of participation in horticulture value chains and its poverty alleviation effect.

7.4.3 Hypothesis 3
Opportunities for local suppliers to engage in higher added value activities and the creation of higher value employment is associated with additional income generation leading to poverty alleviation

The study found that small local suppliers who are unable to invest in processes that support the acquisition, assimilation, transformation and exploitation of knowledge have lower absorptive capacity rates which also explained the low level of performance evidenced by high exclusion rates due to non-compliance with standards and high quality requirements. Higher levels of absorptive capacity are reported in large suppliers especially in Kenya where supplier performance was evident in the low level of non-compliance. Levels of absorptive capacity were also higher in suppliers that had close links to universities and research institutions. It is also argued in the literature that small
firms need not engage in expensive R&D and that it is sufficient to be well connected to universities and research institutions (Lundvall and Johnson, 1994; Johnson et al., 2001; Vinding, 2004; Gottardi, 2000). This was confirmed in Kenya where a number of suppliers and horticultural associations that provide intelligence to suppliers are linked to universities and research institutions.

The capacity of local suppliers to acquire relevant external knowledge of standards and high quality requirements was more than the capacity to exploit scientific knowledge due to investment in upgrading and limited connections to universities and research institutions. This was to be expected, as most horticulture supplies are standard with limited added value. The transfer of knowledge depends on the absorptive capacity, which tends to be higher in larger suppliers who have the resources to invest in training, systems and processes. This leads to asymmetries in knowledge transfer that have contributed to the different upgrading outcomes that have an impact on supplier performance. The extent to which local suppliers (recipients) acquire potentially useful knowledge and use this to deliver high quality produce which can only be successful if the supplier has the required levels of absorptive capacity (Davenport and Prusak, 1998, Minbaeva, et al., 2003; Cantwell, 1989; Kokko, 1994; Lane and Lubatkin, 1998; Gupta and Govindarajan, 2000). The extent to which knowledge is acquired and exploited has important implications for supplier performance. Knowledge transfer is not automatic but requires the existence of capable suppliers and supporting institutions that facilitate the transfer (Zanfei, 2004). To maximise the potential knowledge transfer, local suppliers must be able to exploit and transform the knowledge for upgrading which depends on absorptive capacity.

The empirical evidence supports the view that improved supplier performance is associated with absorptive capacity which depends on linkages to universities and research institutions. However, Cohen and Levinthal (1994) also examine the linkage between investments R&D and absorptive capacity and argue that the level of absorptive capacity is linked to previous knowledge generated through investments in R&D. Indeed, local suppliers confirmed that if they had more resources to engage in research, this would definitely improve the level of absorptive capacity and performance. The extent to which local suppliers are linked to universities and research institutions was clear, but it was not possible to measure how information obtained from such sources was utilised to enhance absorptive capacity. However, in large local suppliers high levels of absorptive capacity facilitated the use of knowledge transfer in the form of standards, high quality requirements and market intelligence obtained from horticultural associations.

Although R&D activity was limited, suppliers with high levels of absorptive capacity could make use of technology transfer. It is also confirmed in the literature that is sufficient for suppliers to engage in
innovation if they are sufficiently linked to universities and research institutions. There was hardly any technology transfers from global buyers because they were of the view that their innovations would be unduly copied due to weak intellectual property rights regimes. Moreover, most of the suppliers have not displayed the skills and competences necessary to use the new technology. Suppliers confirmed that if they increased R&D activities it would also improve the technological trajectory and make them more receptive to new technology. Most of the workforces in local suppliers especially in Ghana are not highly educated with the exception of the office staff and managers, which clearly has an impact on R&D. Some studies also discuss the importance of technology transfer as inputs to innovation in local suppliers (Young and Lan, 1997; UNCTAD, 2004; Acharya and Keller, 2007, Almeida and Fernandes, 2008). However they are of the view that the copyright and patent excuse is only used to prevent access to relevant technology. The lack of technology transfer has had implications for supplier performance which also depends on efficient intellectual property rights institutions.

The research found that there was virtually no technology transfer which affected the performance of suppliers as they were not able to engage in highly innovative activities. Global buyers said that the transfer of technology was very limited because local suppliers do not have the absorptive capacity to receive and further develop technology. Furthermore, there was no proof that suppliers had the skills, equipment, and infrastructure to exploit new technology. Global buyers also said that trust (Hypothesis 3) was also instrumental in the transfer of technology, as they have to be assured that technology would not be unduly copied and imitated. The general consensus was that technology transfer was indeed necessary for improved performance but the benefits of such transfers are closely linked to levels of absorptive capacity and R&D. Most participants agreed that technology transfer is critical for improved supplier performance.

According to the literature participation in horticulture value chains contributes to poverty alleviation through employment (McCulloch and Ota 2002; Pingali and Rosegrant, 1995; von Braun, 1995). Participation also generates income for suppliers where they can earn 120% more than the average household income (Maertens, 2006). Recent studies have also highlighted the employment generation potential of horticulture value chains asking whether participation in the horticulture sector contributes to poverty alleviation (English et al., 2004; Humphrey et al., 2004; McCulloch and Ota, 2002). The evidence suggests that there are employment opportunities an added value activities such as prepared vegetables generate 2.5 and 5 times more labour required (Humphrey et al., 2004), so that the shift to more packaged formats has substantially increased employment opportunities in Kenya (Weinberger, and Lumpkin, 2007; English et al., 2004). This was also confirmed by participants. However, the sustainability of employment potential was questioned by suppliers because it tends to
be temporary in nature and most of the employees are not educated and might not find alternative employment elsewhere in case of redundancies, which are quite common in the horticulture industry. Supplies questioned the sustainability of the employment generation because of the precarious working environment (Dolan & Sorby, 2003). The empirical evidence confirms the hypothesised link between participation in horticulture value chains, employment generation and poverty alleviation. Employment creation was evident in Kenya and Ghana. The increase in demand for prepared vegetables has contributed to employment generation. A similar trend was observed in Ghana. Participation contributes to employment creation but the sustainability of such employment has been questioned as more income poverty is reported amongst suppliers. This is also evidenced by the high exclusion rates that determine the income opportunities for the poor.

7.5 Conclusion
Participation in global horticulture value chains can contribute to poverty alleviation and economic development but this outcome is dependent on the operating environment, value chain attributes and local supplier capacities. There are also very strong interrelationships and associations between the different elements which are necessary for the optimal functioning of global horticulture value chains. In Ghana and Kenya the type of governance imposed is either captive or quasi-hierarchical. With regards to quasi-hierarchical governance local suppliers have opportunities to engage in process and product upgrading but not functional upgrading and inter-chain upgrading where higher profits could be earned (Humphrey and Schmitz, 2000). The empirical evidence suggests that local suppliers who have invested in upgrading activities are also less likely to be excluded from participation in global horticulture value chains. The link between low trust environment and high transaction costs is supported. Trust is essential for participation in global horticulture value chains as a number of high quality aspects on horticulture produce are difficult to discover in advance. Therefore global buyers must trust that produce supplied complies with high standards and quality requirements (Batt, 2003, Fischer et al., 2007). Due to the low trust environment in Kenya and Ghana, transaction costs are very high because all produce supplied must be fully inspected to ensure compliance with standards and high quality requirements.

Institutional arrangements mitigate market failures such as the lack of intellectual property rights regimes and/or lack of access to financial resources that constrain local supplier investment in innovation. In Kenya and Ghana, due to the inefficiency of intellectual property rights institutions global buyers are reluctant to transfer technology to local suppliers. The positive link between higher supplier performance and absorptive capacity was confirmed. The study found that local suppliers with lower absorptive capacity rates tend to have fewer capacities and high exclusion rates. Suppliers
that exhibit high levels of absorptive capacity are able to acquire knowledge and technology transfer and transform it for innovative activities. The empirical evidence confirms the findings shown in other studies that those suppliers with links to universities and agriculture research institutions show high absorptive capacity levels. The lack of infrastructure development especially in rural areas negatively affects supplier performance and the establishment of secondary industries especially in rural areas (Anwar and Phi Nguyen, 2010). The study show that the exclusion rates that local suppliers experience is due to the low quality of physical and horticulture infrastructure that affect the quality or produce. This contributes to high transaction costs because global buyers have to invest additional resources to ensure compliance with standards and high quality requirements.

Global horticulture value chains are characterised by oligopsony where there are a few large buyers and many suppliers. This has resulted in an imbalance between very powerful buyers and small to medium size local suppliers. To counteract these imbalances, these local suppliers have to consolidate which results in high concentration in the value chain (Patel Campillo, 2010). It is further argued in recent studies that market concentration results in reduced profits and increased market power (Kaplinsky and Morris, 2008; Cox, 2002). These power asymmetries negatively impact vulnerable small to medium size suppliers (Feenstra, 2004). The high concentration is further exacerbated by the fact that, due to the perishable nature of fresh produce, suppliers that are unable to merge with large suppliers who have storage facilities are forced to sell most of their produce at prices below marginal cost. Participation in global horticulture value chains does contribute to employment generation and supplier incomes but its impact on poverty alleviation and economic development in the SSA region has been minimal. The study shows that supplier incomes have been negatively affected by the poor operating environment and the lack of capacities in a number of suppliers. The oligopsony nature of the market also means that most of the profits accrue to the large global buyers who control the value chains. The benefits of employment generation stemming from participation in global horticulture value chains have been mixed because the quality of employment has shown minimum impact on increasing the welfare of the labourers and reducing inequality.
Chapter 8
Policy Issues, opportunities for further research and significance of the research

8.1 Introduction

As evidenced from the literature review and empirical evidence the constraints inhibiting the development of the agriculture sector in SSA is not the same as in Asia during the Green Revolution (Staatz, and Dembélé, 2008). This therefore raises questions about whether a Green Revolution in SSA could accelerate the development of the sector given that it has missed the opportunity on a number of occasions. The protection of domestic agriculture through subsides is more limited under WTO rules than during the Green Revolution (Staatz and Dembélé, 2008). Protectionism was used successful by Asian countries to temporarily protect vulnerable suppliers (Staatz and Dembélé, 2008; Djurfeldt et al., 2006). These issues have crossed into the horticulture sector where there are opportunities for suppliers to earn higher incomes and returns that contribute to poverty alleviation and economic development. As most suppliers are small to medium size it makes it difficult to realise the economies of scale that are necessary for agricultural development and participation in global horticulture value chains. There are opportunities for suppliers to increase incomes through the supply of higher-value horticultural products but it requires investments in upgrading but suppliers with very limited resources could not afford to (Staatz and Dembélé, 2008; Boughton et al., 2007; Poulton et al., 2008). The low income-earning capacity of the rural population increases the cost of providing basic infrastructure such as roads and rural electrification that is crucial in for stimulating economic development through local business establishment.

The income generation ability of participation is further enhanced because it has important synergies with the tourism sector through the number of airline flights, resulting in increased cargo availability, and demand from hotels and restaurants. Discussions in previous chapters have illustrated the extent to which supplier performance facilitates inclusion and the establishment of local business though it is very much dependent on the conditions of participation in the value chains. Such conditions, which are very much determined by governance imposed by global buyers, are in part driven by the skills and capabilities of suppliers resulting in poverty alleviation and economic development. Although several aspects of participation such as governance are well understood, there is not much information on the determinants of governance, the evolution of such decisions and how the conditions in value chains can be improved to limit exclusion leading to poverty alleviation and economic development in Kenya and Ghana. This research set out to shed explanation and understanding that would result in the
advancement of policy proposals that could be implemented to enhance the poverty alleviation potential of participation in global horticulture value chains.

8.2 Opportunities to reduce poverty resulting in economic development

The empirical evidence collated during the field study supports the view that participation in global horticulture value chains contributes to poverty alleviation and economic development (Barrientos, 2005). However, such effects depend on upgrading, the value chain attributes and the operating environment where the value chains reside. Participation in value chains also improves the efficiency of small suppliers due to economies of scale in knowledge and technology transfer. Opportunities to reduce poverty and encourage economic development that emerge from participation in global horticulture value chains include:

Access to external markets: According to empirical evidence, participation in global horticulture value chains has provided access to European Union markets. These are high value markets where suppliers earn higher incomes that contribute to poverty alleviation. To participate in these markets suppliers must have the necessary capabilities to participate in higher value added chains. Such investments have also increased the demand for processed products which drives the establishment of local businesses such as secondary processing. This has occurred in Kenya, and to a limited extent in Ghana, which contributes to job creation and further income generation for the poor who predominantly rely on the sector for their incomes. Participation in global horticulture value chains has also been a source of income for a number of small to medium size suppliers enabling families to purchase basic goods which they would not otherwise be able to afford (Omosa, 2002; Hamilton et al., 2001). In Kenya, it is reported that such activities provided incomes which enabled suppliers to meet basic requirements. This poverty alleviation outcome is also supported in the literature where households engaged in export horticulture are reported to at least have reduced food poverty (McCulloch and Ota, 2002).

Large suppliers have sustained their position in value chains: Because participation in global horticulture value chains requires highly skilled suppliers, it has provided the opportunity for a number of suppliers to upgrade and exploit opportunities in niche markets such as the supply of organic produce where there are opportunities to earn higher incomes. In Kenya large suppliers have been quite successful, but this has not been the case in Ghana. Suppliers were slow to take advantage of the high demand for pineapples and organic produce in the European market which was subsequently lost to competitors located in Latin America and the Caribbean. As a result a number of suppliers were excluded from participation which contributed to the loss of income for many
suppliers. Suppliers also have the possibility to develop new technology to access scientific agricultural research and facilitate the dissemination of information to a large number of suppliers.

8.3 Challenges that have hindered poverty reduction and economic development

Despite some advantages, participation in global horticulture value chains suppliers face a number of challenges. The empirical evidence revealed the following:

**Diversity of small to medium size suppliers:** Differences in suppliers varied considerably with some having more access to resources which helped upgrade and sustain their positions in value chains (Christiaensen and Demery, 2007; (Staatz, and Dembélé, 2008). Most of the small vulnerable suppliers are excluded from participation due to infringements on standards and high quality requirements. There are opportunities to increase incomes through the supply of higher-value horticulture such activity typically requires upgrading that small suppliers may not have developed due to the lack of resources (Boughton et al., 2007; Poulton et al., 2008). Suppliers are constrained by the proliferation of standards imposed by global buyers especially those that are not yet applicable in local markets. This makes the costs of compliance quite high due to the lack of economies of scale in small suppliers. The introduction of GLOBALGAP 2 that permits group certification was supposed to mitigate these resource constraints but has turned out be quite expensive for small suppliers.

**Understanding the trajectories of value chains:** the suppliers who participated in this study did not fully understand the dynamics of value chains. As discussed in the previous chapter, the type of governance affects upgrading and income generation (Hypothesis 1). Quasi-hierarchical governance has possibilities for certain types of upgrading but does not encourage functional upgrading where suppliers could have the opportunity to earn higher incomes (Pietrobelli, 2008) At the same time, horticulture value chains in Kenya and Ghana attract quasi-hierarchical governance because most of the suppliers do not have the necessary skills and capabilities, and therefore activities must be strictly monitored and controlled. The lack of upgrading to process complex transactions evidenced in a number of suppliers interviewed constrains their ability to respond to global buyer requirements in a timely manner. Infrastructure constraints were also one of the main factors cited by suppliers. The lack of investment in the necessary equipment has led to high exclusion rates of suppliers which have in turn affected profits and incomes. Reduced profits and incomes have direct implications for poverty alleviation and economic development. As new niches such as the demand for organic produce emerge this is an area where small suppliers can upgrade and position themselves but this has proved a challenge due to a number of factors discussed in this study. In a number of cases, global buyers
obliged suppliers to invest in systems and processes that are not yet applicable in national markets which results in high assets specificity that translates into higher transaction costs (Lall, 2002).

Investment in research and development was limited in all small suppliers because they do not have the resources to invest in such activities. However a number of them were linked to research institutes and universities but could not use this information to improve absorptive capacity and make effective use of the knowledge for upgrading. Some of the small suppliers, especially in Ghana, did not have qualified staff employed in the horticulture sector. In this regard suppliers in Kenya have a competitive advantage. The transfer of technology is also limited because of the underdeveloped intellectual property rights institutions and innovation environment (Glass and Wu, 2007). Therefore most suppliers are confined to the supply of standard produce with low or no technological content (Ruffing, 2006). The availability of knowledge and technology is also an issue among small suppliers (Hypotheses 5 and 6). Technology and knowledge are virtually non-existent but are required especially in small to medium size suppliers. Absorptive capacity that is necessary for the processing of knowledge is also very limited because links to universities and research institutions are limited. Such a process has to be established to jump-start the small suppliers who form a critical mass in horticulture value chains. The sector is not achieving its full potential in the European market which has implications for poverty alleviation and economic development. Therefore there is a need to address the constraints and gaps identified during the field study which would move suppliers from the diminishing low price niches to more profitable sectors of the value chains.

**Suppliers were not able to identify competitive advantages:** Suppliers did not fully understand that the identification of competitive advantages was necessary to enable the development of niches and their positioning in value chains. Some suppliers, especially the small ones, highlighted the lack of resources and access to institutions that can assist them in this process. This was very much the case in Ghana where horticultural institutions are fragmented and had contributed to the loss of a huge market share to competitors in the supply of pineapples during the shift to MD2 varieties because they were unable to identify the competitive advantage and institutions to support the transition (Hypothesis 4). This fragmentation of institutions was cited as the main constraint and resulted in a loss of market share to competitor countries like Costa Rica and Ecuador, resulting in a reduction of market share from 10.5% to 4%, a loss which has negative implications for profits and incomes. The European market for pineapples has almost doubled in size but productivity has not increased to match the demand. Global buyers have also shifted most risks of participation in the form of standards and high quality requirements to suppliers resulting in the erosion of income and higher transaction costs.
The lack of efficient legal and intellectual property rights institutions: Suppliers reported that due to financial constraints they are unable to seek redress in the courts in case of abusive behavior on the part of global buyers. The legal institutions are inefficient and time consuming and outcomes are uncertain. As a result, a number of global buyers have resorted to cash transactions that do not encourage relationships where a trust environment can develop. It also appears that barriers such as intellectual property rights and legal institutions are not easy to overcome because this is a government initiative that sometimes does not have the highest priority in national budgets (Maskus, 2004). Trust environments are a necessary condition for participation in horticulture value chains because fresh products are experienced goods where quality cannot be determined before purchase (Hypothesis 3). Moreover, global buyers must trust that certain basic standards are present as non-compliance has reputation risks for their brands. The emergence of trust environments also supports modular and relational governance that have better upgrading opportunities (Altenburg, 2006). The absence of efficient legal institutions that facilitate written contracts stifles supplier participation in higher value added chains. The lack of intellectual property rights institutions has resulted in the sourcing of standard produce with reduced technological content. It has also reduced the incidence of technology transfer as global buyers are of the view that innovation, in which they have invested considerable amounts of financial and human resources would be unduly copied. It has reduced innovative possibilities in suppliers for the same reasons.

The lack of skills and capabilities: This is consistent with replies from suppliers who said that they have limited understanding of how global horticulture value chains function and therefore it is not easy for them to implement effective strategies to upgrade (Rothstein, 2005) Local suppliers complained about value chain governance, and global buyers also complained about the lack of capabilities in small to medium size local suppliers. For instance, although upgrading is central to the performance of suppliers and participation in higher value added chains, contributing to increased incomes leading to poverty alleviation and economic development, this did not occur due to the lack of investment. It is necessary to the ability to acquire technology leading to innovation (OECD-FAO, 2007). The lack of access to finance was also acknowledged (OECD-FAO, 2007). Other important areas of strategic interest include the state of institutions, infrastructure, market structure, transaction costs and trust environments. Adherence to standards better management of intellectual property, the power exerted by global buyers through governance, and activities that will reduce dependence on global buyers and support inclusion of suppliers in value chains (OECD-FAO, 2007). It was also established that quasi-hierarchical governance reduces upgrading. The imposition of quasi-hierarchical governance is due to the lack of skills and competencies which leads to additional monitoring and control of activities. The evidence also confirmed that the more a local supplier
engaged in upgrading, the more they would not be excluded from interaction. The higher incidence of exclusion has implications for profits and incomes.

The lack of horticulture infrastructure: This has hindered the emergence of alternative horticulture markets in the region (Santos et al., 2010). The problem in SSA is the lack of, in particular, road and horticultural infrastructure that makes it virtually impossible to transport produce from rural locations in a timely manner. Hence, most facilities are located in cities close to airports which limit the amount of facilities that can be located in rural areas which would result in employment generation and incomes for the rural poor.

8.4 Recommended strategies to optimise poverty reduction and economic development

Given the opportunities and challenges that suppliers face during participation in global horticulture value chains, strategies for poverty alleviation should focus on promoting upgrading in small to medium size suppliers. As well as forming the critical mass of participants that interact in global horticulture value chains, they are also the ones who face a number of operational challenges (Staatz and Dembélé, 2008). A shift in emphasis is required to enhance the performance of suppliers and conditions of participation leading to local business establishment, poverty alleviation and economic development. To ensure that participation in global horticulture value chains does contribute to poverty reduction and economic development, strategies and policies that distributes such benefits equitably by for instance creating increased employment opportunities through the expansion of non-farm employment and supplier upgrading (Staatz and Dembélé, 2008); (World Bank, 2008). In order for upgrading to contribute to poverty reduction, it must be complemented with policies to promote the equitable distribution of incomes and profits (Staatz and Dembélé, 2008). Resources should be concentrated in suppliers and rural areas that have the most potential for expansion while at the same time introducing policies to ensure increased employment for the poor, including access to agricultural education that supports upgrading activities. This could involve investment in infrastructure that would link suppliers in rural areas to urban cities and alternative markets. This path exploits opportunities from employment generation (Staatz and Dembélé, 2008).

The small size of most national agricultural research systems implies the need for regional research networks that are effective and gain economies of scale to address local conditions and exploit local knowledge. Lack of knowledge was one of the critical issues identified during the empirical study.

The poverty reduction strategy must focus on both the traditional and non-traditional higher value products such as horticulture. Trade in horticulture is quite lucrative if firms are able to comply with
the proliferation of standards and high quality requirements (Staatz and Dembélé, 2008). Moreover due to life style changes demand is increasing guaranteeing future incomes if initial investment is made at this stage (Staatz and Dembélé, 2008). However, products must meet high quality standards and requirements, including delivery in a timely manner (Staatz and Dembélé, 2008). Success factors include an efficient socio-economic environment, trust environment, infrastructure with regards to transportation rural areas to markets, efficient institutions, knowledge and technology transfer that leads to economies of scale (Staatz and Dembélé, 2008). For example, economies of scale the horticulture sector has often depended on demand from the tourism sector (Staatz and Dembélé, 2008). In Kenya, the development of the tourism sector has resulted in additional air freight capacity for the transportation of produce (Staatz and Dembélé, 2008). Ghana is closer to Europe but lacks frequent air connections to Europe and other destinations.

Participation in horticulture value chains has created a number of jobs and opportunities but the extent to which local demand could contribute to the sector has not been addressed (Staatz and Dembélé, 2008). These markets could serve as a learning basis for local suppliers before they venture into export markets (Staatz and Dembélé, 2008). Because horticulture produce are perishable, they require reliable markets and good logistical equipment (Staatz and Dembélé, 2008). Traders’ organisations have the potential to help improve the performance of regional markets through improved regional coordination and reduced non-tariff trade barriers. The perishability of fresh produce also places high demands on post-harvest technology and marketing systems but this is lacking because of limited investment in technology (Staatz and Dembélé, 2008). These problems have to be addressed if participation is to help supplier gain extra incomes (Staatz and Dembélé, 2008). To achieve the potential benefits of participation, suppliers must develop the necessary skills and capabilities for interaction in the European market.

This will require increased investment in equipment, efficient logistical infrastructure and good management. Without these, suppliers will be confined to low value markets with limited income potential. The strategy for export horticulture therefore focuses on encouraging investment, developing technical expertise, efficient institutions, good infrastructure and a trust business environment. In this regard, it is necessary to advance policies that could facilitate supplier participation in global horticulture value chains leading to local business development, poverty alleviation and economic development.
8.5 Policy proposals

8.5.1 Education on the benefits of participation in global horticulture value chains (OECD-FAO, 2007) One of the constraints cited by suppliers is that they did not have a good understanding of the dynamics and poverty alleviation impact of participation in horticulture value chains. Suppliers also need to be educated in local languages on the advantages and disadvantages of engaging in export trade. This might help improve the allocation of resources where certain suppliers could decide that they do not have the capabilities to participate in global markets and would simply focus on the domestic market. In this regard, valuable resources are not wasted on efforts that would lead to losses or exclusion from participation in value chains. Although the emergence of technology facilitates access to information, most of the suppliers interviewed did not have computer equipment or are not linked to the Internet which limits access to reliable, timely information and analysis of the opportunities inherent in global horticulture value chains (OECD-FAO, 2007). Subsequently the development of ICT infrastructure, especially high speed Internet access, is crucial to sustainable knowledge acquisition. For instance, in Ghana very few people have access to the internet especially in rural areas. Now that both Kenya and Ghana have access to high capacity undersea fibre-optic cable this can enable fast and reliable Internet connectivity that will be the driving force for knowledge dissemination in value chains.

8.5.2 Reducing the rate of exclusion (Evans, D., et al., 2006)

The performance of suppliers is dependent on the development of skills and capabilities through upgrading. This does contribute to improvement in the conditions of value chains through technology and knowledge transfer (Hypotheses 5 and 6) (OECD, 2004). The improvement of technology and absorptive capacity in suppliers can foster inclusion in global chains (OECD, 2004) Supplier inclusion can also be encouraged through the development of skill and competencies. Participation in global horticulture value chains does not only require conforming to the regulations of the GLOBALGAP but also adherence to high quality requirements in competition with other suppliers. A specific example is suppliers in Ghana who could not cope with competition in the pineapple sector that has resulted in the loss of market share to competitors from Latin America. This is closely linked with governance and the rate of exclusion. There is therefore a need for local suppliers to invest in skills and competencies that enable their adherence to standards, and reduce the resources that global buyers invest in control and monitoring during interaction.

Global buyers impose quasi-hierarchical governance due to the lack of capabilities in suppliers. Quasi-hierarchical governance which is mostly imposed in Ghana and to a limited extent Kenya has the lowest rate of inclusion because relationships tend to be at arm’s length. Because upgrading is low
in a number of suppliers the rate of exclusion is also high. This has resulted in high income poverty amongst suppliers. Relational and modular governance which have the highest potential for inclusion are predominantly found in large suppliers in Kenya due to investments in systems that have contributed to upgrading.

Therefore to improve the rate of inclusion and sustainability in value chains, suppliers must improve performance through investments in systems and acquisition of knowledge. To use this knowledge for upgrading, suppliers have to improve absorptive capacity by enhancing links with universities and research institutions. Absorptive capacity is reportedly low, especially in Ghana where most local suppliers are small. Higher levels of absorptive capacity have been reported in large suppliers in Kenya, which is a necessary condition for interaction in higher value added chains. The evidence suggests that most local suppliers do not have the resources to engage in the innovation needed to handle the proliferation of standards and high quality requirements. Knowledge and technology transfer from global buyers also play a key role in upgrading capabilities of local suppliers. However, this is not always possible due to the reduced absorptive capacity necessary for the acquisition and exploitation of knowledge transfer. According to global buyers, most local suppliers are not ready to receive and develop technology transfer. The transfer of technology and knowledge also depends on local suppliers’ investment in learning and technology capabilities to innovate and upgrade (Morrison et al., 2008).

To improve the absorptive capacity in small suppliers, initiatives must be advanced to support the promotion of supplier development programmes where the global buyer provides assistance with standards and high quality requirements. Local suppliers must also make the necessary investments in human resources and ICT technology. Such initiatives would improve supplier absorptive capacity resulting in the transformation of knowledge leading to upgrading. Upgrading results in better performance where profits are higher resulting in increased incomes, generation of skilled employment with higher wages. Higher wages and increased incomes have a higher marginal effect on the reduction of poverty. The role of NGOs and international organisations needs to be enhanced to support such initiatives. Governments and participants must also work together to foster effective support organisations that promote the interests of the horticulture sector and act as a coordinating mechanism especially in the area of upgrading to improve conditions in horticulture value chains.
8.5.3 Support for compliance with standards and high quality requirements
Supplier adherence to standards enables suppliers to upgrade through the introduction of new technology that ameliorate their overall performance and conditions in global horticulture value chains. The cost of compliance is further increasing due to the inability to comply with the proliferation of standards (OECD, 2004). Governments should assist by ensuring that standards and high quality standards set are on small suppliers (OECD, 2004) Initiatives such as group certification for small suppliers in a trust environment leading to low transaction costs. The low trust environment in Kenya and Ghana has contributed to high transaction costs.

Group certification could also be supported by the governments at a reasonable cost where international organisations such as UNIDO could play an important role (Humphrey and Memedovic, 2006). Such support mechanisms facilitated and helped to promote local certification on EurepGAP in Kenya which has resulted in cost-effective certification – KenyaGAP (Humphrey and Memedovic, 2006). In 2007, KenyaGAP was approved by GLOBALGAP and represents the first successful development of a national GAP in Africa. The National Horticulture Task Force (NHTF) in Ghana is pursuing a similar goal, which is a necessary step towards developing the sector. Although countries in SSA are creating certification processes and institutions, the problem of recognition in developed markets remains a constraint. Therefore, it is necessary that recognised certifying agencies in developed countries work in collaboration with national or regional certifying bodies in SSA on issues of quality assurance and compliance.

8.5.4 Access to Finance
Supplier performance, inclusion and better conditions require investments in systems and processes which require access to finance at reasonable interest (OECD, 2004). Suppliers usually do not have enough income due to suppressed margins that plague the sector and non-payment of invoices that run into several weeks (OECD, 2004). The low trust environment has increased uncertainty and opportunism both of which give rise to high transaction costs (Hypothesis 3). Policies aimed at developing a trust environment ensuring confidence in suppliers can assist in addressing the financing gap. Credit institutions must also be restructured to provide financial support to suppliers.

8.5.5 Research and Development
Discussion in previous chapters showed that for suppliers to increase performance leading to upgrading, poverty alleviation and economic development, there is a strong and urgent need to increase innovation through R&D. Increased innovation would facilitate access to global buyers’
value chains where opportunities exist for local suppliers to use expired patents such as irrigation techniques to improve productivity. Furthermore, the acquisition and exploitation of knowledge transfer from expired technology is dependent on the absorptive capacity for the transformation of knowledge transfer into upgrading. As investment in R&D is expensive, host-country policies must consider ways of subsidising or supporting small to medium size suppliers to encourage R&D. Most global buyers conduct research at headquarters but there are now some R&D centres in developing countries to help identify products that are demanded locally (WIR, 2009). Recently, one beverage manufacturer has established an excellence centre in West Africa.

Universities, laboratories and research centres can be channels through which local suppliers can improve research activities. Policies can be aimed at capacity building, where humanitarian development organisations could provide finance or grants for horticulture education (WIR, 2009). In this regard, Kenya has better established domestic research capabilities than Ghana. Public/private partnerships (PPPs) that link global buyers and local suppliers could support innovation (WIR, 2009). Access to low interest finance can also help (UNCTAD, 2009). It is also important to link universities, national research institutes and local suppliers in order to foster knowledge transfer. Policies should also be aimed at ensuring that global buyer research also takes into account the needs of local suppliers. Access to scientific knowledge needs to be improved as research is concentrated in global buyers, (Pietrobelli and Rabellotti, 2007). Subsequently, both public and private research institutions are important. For instance, in Ghana and to a limited extent Kenya, public research institutions were not optimal due to limited collaboration. The links between public research institutions and local suppliers should be strengthened (Pietrobelli, 2008).

8.5.6 Promotion of technological transfer for upgrading

Technology transfer is critical in order for suppliers to improve performance, engage in higher value added chains to increase profits and income. There is virtually no technology transfer (Saliola and Zanfei, 2007). This is because global buyers do not trust that their patents would not be unduly copied due to the weak intellectual property and legal rights regimes that prevail in Kenya and Ghana. Moreover, some global buyers are of the view that local suppliers are not ready to receive technology due to the very low investment in R&D, limited connection to universities resulting in low levels of absorptive capacity (Guellec & Van Pottelsbergh de la Potterie, 2004) To encourage the transfer of technology it is important that the intellectual property rights regimes and legal frameworks in Kenya and Ghana are improved to support such initiatives. Joint ventures can also be established between global buyers and local suppliers to receive and develop technology by creating excellence centres in
rural locations from where fresh produce originates. This would lead to the establishment of local businesses resulting in the creation of high value employment leading to poverty alleviation.

Policies could be advanced to enhance technology and knowledge transfer or establish joint ventures to support the upgrade of suppliers into higher-value activities (OECD, 2004). Technical assistance could also be administered through supporting horticultural institutions such as FPEAK in Kenya. The government can also play a major role by providing grants and credits that can be used by suppliers to access and use technology where patents have expired. The strengthening of intellectual property rights institutions would encourage the sourcing of produce with high technology content where global buyers would be assured that their patents would not be unduly copied in case of transfer.

8.5.7 Intellectual property rights, legal and horticulture institutions
Institutions that support interaction in global horticulture value chains include legal, intellectual property rights and horticultural associations. Small local suppliers, in particular, depend on these organisations for assistance and representation. An efficient institutional environment attracts higher value added chains since global buyers trust that their legal rights would not be breached in the event of a dispute. This is a highly relevant policy area that has tended to be overlooked. Improving the legal framework can support value chain activity (WIR, 2009). It is also important to take intellectual property rights seriously if participation in horticulture value chains is to attract the necessary technology transfer.

It is therefore important to advance policies and ensure that competition law in Kenya and Ghana include sections that address this issue for a certain period of time (WIR, 2009). This will provide the support mechanism based on which local suppliers organise and increase their negotiating power with powerful global buyers. Governments should consider including provisions for technology transfer from suppliers to global buyers as the current provision only addresses technology transfer from global buyers. Institutional arrangements in the form of horticultural support associations could also contribute to upgrading leading to lower transaction costs. A good example of this was in Chile where the government supported in promoting associations that support the horticulture sector (Humphrey, and Memedovic, 2006); (Perez-Aleman & Sandilands, 2008). These organisations are important due to their ability to organise horticultural produce, ensuring that prices are not depressed during boom seasons. FPEAK in Kenya is an example of such an organisation, but its functions could be enhanced to support innovation and upgrading. According to suppliers some of the organisations observed in Ghana have relatively limited bargaining power as most were initiated by the global buyer who often defines the rules of engagement. They tend to act in the interest of the global buyer. In the field study,
the supplier organisations did not have the capacity to certify standards such as Eurep/GLOBALGap because they did not have the trained personnel to do so (Eaton, et al., 2008). The capacity of these must be increased through the provision of training and technology but designed to benefit predominately small suppliers who face the highest exclusion risks. From the global buyer perspective, such organisations could also reduce transaction costs, specifically search costs for information and knowledge about prospective suppliers.

Efficient institutions are necessary for the functioning of markets. Missing markets such as input and output markets, factor markets (including financial markets) and insurance markets contribute to market failure and can only be addressed through the existence of institutions (Bijman, et al., 2008). For instance the spot market is an example of an efficient institutional arrangement that is used by suppliers to sell fresh produce and where price transparency can occur (Bijman et al., 2008). Produce is offered for sale at a price, bargaining takes place and produce is sold on the spot at an agreed price in less than one day due to the perceived risk of contracting that arises from negotiations and enforcement. These spot markets are common in Kenya and Ghana because most the transactions are cash based (Balogun, 2011). Suppliers also see an important role for collective action such as supplier organisations and NGOs. According to interviews with supplier associations, efficient institutions are essential and contribute to a reduction in transaction costs (Bijman, 2008). Given the increased emergence of standards on fresh produce supplier organisations can contribute to the reduction of coordination costs though collective agreements and the dissemination of market intelligence (Bijman, et al., 2008). Supplier organisations are better organised in Kenya but as the empirical evidence showed they are quite fragmented in Ghana. The establishment of supplier organisations entails high initial costs which could be assumed by NGOs or donors. Once established, the operational costs could be paid for from membership contributions.

8.5.8 Establishment of industrial clusters
The establishment of clusters could be achieved through the establishment of local businesses that would contribute to job creation and economic development through increased wages. Local business development would contribute to skill development to support the transfer of technology and knowledge (OECD, 2004). This would also contribute to the absorptive capacity that is a crucial input to upgrading. The establishment of clusters also contributes to the strengthening of comparative advantages leading to quality improvement. Global buyer investments are also an essential input to local business development and integration of clusters into global value chains that support upgrading activity.
8.5.8 Promoting the establishment of secondary industries

The establishment of local business is able to effectively enhance the potential of participation in global horticulture value chains through secondary processing. This calls for the development of infrastructure that is necessary to support the functioning of business leading to lower transaction costs and promote participation in high value chains. There is the need to increase investment in the horticulture sector to include support for productive capacities such as infrastructure development especially in rural areas (OECD, 2004). The development of infrastructure is also critical for participation in global horticulture value chains. Basic and horticulture specific infrastructure is lacking in Africa. The poor state of infrastructure contributes to higher transaction costs and results in inefficiency (OECD, 2004). Successful participation also requires the development of logistics capability in order to support coordination and monitoring activities. This also requires investment in ICT infrastructure, which is currently below average in Kenya and Ghana. In addition, the inspection and testing infrastructure, especially in Ghana and to a lesser extent Kenya needs further development (World Bank, 2004).

8.5.9 Market Structure

Poorly functioning or missing factor markets present a constraint to increasing agricultural productivity and participation in horticulture value chains. The efficiency of such markets is critical to securing poverty alleviation but will depend on the extent to which participants develop successful public-private partnerships. The lack of properly organised land markets has limited the emergence of commercial farms in Ghana. The problem is getting worse as the population increases and where eligible land for farming are being transformed for industrial purposes which has contributed the shortage of land that could otherwise be used as collateral to secure finance from banks (Staatz and Dembélé, 2008; Devereux et al., 2006). Information on inputs and financial markets are also limited especially in rural areas (Staatz and Dembélé, 2008). Therefore many suppliers are unable to participate in value chains locking them into supplying produce to a single global buyer (Crawford et al., 2003, Rohrbach et al., 2003).

If markets are functional they must be supported by efficient institutions and good infrastructure such as good roads, railways and airports and communication. Markets cannot function effectively in an environment of poor infrastructure which contributes to high transport costs and reduces the incomes. In addition, it is necessary to introduce programmes that support the provision of market intelligence and provision of insurance to cover value chain activity (Staatz and Dembélé, 2008).
Fair trade guidelines could also encourage bargaining power on both sides (Humphrey, 2005). The WTO should address the oligopsony power that prevails in some of these fragile sectors and design policies to address them (Humphrey, 2005). The Current WTO rules do not address the market power and oligopoly structures of the horticulture sector. The WTO Trade Policy Review Mechanism and Dispute Resolution Procedure should address the Special Differential Treatment clause and its impact on poverty (Humphrey, 2005). They should also, through the provision of grants, support the exploitation of niche markets. The successful exploitation of Asian vegetables started the commercialisation of vegetable exporting in Kenya. The organic market is another important niche opportunity in Europe. Organic products sell for 40%-150% more than comparable conventional products in supermarkets. In the EU, especially in the UK, the organic market is expanding rapidly due to encouragement from government health campaigns. They are also an important venue for promoting agricultural sustainability and studies have shown that organic suppliers achieve higher yields than non-organic farmers in the medium to long term (Business Daily Africa, 2 June 2008). Organic sales have increased 12-15% annually for the last 15 years, in contrast to the 2-4% annual growth of conventional food market sales, and are projected to expand an additional 50% in the next five years (UNCTAD, 2008b). The frequent supply shortages highlight the potential for expansion into this niche Business Daily Africa, 2 June 2008). NGO and government health campaigns in SSA have encouraged local consumption of organics as well, thereby expanding the domestic demand for organic produce.

New crop varieties offer another opportunity for expansion and the maintenance of market share in SSA. New varieties may have higher yields, show resistance to pests and diseases, or permit cultivation in regions traditionally unsuitable for that crop due to climatic constraints. The Alliance for a Green Revolution has successfully bred new bean varieties resistant to root rot and anthracnose in Africa. These two diseases destroy up to 70% of harvests. The adoption of new varieties can also be necessary to maintain market share. This was recognised in Ghana, where the failure to transition from Smooth Cayenne to MD2 pineapple resulted in the loss of a substantial portion of the EU market to Costa Rica, Ecuador and Panama. Ghana has not yet recovered this lost market share (MIR: Pineapple, 2008). Despite the evidence that global horticulture value chains are characterised by oligopsony and high concentration, there are opportunities for local suppliers to explore niche and new markets. Niche markets in particular have high returns that would contribute to income and profits. It would also result in the creation of more sustainable employment all of which contribute to poverty alleviation. Therefore, policies have to be advanced in order to address these related issues.
8.5.10 Transaction costs

Transaction costs arise during the contact, contract and control phases. During the contact phase costs occur whilst searching for information on suppliers. As discussed earlier, the establishment of databases and information centres where information can be easily obtained at no cost should be established. The government in collaboration with the private sector should engage in such an effort. During the contract phase, costs arise during negotiations. This takes longer due to the non-transparency of information on local suppliers derived from the contact phase. In addition, inefficient legal institutions also contribute to costs at the contract phase as global buyers would like to ensure that every single detail is written and thoroughly negotiated which is also time consuming and adds to transaction costs. Therefore, there is the need to strengthen legal institutions through the establishment of alternative dispute resolutions specifically targeting trade disputes. During the control phase, costs arise from monitoring and coordination of activities in value chains. This is quite extensive in Kenya and Ghana, due to the reportedly high non-compliance with standards. The high costs of meeting quality standards pose a particular challenge to small suppliers and therefore global buyers are shifting their sourcing to large suppliers to reduce costs. Although GLOBALGAP option 2, group certification, has been established to ease the burden on small suppliers, quality control and logistics continue to be some of the daunting challenges facing local suppliers. Therefore research, development, and enhancing the links between universities, research institutions and local suppliers would encourage upgrading and improve compliance leading to the reduction of transaction costs and higher incomes for local suppliers.

A trust business environment is necessary for participation in global horticulture value chains. A high trust environment reduces coordination and monitoring, which leads to lower transaction costs and also results in the establishment of long term contracts, which reduces uncertainty. Trust requires the assessment of credibility, which is very complex to establish in Kenya and Ghana due to the lack of information on prospective local suppliers. Therefore, policies should be advanced to improve the availability and accessibility of information on local suppliers through the development of databases. Currently this is not available in Ghana or Kenya and where it does exist, it is not updated on a frequent basis. Such databases would make it possible to share information, improve transparency during interaction and would result in the development of more trust. It might also be useful to introduce ethics as a subject, which is currently missing from the school curriculum. This is the reason why issues such as trust and transparency are not taken seriously which has had implications for the type of FDI the developing locations such as Kenya and Ghana attract.
8.5.11 Infrastructure development
There is a need for urgent investment in infrastructure. The Blair Commission (Commission for Africa, 2005) analysed the type of investment that if required for SSA to meet MDG targets (Staatz and Dembélé, 2008). Most notably, investment in roads, energy, agriculture, and higher education were the main areas (Staatz and Dembélé, 2008). The ability to attract foreign direct investment could address some of these investment gaps (Commission for Africa, 2005; World Bank, 2006). In this regard, Official Development Assistance through expanding the contributions of existing donors ODI towards agriculture would be useful. Countries such as China, India and Brazil offer new prospects especially in the areas of training and research (Staatz & Dembélé, 2008) it must be targeted to improve productivity and attract investment from the domestic private sector through investments in infrastructure (Staatz & Dembélé, 2008).

8.5.12 Employment generation
Not only the number but the quality of employment generated in the sector is important for poverty alleviation and economic development (Staatz & Dembélé, 2008). Investment in health and education is also extremely important to increase productivity and facilitate poverty reduction (Reardon et al., 2007, World Bank, 2005b). To realise this certain infrastructure shortcomings such as the irregular supply of electricity have to be addressed (Staatz & Dembélé, 2008). In a study conducted by UNIDO, it was discovered that the cost of processing food is 20% more than comparative operations in neighbouring countries due to the high cost of electricity (Staatz & Dembélé, 2008). It is therefore necessary to ensure that the appropriate infrastructure such as electricity supply is efficient to support the functioning of business.

8.6 Implications of the research
The objective of this study is to explain and understand the how the operating environment, local supplier capacities and value chain attributes impact participation in global horticulture value chains leading to poverty alleviation. The empirical evidence suggest that to optimize the poverty alleviation and economic development outcomes of participation in global horticulture value chains, strategies and policies have to be in place to address poverty and inequality. Most notably, the determinants of participation in global horticulture value chains leading to poverty alleviation and economic development are different in each country and therefore require different approaches. The Green Revolution was successful in Asia, but because SSA regions face different constraints the same process cannot be replicated. A very pertinent threat in the operational environment is the lack of knowledge, technology and trust. The lack of knowledge and technology is particularly acute and must be addressed as a matter of urgency.
Governance and the lack of capacities have also proven to have a strong impact on the exclusion of suppliers. Factors such as absorptive capacity have a positive impact on supplier performance and increases opportunities for participation in higher value added chains. It was also evidenced in this study that the rate of absorptive capacity, knowledge and technology transfer are crucial for upgrading, but very limited in many small to medium size suppliers. This research is unique as it has investigated, and for the first time applied the concept of trust to global horticulture value chains in Kenya and Ghana. Associations between absorptive capacity, R&D and knowledge transfer could also provide policy-makers with the basis upon which policy framework that support the building of absorptive capacity, especially in small and medium size suppliers could be developed to assimilate and transform knowledge (Stock et al., 2001).

### 8.7 Other considerations

The proposed strategies must be complemented with an efficient operational environment capable of supporting all agriculture activities, including the establishment of secondary industries (Staatz and Dembélé, 2008). The absence of a consistent agricultural policy in the past and the failure to implement existing policies has contributed to the under-development of the sector in the SSA region.
8.8 Limitations
This study has offered useful insights but there are some limitations that need to be highlighted. One of the main limitations is use of likert scales and small sample which is discussed and explained in the methodology section in chapter 4. This outcome of the study is not representative but to provide indications of how sections of global value chains in Kenya and Ghana are organized and function and the implications that this has for poverty alleviation in the two locations. The findings do not represent the views of all local suppliers and global buyers that participate in global horticultural value chains due to the small sample size. Therefore with case studies, such as this study the purpose is not to generalized beyond the context where the study was conducted but to provide indications as to the phenomenon under study. However, as discussed in Chapter 4, a single case is acceptable if it is significant or unique (Yin, 2002). Both case studies used in the research are significant and unique because the empirical results are based on two case studies from two different countries. More specifically, the 18 local suppliers who participated in the study are all from the SSA region. The 7 global buyers had operations in both the SSA region and elsewhere and the 6 informants were all located and resident in the domestic economy. So far I have not identified any studies on Kenya and Ghana or the SSA region that employs this so it has not been possible to compare the results with that of other countries in the region.

8.9 Opportunities for further research
A number of developing countries, especially in SSA, are diversifying into horticulture as it promises to deliver the poverty alleviation and economic development outcomes that they have been seeking. Further research could build on research findings on countries such in East Asia and Latin America. An investigation into the possible refinement of existing governance types and its implications for interaction in higher value added chains is worth carrying out. This research could also expand on the work which has been carried out on absorptive capacity and improve on the methodology for measuring it, in particular in small local suppliers. An investigation into the possible refinement of GVCs that are more suitable for location in Kenya and Ghana would be desirable as the current set-up is mainly global buyer driven. This would need to be complemented by a technology investment program initiated by the government to show how, for example, biotechnology industries can support upgrading in horticulture GVCs. This research could contribute to the complementary studies whereby local suppliers would have to take responsibility for upgrading and investment in supplier capabilities. Further research could also refine the mechanisms through which chain governance could ensure the equitable participation of local suppliers in GVCs and shed light on the extent to which different forms of governance contribute to or prevent upgrading. First, it would be useful to examine how the process could reduce the income disparities discussed above and extend to local firm
upgrading strategies leading to economic development. Finally, research undertaken to analyse governance types and in what ways they directly impact rural development could complement this research.

8.10 Final conclusions
The development of agriculture and participation in global horticulture as a means to reduce poverty and realise economic development has been limited in SSA. In contrast, Asia had in place sufficient infrastructure, substantial human capital, knowledge and institutions to support the Green Revolution, but SSA is weaker in all these dimensions. An enhanced multi-faceted approach is required to complement the competitive advantages of local suppliers (Staatz and Dembélé, 2008). According to the findings, participation in global horticulture value chains has important impacts on poverty alleviation through the generation of incomes and employment but this is limited in SSA due to the lack of a trust business environment, institutions, infrastructure, knowledge and technology, and high transaction costs that are not adequate for participation in higher value added chains such as horticulture.
Bibliography


allAfrica.com, 23 June 2008: “Kenya: Country’s Horticulture Sales up By 56%.”


Agricultural Science and Technology indicators (ASTI): Agricultural R&D: Investing in Africa's future, analysing trends, challenges and opportunities.


Business Daily Africa, 2 June 2008


Cutcliffe J, McKenna H (2002) When do we know what we know? Considering the truth of research findings and the craft of qualitative research. International Journal of Nursing Studies. 39, 611-618


Cuctcliffe, J. & McKenna, H., 2002. When do we know what we know? Constructing the truth of research findings and the craft of qualitative research. *International Journal of Nursing Studies*, 39(6), pp. 611-618.


Easterly, W., 2006. The White Man’s Burden: Why the West’s Efforts to Aid the Rest Have Done So Much Ill and So Little Good. New York : Penguin Press.


Estache, A., 2005. What do we know about Sub-Saharan Africa’s infrastructure and the impact of its 1990s reforms. s.l., unpublished manuscript.


Gibbon, P., 2003. Value Chain governance, public regulation and entry barriers in the global fresh fruit and vegetable chain into the EU. *21(5-6), pp. 615-625*.


Ponte, S., 2002b. The 'coffee crisis' quantity vrs. quality in production and consumption.. pp. CDR Aid policy and practice issue paper, Centre for development research, Copenhagen.


Zamorano V, F., 2009. Complementarity between internal R+D and buying knowledge: the case of manufacturing and innovative plants in Chile. , Chile: INTELIS Center for Innovation and Enterpreunerchip (i+e) analysis. Department of Economy. Universidad de Chile..


Appendix A – Letter addressed to global buyers and local suppliers

Dear Sir/Madam,

My name is Elizabeth Afari-Owusu undertaking PhD doctoral studies at the University of Manchester, United Kingdom. The research focus is to investigate the extent to which small suppliers are inserted in global value chains and if the process has contributed or not to poverty alleviation in Kenya and Ghana. The objective of the study is to identify which factors influence the effective participation of suppliers in global horticulture value chains and to propose solutions that could inform policy and academic debates on how best to improve supplier inclusion in global value chains. I have selected 18 local suppliers, 7 global buyers of horticulture produce and 6 informants to participate in a field study. Questionnaire and semi-structured interviews will be the data collection methods that I will use to gather the empirical evidence. You and/or your firm are selected to participate in this study because it is identified as an active participant in global horticulture value chains.

The questionnaire is designed to take approximately 20 minutes to complete and the semi-structured interview should take approximately 45 minutes.

I would very much appreciate it if your company can find the time to participate in this very important study. I would be contacting you in person to collect the completed questionnaires and to make an appointment for the follow-up interviews. Alternatively, I can be contacted at the address indicated below.

Kind regards
Elizabeth Afari-Owusu

Elizabeth Afari-Owusu
University of Manchester
Manchester Business School,
Faculty of Humanities
Booth Street West
Manchester
M15 6PB, UK
Email: elizabeth.Afari@postgrad.manchester.ac.uk
Appendix B – Interview Guide

(Semi structured interviews were conducted from March 2004 to February 2004)
In these interviews I tried to gain insights on the state of some of the socio-economic factors that impact participation in global horticulture value chains. The questions addressed some of the following:

1. What are your perceptions on the state of institutions that support participation?
   GB
   LS

2. How would you evaluate the state of infrastructure?
   GB
   LS

3. How would you evaluate the structure of the markets and its impact on participation?
   GB
   LS

4. Please describe the main sources and types of transaction costs?
   GB
   LS

5. How would you describe the market structure of global horticulture value chains?
   GB
   LS

6. What is your perception of the income and employment generation of participation?
   GB
   LS
Appendix c
Interview with Supplier Firms

Questionnaire for field work\textsuperscript{12}  
(Final version)

<table>
<thead>
<tr>
<th>Information about this interview</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of Firm: ____________________</td>
</tr>
<tr>
<td>Date: __________________________</td>
</tr>
<tr>
<td>Remarks: __________________________________________________________________</td>
</tr>
<tr>
<td>__________________________________________________________________________</td>
</tr>
</tbody>
</table>

Section 1  
Background and ownership

1. When was the company first \textbf{established}?  
Year: ____________________________ Location: ____________________________

2. What is the nature of \textbf{ownership and management} of your company? \textit{(please circle)}

Private firm run by professional managers  
Private family firm run by family members  
Partnership/joint venture run by professional managers  
Partnership/joint venture run by family members  
Other (please specify):

3. What is the current total \textbf{number} of employees in your company?

Section II  
Market organisation

1. Please indicate \textbf{which fresh produce} is supplied are by your company.  
Vegetables  
Fruits

\textsuperscript{12} Please note that this questionnaire originates from the research proposal: Peter Dicken and Jeff Henderson, “Making the connections: Global production networks in Britain, East Asia and Eastern Europe” ESRC, July (1999). It would be adapted and edited to suit the proposed research.
Vegetables and Fruits

2. Who are the **major buyers** of your produce?

- Beverage Manufacturers
- Global supermarkets
- Airlines
- Hotel Chains
- Supply to local markets
- Other

3. Do you actively seek **alternative buyers** for your produce?

- Yes
- No

4. Please rank the top **3 most important reasons** for seeking alternative buyers.

- Better price
- more technology transfer
- better customisation
- special contacts and connections
- diversification of buyers
- greater financial assets
- recommendations by customers
- proximity to us
- more stable and/or longer contracts
- government incentives
- better reputation
- other (please specify)

5. Please specify the **main ways** through which your major buyers are dependent on your produce?

- best technological edge
- special contacts and connections
- government regulations
- unique product quality and services
- strong brand name and reputation
- other: ____________________

6. To what extent do the following factors affect the **sourcing policies** of these global buyers?

<table>
<thead>
<tr>
<th>Factor</th>
<th>Very important</th>
<th>Very unimportant</th>
</tr>
</thead>
<tbody>
<tr>
<td>state incentives: tax, financial</td>
<td></td>
<td></td>
</tr>
<tr>
<td>indigenous sourcing requirements</td>
<td></td>
<td></td>
</tr>
<tr>
<td>host government policies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>provision of market and business information</td>
<td></td>
<td></td>
</tr>
<tr>
<td>matchmaking firms through trade fairs and data bases</td>
<td></td>
<td></td>
</tr>
<tr>
<td>managerial and technical assistance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>other:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

7. To what extent do the following factors affect the **types of contracts** offered by global buyers?

<table>
<thead>
<tr>
<th>Factor</th>
<th>Very important</th>
<th>Very unimportant</th>
</tr>
</thead>
<tbody>
<tr>
<td>length of service</td>
<td></td>
<td></td>
</tr>
<tr>
<td>repeated order</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Price</td>
<td></td>
<td></td>
</tr>
<tr>
<td>their dependence on us</td>
<td></td>
<td></td>
</tr>
<tr>
<td>central corporate policy from our HQs</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
4. How would you assess the **short term purchase prospect** (less than 5 years) of your major buyers? (please circle)

<table>
<thead>
<tr>
<th>Very good</th>
<th>Very Bad</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

5. How would you assess the **long term purchase prospect** (more than 5 years) of your major buyers? (please circle)

<table>
<thead>
<tr>
<th>Very good</th>
<th>Very Bad</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

Section III

**Governance in GVCs**

1. What is the **relationship** between your firm and major buyers?
   - joint-venture with the global buyer
   - 1st tier supplier
   - 2nd tier supplier
   - strategic alliance
   - other (please specify)

2. Please indicate the **prior relationship** between your company and these major buyers
   - Customers
   - suppliers or subcontractors
   - agents
   - no such relationships
   - independent subsidiaries
   - competitors
   - retailers
   - other

3. What is the **importance of these prior relationships** to sourcing decisions of buyers?

<table>
<thead>
<tr>
<th>Very important</th>
<th>Very unimportant</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

4. To what extent do the following statements correctly describe **current relationships with buyers**?

<table>
<thead>
<tr>
<th>Definitely true</th>
<th>Definitely not true</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

   - we always hope to establish long term relationships with our buyers
   - buyers always make advance payments to suppliers
     | 1 | 2 | 3 | 4 | 5 |
   - contracts with suppliers specify all payment, delivery, pricing and other details
     | 1 | 2 | 3 | 4 | 5 |
   - always check 100% of samples or final products on delivery
     | 1 | 2 | 3 | 4 | 5 |
   - meet our buyers regularly (monthly)
     | 1 | 2 | 3 | 4 | 5 |
   - buyers always share risks of unexpected contingencies in production
     | 1 | 2 | 3 | 4 | 5 |

5. Do your buyers have a **policy of purchasing** no more than a certain percentage of fresh produce from your company?

Yes
6. Please assess the reliability of your buyers.

<table>
<thead>
<tr>
<th>Very reliable</th>
<th>Very unreliable</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

7. What are the most important control mechanisms through which your buyers manage relations with you?
- production planning
- inventory and quality control
- cost control
- provision of broad guidelines
- centralised decision making
- employment of expatriate managers and/or executives
- periodic inspection by top management executives
- periodic report of local managers
- corporate sourcing of information
- corporate sourcing of materials
- no such specific ways
- Other (please specify)

8. Please indicate the extent of control of your buyers

<table>
<thead>
<tr>
<th>Very controlled</th>
<th>Very autonomous</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

9. Please indicate the extent of integration in buyers value chains

<table>
<thead>
<tr>
<th>Very integrated</th>
<th>Very disintegrated</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

10. Please indicate the extent of coordination of your buyers

<table>
<thead>
<tr>
<th>Very coordinated</th>
<th>Very uncoordinated</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

11. Please indicate the frequency in which top executives from buyers visit your firm:
- At least once a week
- At least once a month
- At least once every 6 months
- At least once a year
- At least once every few years
- Never

Section IV

Upgrading activities

1. What is your R&D commitment or alternative investment in upgrading activities?
- Product upgrading
- Process upgrading
- Functional upgrading
- Inter sectoral upgrading

2. Have there been any significant changes in the technical specifications of fresh produce as a product or processes?
- Yes/No
3. What have been the most significant changes with this specific product and/or processes?

4. What is the past and current value added of this specific product?

5 years ago Now
US$________ per__________ US$_________ per________

Section V
Technology transfer and knowledge transfer (absorptive capacity)

Technology transfer
1. Please indicate whether there is any technology transfer from global buyers to your company: Yes/No

If yes, please indicate in column 3 the most important kind of technology that is usually transferred:
direct transfer of product technology developed in the home country
direct transfer of process technology/expertise developed in the home country
direct transfer of product technology developed in other subsidiaries
Local adaptation of product technology from the home country
Local adaptation of process technology/expertise from the home country
Local adaptation of product technology from other subsidiaries
Local adaptation of process technology/expertise from other subsidiaries
Product technology development in host country
process technology/expertise developed in host country
Other sources (please specify)

2. Please indicate the most important channel of technology transfer to your company:
training of RSEs
sending expatriate RSEs to your company
licensing technology to suppliers
Other channels (please specify)

3. Please indicate the most important incentive provided by global buyers to encourage technological development
technology transfer
provision of long term supply contracts
joint application for government support
profit sharing
other incentive

Please use the following scale for Q4 to Q7

<table>
<thead>
<tr>
<th>Very much so</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>Not at all</th>
<th>5</th>
</tr>
</thead>
</table>

4. Please indicate the importance of technology transfer in enhancing your company’s performance.

5. Please indicate the involvement of buyers in your upgrading activities.

6. Please indicate the extent to which buyers use technology transfer to control supply activities.

7. What is the extent to which your company’s initiatives in technology development determine produce will be purchased by buyers?
8. Please indicate the extent to which more technology transfer will take place in these in the next five years.

**Knowledge transfer**

1. Please indicate whether there is any knowledge transfer from your major buyers to your company. Yes/No

2. If yes, please indicate the most important kind of knowledge that is usually transferred.
   - management knowhow
   - production knowhow
   - marketing knowhow
   - accounting knowhow
   - other (please specify)

3. Please indicate the most important channel of knowledge transfer:
   - Training of staff
   - Learning by doing among subsidiaries or suppliers
   - Other (please specify)

4. Please indicate the most important incentives provided by your major buyers to encourage knowledge development in your company:
   - knowledge transfer
   - provision of long term supply contracts
   - joint application for government support
   - profit sharing
   - Other incentive

5. Does your company participate in any supplier development or partnership programme provided by a buyer? Yes/No

If yes, please select from the following list any on-going aspect of your programme with these suppliers.
   - regular visits to suppliers and quality audits
   - discuss strategic issues
   - quality assurance systems
   - follow-ups on on-time delivery, inventory performance, quality rating and cost improvements
   - sharing of technology-related information
   - selection and use of process equipment or technologies
   - introducing suppliers to new managerial or organizational techniques
   - providing guidance on strategic issues
   - sharing of market-related information
   - advance notice of production plans
   - finding new customers in other affiliates
   - Training
   - provision of financial support
   - collaboration in product development
   - promotion of cooperative learning activities among suppliers
   - Other

---

Please use the following scale for Q6 to Q10

| Very much so | 1 | 2 | 3 | Not at all | 4 | 5 |
6. Please indicate the importance of **knowledge transfer** in enhancing your company’s performance.

7. Please indicate the involvement of major buyers in the **knowledge development** activities of your company.

8. Please indicate the extent to which buyers use **knowledge transfer to control** your supply activities.

9. Please indicate the extent to which **initiatives in knowledge development** determine whether produce will be sourced by global buyers.

10. Please indicate the extent to which **more knowledge transfer will take place** in the next five years.

11. Is your company linked to any academic institution and/or research institutions? Yes/No.

If yes, please indicate which one and the type of knowledge gain for your company.

---

**RELATIONS WITH EXTERNAL ORGANIZATIONS**

**Relations with external organisations**
- government organizations
- consumer groups
- environmental groups
- industry association
- Academic and research institutions

1. Which of the following external organisations does your company belong to?
   - Name of organisational entity
     - government organizations
     - domestic consumer groups
     - foreign consumer groups
     - domestic environmental groups
     - foreign environmental groups
     - domestic horticulture association

2. To what extent do the following statements correctly describe your company’s **relationships** with the above external organisations?

<table>
<thead>
<tr>
<th>Statement</th>
<th>Definitely true</th>
<th>Definitely not true</th>
</tr>
</thead>
<tbody>
<tr>
<td>we always try to cooperate with them</td>
<td></td>
<td></td>
</tr>
<tr>
<td>some of them have been very hostile to us</td>
<td></td>
<td></td>
</tr>
<tr>
<td>we have changed some of our sourcing and labour practices because of their pressures</td>
<td></td>
<td></td>
</tr>
<tr>
<td>we always hope to establish long term relationships with host country organisations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>we use our market power to counter pressures from these organisations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>we always try to seek advantages and incentives from these organisations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>we often seek help from these organisations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>we do not want to be bound by pressures from these organisations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>to avoid conflicts from these organisations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>with these organisations</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Please provide any other formation that may inform this survey.
BIO DATA

To round up our interview, we would like to ask you some general questions about yourself. As promised earlier, this information will be kept strictly private and confidential. The data will only be used for classification purposes.

What is your **gender group**?
1. male 2. female

What is your **age group**?
20-29
30-39
40-49
50-59
60 or above

What is your **educational background**?
no education
Primary
Secondary
College/Pre-U
Polytechnic
University

How would you describe your **designation** in the company?
Chairman
CEO/managing director/president
Deputies or vice of 2.
Executive director/general manager
Divisional manager/branch manager
Overseas operation manager
Assistant manager
Administrative manager
Administrative executive
Executive secretary
Other (Please specify)
APPENDIX D
Interview with Global buyers

Questionnaire for field work\textsuperscript{13}
(Final version)

Information about this interview

<table>
<thead>
<tr>
<th>Name of Firm: _____________________________</th>
<th>Interviewer: ____________________________</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date: ________________________</td>
<td>Location: ________________________</td>
</tr>
</tbody>
</table>

Remarks: _______________________________________________________________________
_______________________________________________________________________
_______________________________________________________________________
_______________________________________________________________________

Section 1

Background and ownership

1. When and where was your company first established?  
Year: _____________________________  Location: _____________________________

2. Where is the current worldwide headquarters of your company?  
Location: _____________________________

3. What is the nature of ownership and management of your company? (please circle)

Public listed company run by professional managers
Public listed company run by family members
Private firm run by professional managers
Private family firm run by family members
Partnership/joint venture run by professional managers
Partnership/joint venture run by family members
State-owned enterprise run by professional managers
State-owned enterprise run by government officials
Other (please specify):

\textsuperscript{13} Please note that this questionnaire originates from the research proposal: Peter Dicken and Jeff Henderson, “Making the connections: Global production networks in Britain, East Asia and Eastern Europe” ESRC, July (1999). It would be adapted and edited to suit the proposed research.
Section II

Governance of GVCs

1. To what extent do the following statements correctly describe your company’s current relationships with major suppliers?

<table>
<thead>
<tr>
<th>Statement</th>
<th>Definitely true</th>
<th>Definitely not true</th>
</tr>
</thead>
<tbody>
<tr>
<td>we always hope to establish long term relationships with our suppliers</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>always make advance payments to suppliers</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>contracts with suppliers specify all payment, delivery, pricing and other details</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>always check 100% of samples or final products on delivery</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>meet our suppliers regularly (monthly)</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>always share risks of unexpected contingencies in production</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
</tbody>
</table>

2. Please access the reliability of your three major suppliers:

<table>
<thead>
<tr>
<th>Rating</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very reliable</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very unreliable</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. Please rank the top 3 most important reasons for sourcing from these suppliers?

lower costs
higher technological edge
better customisation
special contacts and connections
diversification of risks
greater financial assets
recommendations by customers
greater personal familiarity and experience
better product quality and services
only company in this business
proximity to customers/other subsidiaries
government incentives
better reputation
other (please specify)

4. What would be the 3 most important reasons if you are looking for new suppliers?

government incentives
lower (labour) costs of operations
proximity to customers
proximity to suppliers
good local contacts
familiar operating environment
availability of skilled labour and/or technology
diversification of risk
growing global competition
entrepreneurial vision
other (please specify)
5. To what extent do the following factors affect the types of contracts your company offers to these major suppliers?

<table>
<thead>
<tr>
<th>Factor</th>
<th>Very important</th>
<th>Very important</th>
<th>Very unimportant</th>
<th>Very unimportant</th>
</tr>
</thead>
<tbody>
<tr>
<td>length of service</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>repeated order</td>
<td></td>
<td></td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Price</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>their dependence on us</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>central corporate policy from our HQs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>other</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

6. Please indicate the **extent of control** of these suppliers by your company:

<table>
<thead>
<tr>
<th>Extent of Control</th>
<th>Very controlled</th>
<th>Very uncontrolled</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

7. Please indicate the **extent of integration** of these suppliers by your company:

<table>
<thead>
<tr>
<th>Extent of Integration</th>
<th>Very controlled</th>
<th>Very uncontrolled</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

8. Please indicate the **extent of coordination** of these suppliers by your company:

<table>
<thead>
<tr>
<th>Extent of Coordination</th>
<th>Very controlled</th>
<th>Very uncontrolled</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

9. Please indicate the **most important control mechanism** through which your company manages these suppliers:

- production planning
- inventory and quality control
- cost control
- provision of broad guidelines
- centralised decision making
- employment of expatriate managers and/or executives
- periodic inspection by top management executives
- periodic report of local managers
- corporate sourcing of information
- corporate sourcing of materials
- no such specific ways
- Other (please specify)

10. Please indicate the **frequency** in which top executives from your company visit these suppliers:

<table>
<thead>
<tr>
<th>Frequency</th>
<th>At least once a week</th>
<th>At least once a month</th>
<th>At least once every 6 months</th>
<th>At least once a year</th>
<th>At least once every few years</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

11. Does your company have any explicit **supplier development or partnership programme** for any of these suppliers?

Yes/No

If yes, please select from the following list any **ongoing aspect of your programme** with these suppliers.

- regular visits to suppliers and quality audits
- discuss strategic issues
- quality assurance systems
- follow-ups on on-time delivery, inventory performance,
- quality rating and cost improvements
- sharing of technology-related information
- selection and use of process equipment or technologies
- introducing suppliers to new managerial or organizational techniques
providing guidance on strategic issues
sharing of market-related information
advance notice of production plans
finding new customers in other affiliates
Training
provision of financial support
collaboration in product development
promotion of cooperative learning activities among suppliers
Other

Section III
Technology and Knowledge transfer

Technology transfer

1. Please indicate whether there is any technology transfer between your company and these suppliers:
   Yes/No

If yes, please indicate in column 3 the most important kind of technology that is usually transferred:
   direct transfer of product technology developed in the home country
   direct transfer of process technology/expertise developed in the home country
   direct transfer of product technology developed in other subsidiaries
   direct transfer of process technology/expertise developed in other subsidiaries
   Local adaptation of product technology from the home country
   Local adaptation of process technology/expertise from the home country
   Local adaptation of product technology from other subsidiaries
   Local adaptation of process technology/expertise from other subsidiaries
   Product technology development in host country
   process technology/expertise developed in host country
   Other sources (please specify)

2. Please indicate the most important channel of technology transfer to these suppliers:
   training of RSEs from suppliers
   licensing technology to suppliers
   Other channels (please specify)

3. Please indicate the most important incentive provided by your company to encourage technological development of these suppliers.
   technology transfer
   provision of long term supply contracts
   joint application for government support
   profit sharing
   other incentive

<table>
<thead>
<tr>
<th>Please use the following scale for Q4 to Q6</th>
<th>Very much so</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>Not at all</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

4. Please indicate the importance of technology transfer in enhancing the performance of these suppliers.

5. Please indicate the extent to which your company uses technology transfer to control these suppliers.

6. Please indicate the extent to which more technology transfer will take place in these suppliers in the next five years.
Knowledge transfer

1. Please indicate whether there is any knowledge transfer between your company and these suppliers. Yes/No

   If yes, please indicate the most important kind of knowledge that is usually transferred:
   - management knowhow
   - marketing knowhow
   - other (please specify)

2. Please indicate the most important channel of knowledge transfer:
   - Training of staff
   - Learning by doing
   - Other (please specify)

3. Please indicate the most important incentive provided by your company to encourage knowledge development of these suppliers:
   - knowledge transfer
   - provision of long term supply contracts
   - joint training with global buyer
   - joint application for government support
   - profit sharing
   - Other incentive

Please use the following scale for Q4.to Q7

<table>
<thead>
<tr>
<th>Very much so</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>Not at all</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
</table>

4. Please indicate the importance of knowledge transfer in enhancing the performance of these suppliers

5. Please indicate the involvement of your company in the knowledge development of these suppliers

6. Please indicate the extent to which your company uses knowledge transfer to control these suppliers

7. Please indicate the extent to which more knowledge transfer will take place in these suppliers in the next five years.

To round up our interview, we would like to ask you some general questions about yourself. As promised earlier, this information will be kept strictly private and confidential. The data will only be used for classification purposes.

What is your gender group?
1. male 2. female

What is your age group?
20-29
30-39
40-49
50-59
60 or above

What is your educational background?
no education
Primary
Secondary
College/Pre-U
Polytechnic
University

How would you describe your designation in the company?
Chairman
CEO/managing director/president
Deputies or vice of 2.
Executive director/general manager
Divisional manager/branch manager
Overseas operation manager
Assistant manager
Administrative manager
Administrative executive
Executive secretary
Other (Please specify)