Partnerships for learning and innovation in agri-export industries: A case study of farmer-exporter partnerships in Kenya's flower industry

Thesis

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PARTNERSHIPS FOR LEARNING AND INNOVATION IN AGRI-EXPORT INDUSTRIES

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ABSTRACT

This study examines the role of partnerships, institutions and governance arrangements in building cut flower farmers' innovation capabilities. It interrogates whether partnerships between farmers (both small scale and large scale) with exporters contribute to building the farmers' capabilities; how the institutional (contractual versus non-contractual) and governance patterns (captive versus relational) influence the ability of such partnerships to enhance farmers' capabilities and the role of other actors (research institutes, universities, regulatory agencies, input suppliers and NGOs) in supporting these partnerships and contributing to building farmer capabilities.

This focus was motivated by the declining performance of small scale farmers in Kenya and the fact that small scale farmers appear to be excluded from high value cut flower export business. Whereas this exclusion is often explained in terms of limited access to capital; infrastructure and stringent market standards and regulations, this thesis takes the view that (besides these factors) exclusion of small scale farmers results from choices that different actors make about enhancing farmers' capabilities to innovate, as well as the policy and institutional environment that underpins and reinforces such choices. The study follows largely a case study approach and employs different methods including structured surveys; in-depth interviews and ethnography.

Our findings show that even though farmers' production capabilities have benefitted from their partnerships with exporters, value addition capabilities have only improved modestly and remain a key challenge to small scale farmers. Similarly, marketing is dependent on knowledge and information passed on by the exporters. Secondly, the findings further show that interactions between farmers and R&D actors are undermined largely by the structural, cultural and operational procedures of the R&D institutes and universities. Lastly, the study finds that institutions, power dynamics and governance patterns are the key determinants influencing the opportunities for interactions, learning and innovation within these partnerships.

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ACRONYMS AND ABBREVIATIONS

AAK	Agro-chemicals Association of Kenya
ACP	Africa, Caribbean and the Pacific
AIS	Agricultural Innovation System
ARD	Agriculture and Rural Development
ASTI	Agricultural Science, Technology and Innovation Systems
AU	African Union
CAVS	College for Agriculture and Veterinary Sciences
CBIK	Centre for Business Information in Kenya
CBOs	Community Based Organizations
CBS	Central Bureau of Statistics
CoP	Codes of Practice
CPHP	Crop Post-harvest Program
CSD	Commission for Sustainable Development
CTA	Technical Centre for Agricultural and Rural Cooperation
DDCs	District Development Committees
DFID	Department for International Development
DIT	Directorate of Industrial Training
EPAs	Economic Partnership Agreements
EPC	Export Promotion Council
ERSWEC	Economic Recovery Strategy for Wealth and Employment Creation
EU	European Union
FDI	Foreign Direct Investments
FLP	Flower Label Program
FPEAK	Fresh Produce Exporters Association of Kenya
GAPs	Good agricultural practices
GCC	Global Commodity Chains
GDP	Gross Domestic Product
GVC	Global Value Chains
HCDA	Horticultural Crops Development Authority
HRF	Horticultural Research Fund
ICIPE	International Centre for Insect Physiology and Ecology

ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
ICT	Information and Communication Technologies
IFAD	International Fund for Agricultural Development
IPC	Investment Promotion Council
IPM	Integrated Pest Management
IPR	Intellectual Property Rights
IS	Innovation Systems
ISA	Innovation Systems Approach
ISI	Import Substitution Industries
JICA	Japan International Cooperation Agency
JKIA	Jomo Kenyatta International Airport
JKUAT	Jomo Kenyatta University of Agriculture and Technology
KARI	Kenya Agricultural Research Institute
KEBS	Kenya Bureau of Standards
KENFAP	Kenya Federation of Agricultural Producers
KEPHIS	Kenya Plant Health Inspectorate Service
KETA	Kenya External Trade Authority
KFC	Kenya Flower Council
KHDP	Kenya Horticultural Development Programme
KIOF	Kenya Institute of Organic Farming
KIPO	Kenya Industrial Property Office
KNBS	Kenya National Bureau of Statistics
KRA	Kenya Revenue Authority
MB	Methyl Bromide
MFIs	Micro-Finance Institutions
MoA	Ministry of Agriculture
MoTI	Ministry of Trade and Industry
MoU	Memorandum of Understanding
MRLs	Maximum Residue Levels
NARC	National Rainbow Coalition
NARL	National Agricultural Research Laboratories
NARS	National Agricultural Research System
NES	National Export Strategy
NGOs	Non Governmental Organizations
NIS	National Innovation Systems
NSC	National Standards Council

OECD	Organization for Economic Cooperation and Development
PBR	Plant Breeders Rights
PCPB	Pesticides Control Products Board
PRIs	Public Research Institutes
PRSP	Poverty Reduction Strategy Paper
PTD	Participatory Technology Development
R &D	Research and Development
S & T	Science and Technology
SAPs	Structural Adjustment Programmes
SCM	Supply Chain Management
SPS	Sanitary and Phyto-sanitary
SPSS	Statistical Package for Social Sciences
SRA	Strategy for Revitalization of Agriculture
ToT	Transfer of Technology
UK	United Kingdom
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Program
UNIDO	United Nations Industrial Development Organization
UNU-INTECH	United Nations University - Institute for new Technologies
UPOV	International Union for the Protection of New Varieties of Plants
USA	United States of America
USAID	United States Agency for International Development
WTO-SPS	World Trade Organization - Sanitary and Phyto-sanitary Agreements

Chapter 1: INTRODUCTION

"Capacity development in the contemporary sense is a multi-dimensional concept. It requires skills or competencies of both scientific and non-scientific kind; it requires linkages between producers and users of knowledge; it requires the types of relationships and institutional settings conducive to knowledge sharing and interactive learning; it requires a policy environment that is sensitive to the need to create the conditions needed to make productive use of knowledge rather than focusing solely on the production of knowledge" Andy Hall (2005:612)

1.1 Background

The high costs of technology, knowledge intensity of production, limited access to capital, stringent market standards and demanding infrastructural requirements have connived to exclude small scale farmers from the high value export floriculture industry. In terms of costs of technology and capital requirements, Thoen et al (1999; 2000) have estimated the average cost of investing in a hectare of roses in Kenya to be about USD 122, 800 with nearly half of this cost (USD 50,000) for greenhouse construction alone. Estimates for summer flowers are provided by Muthoka and Muriithi (2008) who have calculated the cost of production for Arabicums grown by small scale farmers in Muranga, Thika and Kiambu and estimated the total cost of production to be USD 0.2 per m^2 in Muranga, USD 0.22 per m^2 in Thika and in Kiambu USD 0.76 per m^2[1]. Considering that the average size of smallholdings is 0.125ha, these costs translate to USD 2,500[2] in Muranga; USD 2,750 in Thika and USD 9,500 in Kiambu. Other studies have noted that the participation of small scale farmers has been undermined by the numerous challenges including high capital costs, post-harvest handling, lack of adequate infrastructure as well as inability to access export markets

[1] The higher costs in Kiambu have been attributed to the use of sprinkler irrigation while farmers in Thika and Muranga used buckets to irrigate their fields.

[2] The average size of small holdings is 0.125ha. The conversation rates used here are 1ha=10,000m^2. To calculate the costs for every 0.125ha, the cost for every 1m^2 was multiplied by 0.125 and divided by the conversion factor (0.00001).

due to the stringent phyto-sanitary standards and freight costs (KARI (2000 - 2006); Fintrac (2005); HCDA website, KARI, 2003). In Kenya, which is the fourth largest exporter of cut flowers in the world, the contribution of small scale farmers accounts for between 5 – 13 percent of all exports (Fintrac, 2005; Muthoka and Muriithi, 2008; Dolan, Opondo and Smith, 2004).

The exclusion of small scale farmers is evident in nearly all developing countries engaged in cut flower production and exports. Even with this minimal contribution from small scale farmers, Kenya still ranks better than most developing countries engaged in cut flower production and exports. The situation in other countries is much worse. For example, Mather (2008:44) has noted that "in other African countries, including Uganda and Tanzania, there are no smallholder cut flower farmers". Sonko *et al* (2005) confirm Mather's claim and note that in Uganda there are no smallholder growers of flowers since the investment requirements are prohibitive. Similar concerns are recorded by Mytelka and Bortagary (2007) and Mytelka (2009:10) on the cut flower sector in Columbia. They found that in Columbia, "as roses came to dominate flower exports, traditional micro – farmers (*campesinos*) with farms of only 0.5 to 1.5 hectares, turned to supplying labour as their main activity...". In Ecuador, a review by Korovkin (2003) has concluded that production is concentrated in the hands of a few large scale companies with limited opportunities for smallholder farmers.

The exclusion of small scale farmers from cut flower production leaves the industry in the hands of big players – the medium and large scale companies. These (large and medium scale) companies have invested heavily in the technological infrastructure such as computerized greenhouses and fertigation systems; some have their own in-house R&D facilities; chartered flights and in some cases have founded subsidiary companies in the export markets to handle marketing issues. In contrast to these medium and large

scale farmers, where small scale farmers are engaged in cut flowers, they are confined to summer flowers (or tropical flowers). These summer flowers require minimal technological and capital investments since the flowers can be grown in the open fields through rain-fed agriculture.

The small scale farmers access export markets mainly through intermediaries who are either specialized export companies (as the Kenyan cases in this study show) or medium and large scale exporters who also grow and export their own flowers. In most cases (but not all) the exporters provide extension and technical support to the small scale farmers. The provision of technical support, extension and advisory services by exporters or medium/large scale exporters is critical for the success of small scale farmers. In Columbia, Mytelka records that "a small number of *campesinos* with farms in the range of 1.5 to 3.0 hectares have attempted to form associations for knowledge and information exchange and have established linkages with export intermediaries, but these do not have capacity to provide extension services" (pp. 10). In Kenya, the specialized export companies do not grow flowers nor own farms but have entered into partnerships with small scale farmers to grow and supply them with flowers which they in turn export. In turn, the exporters provide technical and advisory services to the small scale farmers as well as provide inputs and credit facilities.

The thesis uses the partnerships between exporters and small scale farmers as a case study into how Kenya has attempted to enhance opportunities for inclusion of small scale farmers into the high value export floriculture. Even though these partnerships are conceptualized with market access as the primary goal, the thesis examines the extent to which they also contribute to the broader goal of building the capabilities of small scale farmers to innovate. As such, the abilities of these partnerships to enable small scale farmers deal with (technological and institutional) change are the key focus of this

thesis. The cut flower industry is subject to rapidly changing regulatory contexts (new standards) and technological advancements. Farmers need to respond quickly to these changes in order to survive and remain competitive. Indeed, their continued survival is dependent on how well and fast they can respond to these changes. Otherwise, inability to conform to new environmental, social or market standards could easily drive a farmer out of business. Innovation and ability to respond to these challenges are thus key to success in this industry. This thesis argues that in order to avoid exclusion and further marginalization, the partnerships with small scale farmers must go beyond market access issues and embrace the broader goals of building small scale farmers' capabilities to respond to their ever-changing contexts – whether these changes are technological, social or economic in nature.

Mytelka (2009:19) has examined the ways in which technological change can exclude the poor and concludes that in order to strengthen opportunities for inclusion, "the need for new policy approaches is critical. Such new approaches would involve a shift in policy design from a focus on production to innovation and from inputs and outputs to processes". Similar sentiments have been echoed by Chataway (2005) in an introductory article to *The Journal of International Development.* In this article, Chataway focuses on the question of whether it is possible to create what she calls "a pro-poor biotechnology". Drawing on several studies of how biotechnology has been deployed in developing countries, she argues that in fact "the question is largely about whether or not institutions and organizations working with the technology can work with and create systems that have the needs of the poor farmers as a central concern" (pp. 608). The arguments by both Chataway and Mytelka point to the fact that decisive and deliberate efforts by the different actors, combined with a supportive policy and institutional framework can reverse the exclusion of small scale farmers and build systems that promote their contribution to export – oriented agriculture. It can be argued

therefore that exclusion of small scale farmers from these sectors results from choices that different actors make as well as the policy and institutional environment that reinforces such choices.

This thesis takes these choices about actions, policies and institutions and their influence on exclusion of small scale farmers as its entry point into this debate. It argues that exclusion of poor smallholder farmers can be addressed by ensuring that the choices made by the different actors (organizations) and the policies and institutions which underpin their choices are geared towards building capabilities of small scale farmers to respond to institutional and technological changes. This entry point is supported by the works of Mytelka (2009:17) which uses three case studies (cut flowers and cassava in Columbia; and fish farming in the Philippines) to argue that "for developing countries to benefit from the technological changes that have been taking place with increasing frequency in the recent decades, requires access to knowledge, the capabilities needed to innovate on the part of a wide spectrum of the population and the adoption of complementary policies at the outset that enable smallholders to deal with technological change." Even though Mytelka's focus is more on technological change, her arguments are relevant for all the changes that affect small scale farmers including new regulations, standards, packaging and value addition. Besides, Rose Kiggundu (2006:26) has noted that technology should be interpreted broadly and remarked that "technology is to be understood as a bundle of knowledge(s) and capabilities of which absorptive capabilities are an important subset. Technological capability is the knowledge and experience necessary in firms to produce, innovate, and organize marketing functions."

In the Kenyan case, the problems facing small scale farmers have been conceptualized (rather narrowly) in terms of export market access. This narrow conceptualization is reflected in the policy documents which emphasize the need to promote partnerships and contract farming arrangements between smallholders and exporters. In the *strategy for the revitalization of agriculture (2004 – 2014)*, which is the current government policy in agriculture, this emphasis on partnerships is captured thus:

> "...where contractual obligations can be enforced, forging partnerships between smallholders and agribusiness in the form of out grower and contract farming schemes will be encouraged. Such partnerships allow smallholders to enjoy assured markets for their products and the supply of inputs on a credit basis or through input voucher schemes." (pp. 48)

The framing of the problems facing small scale farmers in terms of market access as in the quote above focuses more on production and inputs and outputs but less on innovation and the processes that lead to building the capabilities of small scale farmers to continuously adapt and reconfigure their processes in response to their ever changing contexts. It reduces the problems to production and markets without focusing on the range of processes that occur between the farm and the end consumer. When problems are compartmentalized and narrowly focused like this, the policy responses can only provide partial solutions. Shortcomings with segmented approaches to building capabilities have been highlighted in many studies. For example, Hall (2005:611) has noted that "it is now becoming increasingly apparent that there's a generic problem with capacity development approaches that focus solely on competencies to produce knowledge i.e. research. The failure to develop complementary competencies and structures to put that knowledge into use and the need to take account of how scientific resources integrate with the rest of the economy and respond to society as a whole is now a major concern ...." To avoid the glaring shortcomings of segmented approaches, developing small scale farmers' capabilities ought to be holistic in nature, that is, it

should not only include access to markets, but also capabilities to generate, access, share and use knowledge.

The quote by Andy Hall at the beginning of this chapter summarizes the multi-faceted nature of capability building. It emphasizes the need to focus on the different dimensions from knowledge production, sharing to application; the different types of 'knowledges[3]' required; the nature of policy and institutional framework as well as the interactions between different actors (relationships) required for building capabilities to innovate.

1.2 Why focus on capabilities to innovate?

The terms "capacity" and "capabilities" are often used interchangeably in literature and both are associated with knowledge, skills and competencies amongst individuals as well as within organizations. In this section we highlight a few definitions of both terms and how they have been used in literature to set the basis for our focus on farmer capabilities.

The United Nations Development Programme (UNDP) has defined "capacity" as the ability of individuals and organizations to perform functions effectively, efficiently, and in a sustainable manner (UNDP, 1998: 5). Horton *et al* (2000) also note that defined in this manner, capacity "includes all those attributes, capabilities, and resources of an organization that enable it to undertake its mission." Capacity building therefore is seen as "the sum of efforts needed to nurture, enhance and utilize the skills of people and institutions towards progress and sustainable development (UNDP, 1994: 2, quoted in Clark, 2000:77). Drawing on these various definitions, Clark (2000) has identified some broad properties of capacity including: (i) that is concerned with people-embodied skills and competencies; (ii) that it is often concerned with technology and technological

[3] There are different types (scientific and non scientific) and forms (codified and tacit) of knowledge.

transformation of resources for socio-economic ends and (iii) that there is a frequent, if tacit, assumption that capacities are under-represented in disadvantaged groups (i.e. women, rural labour force, the poor etc).

Similarly, the term "capability" is amenable to varying definitions. In the literature, Lall (1992) has defined capabilities as a range of capacities that allow an economic system to understand best practice technology on a world scale and use this understanding to promote more rapid economic growth than would otherwise have been possible while Bell and Pavitt (1993) have defined [technological] capabilities to incorporate the resources needed to generate and manage technical change, including skills, knowledge and experience and institutional structures and linkages. Both Lall (1992) and Bell and Pavitt (1993) have emphasized on "use of technology, technological resources and technical change." For these authors, there is a heavy focus on the tangible forms of capabilities – the technological capabilities. While the terms capacity and capabilities have been used inter-changeably in the literature, this thesis draws its definition of capabilities heavily from the works of Leonard – Barton (1992) on "core capabilities" and Teece (1998; 2009) on "dynamic capabilities." Leonard-Barton defines capabilities as the 'knowledge set that differentiates and confers competitive advantage' (pp. 113). Extended discussions on capabilities are provided in Chapter 3 and what is considered here is just an overview.

Leonard-Barton identifies four dimensions of "core capabilities" as: (i) skills and knowledge base; (ii) technical systems; (iii) management systems and (iv) values and norms. The first dimension, *skills and knowledge base* refers to 'the difficult – to – imitate know-how, talents and experiences', which are embodied in employees/individuals. The second dimension refers to the fact that this knowledge is sometimes embedded in *technical systems*. This is in keeping with Mackenzie and

Wackjman's (1985) assertion that technologies are more than physical artifacts but an embodiment of knowledge. The third dimension refers to *management systems* that is, systems of monitoring and coordination that guide knowledge creation and control, while the fourth dimension – *values and norms* – speaks to the role of institutions that determine how knowledge is generated, shared and controlled.

Teece, Pisano and Shuen (1997) and Teece (1998:72) have extended the discussion on core capabilities further to what they have termed "dynamic capabilities" – defined as "the ability to sense and then to seize new opportunities, and to reconfigure and protect knowledge assets, competencies and complementary assets and technologies to achieve sustainable competitive advantage." This ability they have argued, emphasizes the need for continuously "adapting, integrating and reconfiguring internal and external organizational skills, resources and functional competencies to match the requirements of a changing environment"

By its definition, dynamic capabilities – the ability to sense and seize opportunities – ties in closely with innovation, that is, the application of new knowledge for economic or social benefits. It concerns whether new knowledge when gained is applied to enhance competitiveness. Such dynamic capabilities determine the farmers' ability to reconfigure their activities and adapt to their changing contexts. With constant changes emerging especially but not exclusively from the markets, farmers need to continuously adapt to meet new standards and conditions.

We find Leonard-Barton's definition more appropriate to this thesis for a number of reasons: First, it focuses on knowledge and considers both the tangible (technical systems) components of capabilities and the intangible aspects such as managerial systems as well as norms and values. This focus on the intangible components of

capabilities is in tandem with our focus on governance arrangements (viewed here as how the exercise of power, authority and influence affects capability building) and the role of institutions (viewed here as including formal rules as well as habits and practices). Secondly, this thesis views farmers as entrepreneurs[4] (that is, they grow flowers purely for the market) and the farms as enterprises (business entities/firms engaged in production of flowers for the market). As such, we find Leonard-Barton's emphasis on 'competitive advantage' befitting because seen in this business sense, farmers have to compete with suppliers both nationally as well as from other developing countries (including Columbia and Ecuador) for the export (largely european) markets.

The main thrust of this thesis therefore lies on how the partnerships influence the farmers' capabilities to respond to challenges and changes in their contexts. This focus on capabilities emphasizes the importance of knowledge and innovation in addressing the needs to small scale farmers. With regards to building capabilities of small scale farmers farmers in cut flowers, Mytelka (2009) writing on the Colombian case study has decried the narrow focus on export market access as opposed to the broader goal of building small scale farmers' capabilities to innovate. This need for a holistic approach to capability building informs the approach taken in this thesis, especially in analyzing the partnerships between exporters and small scale farmers.

1.3 Overview of farmer capabilities

The farmer capabilities are divided into three broad categories namely: (i) production capabilities (ii) value addition capabilities and (iii) marketing capabilities. These are described below:

[4] Because we view farmers as entrepreneurs engaged in business, their farms are seen as enterprises/business units. As such, the terms farms/firms are sometimes used interchangeably in this thesis.

1.3.1 Production capabilities

Production refers to all the pre-harvest activities including decisions on which flower varieties to grow, when to grow it (production calendar), how to grow it (technologies, methods and techniques), which inputs are required (farm inputs such as greenhouses, fertilizers, agrochemicals etc) to when to harvest the flowers (in synchronization with peak demand in the market). Making decisions about these aspects is key to the production of good quality flowers at low costs.

While making choices about the varieties, the farmer needs to know whether the flowers will grow well in their regions; whether the flowers are prone to pests and diseases; whether the climate and soils are appropriate; whether the flowers can be grown in open fields or under a greenhouse etc. The use of a production/planting calendar as a planning tool is crucial in ensuring that the farmer aligns his/her production cycle with the peak demands in the market. This requires that the farmer is well informed of the supply and demand trends in the export as well as local market.

The floriculture industry is highly regulated for sanitary and phyto-sanitary as well as worker welfare and environmental standards. The consumers (mainly in the export markets in Europe) are conscious of environmental issues. Voluntary standards such as EUREPGAP[5] are used to ensure growers comply with some of these requirements. Other statutory standards such as the maximum residue levels (MRLs) requirement within the European Union (EU) markets are aimed at preventing indiscriminate use of pesticides and other agrochemicals. Farmers therefore require knowledge on the right

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[5] EUREPGAP is a market standard initiated by several European supermarket chains and their major suppliers to ensure their adherence to good agricultural practices (GAP). The aim was to bring conformity to different retailers' supplier standards, which had been creating problems for farmers. Eurepgap is now the world's most widely implemented farm certification scheme and most European customers for agricultural products now demand evidence of EurepGAP certification as a prerequisite for doing business.

use of agrochemicals (type, quantities and quality) for the production of clean, healthy and disease-free flowers.

1.3.2 Value addition capabilities

Value additions in cut flowers refer to the range of activities that occur between harvesting of flowers and their arrival in the final markets. They are processes that transform the flowers from the 'raw materials' (mere plant branches, leaves and florets in the farms) to 'finished products' (the attractive, neatly presented aesthetic flowers sitting in flower vases in consumers' houses/offices etc).

The way flowers are handled during this stage makes all the difference in their attractiveness, and therefore salability and pricing in the final markets. As such, these value-adding (post-harvest) activities are critical aspects of cut flower production and sales. They not only determine whether flowers will be sold in the first instance, but also affect the vase life of flowers and therefore determine whether farmers/exporters will have repeat business from the consumers.

Failure to satisfy customer requirements for quality and longer vase life makes a lot of difference between success and failure in cut flower business. Improper post-harvest handling may ruin the salability of flowers even if the farmer had produced good quality flowers in the first place. HCDA estimates that over 25% of cut flowers are lost during post-harvest handling (MoA and HCDA, 2004). Post-harvest handling (value addition) in cut flowers is divided into three sets of activities namely: grading, bunching and packaging. Table 1 below summarizes the key activities under each of these activities.

Table 1: Cut flower value addition activities

Grading	Bunching	Packaging
• This is the first stage of value addition. It involves removing unsatisfactory materials such as diseased, damaged or malformed	• After grading, the flowers are tied firmly in bunches of (mostly) 10 and 20 floral stems per bunch. • The size of the bunch	• Flowers are packaged in standard flat and long carton boxes • The bunches of flowers are wrapped in waxed paper with an opening at

blooms. • The grading is done according to floral stem length, weight and quality in order to provide uniformity of flowers. • Grading by stem length is easily done using grading tables/benches with the appropriate lengths clearly marked. • The blooms that don't acquire the required lengths are discarded.	varies from variety to variety and are often determined by market requirements • The flowers are sleeved around the heads to protect the flower heads from damage during transportation and the sleeves are secured using rubber bands • The sleeved stems are then subjected to pre-treatment solutions, which must be prepared daily, at the right concentrations.	the top to prevent tangling of the blooms during handling • The bunches are then carefully laid flat with flower heads at each end of the carton boxes • The boxes should be placed on racks and well spaced so that air can pass through them • Flowers should then be promptly returned to the cooler after packaging

Source: HCDA/MoA/JICA (2004); field interviews (2009)

1.3.3 Marketing capabilities

Market access is key in the cut flower business. Marketing refers to the mechanisms and distribution channels through which the flowers reach their final destinations (the consumers). The main destination for flowers is the export markets largely in Europe (see Chapter 2). There is also a minimal local demand for flowers. The capabilities under here include issues such as: Are the farmers able to access export markets directly? Do they understand the demand and supply trends in the market? Do they understand the pricing and prevailing prices of flowers during the different seasons? Do they know which varieties are required at the market? Can they sense a change in consumer tastes and preferences? Do they understand the various standards applicable in the market and have they complied with them? If they sell through intermediaries (exporters), can they negotiate favourable terms/prices? Do they know of other markets/outlets? Can they penetrate new markets? These marketing capabilities ensure that the farmer can access and retain key markets for their flowers (whether these are export or domestic markets). Developing these capabilities is important not only in

encouraging farmers to grow flowers but also in ensuring that they obtain the best prices for their products.

1.4 The Research problem

Several studies have noted that participation of small scale farmers in the cut flower industry has been minimal and declining over the years (Fintrac, 2005; Kiptum, 2005). A diagnostic survey conducted by KARI in 2000/2001 in Uasin Gishu and Trans-Nzoia districts of the North Rift Valley region indicated that cut flower production in the region by small and medium scale farmers had declined from the 1999/2000 values by up to 50 % of the total land previously under cut flower production (KARI annual report, 2002 pp. 42). A similar survey conducted in 2004 in Kiambu and Nyandarua districts (Central province) on gladiolus (mostly grown by small scale farmers) revealed a 56 % decline in the hectarage cropped under gladiolus between 2003 and 2004 due to several reasons including deterioration of corms (planting materials) (KARI annual report, 2006 pp. 69). A baseline survey by the USAID-funded Kenya Horticultural Development Programme (Fintrac (2005) has shown that the estimated summer flower share of the total flower exports (2000 – 2003) have been declining both in volume (from 13.5 % to 5.1 %) and value (from 8.6 % to 4.8 %) as shown in table 2

Table 2: Share of summer flowers as a % of total flower exports (2000 – 2003)

Volume (MTs)					*Value (Kshs. Millions)*			
Year	2000	2001	2002	2003	2000	2001	2002	2003
Total flowers	38.757	41.396	52.107	60.983	7,166	10,627	14.972	16,496
Summer flowers	5239.7	3812.7	3343.3	3084.3	627.7	658.6	602.8	783.9
% share of summer flowers	13.5	9.2	6.4	5.1	8.6	6.2	4.1	4.8

Source: Fintrac (2005)

More recently, Muthoka and Muriithi (2008) have estimated that of the approximate total 5,000 farmers engaged in cut flower production in Kenya, between 3,000 – 4,000 small holders (less than 0.4 – 1.6 ha) contribute only 5 – 13 % of the total exports[6].

In order to stem the declining contribution of small scale farmers in floriculture exports business, the government of Kenya is pursuing two key strategies in its policy response. (i) promoting partnerships between small scale farmers and exporters in order to ensure that the small scale farmers not only continue to access the export markets, but also access inputs as well as technology and advisory services and (ii) promoting the development of an agricultural innovation system to ensure farmers get prompt research results and reliable advise on new knowledge, technologies and resources. These approaches are evident in the policy documents (particularly the SRA, 2004) as well as the activities of public sector actors (HCDA, Ministry of Agriculture, KARI); donor agencies such as USAID[7] and NGOs such as AfricaNOW[8].

Even though the declining contribution of small scale farmers has been framed largely as a market access problem and the policy responses emphasize inputs (access to credits and inputs) and outputs (assured markets); it is also conceivable that partnerships could lead to improved interactions with different actors and in particular with exporters, and that these interactions could lead to learning and innovation. However, the extent to which these partnerships could contribute to building small scale farmers "capabilities to innovate" is unclear. Besides, relying on these partnerships with exporters as well as with R&D actors within the innovation systems to build the capabilities of farmers, particularly poor small scale farmers, are not unproblematic.

[6] Other studies have estimated this to about 5 – 10 % for the same group of farmers. See for example the works of Dolan, Opondo, and Smith (2004).

[7] USAID is supporting the Kenya Horticultural Development Programme (KHDP) being implemented by Fintrac

[8] AfricaNOW has an on-going project on "encouraging smallholder involvement in export floriculture"

1.4.1 Partnerships as a capability building strategy

The term "partnerships" as used in this thesis refers broadly to cooperative relationships between different actors. With respect to farmers and exporters, which are viewed as business entities (firms), partnerships refer to non – equity based arrangements, that is, each farm/firm remains as a separate entity even though they agree to cooperate on certain issues. Partnerships are formed to achieve various development objectives and have been acknowledged as an effective mechanism for learning, knowledge sharing, technology transfer, market access and the development of technological and innovative capability (CSD, 1998; Smith, 2005; Hall *et al*, 2001; Chataway, Smith and Wield, 2005; Chataway and Wield, 2000).

Robinson, Hewitt and Harris (2000) concur that partnerships are a useful strategy to achieve development but also warn that partnerships could often disguise differential power relations and that the language of partnerships could be a smokescreen for other forms of relationships. The power asymmetries raise issues that have led scholars to question the potential of partnerships to contribute to the building of small scale farmers' capabilities. Christopher and Juttner (2000) have argued that as a result of the asymmetries, "a majority of companies will find themselves in a chain which is dominated by the so-called "chain captain" and are therefore unable to proactively define the terms of the relationship from such a weaker position" and Parker and Hartley (1997) have emphasized this point further by arguing that most of the so – called partnerships are misleading since dependency rather than partnerships seems to best describe a number of such relationships.

Further, Johnsen and Ford (2008:472) while considering the concept of asymmetry in customer – supplier relationships have noted that often 'smaller suppliers may have little option but to follow the stipulated relationship norms of a larger customer if they wish to maintain the relationship' and many a times the smaller suppliers become specialized into narrow confines of the relationships and may become 'hostage' to a

particular customer. In many instances, the smaller supplier may have to give up its individual goals for the benefit of maintaining the relationship with a single large customer (ibid).

Furthermore, the institutional context in which the partnerships occur 'sets the rules by which partners act, collaborate and compete' (North, 1990). These institutions, whether they are formal rules, unwritten codes of conduct or just societal norms and practices; and their enforceability determine the potential outcomes of such partnerships. From the foregoing, it appears that whereas the policy of promoting small scale – exporter partnerships may achieve the market access objective, their capability building function may be undermined by differential power relations, competition pressure as well as institutional/governance arrangements (contractual versus non-contractual partnerships).

1.4.2 Innovation systems as a silver bullet?

A functional innovation system has been credited with increased innovation and competitiveness in the industrial sector in developed countries (OECD, 1997). Such a system consists of multiple actors interacting with each other within a supportive institutional framework to bring new knowledge into use. It is understood that the interactions between the different actors lead to interactive learning which in turn contributes to capability building. This view has been supported by Hall et al (2004) who have noted that, "activities that widen the interaction of organizations with other partners and networks are likely to be an important way of building up innovation capabilities, both individual and organizational and in the wider national systems" (pp. 216).

However, relying on an agricultural innovation system to function well and support the farmers presupposes that (a) the key actors are present within the system (b) that the policy environment is conducive (c) that the actors will interact effectively to bring new knowledge into use. The dangers that belie in this assumption have been pointed by

other studies. For example, Smith (2005:651) has noted that "where the interactions are dynamic and progressive, great innovative strides are often made. Conversely, where the components are compartmentalized and isolated from each other, the result is often that relevant research bodies are not at all productive." Some studies have taken a rather cautious approach and pegged the potential for capability building on the overall functionality of the innovation system.

In this regard, UNCTAD (1996) has noted that "the capability to learn and build new competencies will depend on how well the parts fit together and the strength of these connections" (quoted in Smith 2005:651). In case of unequal actors, the dangers are even more pronounced and other studies have warned that interactive learning could lead to increased polarization, subjecting weaker actors to further marginalization. Notable amongst proponents of this cautionary view is Lundvall et al (2002:226) who has argued that, "the focus on interactive learning – a process in which agents communicate and even cooperate in the creation and utilization of new economically useful knowledge – may lead to an under-estimation of the conflicts over income and power, which are also connected to the innovation process...."

1.5 Research questions

The thesis examines three inter – related set of issues with regard to the government's policy initiatives: a) whether farmer – exporter partnerships lead to building the capabilities of the farmers (b) the role of institutions and governance arrangements within these partnerships in influencing the building of farmer capabilities and (c) the interactions between the different R&D actors with farmers and whether these interactions contribute to building farmers' capabilities. These issues have been examined by asking three main questions corresponding to each problem area. The first two questions correspond to the government's policy of promoting partnerships between farmers and agribusiness actors (exporters) while the third question

corresponds to the policy of building an innovation system that ensures farmers get timely results and advice from research and extension service providers.

The main research questions are:

Q1. What is the role of 'farmer – exporter' partnerships in building new capabilities amongst the cut flower farmers?

This question focuses on the partnerships between farmers and exporters and assesses whether as a result of these partnerships farmers have developed new capabilities. This question has been analyzed using quantitative approaches (survey) supplemented with interviews.

Q2. How do the institutional arrangements and governance mechanisms influence the ability of farmer – exporter partnerships in building capabilities of the farmers?

This question delves into the role of institutions and governance in influencing the ability of partnerships to facilitate capability building. This question has been analyzed mainly using case studies and premised on both innovation systems and global value chain analysis.

Q3. What is the role of R&D actors in building farmers' capabilities?

This question seeks to elucidate the relationship between farmers and the different R&D actors in the system. In answering this question, the thesis has followed largely from the innovation system approaches and identified the main actors in the flower industry; assessed their interactions with farmers and ended by reviewing the policy and institutional framework.

In discussing these questions, the thesis focuses mainly on innovation (the application of knowledge to produce something new and useful; including how the actors gain this new knowledge); the role of institutions (the formal and informal rules, codes of behaviour, habits and practices that shape how actors respond to changes in their environments); interactions (the relationships between farmers and other actors and how

these affect interactive learning) and governance (the role of monitoring and coordination in enhancing opportunities for learning).

1.6 Research scope

Partnerships between farmers and exporters are a common feature in the flower industry. The pilot fieldwork conducted prior to this study revealed that farmers (both small scale farmers and medium/large scale farmers) entered into partnerships with exporters. The small scale farmers are organized into groups of 15-30 and entered into contractual partnerships with exporters while the large scale farmers entered into non – contractual partnerships. The exporters represent the agribusiness and are a relatively new breed of actors in the flower industry. They are analogous to Gereffi's "manufacturers without factories."[9] They neither own farms nor grow flowers but enter into partnerships with other farmers (small scale farmers or medium scale/large scale) who produce flowers and sell to them.

There are two sub-groups[10] in this category of exporters: First, there are those who contract small scale farmers to grow flowers and sell to them and in turn export. This sub-group seeks export markets, have their own grading, cooling and transportation facilities and provide technical support to farmers. In the second sub-group is yet another category that buys from medium and large scale farmers, consolidate and export. This latter group does not have contracts with these farmers but rely on trust and confidence that their suppliers will deliver the right quality of flowers. As such, they do not own grading, cooling and transportation infrastructure facilities. Instead, the farmers 'process' flowers in their own facilities and deliver them (flowers) ready for shipment at the airport. In the latter category (medium/large farmer – exporter) farmers have developed adequate capabilities in production, value addition and marketing and the exporters trust their abilities to 'process' and deliver the products to the airport ready for

[9] See Gereffi (1999).
[10] Further discussions on these sub-groups is provided under the respective case studies

shipment. This is in contrast with the former category where the capabilities of small scale farmers are low and require constant monitoring and coordination to ensure they deliver good quality flowers.

In analyzing the 'farmer – exporter' partnerships, this thesis considers both categories of exporters and their relationships with farmers. The role of institutions that underpin these partnerships (contractual versus non contractual arrangements) is central to this analysis. Even though much emphasis is laid on the role of farmer – exporter partnerships, the thesis recognizes that such bilateral partnerships do not preclude multilateral partnerships and interactions between farmers and other actors in the innovation system. As such, there is considerable attention accorded to the role of other actors in building farmer capabilities. Particular emphasis has been put on the role of R&D actors even though other actors such as NGOs, input suppliers and the regulatory agencies are also discussed.

1.7 Theoretical framework

Smith (2005:649) has remarked that "capacity is difficult to pin down or quantify because it is essentially about knowledge" and since knowledge itself is equally multi-faceted and bound by several contexts (ibid), studying capabilities requires in the least, concepts that acknowledge these different characteristics of knowledge – its creation, exchange and application. Andy Hall (2005) has noted that capacity building is multi-dimensional and requires not only the different 'knowledges' but also linkages between producers and users of knowledge; conducive institutional settings and interactive learning.

These characteristics of capability building – multiple knowledges; interactions between different actors; conducive institutional set up and interactive learning – make innovation systems approaches (with its emphasis on actors, interactions, and institutions) suitable to its analysis.

At the same time, it has been noted that innovation systems alone may be inadequate in explaining the power relations inherent in partnerships and their likely impacts on capability building. The power dynamics that come into play between actors in partnerships calls into this analysis the need to include literature that captures capability building between unequal partners. The thesis draws from the concept of governance in global value chain literature to capture the concepts of power relations and strengthen the analysis of the role of farmer – exporter partnerships and the institutional configuration on capability building. Both these theoretical foundations – innovation systems approach and global value chains – have been explained in detail in Chapter 3.

The main contribution of this thesis therefore lies in this multi – disciplinary approach in exploring capability building in asymmetric partnerships and the empirical evidence it generates from the case study. The use of different strands of literature –global value chain (GVC) and innovation systems – provides a holistic understanding on the issues surrounding capability building (partnerships, institutions and governance) and how the different approaches might be useful in enriching the analysis. Secondly, the body of empirical evidence generated by a multiple methods approach adopted in this study – survey, in-depth interviews and observations – provides a rich data which may be of relevance to policymaking not just in Kenya but also in other developing country contexts. The issues raised by the analysis will be helpful to countries designing strategies to increase participation of small scale farmers in export – oriented, high value agriculture.

1.8 Structure of the thesis

From the introduction and background, the rest of the thesis proceeds as follows:

Chapter 2 defines the context of the study and aims at situating the research in the broader context of agricultural development in Kenya. It highlights the importance of the cut flower sector to economic development; employment, income and livelihoods.

The chapter ends by looking at the policy and institutional context and highlights the government policy of improving small scale farmers' participation in the floriculture industry. In sum, the chapter sets out the developmental and policy relevance of the study. This is followed by Chapter 3 which focuses on literature review and links the research problems to the broader conceptual and theoretical framework. The review shows that the issues raised by the study call for a multi – disciplinary approach and advocates for the integration of the innovation systems approach and global value chains in the analysis. Chapter 4 outlines the focus, scope, design and methods employed in the study.

Chapters 5, 6 and 7 present the key findings from this study. While chapter 5 focuses on the role of farmer – exporter partnerships in building farmer capabilities, Chapter 6 looks at the role of institutional set up and the governance mechanisms within these partnerships. This is followed by Chapter 7 which examines the role of R&D actors in building farmer capabilities and the thesis end with Chapter 8 which summarizes the key findings, draws some conclusions and provides recommendations for policy and future research.

Chapter 2: DEFINING THE CONTEXT

2.1 Introduction

This chapter aims at setting the research within the broader context of agricultural development in Kenya. It draws largely from secondary data and statistics on the horticulture industry to demonstrate that even though the cut flower industry has generally witnessed upward growth in value, volume and acreage over the last decade (1997 – 2007), the contribution of local small holder farmers have been minimal and on the decline (both in terms of value and volume). In effect, the upward growth of the cut flower industry has been driven largely by the medium and large scale farmers. This has implications for the inclusion of small scale farmers into this key economic sector, poverty alleviation and rural development, all of which are key to the government's development priorities.

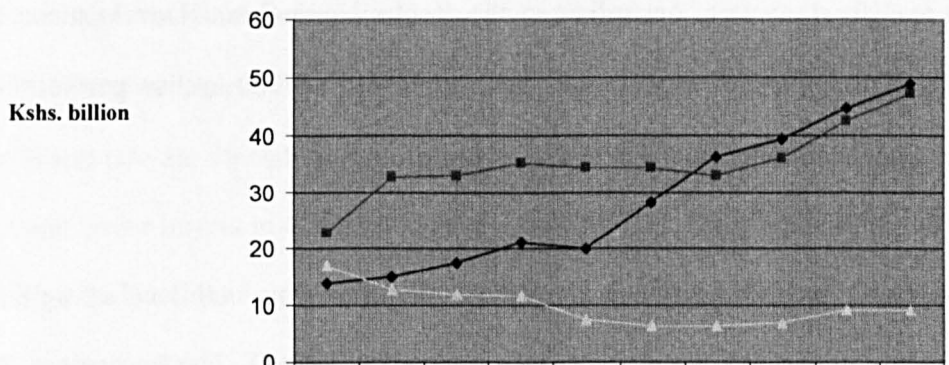
2.2 Overview of the role of agriculture in Kenya's development

Agriculture is the mainstay of the Kenyan economy, contributing directly 26 % of the national GDP and 60 % of the total export earnings (SRA, 2004). Through its links with the manufacturing, distribution and service-related sectors, agriculture contributes indirectly, a further 27% of the GDP (ibid). The sector accounts for over 80 per cent of employment (PRSP, 2001) with significant proportions of this contribution stemming from linkages with and support to other economic sectors such as trading, transport, distribution, manufacturing and other service sectors. Moreover, about 80 % of Kenya's population reside in the rural areas and derive their livelihood from agriculture through crop and livestock production, fishing, forestry and other natural resources (PRSP, 2001; ERSWEC (2003 -2007); SRA, (2004 – 2014).

Agricultural contribution to the national income derives largely from agro-based exports such as tea, coffee and horticulture. However, most of these are exported in their primary forms, with little value addition and processing. This continued reliance on these primary commodities has exposed the country to fluctuations in the world markets as well as vagaries of weather (NES, 2003 - 2007). Over the last decade, earnings from the traditional exports (tea and coffee) have either stagnated or declined. While coffee has experienced a dip in earnings from Kshs. 17 billion[11] in 1997 to Kshs. 9 billion in 2006, tea has more or less stagnated from 1998 (Kshs. 32.9 billion) till 2004 (Kshs. 36 billion), but picked up in 2005 (Kshs. 42.4 billion) and reached its highest value of Kshs. 47. 3 billion in 2006

In contrast, during the same period, horticulture[12] experienced upward growth, recording a 350 percent (%) growth in exports from Kshs. 13.8 billion in 1997 to Kshs. 48.8 billion in 2006 (fig. 1)

Fig 1: Principal agricultural exports (1997 - 2006)



	'97	'98	'99	00	01	02	03	04	05	06
Horticulture	13.8	14.9	17.6	21.2	19.9	28.3	36.5	39.5	44.7	48.8
Tea	22.8	32.9	33.1	35.2	34.5	34.4	33	36.1	42.4	47.3
Coffee, unroasted	16.9	12.8	12	11.7	7.46	6.5	6.3	6.9	9.1	9.1

[11] The average conversion rates between 01/01/08 – 30/12/08 (365 days) for inter-bank rates were as follows: 1 KES = 0.0156 USD; 1KES = 0.00815GBP and 1KES = 0.01024 EUR. (source: www.oanda.com)

[12] Note: The values for horticultural exports reported here (figure 1) were obtained from the Central Bureau of Statistics (CBS) and KNBS (2007). They differ slightly from those calculated from the HCDA statistical database and reported in table 1. This discrepancy is attributed to the different data sources. It is not clear how these differences arose but they may be attributed to how agencies captured the data from horticultural exports. In spite of the slight discrepancies in actual figures, the trend is the same for both data sources

2.3 The horticulture industry in Kenya

According to HCDA[13], the history of horticulture in Kenya dates back to pre-colonial times and attributed mainly to the immigrant white settlers and Asians. The fruits and vegetables were grown for the dietary needs of this immigrant population with no indigenous Kenyans participating except as labourers. This remained largely the case until Kenya's independence in 1963 when there began increased attention to the sector culminating in the recognition of horticulture as a special crop and subsequent establishment of the Horticultural Crops Development Authority (HCDA) to spearhead its development in 1967. Horticultural exports remained minimal until 1968 when Kenya exported 1,476 metric tons of horticultural produce (HCDA website). From that early history, horticulture has undergone phenomenal growth and is currently Kenya's most important agricultural sub-sector being the leading foreign exchange earner followed by tea (fig 1 above). According to the Kenya Horticultural Development Programme (KHDP) [14], in 2007 horticulture had a turnover of $ 700 million per year representing 14 per cent of total Kenyan export earnings.

The total investment in the industry stands at US$ 800 million from both local as well as foreign companies (HCDA *Horticulture News (Jan-April 2008).* The horticulture industry has over 300 active export companies and the number of people employed directly is estimated at 770,000 with a further 170, 000 employed indirectly through such services as transport, irrigation and packaging. The number of small scale farmers is estimated to be over 220,000 (ibid). This translates to about 1.2 million people

[13] HCDA website (www.hcda.or.ke) accessed on 9/4/09

[14] These figures are attributed to a survey conducted by KHDP by interviewing over 1000 farmers in the horticulture industry. They were given by Rod Evans, Director of Homegrown in a speech during HCDA 40th anniversary.

employed in the sector. Horticultural exports have been dominated by cut flower which accounts for 55 % of the total export earnings (SRA, 2004). (See table 3 below)

Table 3: The contribution flowers to total horticultural exports (values and volumes)

Year	Total horticulture Values (Kshs. billion)	Total flowers Values (Kshs. billion)	% share of flowers by values	Total horticulture Volumes ('000 tons)	Total flowers volumes (000 tons)	% share of flowers by volume
1997	8.7	4.9	56	84.2	35.9	43
1998	13.5	5.9	44	78.4	30.2	39
1999	14.2	7.2	51	99.0	37.0	37
2000	13.9	7.3	53	99.2	38.7	39
2001	20.2	10.6	52	98.8	41.4	42
2002	26.7	14.8	55	121.1	52.1	43
2003	28.8	16.5	57	133.2	61.0	46
2004	32.6	18.7	57	145.6	70.7	49
2005	38.8	22.9	59	163.0	81.2	50
2006	43.1	23.6	55	163.2	86.5	53

Source: compiled by author from HCDA statistical database

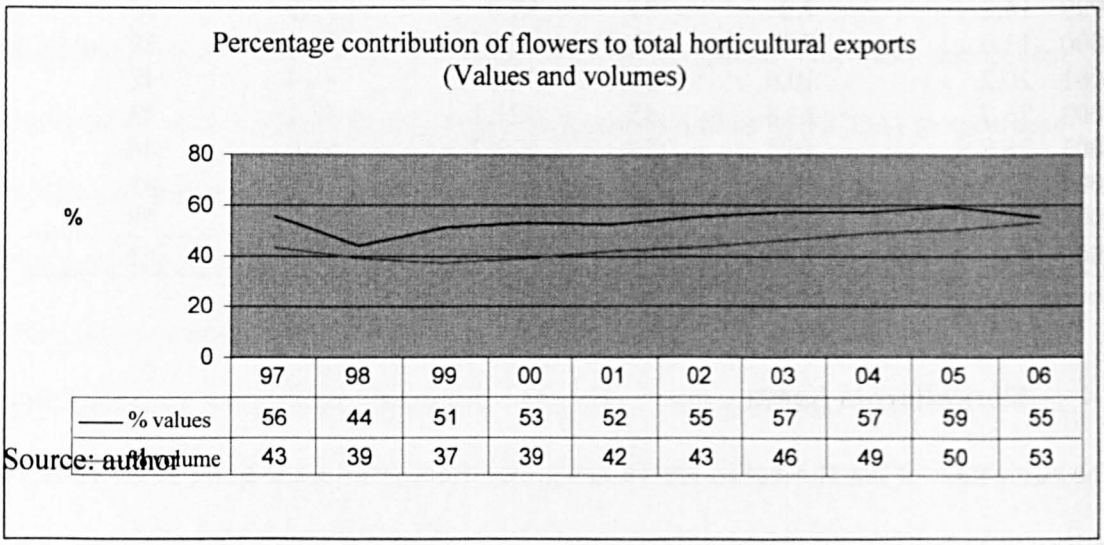
2.4 Floriculture in Kenya

The cultivation of cut flowers in Kenya has grown from small scale trade in the early 1950s/60s to become a major world supplier of "off-season" suppliers of cut flowers in the world (Dolan, Opondo and Smith, 2004). The majority of exports were channeled through major buyers in Germany during the 1970s and 1980s while in the 1990s sales through the auctions increased as did direct sales to the supermarkets especially in the UK (Fintrac, 2005). The cut flower industry has witnessed exceptional growth from 1980[15] when 7, 422 tons worth Kshs. 227 million was exported to 86,500 tons worth Kshs. 23.6 billion in 2006. Floriculture dominates Kenya's horticultural sub-sector accounting for up to 60 per cent of the total earnings from horticulture in 2005. Over the last decade (1997 – 2006) floriculture has contributed an average of 55% of the total value of horticultural exports and 44 % of the total volumes of exports (see figure 2)

[15] The 1980 figures are unpublished HCDA statistics quoted in Dolan, Opondo and Smith (2004)

According to estimates from the Kenya Flower Council (KFC), there are 700, 000 people who depend on the industry (including some 70, 000 flower farm workers). The main flowers grown include roses (73%), statice (0.9%), carnations (3.35%), alstroemeria (0.55%), eryngiums (0.45%), solidago (0.07%), chrysanthemums (0.32%), arabicums (0.4%) cut foliage (0.4%) amongst other summer flowers (KFC industry information sheet)

Figure 2: Contribution of cut flowers to overall horticultural exports (1997 – 2006)



	97	98	99	00	01	02	03	04	05	06
% values	56	44	51	53	52	55	57	57	59	55
% volume	43	39	37	39	42	43	46	49	50	53

Source: author

2.5 The Kenya cut flower industry in a global perspective

The total African area under flowers is estimated at 2 percent (%) of the total global area (Mather, 2008). Kenya is the largest African grower with approximately over 2,200[16] ha followed by South Africa and Zimbabwe at approximately 1,100 ha each (Wijnands 2005). In terms of international trade, Kenya is the fourth largest world exporter of flowers valued at EUR 200 million after Netherlands (EUR 3,000 million), Colombia (EUR 710 million) and Ecuador (EUR 260 million) [ibid]. In 2003, Kenya was ranked the largest exporter of flowers into the EU market accounting for EUR 208 million (AIPH, 2004, quoted in Wijnands, 2005). Kenya is well ahead of its African

[16] Different authors have approximated the total area of cut flowers in Kenya. Wijnands (2005) estimated 2,200 ha; KARI (2003) records 2,000 ha while Bolo (2008) has recorded about 2,000 ha excluding small scale farmers. Its worth noting that these are very conservative estimates and given that the sector expands each year, the actual figures are likely to be much higher.

competitors, at least in so far as their exports into the EU are concerned. According to Wijnands (2005), Uganda exported flowers worth EUR 17 million into the EU same as Zambia (EUR 17 million), while Tanzania exported EUR 6 million, Ethiopia and Morocco (EUR 3 million) and Egypt (EUR 1 million).

The Kenyan cut flower sector has registered one of the highest growth rates in the world standing at par with Ecuador (both grew at 15 %) in 2005 at a time when its major competitors such as Netherlands experienced 1% production growth rate and Colombia 5 %. As table 4 shows, Kenya has a great command of the export market with major export destinations in the EU, Netherlands, UK, and Germany.

Table 4: Comparison of African countries' cut flower exports 2003 (EUR million).

	Exporting countries						
Importing countries	Kenya	Zimbabwe	Uganda	Zambia	South Africa	Tanzania	Ethiopia
Netherlands	135	54	17	17	7	4	0
Germany	15	1	-	-	2	2	3
UK	51	1	-	-	2		
Total EU	208	57	18	17	13	6	3

Source: adapted from Wijnands, 2005

The main importers of cut flowers include the USA, EU, the Netherlands, Germany, Japan and the UK. Other than the Netherlands, Kenya commands a leading position in exports of cut flowers to these countries except the USA where the South American countries of Colombia, Ecuador are the major exporters as shown in table 5 below.

Table 5: Main EU cut flowers importing countries (EUR million), 2003

	Importing countries					
Exporting countries	EU	Netherlands	Germany	France	Italy	UK
The Netherlands	2,061	-	652	358	123	621
Kenya	208	135	15	3	1	51
Colombia	94	21	10	1	0	44
Ecuador	71	35	13	3	7	2
Thailand	16	2	1	0	12	0
Others	450	246	40	32	10	67
Total	2,901	439	731	396	152	785

Source: AIPH, 2004; quoted in Wijnands, 2005

Role of Ethiopia as an emerging competitor for Kenya

In recent years, particularly beginning in the early 2000s, Ethiopia has emerged as a major competitor to Kenya in the eastern Africa region. With the sector picking up from about 2003/4, Ethiopia has emerged from being the 24th largest exporter into the EU with a market share of 0.14 percent to number 15 in 2003 controlling 0.5 percent and in 2007, Ethiopia had risen be the 5th largest exporter to the EU controlling 5.05 percent of EU's total market share (Gebreeyesus and Iizuka, 2010). Equally, the number of firms has also grown from one (1) farm in the year 2000 to 81 farms in 2008. The value of exports has also grown from US$ 0.5million in 2001 to US$ 98.7 million in 2008.

This rapid rise of Ethiopia in the cut flower is attributable to supportive government policies and intervention; private sector experimentation and a changing trade regime between the EU and its Africa, Caribbean and Pacific partners. In terms of government policy and intervention, Gebreeyesus and Iizuka (2010) have noted that Ethiopia's comprehensive Industrial Development Strategy (IDS) formulated in 2002/2003 highlighted the importance of the linkages between agriculture and industry and the fact that export oriented sectors should lead the industrial development strategy and the need to accord such sectors preferential treatment. The strategy further recognized the role of the private sector as the drivers of the industrialization process. The strategy therefore implored the government to not only provide a conducive environment but also provide direct support for selected sectors. During an exploratory visit to Ethiopia in 2008, my interviews with industry practitioners showed that:

- The government, through the Development Bank of Ethiopia, provides up to 70 percent of the total starting capital with the proprietor providing the remaining 30 percent. The government loans are payable after the 5th year and attract 7.5 % interest rates.
- The industry enjoys a 5 year tax holiday and duty free imports for capital equipment and inputs

- Land is available for investment in both urban and local areas on leasehold basis and is provided by the government
- The parent ministry for the cut flowers industry is the Ministry of Trade and Industry (MoTI). This reflects the view of the government of the sector as income generating and trade related. The ministry of agriculture provides technical support.
- The Minister visits the farms every three months and is accompanied by all the service providers. During these visits which are coordinated by EHPEA, farmers raise their problems to the minister and their problems are solved instantly on the farm.
- EHPEA also briefs the Prime Minister twice every year on the growth of the industry and any additional support required. The budgetary allocation to the sector is approximated at 3 billion (Ethiopian birr) ETB.

In terms of the changing trade regime, the continued positive growth in Kenya's cut flower sector has been largely attributed to the easy access of Kenyan horticultural products into the European market under non-reciprocal preferential (unilateral) trade agreements under the Lome IV Convention which allowed Kenya to export preferentially into the EU market. However, the Lome system of preferential access to the EU market was coming to an end in 2007 and would have been replaced by a new free trade systems being negotiated under the economic partnerships agreements (EPAs). This meant that Kenya would no longer be classified as least developed country (LDC) whereas its competitors such as Ethiopia, Uganda and Tanzania still are classified as LDCs. This changing trade regime between the EU and the ACP partners, caused jitters in the Industry with some large scale farmers from Kenya shifting their base into Ethiopia in order to take advantage of the new trading regime. In her article in *the East African* (2-8 May, 2005), Catherine Riungu warned that "major Kenya flower exporters could shift operations to neighbouring countries should Kenya lose its

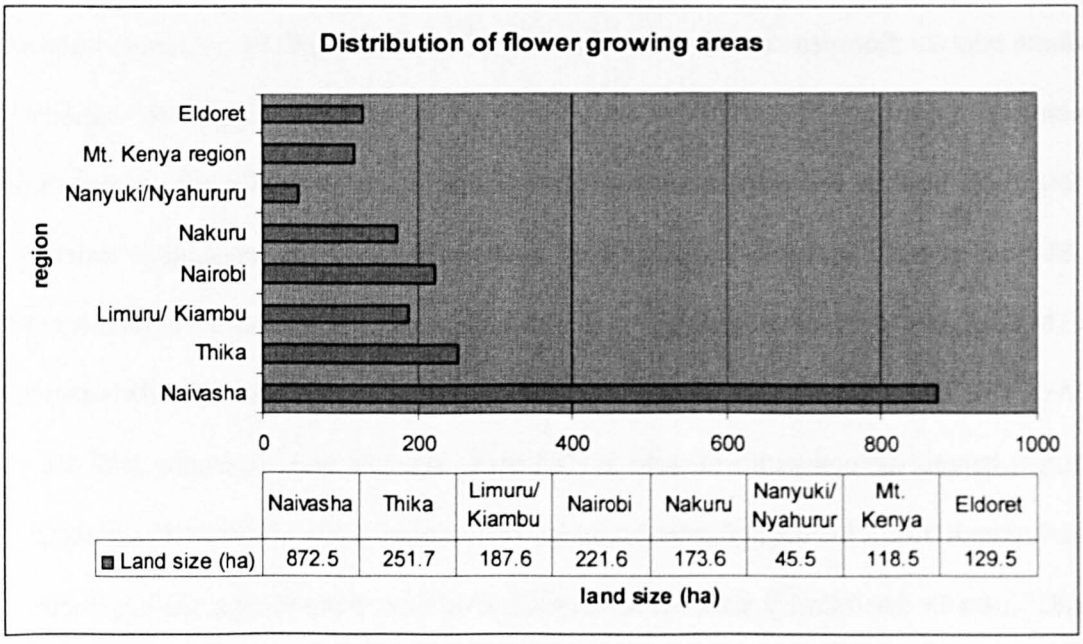
preferential status in December 2007". The chairman of the Kenya Flower Council at the time, Mr. Erastus Muriithi was quoted in the same article as having remarked that "close to 24 large and medium sized foreign owned flower growers are eyeing Ethiopia where the government has stepped up a campaign to lure them with promises of cheap labour"

Ethiopia's rise in the cut flower trade poses serious challenges to Kenya's dominance in the region. Unless the negotiations under EPAs come up with a favourable deal for Kenya, it might end up losing its advantages to the neighbouring countries, of which Ethiopia appears to be the leading contender. In such a scenario, Ethiopia could be the beneficiary of the capabilities that Kenya has developed over time.

2.6 The geographical distribution of cut flower production

Floriculture in Kenya is concentrated in three provinces and mostly clustered around Naivasha, Thika, Limuru, Athi River and Nairobi areas as in figures 3 and 4 below

Figure 3: Distribution of flower growing areas[17] in Kenya (2005)



	Naivasha	Thika	Limuru/ Kiambu	Nairobi	Nakuru	Nanyuki/ Nyahurur	Mt. Kenya	Eldoret
Land size (ha)	872.5	251.7	187.6	221.6	173.6	45.5	118.5	129.5

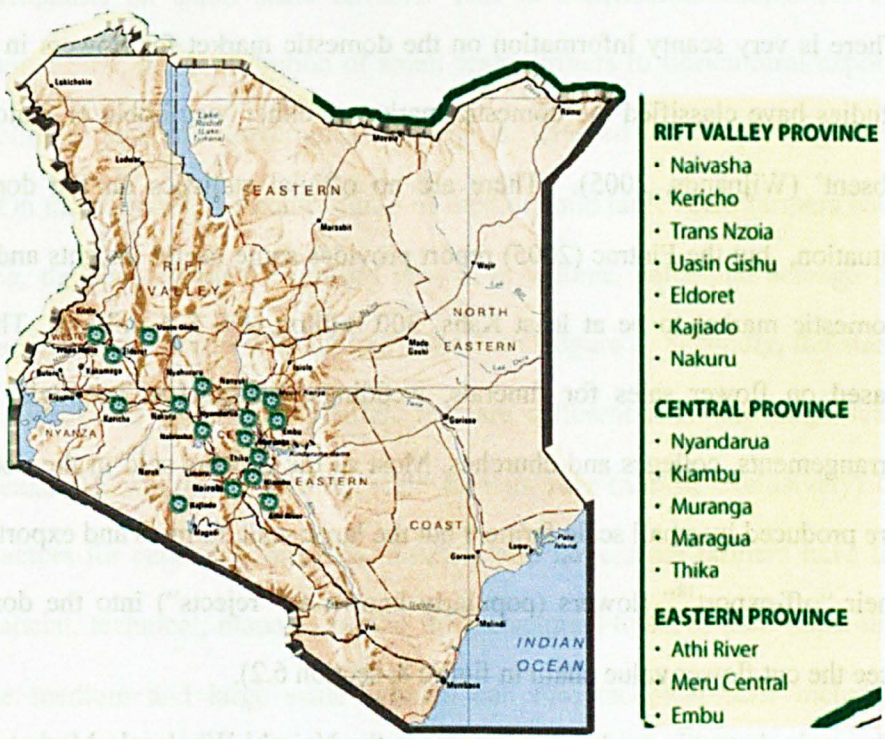
Source: compiled by author from Scoop communications (the floriculture magazine)

[17] This compilation is by no means exhaustive but represents on-going work by Scoop communications.

The tendency of flower farms to concentrate in certain geographical areas is attributed to both climatic as well as infrastructural factors (Bolo, 2008). Kenya experiences a diverse range of climatic and agro-ecological zones spreading from the low areas around the coast to the cool highlands. A temperate climate prevails from 1500m above sea level with a temperature range of between 22-30 degrees Celsius at daytime and between 6-12 degrees Celsius at night.

Rainfall is well distributed in the growing areas with two peaks in April/May and September/October covering approximately 60-80 days in a year allowing for ample radiation for most of the year. These factors favour all year-round cultivation and export of high quality flowers.

Figure 4: Map of Kenya's flower growing regions



Source: Kenya Flower Council (KFC)

In terms of infrastructure, most of these growing areas are in close proximity to the Jomo Kenyatta International Airport (JKIA), which is a major hub served by major airlines and charter flight operators. This has not only minimized transportation costs to the airports but also accorded the industry easy airfreight access into the European markets which accounts for the bulk of Kenya's flower exports.

The major growing areas are also served by the major road networks in the country which provide easy access into the city centre (domestic market situated at the city centre) and into the airport. In order to facilitate marketing and reduce postharvest losses, the Horticultural Crops Development Authority (HCDA) has provided refrigerated trucks for hire by the farmers, built marketing centres and collection depots in key growing areas besides installation of pre-cooling facilities.

2.7 Domestic market for cut flowers in Kenya

There is very scanty information on the domestic market for flowers in Kenya. Some studies have classified the domestic market as either 'negligible or almost completely absent' (Wijnands, 2005). There are no official statistics on the domestic market situation, but the Fintrac (2005) report provides some useful insights and estimates the domestic market to be at least Kshs. 300 million (US $ 4 million). This estimate is based on flower sales for funerals, weddings, households, hospitals, hotels, office arrangements, colleges and churches. Most of the flowers sold in the domestic market are produced by small scale farmers but the large scale farmers and exporters also divert their "off-export[18]" flowers (popularly known as "rejects") into the domestic market (see the cut flower value chain in figure 8, section 6.2).

The main domestic market for flowers is the Nairobi Wholesale Market situated at the City market in Nairobi's Central Business District. According to the Finrac report, this

[18] These are flowers that have not met export standards and are rejected at the inspection/exit point at the Nairobi airport or are identified at the grading stage in the farms. Interviews with large scale farmers showed that these are sold to the florists and other vendors but workers are discouraged from taking them off the farm to prevent the temptations to steal.

facility is used as a wholesale market in the early hours of the morning (5:00 am – 8:00 am) and then converted to a retail market during the day and houses a total of 19 florists who purchase flowers from farmers, brokers and traders. The flowers are sourced from about four[19] main locations around Nairobi including Kiambu, Ngecha, Tigoni, Limuru, Githunguri and Kinangop areas to the north of Nairobi; Naivasha and its environs to the West; Athi River, Lukenya hills and is environs to the south east and Thika, gaanga, Maragua, Nyeri and Nyahururu also supply the Nairobi market. The retail market comprises numerous florists and stall owners scattered throughout the major towns supplying offices, weddings, funerals, schools and other social functions.

2.8 Small scale cut flower production in Kenya

In our discussions of capability building through 'farmer-exporter' partnerships, there is considerable emphasis on small scale farmers. This is a deliberate choice for the following reasons: First, the contribution of small scale farmers to floricultural exports has been declining and the government policy is targeted on improving their participation. On the contrary, the contribution of medium and large scale farmers have been increasing, thereby driving the upward growth in volume, value and acreage for the industry as shown in sections 2.3; 2.4 and table 3 and figure 2. Secondly, the small scale farmers experience peculiar difficulties that are different from the large scale farmers. For example, whereas the small scale farmers rely (almost exclusively) on public sector actors for capability building, medium and large scale farmers have the resources (financial, technical, managerial and infrastructural) to solve their capability problems. The medium and large scale farmers can hire technical staff including engaging expatriates, install cold chain facilities and generally have more advanced managerial skills. As such, when the local systems do not function, the medium and large scale farmers can revert to the international system (laboratories, consultants and

[19] These locations more or less correspond to the main growing areas around Nairobi. The locations span four provinces where production is concentrated. See the map of Kenya on page 31

R&D units) to solve their problems. In contrast, the small scale farmers rely on the functionality of local actors and institutions to thrive.

The cut flower industry is dominated by large scale farmers and exporters who accounted for more than 97 per cent (%) of the total exports in 2004 (Kiptum, 2005; HCDA statistics, 2004). Kiptum (2005) has noted that floriculture in Kenya is dominated by 24 large companies who make up over 72% of total flower exports and own, on average, between 20 – 100 hectares, employing a workforce of 250 – 6000 persons. Muthoka and Muriithi (2008) have estimated that fifty (50) medium to large scale farmers accounted for more than 75% of total exports while another 10 – 15 % was contributed by several dozen small and medium producers. The large scale farms are mostly owned by foreigners of Kenyans of foreign descent.

On the other hand, the local small scale farmers, estimated to have contributed only 3 per cent (%) of total exports in 2004 (HCDA statistics; Kiptum, 2005), are mainly confined to summer flowers[20] that grow under open conditions thus requiring less capital input, and managerial and technical skills. These small scale farmers produce on farms averaging between 0.125 ha to 1ha in size and depend on rainfall or draw water from nearby streams for irrigation (KARI, 2003). According to a baseline survey by Fintrac, the major varieties produced by small scale farmers for export include: Eryngium (19% of total smallholder exports), Ornithogalum (14%), Arabicum (12%), Papyrus (7%), Alstromeria (3%), Lilies (5%), Ammi (5%), Molucella (4%), Agapanthus (3%), Bupleurum (3%), Statice (3%) and Asclepias (mobydick) (2%). Other varieties include: Scabiosa, Carthamus, Delphinium, Rudbeckia, Solidago, uberose, Solidaster, Asters and Euphorbia.

[20] This is the general name given to annual species and bulbulous perennials traditionally grown during summer in northern Europe (Fintrac, 2005; Muthoka and Muriithi, 2008)

In 2005, the Fintrac report estimated annual summer flower exports at 1,875 tons valued at Kshs. 355 million (US$ 4.73 million) but noted that this figure could be higher since some varieties used in bouquets were not captured by official statistics. The report further notes that auction prices for most summer flowers have been declining over the last several years due to increased competition from other suppliers growing improved variety and higher quality products (Fintrac, 2005).

The cut flower industry therefore presents a dual structure with characteristic features differentiating small scale from the medium and large scale farmers. Some of the main differences between medium/large and small scale farmers are summarized in table 6 below.

Table 6: Differences between small scale farmers and medium/large scale cut flower farmers

#	*Variable*	***Small scale farmers***	***Medium and Large scale farmers***
1	*Land size*	Grow on small holdings with average size of between 0.125ha to 1.0 ha	Grow on large pieces ranging from a few hectares to over 200ha in some cases
2	*Ownership structure*	Mostly indigenous Kenyans	Mostly foreigners; Kenyans of foreign descent and a few indigenous Kenyans
3	*Type of flower varieties*	Summer flower varieties e.g. eryngiums, arabicums, morbydick, crocosmia etc	Mostly roses, carnations, hyphericums etc
4	*Technologies*	Low technologies: grow mainly in open fields or under shade nets and rely on rain-fed agriculture or water from nearby streams	Advanced technologies: grow in sophisticated (sometimes computerized) greenhouses, fertigation systems; hydroponics etc
5	*Marketing*	export mainly through the large scale farmers; exporters and brokers as well as sell in the domestic market	Have advanced marketing infrastructure; sell through auctions or direct markets in Europe. Some have marketing companies based in the export markets
6	*Employment/ labour*	Largely family labour; mostly women and children (KARI, 2003)	Employ large numbers ranging from a few hundreds to over 6,000 each depending on the

			size of the farm
7	*Trend in production over the last 10 years*	Decreasing	Increasing
8	*Initial investment/start-up costs*	Averagely USD 2,500 for every 0.125ha depending on the crop (Muthoka and Muriithi, 2008)	The average costs of 1.0 ha of roses is estimated at USD 122,000 (source: Thoen et al 1999)
9	*Extension and advisory services*	Rely heavily on public sector support including ministry of agriculture, HCDA, KARI, NGOs as well as exporters in case of contracted farmers	Rely on in-house agronomists, input suppliers (esp. agro-chemicals); consultants, foreign experts

Source: compiled by author

2.9 The National Policy and Legal framework

The innovation systems approach lays considerable emphasis on the role of (public) policies, institutions and the legal framework (collectively referred to by some authors as "the enabling environment") in shaping the direction of the innovation process. In setting out the context for this study, this section aims at reviewing Kenya's policy environment and legal framework. However, before proceeding with the review, it is important to define what constitutes public policy in the context of this study. Young and Quinn (2002) have noted that there exists a wide diversity of definitions of what constitutes public policy but all these definitions share certain core elements. These core elements are described in table 7 below:

Table 7: Core elements of public policy

	Core elements of public policy	***Characteristics and description of the key elements***
1	*Authoritative government action*	Public policy is action implemented by the government body which has the legislative, political and financial authority to do so
2	*A reaction to real world needs or problems*	Public policy seeks to react to the concrete needs or problems of a society or groups within the society
3	*Goal-oriented*	Public policy seeks to achieve a particular set of elaborated objectives which represent an attempt to solve or address a particular need

4	*A course of action*	Public policy is usually not a single decision, action or reaction but an elaborated approach or strategy
5	*A decision to do something or do nothing*	A policy may take action in an attempt to solve a problem or may be based on the belief that the problem will be solved within the current policy framework, and therefore takes no action
6	*Carried out by a single actor or set of actors*	Policy may be implemented by a single government representative or body or by multiple actors
7	*A justification for action*	Policy usually includes a statement of the reasoning behind the policy
8	*A decision made*	Policy is a decision already made, not an intention or promise

Source: Young and Quinn (2002: 5-6); Start and Hovland (2004); ODI (2004)

In Kenya public policies are set up either as Acts of Parliament or sessional papers, strategy documents and development plans. Odhiambo–Mbai (1998) has argued that the public policies can be categorized as either regulative (outlining what is acceptable under the law and the sanctions to be meted out when such policies are violated) or developmental (intended to provide a framework for action towards attainment of specified government development goals). This categorization, together with the processes through which such policies are enacted and implemented are discussed in box 1 below

Box 1: public policies in Kenya: context, initiation and implementation

There are two different categories of public policies which are usually formulated by the executive in Kenya. One category is regulative, while the other is developmental. Regulative policies normally comprise laws, Acts of Parliament and sessional papers. Their main purpose is to control the conduct of individuals and institutions in society. Developmental policies on the other hand, are broad government statements which outline how the government intends to achieve its developmental goals. Developmental policies are normally conceived on a sector to sector basis. Since independence, their main sources have been the five year development plans and sessional papers.

The process by which the executive formulates either category of the policies normally takes different patterns. In the case of regulative policies, the process begins from the office of the attorney general or the relevant ministry. The process involves the preparation of a cabinet paper on the policy issue. The policy paper is then submitted to the cabinet for approval. Once the paper is approved by cabinet, the attorney general or the respective minister prepares a bill based on the paper which he/she submits to parliament. In order to solicit public views on the intended draft bill, the attorney general may appoint a taskforce to collect views from the public on the issue. Any bill prepared in this manner can only become law or an act of parliament when it is approved and granted consent by parliament and the president respectively. The same applies to sessional papers submitted to parliament by various ministers.

The process for developmental policies is different and involves at least two approaches. The first involves the use of sectoral working groups in the respective ministries and district development committees (DDCs). Once the sectoral working groups have been formed, the members of the group are asked, either individually or in smaller groups, to draft policy papers on the various sectors. The papers are then discussed and approved at the respective ministerial and DDC levels. These are then submitted to the ministry responsible for economic planning and national development which compiles them into five year national and district development plans. The second approach requires the appointment of a presidential committee or commission. This approach begins with the appointment of a committee or commission by the president and given specific terms of reference which specify the powers of the committee/commission, the nature of the problem it is expected to enquire and the time period within which it should finalize the task. A presidential committee/commission normally conducts its enquiries by soliciting information from the public through oral presentations and written memoranda. It may also consult any studies that have been done on the problem. The committee/commission's report is submitted to the president

who then discusses with the cabinet. It's only after the report is discussed and approved by cabinet can its recommendations be implemented as policy. Developmental policies derived in this manner do not require parliamentary approval before they are implemented. The sectoral working groups approach is normally used to produce national and district development plans and the presidential committee/commission approach is mainly used to address national disasters, crises or other acute social problem in society which the existing policies have failed to address effectively.

Source: Odhiambo-Mbai (1998), pp. 33-36; Ng'ethe and Owino (1998)

Having defined what constitutes public policy in the context of this thesis, it is equally important to set the review of such policies within a framework of principles that define what we are looking for in the policy documents. Given our focus on building capabilities to innovate, broadly in the review we are looking for policy provisions that may support or undermine learning, innovation and capability building. Such provisions may have any (or many) of the following effects: (i) Create new actors or organizations (ii) Set new institutions (rules, laws etc) (iii) Change how the actors interact (iv) Expand or limit knowledge sharing/flows (v) Shift power balances/dynamics (vi) Affect funding/investments/access to resources

2.9.1 Regulative policies

The success of the cut flower industry has been attributed to a robust private sector participation supported by a favourable policy environment and minimal government involvement (Fintrac (2005); Dolan, Opondo and Smith (2004), Bolo, 2005; 2008; HCDA website). There are 131 pieces of legislation governing the agricultural sector, including legislations for the supporting institutions (SRA, 2004). However, the principal statute governing agricultural development in Kenya is the Agriculture Act (Cap 318). The Act confers powers on the minister to declare some crops as 'special

crops' to allow for their prioritization and development by the government. Upon such declaration, the act provides for the establishment of an Authority to spearhead the development of the crop[21].

The government of Kenya recognized the important role of horticulture and declared horticultural crops as special crops in a subsidiary legislation to the Agriculture Act in 1967. Through 'the agriculture (declaration of special crops) horticultural crops) order[22] it set out the crops considered under this order including 'all flowers and decorative plants.' Following the declaration of horticultural crops as special crops, the government created the Horticultural Crops Development Authority (HCDA) to spearhead and coordinate the development of horticulture in Kenya[23]. In order to promote and regulate horticultural exports, the Agriculture Act, through a subsidiary legislation establishes the Horticultural Crops Development Authority (export) order[24], which requires every exporter to obtain a valid export license to be issued by the Authority.

Grading and inspection of agricultural exports is provided for in the Agricultural Produce (export) Act (Cap 319). In a subsidiary legislation, the Act specifies 'the agricultural produce (export) (horticultural produce inspection rules'. These rules provide guidelines to ensure horticultural products destined for export meet the right quality standards, are properly graded, packaged and branded. In order to ensure sanitary and environmental safety, the Seeds and Varieties Act, (Cap 326) provides for testing and certification of seeds, restrictions on introduction of new varieties as well as provide for granting proprietary rights to breeders. This Act is largely administered by the Kenya Plant Health Inspectorate Service (KEPHIS)[25] which is the government body charged with inspection and certification of agricultural inputs and breeding materials

[21] sections 190 ad 191 of the Act
[22] See legal notice 228/1967
[23] Legal notice 229/1967
[24] See legal notice 188/1972
[25] KEPHIS is established under the state corporations act (cap 446), pursuant to legal notice no. 305/1996

that have implications for human health and environmental safety including sanitary and phyto-sanitary (SPS) issues. KEPHIS is the WTO-SPS enquiry point and the enforcing agency for plant variety protection law. Other relevant statutes include the Standards Act (Cap 496) which establishes the Kenya Bureau of Standards (KEBS) and the National Standards Council (NSC) to promote standardization and specification of commodities and the Pest Control Products Act (Cap 346) which establishes the Pesticides Control Products Board (PCPB) to 'regulate the importation, exportation, manufacture, distribution and use of products used for the control pests..'.

2.9.2 Developmental policies

The development strategies pursued by the government of Kenya has evolved over time. Ikiara (1995) has shown that the Kenyan government started changing its policies from promoting import substitution industries (ISI) to that of promoting export oriented industries in the mid 1970s. To underscore this shift in policy, the government established the Export Promotion Council (EPC) and a 10 % export compensation scheme[26] for manufactured exports. Besides, the government set up the Kenya External Trade Authority (KETA) to strengthen and re – organize export promotion in 1976. These changes have been accompanied by improving the macro – economic framework as well as providing tax incentives to investors. More directly related to agriculture, a number of policies have been formulated to spur further growth of the important agricultural export sectors such as horticulture.

The sessional paper no. 1 of 1986 on economic management for renewed growth marked a turning point in the government policies from state controls to a liberalized approach marked by the divestiture of government from commercial activities and off-loading its hitherto commercial functions to the private sector. Chapter 5 of this

[26] The export compensation scheme was later abolished in 1993

sessional paper is devoted to agriculture and food security and identified seven commodities to be promoted in order to achieve 5 % agricultural growth including: coffee, tea, pyrethrum, maize, wheat, milk and meat products and horticulture. Several challenges facing horticultural development are identified and the paper proposes construction of new marketing centres in major urban areas, experimenting with sea freight and market diversification as well as strengthening and redefining the roles of HCDA as remedial measures.

The liberalization policies initiated in the sessional paper no. 1 of 1986 have been pursued further in the *sessional paper no.1 of 1994 on recovery and sustainable development to the year 2010.* For instance, in marketing and distribution, the paper emphasizes that as a result of the liberalization of the economy; the public sector would no longer play a key role in the marketing and distribution of agricultural inputs and commodities but instead pass this role to the private sector. In order to support intellectual property rights, the government undertook to gazette Plant Breeders Rights (PBR) and negotiate membership to relevant international organizations (notably UPOV) in order to allow Kenyan farmers to acquire patented new innovations of plant varieties that have been difficult to obtain, particularly, for horticultural crops.

The inclusion of private sector and other actors in agricultural activities has further been emphasized in *the Poverty Reduction Strategy Paper (PRSP) 2001* which highlighted agriculture and rural development as the key priority sector for Kenya's economic recovery. Section 153 states, "the government recognizes that the private sector is the engine of growth and will limit its role in the sector (ARD) to investing in public goods and in creating an enabling policy environment, which encourages investment and job creation." The PRSP also advocates for the promotion of pluralism in extension where players outside government are encouraged to participate in delivering extension services.

The Economic Recovery Strategy for Wealth and Employment Creation (ERSWEC) 2003 – 2007 was crafted by the NARC government and reflected the optimism and inspirations of a new political dispensation. The strategy was developed at a time when agricultural growth was on a sharp decline and proposed a raft of measures to turn around this trend including (i) putting in place a new agricultural extension policy that promotes collaboration with other extension service providers, enhance cooperative extension services, establish a database for extension planning and performance monitoring and (ii) to ensure access to credit, the government undertook to review the institutional framework for provision of credit to agriculture including the development of micro-finance institutions (MFIs) and reviving the Agricultural Finance Corporation.

In 2004, the government launched the *Strategy for the Revitalization of Agriculture (2004 – 2014)* as the national policy to guide the modernization and transformation of the agricultural sector. The strategy identifies five critical areas for public action including: reforming the legal and regulatory framework, promoting research and development, creating a more effective linkage between research, extension and the farmers, creating a market-based input and credit system and promoting processing and value addition.

The SRA gives considerable attention to the small scale farmers and states that, "for the agricultural sector to contribute significantly to the overall goal of economic growth...., smallholder agriculture must be transformed from subsistence to commercial and profitable business enterprise..." (pp. 21). While noting the need to improve the link between research, extension and the farmer, the strategy provides that, "KARI will be charged with promoting an integrated National Agricultural Research System (NARS) with rationalized mandates, research priorities, activities, staffing and financing." By so doing, the strategy envisages "the creation of an agricultural innovation system – composed of research institutes, universities and private sector research agencies –

where research results reach farmers through public and private extension service providers." (pp. 24).

This strategy document spells the government policy of promoting partnerships and contract farming arrangements. On Page 34 it states:

> "To facilitate the partial privatization of the extension services and improve delivery, local authorities will enter into partnerships and cost-sharing arrangements with outgrower and contract farming schemes, projects, non-state actors or farmer apex bodies for the benefit of smallholder farmers."

In order to promote agro-processing and rural industries, the policy provides that, "where contractual obligations can be enforced, forging partnerships between small scale farmers and agribusiness in the form of out grower and contract farming schemes will be encouraged. Such partnerships allow small scale farmers to enjoy assured markets for their products and the supply of inputs on a credit basis or through input voucher schemes." (pp. 48)

Concluding remarks

The cut flower industry has a dual structure consisting of medium and large scale farmers/exporters on the one hand, and small scale farmers who are confined to growing summer flowers on the other. The contribution of small scale farmers to floriculture exports is on the decline (both value and volumes) and public policy response to this declining performance by the small scale farmers is focused on (i) promoting an agricultural innovation system that ensures stronger research – extension – farmer interactions (ii) promoting partnerships and contract farming arrangements between small scale farmers and the exporters

However, (i) whereas some studies have noted the potential for partnerships and alliances to facilitate sharing knowledge, skills and technologies hence lead to building the capabilities of partners (see for example CSD, 1998; Smith, 2005; Hall et al, 2001;

Chataway, Smith and Wield, 2005); other studies have also noted that several factors (including but not limited to power asymmetry; absorptive capacities; institutional and governance structures; competition pressure) will influence (and may undermine) the potential of these partnerships to enhance capabilities of small scale farmers (see for example Christopher and Juttner, 2000; Parker and Hartley, 1997; Johnsen and Ford, 2008).

(ii) a functional innovation system requires the existence of (a) key actors, (b) favourable policy environment (c) strong interactions between actors. Failure to fulfill any of these conditions undermines the functionality of the innovation systems and therefore its ability to support the farmers. This thesis examines (a) whether 'farmer – exporter' partnerships lead to building the capabilities of farmers (b) the role of institutions and governance arrangements in influencing the potential of these partnerships to strengthen farmer capabilities and (c) the role of R&D actors in the flower industry in building the farmers' capability

Chapter 3: LITERATURE REVIEW

3.1 Introduction

This chapter links the research problems to the broader conceptual and theoretical framework. It is divided into two parts: Part one focuses on the key concepts used in the study and aims at crafting a working definition of each in the context of the research. Having defined the key concepts, this chapter explores the theoretical foundations which underpin the analysis. It draws mainly on innovation systems approach (ISA) and global value chains (GVC).

3.2 Defining the Key Concepts

3.2.1 Innovation

The term "innovation" takes on various connotations in the literature and different authors have presented various definitions of what constitutes innovation. Lundvall (2001) has defined innovations as new creations of economic significance of either a material or intangible kind. These may be totally new or just new combinations of existing elements. Dosi *et al* (1988) have noted that innovation entails the search for and discovery, experimentation, development, imitation and adoption of new products, processes and organizational set-ups while Nelson (1993) has defined innovation much more broadly to include the processes by which firms master and get into practice product designs and manufacturing processes that are new to them, even if not to the universe or the nation. This thesis takes note of the various definitions of innovation in the literature and recognizes that while the scope of definitions may differ amongst the different authors, there are common strands that run through all the definitions. These include: *(i) Newness* – by definition the term innovation denotes something new. All the authors recognize the importance of newness i.e. the conceptualization of innovation as 'the introduction of something new e.g. new methods, techniques, practices or even

products; (ii) *Usefulness* – innovation (often but not always[27]) occurs to fulfill certain needs and must be conceived to be useful (whether economically or socially). In organizations, innovations are linked to performance and growth through improvements in efficiency, productivity, quality and competitiveness and (iii) *Application* – novel ideas, inventions and knowledge must be put into practice in order to constitute innovation. In the context of this thesis, therefore, innovation is defined as the practical *application* of knowledge, ideas, techniques etc to produce something *new* and *useful.*

Newness and usefulness are contextual. Indeed as Nelson (1993) has remarked, an innovation can be new to a firm and not other actors, the region or even the market. Usefulness is also dependent on the assessment of the innovator/user in terms of how the new innovation fulfils their needs. In the thesis, innovation refers to products, technologies, processes, methods, markets and the different ways of organizing to achieve these. Since every actor will have different needs, the appreciation of the innovation will certainly differ. As such, what is new and useful to one actor may be commonplace to its neighbours. The emphasis here is newness and usefulness to the particular actor in question. Since the thesis focuses on farmers, innovation is defined as being something new and useful to the farmer, irrespective of whether other farmers (or other actors) consider the same as new and useful. This definition allows us to conceptualize and analyze innovation (and capabilities thereof) from the perspective of the farmers.

3.2.2 Knowledge assets, Competencies and Capabilities

The increasing technological complexity and knowledge intensity of production and competitiveness has focused attention to the important role of knowledge as a key resource (UNESCO, 2005). The sources of knowledge, its generation, content and

[27] See Taylor (1996) for a discussion on sources and motivations for innovation

structure as well as how it is disseminated and utilized have thus become key concerns for organizations, firms and individuals. Teece (1998) has argued that the firm is a repository for knowledge – embedded in the business routines and processes. He has described a firm's knowledge assets as the 'difficult – to – imitate, tacit know-how' grounded in the experiences and expertise of individuals. The knowledge assets of firms are embedded in business routines and organizational cultures. This know-how confers competitive advantage to the firm to the extent that "know how has increasingly become salient as a differentiator and therefore a source of competitive advantage of firms" (Teece, 1998:62).

The "knowledge assets" – defined as individual expertise and experiences (Teece, 1998) can be harnessed and converted into "core competencies" – defined as collective learning in the organization, especially how to coordinate the diverse production skills and integrate multiple streams of technologies (Prahalad and Hamel, 1990:82). The firm provides the physical, social and resource allocation structures so that these knowledge assets can be shaped into competencies (Teece, 1998). Core competencies allow for learning through communication and coordination of the different "knowledge assets." This coordination function of "knowledge assets" is emphasized by Prahalad and Hamel as follows:

> "the skills that together constitute core competence must coalesce around individuals whose efforts are not so narrowly focused that they cannot recognize the opportunities for blending their functional expertise with those of others in new and interesting ways." (pp. 82)

While the knowledge assets are resident in the employees' skills and experiences, they find expression in the day to day routines and business processes. The skills and experiences span the technological competencies (within the firm), understanding and responding to customer needs (upstream) as well as assessing supplier capabilities (downstream). As Teece (1998) has argued, the firm provides the framework for

converting these knowledge assets into competencies i.e. it provides not just the physical set-up but also the social and managerial framework that allows for coordination of the different knowledge assets (the management systems).

The concept of "core capabilities" espoused by Leonard-Barton (1992:113) is defined as "a set of knowledge that differentiates and confers competitive advantage" and includes components of both "knowledge assets" i.e. knowledge and skills embodied in employees and embedded in technical systems as well as "core competencies" since she argues that the processes of knowledge creation and control are guided by management systems. The processes of knowledge creation and control are similar to the coordination function of Prahalad and Hamel. However, Leonard-Barton goes a step further to include what she calls the fourth dimension i.e. the 'values and norms' associated with the various types of knowledge/skills embodied in people and embedded in technical systems. She argues that infused within the three dimensions of capabilities (knowledge and skills base, technical systems and managerial systems) are values assigned within the company/firm/organization to 'the content and structure of knowledge, its generation and control.' The four dimensions of Leonard-Barton's core capability framework is shown in Fig 5 below.

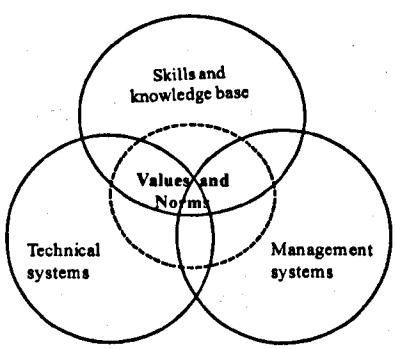


Figure 5: Dimensions of core capabilities.
Source: Leonard-Barton (1992).

Leonard-Barton's four dimensions mirror closely the key issues of focus in this thesis namely: capabilities, institutions and governance. The first dimension, skills and knowledge base refers to 'the difficult – to – imitate know – how, talents and experiences', which are embodied in employees. The second dimension refers to the fact that this knowledge is sometimes embedded in technical systems. This dimension speaks to technological capabilities and is in keeping with Mackenzie and Wackjman's (1985) assertion that technologies are more than physical artifacts but an embodiment of knowledge. It represents the tangible capabilities. The third dimension refers to 'governance aspects' i.e. systems of monitoring and coordination that guide knowledge creation and control. The fourth dimension – values and norms – speaks to the role of institutions that determine how knowledge is generated, shared and controlled. We apply Leonard-Barton's framework in this thesis largely because it goes beyond the narrow focus on technological capabilities (tangible aspects) to the more intangible aspects such as managerial systems and values and norms associated with knowledge generation, sharing and application.

Teece, Pisano and Shuen (1997) and Teece (1998) have pushed the discussion on capabilities further to what they have termed "dynamic capabilities" – defined as "the ability to sense and then to seize new opportunities, and to reconfigure and protect knowledge assets, competencies and complementary assets and technologies to achieve sustainable competitive advantage" (Teece, 1998:72). This ability, Teece has argued emphasizes the need for continuously "adapting, integrating and reconfiguring internal and external organizational skills, resources and functional competencies to match the requirements of a changing environment." (ibid)

Their work focuses on the application of core capabilities to achieve (and maintain) competitiveness. This gravitates towards the deployment of capabilities i.e. their effective use to attain a particular goal. This deployment function, which is important for sustainable competitiveness, requires the firm to be able to sense external

opportunities – what Teece (1998: 73-74) has called "external sensing" as well as take action to seize the opportunities – "organizational action".

The dynamic capability – the ability to sense and seize new opportunities – ties in closely with innovation i.e. the application of new knowledge for economic or social benefits. It concerns whether new knowledge when gained is applied/utilized to enhance the competitiveness of the firm. Such dynamic capabilities determine the farmers' ability to reconfigure their activities and adapt to their changing contexts. With constant changes emerging from the markets, farmers need to continuously adapt to meet new standards and conditions.

3.2.3 Partnerships, Learning and Innovation

> *"Learning covers all our efforts to absorb, understand and respond to the world around us. Learning is social. Learning happens on the job every day. Learning is essential process in expanding the capabilities of people and organizations ... Learning is not just about knowledge. It is about skills, insights, beliefs, values, attitudes, habits, feelings, wisdom, shared understanding and self awareness"*
> Chetley and Vincent, 2003 (quoted in Britton, 2005:5)

The rapid changes in technology, consumer tastes and the complexity in production process require firms, organizations and individuals to constantly update their knowledge bases. As Chetley and Vincent emphasize in the quote above, learning is central to improving a firm's, or organization's 'knowledge assets.' Organizations and firms learn through different strategies including but not limited to (i) engaging in R&D (either in-house or in collaboration with others) (Cohen and Levinthal, 1989, 1990) (ii) obtaining information from external sources e.g. universities, research institutes, other firms (Oyeyinka, 2004) or (iii) entering into alliances and partnerships with other actors (Pralahad and Hamel, 1990; Mody, 1993; Teece, 1996; Macbeth, 1994; Stalk et al, 1992).

The first and second strategies are inter-related since engaging in R&D enhances the firm's ability to absorb knowledge from external sources. As Cohen and Levinthal (1989) have shown, research has a dual function: that of generating innovations and increasing the firm's ability to identify, assimilate and exploit knowledge from its environment. The ability to seek, identify and assimilate knowledge from external sources is a function of the firm's pre – existing knowledge (Cohen and Levinthal, 1990).

Levinthal and March (1993) have noted that learning leads to reduced costs of production. This is attributed to the knowledge accumulation that derives from experience in producing the same products over time. Moreover, the knowledge so gained can be transferred between different units in the same organization and may even spill over from one activity to the other. This learning contributes to competitive advantage by increasing average performance and reliability, thus leading to enhanced capabilities of actors. As Levinthal and March have concluded:

> "In almost every domain of learning, the likelihood of success tends to increase with competence.... As successes are translated into knowledge and knowledge into successes, not only do the capabilities increase but also self-assurance. Organizations and individuals in them become more confident that they have the skills to deal with problems that lie within their domains". (pp. 104)

The third strategy (entering into partnerships and alliances) is consistent with the innovation systems approaches which argue that firms do not innovate in isolation but require interaction with other actors within the system (Mytelka, 2000; Teece, 1996; 1998). Contrary to the linear models which viewed innovation as a unidirectional undertaking commanded either by science (research) or the end-users (markets), innovation systems approaches argue that innovation results from multiple interactions amongst a multiplicity of actors who operate within a given institutional setting and that

these interactions result in the application of new knowledge to produce economically and socially useful products and processes (see for example the works of Freeman, 1987; Lundvall, 1992 and Edquist, 1997). This interaction amongst multiple actors and its role in innovation has also been emphasized by Teece (1996:207) who has argued that this recognition of the role of external linkages shifts the focus away from the traditionally held view of "firms as islands of hierarchical control embedded in market structure and interacting with each other through the price mechanism." Instead it recognizes that "firms commonly need to form strategic alliances, vertically (both upstream and downstream), laterally and sometimes horizontally in order to develop and commercialize new technologies" (ibid).

3.2.4 Asymmetry, Power and Governance

James Smith (2005:650) has noted that "partnerships, relationships, networks and compacts are seen as crucial for Africa's development". However, quoting Crewe and Harrison (1998) Smith quickly warns that "It would be wrong headed, however, to unproblematically assume that partnerships always form a useful method of sharing and utilizing resources in a mutually beneficial way, or work for the public good. Partnerships should be seen for what they are; relationships, often unequal, where each partner strives to serve its own interests first and the outcomes of the partnerships second". It should be noted therefore, that even though partnerships and strategic alliances enable firms to access/acquire new capabilities, harness the benefits of integration without incurring the associated costs, generate innovations, learn from each other and improve on their competitiveness, they also suffer disadvantages as a result of opportunism[28], dominance and dependence.

As regards opportunism, Mody (1993:155) has noted that "if the partners have unequal access to information, cheating is likely, and even if they have the same information,

[28] Also called free riding or cheating

one or both partners may use its position to gain greater profits" and that in alliances, "the possibility that a firm is being cheated by its partner continually exists and such cheating is not easy to distinguish from poor performance on account of technical and market factors" (pp. 157). Rokkan and Buvik (2003:247) have also noted that "there's always a great potential of conflicts between companies due to asymmetrical dependence, low commitment to inter-firm cooperation, insufficient communication and free riding behaviour or opportunism."

The concept of power and dependence is also emphasized in the work of Johnsen and Ford (2008:473) who have remarked that "a supplier may have the power to influence the product development activities of its customer, based on the characteristic of its offering and superior technology. At the same time the customer may have the power over the strategy of its suppliers based on its greater financial strength or size of its orders."

Johnsen and Ford also argue that when the partnership involves smaller suppliers and a big customer, the power imbalance disfavours more the smaller suppliers who "may be forced to forgo their goals in order to maintain the relationships with the larger customers and may have little option but to follow the norms established by the larger customer if they wish to retain the customer....in such cases, the smaller firms may become specialized into narrow confines of relationships with larger customers and may become hostage to a particular customer" (pp. 472). Kaplinsky (2006:119) makes a similar point when he argues that "buyers will assist their suppliers to upgrade only in areas which do not impinge on their own rents[29]."

Because of these challenges faced by partnerships and alliances, there is need for coordination and monitoring (governance) to minimize some of the risks associated

[29] Rents describe a situation where parties who control a particular set of resources (capabilities, technology, knowledge etc) are able to gain from scarcity by insulating themselves from competition. They do so by taking advantage of or creating barriers to entry (Kaplinsky, 2006)

with opportunism, dominance and dependence. Christopher and Juttner (2000:125) have stated that: "in a partnership, relationship monitoring refers to all procedures employed to evaluate whether the relationship meets the specifications agreed upon [...]This monitoring takes either formal or non-formal procedures. Whereas formal monitoring is based on well-detailed, written and often legally binding contracts, informal monitoring involves a routinized procedure executed by both parties and facilitated by open information sharing."

The concept of governance in global value chain literature offers insights into bilateral partnerships between actors within the same value chain. The concept derives from the observation that some firms in the chain set and or enforce parameters under which others in the chain operate (Humphrey and Schmitz, 2001). Governance has been defined by Gibbon, Blair and Ponte (2008:319) as, "the content and management of these decisions across suppliers and sub-suppliers, the strategies behind the decisions taken and management methods chosen to implement them and systems through which their outcomes are monitored and reacted to." Kaplinsky and Morris (2001:67) have argued that "the focus on governance highlights both power relations in the chain and the institutions which mould and wield this power." These include the types of rules (with or without legal backing); how they are monitored (by agents within the chain or external to the chain) and enforcement (sanctions and incentives). According to Kaplinsky and Morris, one of the key aspects of governance is the "the extent to which producers in the chain are helped to achieve these rules" (pp. 71). They argue that "market forces alone are sub-optimal in achieving these ends and a key function of governance is to compensate for this market failure and to ensure that suppliers develop the capability to comply as rapidly as possible" (pp.71) Governance therefore provides a mechanism for building capabilities of small scale farmers in their partnerships with exporters and large scale farmers.

3.2.5 Institutions and Organizations

The innovation systems approach lays considerable emphasis on the role of institutions in shaping the innovation processes. However, the meaning of the term institutions is still contested and often misunderstood. Given its central role in our analysis, it is important to set out the meaning of institutions as used in this context. The meaning attached to institutions here has been informed largely by the definitions provided by Douglas North (1990) which views institutions as "the rules of the game". They refer to "the sets of common habits, routines, established practices, rules, or laws that regulate the relations and interactions between individuals, groups and organisations" (Edquist and Johnson 1997: 46). In this sense, they are distinguished from organizations which are defined as "formal structures with an explicit purpose and they are consciously created" (Edquist and Johnson 1997: 47). As such, whereas organizations are "the players – actors – in the society, institutions provide the framework within which this performance occurs" (Cadell and Pinder, 2005:11)

The innovation systems approach analysts seek to make this distinction between institutions and organizations. However, the distinctions are far from being clear-cut and there is considerable overlap in the way the two concepts are used. For example, Edquist (2001) notes that "there is a complicated two-way relationship of mutual embeddedness between institutions and organisations, and this relationship influences innovation processes and thereby also both the performance and change of systems of innovation" (see also Edquist and Johnson, 1997). He argues that in the same way organizations can be embedded in a given institutional framework such as standards or set of laws; the institutions (e.g. rules of accounting or book keeping) can also be embedded in organizations. It can therefore be argued that whereas institutions can be the basis of creating new organizations for example when a new law requires the establishment of a new Authority; organizations can also form the basis of creating new institutions for example when a standards setting body creates new rules for the

industry. A relevant example in the Kenyan case is when the Agriculture act cap 318 (an institution) created the Horticultural Crops Development Authority (an organization) and HCDA in turn created a new code of conduct for the horticultural industry (an institution). This two way interaction between institutions and organizations shapes the pace and direction of the innovation process.

Edquist and Johnson (1997) have provided a typology of the different types of institutions and summarized the functions of the institutional set up: First, institutions (e.g. patent laws, norms for repayment periods etc.) may reduce uncertainty, either by providing information about the behaviour of other people or by reducing the amount of information needed. Second, institutions manage conflicts and co-operation between individuals and groups. Third, institutions provide incentives to engage in learning and to participate in innovation processes. The incentives can be of various kinds, e.g. income taxes, property rights, perceived competitive advantage and status norms. Finally, institutions such as tax rules, government subsidies and allocation of resources to universities channel resources to innovation activities and also help to re-channel resources from ailing activities to new ones.

3.3 Exploring the Theoretical Foundations

This section draws from the literature on innovation systems and global value chains to argue that even though the initial points of departure are different, there is a lot to be gained by integrating the different strands of these approaches into the analysis.

The critical role of innovation in enhancing competitiveness and economic development has been recognized by many scholars. Schumpeter (1934) noted the important role of innovation in economic development and emphasized the role of business profits in encouraging the entrepreneur to innovate that is, to make new combinations of inputs thus lowering production costs or to develop entirely new products while Taylor (1996) has also underscored the importance of innovation in ensuring the economic prosperity

not only of individuals and commercial organizations, but also of nations[30]. Increasing competition and knowledge intensity of production has put pressure on firms, organizations and nations to continuously innovate in order to remain competitive (Oyeyinka, 2004). This pressure has led firms to continuously seek organizational forms and models for generating innovation and maintaining their competitive edge.

3.4 Evolution of the innovation models

Over the years, scholars have advanced different models to explain how innovations are generated, diffused, modified and applied. The evolution of these models represents the continued search for a viable explanation for the differential competitiveness of firms, organizations and even nations. This section traces the evolution starting with the linear models of 1950s and 1960s, through the coupling and integrated models of 1970s and early 1980s to the emergence of the systems of innovation approaches in the mid 1980s.

3.4.1 The linear models of innovation

Amongst the earliest models to explain innovation was the *technology push model* which appeared in the early 1950s and 1960s (Rothwell, 1992; Taylor, 1996). This model views innovation as a linear activity beginning with a novel idea or discovery associated largely with the basic research and development (R&D) science in specialized laboratories. The idea undergoes design and engineering to produce prototypes that can permit large-scale production by manufacturing outfits. The manufacturers then produce the innovations in scale large enough to satisfy the needs (real or potential) of the customers. In this model, the basic science forms the basis for new innovations and the market is a mere receptacle of such innovations. There is no feedback from the consumers and they are cut off from setting the R&D agenda for basic science. This model was criticized for its technological determinism and failure to

[30] See also UN Millenium Project Task force 10 report on "Applying knowledge in development"

explain the fate of many new brilliant innovations that didn't succeed at the market place.

The second generation models - *the market pull model* – came up in late 1960s and early 1970s to explain the short-comings of the technology push model. This model gave greater attention to the role of the market and emphasized the need to precede innovation with a thorough market research to establish the needs of the consumers before venturing into any new innovation. This, it argues, would ensure that any new innovation has an assured market. While assigning an active role to the market in the innovation process – as a stimulus – and relegating basic R&D to a reactive role, the model emphasizes that the most important criterion for innovation is an expressed need. Again as other studies have shown, innovation can be triggered by several factors of which the market (expressed need) is only a part (Mytelka 2000; 2004; Taylor, 1996; von Hippel, 1988; Biggs, 1990).

3.4.2 The coupling model of innovation

During the 1970s, analysts began to regard the linear models of technology push and market pull as "oversimplified, extreme and atypical examples of a more generalized process of coupling between science, technology and the market place" (Rothwell, 1992:222). More and more innovation began to be seen as a two-sided or coupling activity (Freeman 1974; Freeman and Soete, 1997). According to this view, innovation can be compared to two blades of a pair of scissor, with one blade representing the market potential for a new product while the other blade represents the technical knowledge, either readily available or generated through R&D. In this model, experimental design, production and marketing involve a process of matching technical possibilities with market potential.

While joining together hitherto separated drivers for innovation (market and basic science R&D), the coupling model not only begins to integrate the various components

in the process but also recognizes the importance of other partners as well as the role of feedback and information flows in the innovation process. Rothwell (1992:236) has noted that the "adoption of the coupling model essentially reflected a catching up of theory with practice, that is, it was a more realistic, if still over simplified conceptualization of the actual innovation process in firms."

3.5 The Innovation Systems Approach

From the 1980s, the interactions between different actors and continuous flow of information that accompanies this interaction have taken centre stage. The linkages between science, technology and marketplace are emphasized as much as the role of feedback loops and the interactions between the innovating unit (be they firms, individuals or organizations) and other supporting actors. Innovation was therefore no longer considered as linear and sequential but a more parallel process with events occurring simultaneously (Rothwell, 1992) with a considerable blurring between the stages hence tending towards being iterative and overlapping (Taylor, 1996).

The interactive nature, the multiple sources of knowledge, the existence of multiple actors, the close links between science, technology and the market place, the information flows and feedback loops, the iterative and overlapping nature of the processes and the cyclical properties of the late 1970s and early 1980s led to the view of innovation as a systemic occurrence. Many models developed from the mid 1980s such as the chain-linked model (Kline 1990), the integrated model as well as Rothwell's idealized systems integration and networking models (SIN) emphasized these characteristics. It is noteworthy that the role of institutions has not up till this point featured prominently in the innovation process.

This aspect is picked up by the innovation systems approaches that were developed from the mid 1980s beginning with the works of Lundvall (1985), Freeman (1987),

Dosi et al (1988), Lundvall (1992), OECD (1992, 1997), Nelson (1993), Edquist (1997) amongst others.

Building on the earlier models, especially on the coupling model (Freeman 1974, Freeman and Soete 1997), the chain-linked model (Kline 1990), the integrated model (Rothwell, 1992) onwards, the concept of the 'innovation system' (Lundvall, 1985) lays emphasis on the flow of technology and information amongst the different actors representing the science and technology (R&D) function; the market place as well as intermediary organizations within a given institutional framework as key to an innovative process. It holds that close interaction between the actors is needed in order to turn an idea into a process, product or service on the market.

While there is no universal definition[31] of the (national) systems of innovation, various authors have defined the concept in various ways (see table 8 below).

Table 8: Definitions of National Systems of Innovation

A national system of innovation has been defined as follows:
• "the network of institutions in the public and private sectors whose activities and interactions initiate, import, modify and diffuse new technologies." (Freeman, 1987)
• "the elements and relationships which interact in the production, diffusion and use of new, and economically useful, knowledge ... and are either located within or rooted inside the borders of a nation state." (Lundvall, 1992)
• "a set of institutions whose interactions determine the innovative performance ...of national firms." (Nelson, 1993)
• "the national institutions, their incentive structures and their competencies, that determine the rate and direction of technological learning (or the volume and composition of change generating activities) in a country." (Patel and Pavitt, 1994)

Source: OECD (1997)

[31] Sharif (2006) has noted that rather than a weakness, the broad interpretation and therefore the definitions of NIS could be the foundation for its wide acceptability. This is largely because the concept attempts to encourage and enhance multi-disciplinary approaches and should as such have the inherent property to accommodate the disciplinary orientations of its proponents

Most of these definitions have given primacy to the complex interactions and relationships between different actors and how that (interaction) permits the flow of information, knowledge, and technologies thereby contributing to innovation. The innovation system approach emphasizes the fact that firms do not innovate isolation but in interaction with other organizational actors (other firms, universities, standard setting bodies etc) and that this interaction is shaped by (and shapes) the institutional rules (laws, norms, technical standards etc) (Nelson 1993, Freeman 1987, Freeman and Soete (1997), Lundvall 1992; 2001), Edquist 1997; Feinson, 2003; Chataway, 1992)

Interaction and interdependence are therefore important in the innovation systems approach where innovations are determined not only by the elements in the system but also by their relations. Of particular importance are the inter-firm relations involving sustained interactions between producers and users of innovation. These inter-firm linkages often constitute ongoing cooperative relationships that also involve exchange of other kinds of knowledge that shape learning and technology creation.

The innovation systems approach demonstrates that scientists and research organizations (though still very important) are no longer the only producers of 'valid' knowledge but that knowledge creation is a function of many other actors operating within an innovation system (Gibbons et al, 1994; Storper 1993; Keeble et al 1999; Uzzi, 1997). The firms/farms are seen as part of this wider innovation system and engaged in a continuous collective learning through interaction with other actors within the system (Keeble et al 1999; Uzzi, 1997; Storper, 1993). Other actors in this system include: national research organizations, institutes and universities (collectively referred to here as the national R&D system); input suppliers, environmental groups, exporters, transporters, regulatory institutions, consumer groups amongst others.

3.6 Agricultural innovation systems in developing countries: an evolving framework

The innovation systems approach has been applied largely in the developed countries to analyze industrial development. In the developing countries, especially in the agricultural sector, the application of the approach is a recent phenomenon and the framework is still evolving. The application of the approach to the agricultural sector in a developing country context can be traced to the ICRISAT-hosted, DFID-funded Crop Post-harvest Program (CPHP) in India[32] which represents one of the earliest examples of applying the approach to case studies in the agricultural sector. Around the same time, the innovation systems studies with a focus to developing countries (including some studies in the agricultural sector) was taking root at the United Nations University Institute for New Technologies (UNU-INTECH). The UNU-INTECH team probably represents one of the earliest efforts at mainstreaming of the approach in academia with a specific focus to developing country problems. Since then, the innovation system in agriculture has found wider applicability in developing countries following its adoption and use by the Technical Centre for Agricultural and Rural Cooperation (CTA)[33] and the [34]World Bank. Both CTA and World Bank started applying the innovation systems approach around the same time (around 2003/4) and by 2005/6 had supported a number of case studies covering the wide spectrum of developing country agriculture spanning from Africa, Caribbean, Pacific as well as Asia and Latin America (Francis, 2009; World Bank, 2007).

The relevance of the innovation systems approach to developing country agriculture has been advocated by many other analysts (Clark, 2001; Clark et al, 2002; Clark et al, 2003 Lundvall et al (2002); Spielman, 2005; Hall, Mytelka and Oyeyinka, 2006). These

[32] See a series of case studies published in Hall et al (2004)

[33] Details of the CTA programme on "Agricultural Science, Technology and Innovation (ASTI) Systems in the ACP" can be found at http://knowledge.cta.int/en/Dossiers/CTA-and-S-T/CTA-S-T-programme/ASTI

[34] The World Bank's department for agriculture and rural development funded a series of case studies in Africa, Asia and Latin America towards operationalizing the innovation systems approach. See World Bank (2007)

analysts, while arguing for the relevance of the approach to developing country agriculture, have also noted that the approach will need to be adapted in order to fit the developing country context. This observation stems from their recognition that the developing country agricultural contexts are markedly different from the developed country sectors in which the innovation systems approach has been applied. Some of these contextual differences between developed and developing countries include:

(i) Role of (Agricultural) R&D

Whereas in the developed countries, the R&D systems generate and channel knowledge to the productive sectors, (agricultural) research systems in the developing countries suffer inherent weakness related to a number of factors including; its own structure (mainly hierarchical), funding, shortage of scientists, isolation from farmers and the productive sectors (Clark, 1985, 2001; Hall, Mytelka and Oyeyinka, 2006). For example Freeman (2002) has noted that in the British cotton industry, the combination of technical inventions, investment in machinery, factory organization and entrepreneurship opened an enormous productivity gap between Britain and other producers. Similarly, in the United States it is reported that even though initially the US imported technology from Britain, the American inventors modified and re-shaped these technologies to fit American circumstances. Agricultural research emerged early as a key pillar in America's development with strong public support (ibid). R&D also played a key role in the Japanese innovation system. Freeman (1987, 1988) has described the Japanese strategy of 'reverse engineering' – that is, trying to manufacture a product similar to an already available on the market without direct foreign investment or transfer of blueprints for product or process design. The Japanese conducted their R&D at the enterprise level (in the firms) where R&D departments were closely related to work of production engineers and process control. This ensured that the whole enterprise was in a learning and development process where most of their ideas for

improvement were developed in the factories. The horizontal flow of information became a characteristic feature in these enterprises.

In contrast to the developed country contexts, (agricultural) R&D in the developing world faces numerous challenges. These have been discussed in many studies (Hall, Mytelka and Oyeyinka, 2006; Clark, 2001; Spielman, 2005). The African Union (2005) report[35] on *"Status of Food Security and Prospects for Agricultural Development in Africa"* has also noted the weakness of agricultural research and development (R&D) programmes in developing appropriate production technologies, and argued that these (agricultural R&D) programmes have generally been ineffective and are getting weaker for lack of funding and shortage of experts. The report concludes that the limited access to and unavailability of improved agricultural technologies and inputs, combined with inadequate agricultural support services, are reflected in the generally low yields observed in Africa.

In many developing countries, the role of tacit and experiential knowledge and informal R&D carried out in farmers' fields plays a key role in enhancing farmer capabilities and supporting agricultural development. This largely tacit and experiential nature of farmers' (and indeed other actors') knowledge presents unique challenges and opportunities for developing country agriculture. Lundvall and Johnson (1994) have identified up to four forms/types of knowledge thus: (i) *Know-what* which involves transfer of codified knowledge as facts; (ii) *Know-why* which involves understanding basic principles, rules and ideas; (iii) *Know-how* which involves experience and (iv) *Know-who* which requires direct contact between people, the ability to communicate and form relationships. The different types of knowledge are also transferred/shared differently for example, Ducatel (1998) has noted that, whereas *know-what* and *know-why* can be easily codified, *knowhow* and *know-who* are more socially embedded. Developing country farmers' knowledge mainly falls in the *know-how* and *know-who*

[35] This report was a background document prepared for the AU Conference of Ministers of Agriculture in Bamako, Mali (February, 2005)

category and the social embeddedness requires different forms of organization to harness, transmit and use. For example, the know-how and know-who types of knowledge calls for more personal contacts and face to face interactions. While the agricultural research and development is still largely organized along the transfer of technology (ToT) model with research institutes and universities conducting research, passing on the findings to extension workers who in turn take this findings (whether these are technologies, or advisory packages) to farmers for adoption, it has become expensive and unsustainable to maintain an effective extension system to reach the thousands of smallholder farmers in developing countries (Clark, 1985; Chambers, 1983; Chambers et al, 1989).

(ii) Institutional context

The focus on the role of the institutional context in promoting or undermining innovation forms a key plank in the innovation systems approach and distinguishes it from earlier innovation models. The focus on institutions broadens the analysis of the actors, their relationships and information flows to the 'rules of the game' (North 1990) which determine and condition their behavior. Freeman (2002) has noted that the decisive factor in the British national system of innovation was the prevalence of a 'scientific culture'. He recounts that there existed congruence of science, culture and technology in Britain which made it possible to use science on a significant scale in the invention and design of a wide variety of instruments, machines, engines, bridges etc. He concludes that the positive interplay between science, technology, culture and entrepreneurship and the existence of a political system which promoted them was crucial for Britain's industrial revolution. In comparison to the US national system of innovation, Freeman (2002:199) notes that, "among those institutions most favourable to economic growth was the scientific spirit pervading the national culture and the support for technical invention... the early immigrants were obliged as a matter of life and death, to learn by doing about agricultural techniques... and agricultural research

emerged as an outstanding feature with strong public support." In contrast, the institutional environment in much of the developing world has been described as "often unsupportive and slow to change" (Hall et al, 2004). The political and administrative structures in these countries are generally poorly developed (Clark, 1985) and Kingston (1984) has argued that such weaknesses (weak laws and failure to guarantee private property rights) undermine innovation.

(iii) Role of markets:

The easy access to a large and growing domestic and foreign markets (including access to the capital markets) are credited for facilitating the industrial take-off in Britain in the 19th century. This was supported by a world-wide marketing structure which provided the external economies for the firms in industry (Freeman, 2002). Similarly, the high rates of economic growth in the United States were attributed to a large and homogeneous domestic market which facilitated production, marketing and financial economies of scale, especially in the extractive, processing and manufacturing industries (ibid).

In contrast, a series of case studies on "analyzing the agricultural science, technology and innovation systems (ASTI) in Africa, Caribbean and the Pacific (ACP)" under the auspices of the Technical Centre for Agricultural and Rural Cooperation (CTA) have noted that in spite of the huge potential of agricultural systems to contribute to the sustainable development of developing countries, these systems are poorly developed, national markets small and highly fragmented and production, processing, marketing and distribution are poorly linked to science, technology and innovation systems (Judith Francis, 2009). Beyond this fragmented and uncoordinated functions between R&D, the productive sectors and markets, the African Union notes that the "soft" market infrastructure is a huge challenge (AU, 2005). This soft market infrastructure includes regulatory framework and information for markets to operate competitively, and standards and norms to ensure proper quality and safety of products, protect

consumers and open up opportunities for export. Other marketing constraints affecting both domestic and international trading include lack of appropriate grading and standardization, and inadequate market information systems.

3.6.1 How might the innovation systems approach be adapted to fit our focus on developing country agricultural export context?

The adoption of the innovation systems approach by development actors such as CTA and World Bank is rooted in the potential for the approach to help in diagnosing weaknesses within the national agricultural systems and advise policymakers on how to strengthen the systems. The Technical Centre for Agricultural and Rural Cooperation, ACP-EU (CTA) has piloted the application of the approach in analyzing the agricultural sectors in Africa, Caribbean and the Pacific. Similar initiatives have also been undertaken by the World Bank in Africa, Asia and Latin America. The results of these pilot case studies demonstrate that the innovation systems approach can be used to determine and explain how different policies/ institutional frameworks and combination of agents (actors) are involved in innovative activity; and how their interactions or lack thereof contributes to or undermine learning and innovation. These pilot studies have concluded that the approach is helpful in identifying problems/weaknesses that should be the object of policy response and how new policies might be designed to solve/mitigate the problems (World Bank, 2007; Francis, 2009)

In the context of this thesis, innovation systems approach is applied to interrogate how the partnerships between farmers and agribusiness actors (exporters) and supported by other public sector actors (research institutes, regulatory agencies amongst others) and civil society (NGOs) contribute to building the capabilities of small scale farmers and the institutional factors that shape the interactions between farmers and other actors in the innovation system. By laying emphasis on actors, institutions and interactions, the innovations systems approach provides a broad and flexible framework within which to

explain the observed trends. However, the thesis raises certain partnership-specific challenges which require adjustments to the approach. In this study, we make the following adjustments to the framework.

a. **Taking into account actors beyond national borders**

In agricultural export industries, there exist interactions between the buyers (based in the export markets) and the farmers (based in developing countries). These interactions are sometimes mediated by a series of intermediary actors and lead to exchange of information on product quality, consumer tastes and demands as well as consumption trends. Interactions between buyers and suppliers have been recognized as one of the sources of innovation (Rothwell, 1992; von Hippel, 1988; Biggs, 1990). In the cut flower industry for example, it has been noted that developing countries rely heavily on foreign sources of knowledge (Bolo, 2005; Bolo *et al,* 2006 Mytelka and Bortagaray, 2007). The developing country farmers depend on other actors based in foreign countries as sources of technology, knowledge and markets. Besides, in order to engage in export trade, the farmers are bound by international rules and standards to which they must conform. This interaction with actors on the demand side (and who are sometimes located beyond the national borders) should be considered in the analysis.

b. **Taking into account differential power relations**

The innovation systems approach advocates for inclusion of and interactions amongst the multiple actors as important to knowledge flows and innovation but fail to account for the underlying power dynamics from conflicting interests of the different actors and how this (power relations) influences their ability to interact and share knowledge and resources. The IS tends to treat all actors as equal and discussions about the power asymmetries of the actors have not featured prominently in the IS literature. The role of power relations is sometimes mentioned (for example, Clark et al, 2002), but no in-depth analysis is undertaken to understand its influences on strength of linkages,

interactive learning and innovation. Lundvall et al (2002) have indeed noted this omission as a weakness of the innovation systems approach, particularly when applied to developing country contexts and remarked:

> "Another weakness of the system of innovation approach is that it is still lacking in its treatment of the power aspects of development. The focus on interactive learning—a process in which agents communicate and even cooperate in the creation and utilization of new economically useful knowledge—may lead to an underestimation of the conflicts over income and power, which are also connected to the innovation process. Interactive learning and innovation immediately sounds like a purely positive sum game, in which everybody gain. In fact, there is little learning without forgetting. Skills and competencies are rejected and destroyed and many people experience decreasing income and influence. Increasing rates of learning and innovation may lead not only to increasing productivity and income but also to increasing polarization in terms of incomes and employment. It may be more common in the South than in the North that interactive learning possibilities are blocked and existing competences destroyed (or de-learnt) for political reasons related to the distribution of power." Lundvall et al (2002:226 – 227)

c. Focusing on the institutional architecture of partnerships

The role of national policies and institutions has been used to argue for the need to focus on the nation-state as the unit of political organization in the innovation systems approach. While this is important, it has obscured the intra – partnership institutions that actors engage in order to generate innovations. The ability of actors in a partnership to negotiate and enforce institutions that help strengthen their interactions/collaborations are equally important in building and strengthening systemic capabilities. Understanding how these institutions are established, why they succeed or fail and how they interact with the national policies is important in diagnosing which policies hinder

or enhance innovation and capability building. Scott (2001), has categorized institutions into (i) *regulative institutions* - which refers to the capacity to establish rules, inspect others conformity and apply sanctions (punishments/rewards) in order to influence future behaviour and (ii) *normative institutions* – which refers to the values and norms that specify how things should be done; define legitimate means to pursue valued ends. Normative systems define goals and objectives but also set out how these should be achieved. Adjustments to the innovation systems approach should consider these institutional factors at two complementary levels:

i) Factors internal to the partnership e.g. its objectives, rules; power relations; attitudes and behaviour; trust and confidence; compliance with the partnership agreements and expectations; incentives to individual actors etc

ii) Factors external to the partnership but which constrain or enhance the individual capabilities of the actors to innovate. These may include infrastructure, financing mechanisms, intellectual property laws, national/international rules and standards amongst others.

3.6.2 Is the innovation systems approach adequate?

The inadequacies of the innovation systems, particularly when applied to the developing country agricultural context and the kind of adjustments that need to be made in order to improve its applicability in the developing countries have been examined in the preceding section (3.6). In a recent article in *LINK look* (June, 2010:2), Andy Hall has highlighted the key challenge that innovation systems faces when dealing with public-private partnerships, particularly on the role of the private sector. He notes that, "in practice, partnership building has proven difficult. Even in cases where new alliances have been developed, the real sticking point is the governance of these to direct innovation towards a social and sustainable development agenda. This seems to be the area where innovation systems ideas are reaching their limits as a guide to practice."

The critical question in the context of this study is whether the systems of innovation approach can fully explain the role of 'farmer-exporter' partnerships in building the capability of small scale farmers. In order to address this question, it is necessary to revisit some of the intra – partnership challenges that arise from this study and consider how they are handled within the innovation systems framework. Such issues include:

(i) Asymmetry, opportunism and dependence:

Whereas learning through partnerships leads to new combination of skills, resources, knowledge and technologies, in case of unequal actors, interactive learning could lead to increased polarization, subjecting weaker actors to further marginalization. Dealing with these inequalities in power, and the likely influence of such inequalities on the partnerships, draws in the importance of institutions in reducing uncertainty, allocating resources and regulating behaviour in the innovation systems approach (Edquist and Johnson, 1997). Such institutions create a stable, shared and commonly understood patterns of behaviour that are crucial to solving the problems of collective action amongst individuals (Robinson, Hewitt and Harris, 2000; pp. 18). The ability of actors in partnerships to negotiate and enforce institutions (such as contracts, memoranda of understanding (MoUs), purchase orders etc) that help regulate their interactions/collaborations is important in building capabilities.

The monitoring and enforcement of such institutions is as crucial. At the national level, this monitoring and enforcement function is vested in the legal system and the regulatory authorities. In partnerships and non-equity alliances, monitoring and coordination occurs through formal contracts or non-formal arrangements. The role of 'lead actors' in monitoring and enforcing institutions (governance) creates a new power structure that is not clearly dealt with in the innovation systems literature. In partnerships, different actors invest their time and resources to the success of the partnership and when they are likely to be exposed to opportunistic behaviour, there is

need to ensure that such risks are minimized. Kaplinksy (2006:106) has captured this vividly when he argues that:

> "In a world of weak suppliers, particularly in low income countries, it has become customary for governing agents – lead firms – to assist capability growth of their supply chains directly, or ensure someone does so. ....this is costly and firms who make such investments need adequate safeguards to ensure that their investments are not eroded by other buyers tapping into the pool of skilled producers they have developed...thus lowering the rents they are likely to accrue from such investments."

(ii) Competition, power and conflicts: The interactions and learning between different actors within an innovation system are prone to challenges associated with competing interests of the various actors, the dynamics of power balances and conflicts between individual interests and the broader partnership goals. Even though it is rarely acknowledged, different actors have (and often pursue) their own interests and often the need to protect these interests undermines their full participation in partnerships (Smith, 2005). Different actor categories will be motivated by different issues. For example, public sector actors are often keen to defend their mandates. Their participation is sometimes determined by how they perceive the goals of the partnerships through the lenses of their official mandates, that is, whether the partnership goals advances or conflicts with their mandates. The private sector actors' participation is shaped by their perception of the rents that are likely to accrue from participation and how it affects their position in the market while NGOs and other civil society actors may be motivated by the contribution makes to social values but would also weigh how it meets their objectives. Participation in the partnerships will also be influenced by power relations between the different actors. This quote from IFAD captures this important role of power dynamics in explaining patterns of interactions within the innovation systems.

"...the relationships between institutional actors and agencies, and the institutional context within which they operate, are not only generated by the various functions, roles and responsibilities, or even by the policy and legal frameworks that have established the policies, laws and incentives and sets of resources that allow agencies to operate. These relationships are also a reflection of far broader patterns in society that may determine how different sets of people or agencies interact. These interactions are largely about power, and the processes by which it is distributed and exercised."... *IFAD pamphlet 6 on "understanding power and processes" (p.1)*

3.6.3 Addressing the inadequacies of the innovation systems: what can global value chain (GVC) analysis offer?

The inadequacy of the innovation systems approach to deal with these critical issues in this study (asymmetry, opportunism, competition, power and conflicts) necessitates the inclusion of other approaches in order to augment the explanatory power of systems of innovation in understanding the role of (asymmetric) partnerships in enhancing learning, innovation and capability building. Global value chain (GVC) analysis offers some insight into the key challenges outlined above.

3.7 Global value chain (GVC) analysis

The concept of a value chain refers to the range and sequence of activities required to make a product or a service from its conception, production, distribution and marketing to its final markets (Schmitz 2005). These activities are often dispersed geographically and could happen at the local, national, regional or global levels. Quite often, the different activities happen in different parts of the world, hence the term global value chains is used to describe this dispersion of economic activity; the different levels of specialization and division of labour as well as the various forms of ownership associated with these new forms of economic organization. Gibbon, Blair and Ponte

(2008:318) have defined global value chains as "the set of intra – sectoral linkages between firms and other actors through which this geographical and organizational reconfiguration of global production is taking place." This international dimension of the global value chains allows for inclusion of actors beyond national borders in our analysis, and makes GVC suitable to dealing with the role of foreign capital (associated with market and non-market actors) in the cut flower industry in Kenya. It allows us to include actors based outside Kenya – such as marketing agents; R&D, training institutes and private consultants or even suppliers of technology and inputs such as green houses and agrochemicals.

The concept of governance in value chain analysis is key to our analysis of power dynamics in learning, innovation and capability building. According to Gibbon, Blair and Ponte (2008:318), "the idea of governance rests on the assumption that, while both disintegration of production and its re-integration through inter-firm trade have recognizable dynamics, they do not occur spontaneously, automatically or even systematically. Instead, these processes are initiated and institutionalized in particular forms as a result of strategizing and decision-making by particular actors, usually large firms that manage access to final markets in developed countries, and increasingly, emerging economies." That inter-firm dynamics result from 'strategies and decisions of certain actors' and that such decisions are 'processed and 'institutionalized' supports our entry point into the discussion on inclusion or exclusion of small scale farmers, that is, that actions and choices of various actors together with institutions that reinforce such choices and actions are key to integrating small scale farmers into the high value horticultural export business. Gibbon, Blair and Ponte (2008:319) have defined governance as, "the content and management of these decisions across suppliers and sub-suppliers, the strategies behind the decisions taken and management methods chosen to implement them and systems through which their outcomes are monitored and reacted to." The different value-adding stages, together with the power it confers to

lead firms (farms) make GVC relevant for the analysis of differential power relations amongst the different key players. Value addition occurs at different stages of the chain (even though some stages are more value-adding than others) while decision-making rights also differs amongst the different players within the chain. The need for quality and adherence to certain standards (which are important to market access) coupled with the desire to have consistency in supply calls for the need to coordinate the activities within the chain. This governance can be expressed in different ways and different parts of the same chain can be governed in different form as discussed under the section on 'typologies of chain governance' below.

Generally, governance occurs when some firms in the chain set and or enforce parameters under which others in the chain operate (Humphrey and Schmitz, 2001). Product and process parameters can also be set by agents external to the chain (Kaplinsky 2000) for example government regulatory agencies. These may be through compulsory and legal standards and voluntary standards. However, parameters set by agents external to the chain only constitute governance when one of the agents in the chain enforces compliance or translate the standards into parameters which it then monitors and enforces (Kaplinsky, 2000; Kaplinsky and Morris, 2001). Even though the actual content will differ according to each industry and economic activity, some of the key parameters normally include: what to be produced – product definition; how it is to be produced; when it is to be produced and how much to be produced. In most cases, the governance structures are required to transmit information about the parameters and enforce compliance. Parameters are set, monitored and enforced through auditing, inspection and testing. These can be done by lead firms or by other agents contracted by them. Still external agents may set some parameters and expect the lead firms to enforce compliance. As Gibbon, Blair and Ponte (2008:319) have argued,

> "The relevance of governance to GVC is that it highlights the concrete practices and organizational forms through which a specific division of labour between

lead firms and other economic agents involved in the conceptualization, production and distribution of goods in global industries is established and managed"

3.7.1 Typologies of chain governance

The literature on value chain analysis show that governance can be interpreted in a number of ways including (i) governance as driving (Gerrefi, 1994) (ii) governance as coordination (Gerrefi, Humphrey and Sturgeon, 2005) and (iii) governance as normalization (Gibbon, Blair and Ponte, 2008). Without discussing the various interpretations in any detail, it is important to point that Gerrefi's (1994) interpretation of governance as driving arose from his study of global commodity chains (GCC) and led him to elaborate on two types of governance structures namely: producer-driven and buyer-driven chains. The producer driven chains were characteristic of capital-intensive sectors in which high technological and capital requirements constitute the main barriers to entry and manufacturers are the lead firms. On the other hand, buyer-driven chains were typical of the more labour-intensive sectors where market information, product design and marketing/advertising costs were the main barriers to entry for new firms. The lead firms in the buyer-driven chains are mainly retailers and marketers.

This dichotomous typology by Gerrefi was however criticized as being "too narrow and abstract....and failed to capture the range of governance forms" (Gibbon et al, 2008). The inadequacies of Gerrefi's typology and consequent elaboration of other possible governance forms by other analysts (for example Sturgeon, 2002) led to governance being viewed more as coordination. Gerrefi, Humphrey and Sturgeon (2005) have proposed a theory to specify the broad range of inter-firm governance types in global industries. The theory views governance forms as varying according to values (high or low) of three key independent variables namely (i) the complexity of transactions; (ii)

the codifiability of information and (iii) the capability of suppliers. This framework results in eight possible combinations three of which they discarded as being impracticable leaving five main typologies of governance namely: (a) market, (b) modular, (c) relational, (d) captive and (e) hierarchy chains.

These five types of chain governance are discussed below:

- *Markets:* occur when transactions are easily codified; product specifications are relatively simple and the suppliers have the capability to make the products with little input from the buyers.

- *Modular chains*: when the ability to codify is high and the transactions are complex but the suppliers have the requisite competence/capabilities to internalize tacit information and make products to expected standards

- *Relational chains:* occurs when product specifications can't be codified; transactions are complex but suppliers' capabilities are high. Even though a lot of tacit information needs to be passed from the buyers to the suppliers, the high capabilities of the suppliers is a motivating factor for the buyer to outsource. This mutual dependence is regulated through reputation, social and spatial proximity, family and ethnic ties

- *Captive chains:* These occur when the ability to codify (complex instructions) is high and the transactions are complex but the supplier capabilities are low. The supplier competence requires a great deal of intervention and control on the part of the lead firm. It leads to lock in of the suppliers in order to exclude others from reaping from the lead firms investments. The captive suppliers are often confined to a narrow range of activities and depend on the lead firm for complementary (more sophisticated/value adding) activities.

- *Hierarchy:* Vertical integration – occurs when products information cannot be codified; products are complex and highly competent suppliers can't be found, then the lead firms are forced to manufacture products in-house.

Table 9: Key determinants of global value chains

Governance type	*Complexity of transactions*	*Ability to codify transactions*	*Capabilities in the supply base*	*Degree of explicit coordination*	*Power Asymmetry*
Market	Low	High	High	Low	Low
Modular	High	High	High	↑	↑
Relational	High	Low	High	↓	↓
Captive	High	High	Low		
Hierarchy	High	Low	Low	High	High

Source: Gereffi, Humphrey and Sturgeon (2005)

From table 9 above, it can be deduced that the greater the power asymmetry between the actors and the weaker the capabilities in the supply base, the higher the degree of explicit monitoring and coordination required. The type of buyer- supplier relationship (collaborative of adversarial), the governance arrangement opted for in partnerships (captive or relational) are a function of existing capabilities. The degree of explicit coordination required and how this is monitored (through formal contracts or informal arrangements) have a bearing on whether these partnerships lead to building the capabilities of the actors.

Concluding remarks

From the literature review, it has been established that capabilities are central to a firm/organizational competitiveness (Stalk et al, 1992). As such firms/organizations strive to build these capabilities through a variety of mechanisms (Lundvall, 2001). Critical to this thesis is the 'building of innovative networks' (Lundvall, 2001) which discusses building capabilities by learning from other actors (Prahalad and Hamel, 1990; Johnsen and Ford, 2008). The role of learning through partnerships and alliances has been emphasized (Mody, 1993) as well as the role of R&D (both formal and

informal) in promoting innovation and learning (Cohen and Levinthal, 1989, 1990). Levinthal and March (1993) have shown that learning leads to building of competencies. Firms and organizations learn through various means but of utmost importance to this thesis is learning through alliances and partnerships (Teece, 1996; Prahalad and Hamel, 1990; Mody, 1993).

Whereas the study is informed largely by innovation systems approaches, the review has also established that the issues arising from this thesis cannot be fully explained by the innovation systems alone. Issues such as asymmetry, opportunism, competition, power and conflicts call for a multi-disciplinary approach in understanding the inter-relationships. Neither innovation systems nor global value chains alone can adequately explain these issues. This observation offers strong basis for including the concepts from the different theoretical backgrounds in the analysis. The focus of innovation systems on 'actors, institutions and interactions' when complemented by the concept of 'governance' from global value chains literature provide a rich framework for analyzing the role of partnerships in building capabilities of actors. This complementarity between innovation systems and global value chain analysis has been captured by the World Bank (2007:24 – 25) thus:

> In summary, a value chain brings partners together in their desire to integrate production, marketing and consumption issues in the most profitable way, both in the long run and in the short run. For example, value chain partners may need to make organizational and technological changes, or they may need to agree on pricing practices or quality control systems. The innovation system perspective brings actors together in their desire to introduce or create novelty or innovation in the value chain, allowing it to respond in a dynamic way to an array of market, policy and other signals. The innovation system provides a way of planning how to create and apply knowledge required for the development, adaptation and future profitability of the value chain.

Chapter 4: RESEARCH DESIGN AND METHODS

4.1 Introduction

Chapter 2 established the developmental and policy relevance of this study. It demonstrated that even though the cut flower industry has been growing (in acreage, volume and value) over the last decade, the contribution of small scale farmers to this growth has been minimal and on the decline. It further argued that this declining contribution of small scale farmers has attracted a policy response geared towards (a) promoting a system of innovation approach and (b) promoting farmer – exporter partnerships for market access and capability building. Whereas the innovation systems envisages the inclusion and interaction between multiple actors and the existence of a favourable policy environment to bring in new know knowledge into use, the farmer – exporter partnerships typically occur between small scale farmers and exporters or between medium/large scale farmers and exporters. The partnerships are structured and governed either as contractual or non-contractual arrangements, depending on the key actors (whether small scale farmers or large holders).

In chapter 3 it has been shown that whereas the small scale farmers could be accessing export markets through these partnerships, the second objective – capability building – may or may not be readily achieved. A number of studies have billed partnerships as a useful strategy for sharing knowledge, skills, technology and eventually building/enhancing the capabilities of partners (Robinson, Hewitt and Harris, 2000; Hall *et al*, 2004; Hall *et al*, 2001; Hall, 2006; Christopher and Juttner, 2000). In the same breath, some studies have cast doubts on the relevance of such partnerships in building capabilities (Rokkan and Buvik, 2003; Johnsen and Ford, 2008; Cohen and Levinthal, 1990). Studies in the latter category have argued that problems of asymmetry, competition, different absorptive capacities, opportunism, governance and dependence

might undermine the usefulness of these partnerships as a strategy for building capabilities.

In light of these arguments, the thesis examines three inter – related set of issues a) understanding whether 'farmer – exporter' partnerships lead to building the capabilities of the farmers; (b) understanding the role of institutions and governance arrangements within these partnerships in influencing the building of farmer capabilities and (c) understanding the interactions between R&D actors with farmers and whether these interactions have (have not) led to building farmer capabilities. This chapter outlines the focus, scope, design and methods employed in exploring the research questions.

4.2 The Research Questions

The existence of and access to capabilities is a key determinant of the type of organizational forms and governance arrangements preferred by firms seeking to innovate and compete. Teece (1996) has emphasized this and provided a typology of governance modes and the different organizational forms adopted by firms in such circumstances. Teece's analysis has considered the different organizational forms and their influences on innovation and capabilities and proposed four categories of organizational forms as below.

i) *Multi-product, integrated, hierarchical firms*: these firms are characterized by bureaucratic decisions, absence of a powerful change culture and are internally focused. As a result, external changes in the market as well as in science and technology establishment are unlikely to be picked up in a timely fashion. Decision-making process is slow and ponderous. Such firms have in-house technological capabilities.

ii) *High flex "silicon valley"-type firms*: these firms possess a change culture upon which there is a great consensus; have shallow hierarchies and significant local autonomy. They often resist functional specialization which restricts

the flow of ideas and destroys the sense of commonality of purpose. Decision-making is simple and informal. Communication and coordination among the functions is relatively quick and open.

iii) *Virtual corporations*: these are business enterprises that sub-contract anything and everything and function more or less as a hub or nexus of contracts. They have shallow hierarchies and have innovative cultures and external linkages to competent manufactures. They have the capacity to be very creative and excel at an early-stage innovation activities.

iv) *Alliance enterprise*: defined as a virtual corporation that has developed strong commitments to other enterprises, usually through equity-based links.

Teece has matched the four organizational forms to the locus of existing capabilities and the type of innovations and observed that:

> "As the interdependence between technologies increases, pure market forms are less effective at achieving the requisite coordination. The more [36]systemic the innovation, the greater the interdependence (pp. 216)"... This is so because "innovations of this type require that the design of the sub-systems is coordinated in order for the gains from innovation to be realized. Since these technologies span current technological boundaries, a complex coordination problem arises. The other key dimension is extent to which the capabilities needed to exploit the innovation exist within the firm already, and if not whether those capabilities are available outside the firm." (pp. 217)

From the above observation, three key factors determine the organizational form adopted by firms. These include: the degree of technological interdependence required for innovation; the extent of coordination necessary and the availability of the requisite

[36] Systemic innovations change the technological requirements and offer new opportunities so that the resulting configuration of both the innovation and its related technologies are different. This is contrasted to autonomous innovations which create improved products and processes that fit well into the existing systems (Teece, 1996).

capabilities. The matrix (Fig. 6) below captures Teece' key conclusions

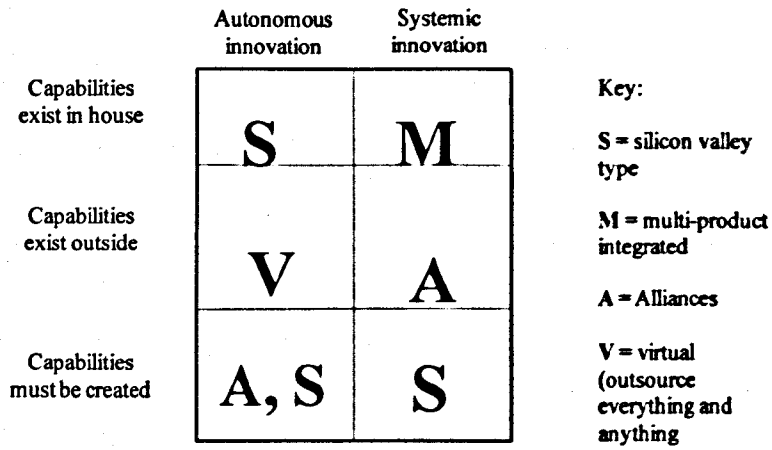


Fig. 6: matrix of innovation, capabilities and preferred organizational forms. Source: Teece (1996).

According to this matrix, a firm will opt for the 'alliance enterprise' form on two conditions: a) When the innovation in question is systemic in nature and the capabilities lie outside the locus of the firm and b) when the innovation is autonomous but the capabilities must be created in order for the firm to benefit from the innovation. One key issue coming from the Teece' matrix is that the need to acquire or access capabilities is a key determinant of whether a firm will opt for alliances. Indeed as Teece has remarked, "the viability and desirability of alliances and other external linkage arrangements depend, not just on the efficacy of this form of contract, but also on the resources/capabilities that can be accessed in this fashion." (pp. 216)

Even though Teece' analysis of 'alliance enterprise' is based on an organizational form in which a "virtual corporation develops equity-based links to affiliated enterprises lying upstream, downstream, horizontal and lateral from its core business" (pp. 216), the concept of alliances can be broadened to include non-equity based organizational forms in which firms retain their respective identities. Teece has said of such strategic alliances:

"Compared to arm's length market contracts, such arrangements have more structure, involve constant interaction among the parts, more open information channels, greater trust, rely on voice rather than exit, and put less emphasis on price. Compared to hierarchies, such alliances or networks of firms call for negotiation rather than authority and put great emphasis on boundary spanning roles. These arrangements can be used to provide some benefits of integration while avoiding the costs" – pp. 207

Mody (1993:153) has concurred with this view (of non-equity based alliances) and noted that [such] "an alliance doesn't require firms to give up their identities yet the partners no longer deal with each other only through the market ... but elements of planned coordination and market mediated links co-exist..." Such alliances lead to learning (ibid) and allow firms to cheaply and quickly acquire new competencies (Prahalad and Hamel, 1990). In cases where capabilities lie outside the locus of the firm or such capabilities must be created anew, then alliances are the preferred organizational form (Teece, 1996).

This linking of organizational forms to existing capabilities and types of innovation ties in closely with the governance typologies of Gerrefi, Humphrey and Sturgeon (2005) in the global value chains literature. It provides an entry point for us in discussing the 'farmer-exporter partnerships' as a way of organizing innovation, market access and capability building. In the case of farmer-exporter partnerships in the cut flower industry, small scale farmers lack the requisite capabilities to access export markets directly. From their perspective, these capabilities lie outside the locus of their farms and one of the strategies therefore is to form partnerships with exporters. From the perspective of exporters, they do not have the products (that is, they neither own farms nor produce flowers) and have to source from small scale farmers (who incidentally lack the capabilities to produce high quality, market-ready flowers). In this sense,

therefore, one of the exporters' roles becomes one of creating these capabilities anew within their supply base. At the same time, these alliances/partnerships are faced with challenges arising from opportunism, dominance and dependence amongst the partners. These challenges influence their (the exporters and small scale farmers) abilities to access or create new capabilities – and hence achieve their objectives. Given these challenges, partnerships and alliances may not automatically lead to enhanced capabilities, especially in the case of asymmetric partners. In order to minimize the risks associated with such challenges, firms have come up with various governance mechanisms for monitoring and coordinating their activities with partners to ensure that they achieve their desired objectives. Such monitoring and coordination takes the shape of both formal and informal procedures (Macbeth, 1994). These observations lead to three over – arching questions and sub – questions:

Q1: *What is the role of 'farmer – exporter' partnerships*[37] *in building new capabilities amongst the cut flower farmers?*

- Have farmers developed new capabilities as a result of these partnerships?
    - What new capabilities have been built?

Q2: *How do the institutional arrangements and governance mechanisms influence the ability of farmer – exporter partnerships in building capabilities of the farmers?*

- How does the institutional configuration of partnerships affect capability building?
- How do the governance mechanisms influence capability building?

Q3: *What is the role of R&D actors in building farmers' capabilities?*

- Who are the key R&D actors and what are their roles in building farmer capabilities?
- What are their levels of linkages/interactions with farmers?

[37] 'Farmer – exporter partnerships' refer to the contractual or non-contractual agreements between cut flower farmers and exporters to grow and sell flowers to them (exporters). In this case, farmers become the suppliers while the exporters are the buyers

- What factors influence these interactions?

- Are the requisite policies in place?
  - Do they foster or hinder interactions between farmers and R&D actors and capability building?

4.3 Research Scope and Focus

Robinson, Hewitt and Harris (2000) have argued that effective partnerships need to be founded on the basis of at least three underlying principles. These include: (a) congruence – the shared values, principles and goals that help maintain the momentum and commitment to the partnership; (b) mutualism – every partner should gain something as well as feel that their contribution is valued and respected; and (c) competencies – each partner contributes a distinctive set of competencies that should be harnessed and maximized for the benefit of the partnership. Partnerships should contribute to enhancing and strengthening these competencies.

The three principles are displayed in the 'farmer-exporter partnerships' to varying degrees. The first principle – congruence – is captured by the institutions that govern these partnerships. Whether such institutions are contractual (as in formal contracts) or non-contractual (as in MoUs/purchase agreements/orders), they specify the expectations and obligations of each partner in respect of the partnership. The institutions define the expected behaviour, the sanctions (in case of default) and the enforcement mechanisms. The second principle – mutualism – concerns the fact that the partners need each other. While the small scale farmers cannot access the export markets directly, the exporters do not produce flowers and have to rely on the small scale farmers for their supplies. The third underlying principle – harnessing and strengthening competencies – concerns largely whether partnerships between farmers and (a) other R&D actors in general and (b) exporters in particular, lead to building, enhancing and strengthening the capabilities

of farmers. In other words, the thesis seeks to establish whether through (a) interactions with other R&D actors and (b) partnerships with exporters in particular, the resultant exchange of skills, knowledge, technologies and resources help in improving the ability of farmers to not only produce export – quality flowers, but also add value through packaging and post-harvestpost-harvest handling as well as access new markets (either by meeting export market standards or negotiating more beneficial contracts with buyers). The study also seeks to understand how the first principle – congruence – is achieved through the institutional frameworks of these partnerships.

In order to refine the focus and scope of the study, open-ended interviews were conducted with selected actors within the industry in Kenya during an exploratory visit in Nov/Dec 2007. The main purpose of this exploratory visit was two – fold. It sought to determine:

(a) Types of partnerships that exist between farmers and other actors within the national system, particularly the exporters and the R&D actors and

(b) Whether these partnerships were governed through formal contracts or other non-formal agreements.

The outcome of this exploratory visit revealed that:

i. There are two main types of partnerships

Export market access partnerships: these are usually motivated by the inability of small scale farmers to access the export markets either due to stringent sanitary and phyto-sanitary requirements or lack of a strong marketing network and physical infrastructure or costs. In such cases, the small scale farmers enter into agreements with large scale farmers and exporters to grow and sell through them.

Production/supply partnerships: these are largely motivated by the need by large scale farmer/exporters to shore up quantities/volumes in order to meet their export targets and customer requirements. In most of these cases, the large scale farmer/exporter has

obtained orders/requests for such flowers but is constrained by either the climatic conditions in areas where the large farmer operates (that is, the climate/soil types do not favour such flower varieties) or the demand is short term and it is un-economical to invest in labour, equipment and machinery for producing such flowers in his farm (see also Bolo, 2008). Still, in some cases the flowers supplied by the small scale farmers under this type of partnership are used as fillers in bouquets, which are in turn exported by the large scale farmer/exporters.

Besides the characteristics mentioned, the differences in this categorization (market-access versus production/supply) also lie in how the actors perceived the partnerships. Whereas in market access-type, partnerships are perceived to be largely in the interests of small scale farmers, the production supply-type are mainly perceived as being run by the large scale farmers/exporters[38] who seek out other farmers to grow and supply them with the flowers.

ii. That while some of the partnerships are bound by formal contracts, others were non-contractual and guided by some other forms of agreements such as memoranda of understanding (MoUs), purchase agreements/orders.

However, these exploratory interviews could not determine how many farmers had entered into such partnerships, nor even the rations of contractual versus non-contractual partnerships. Whereas the visit helped to narrow down the types of partnerships available, the need to determine the number of farmers getting into such partnerships and the institutional configurations of such partnerships highlighted the need to conduct a sector-wide survey in order to establish: (a) why farmers entered into partnerships, that is, what motivated them to enter into these partnerships? (b) What

[38] It is important to note that large scale farmers are also exporters i.e. they are vertically integrated. The term exporter, as used in this thesis, therefore refers to agribusiness actors who specialize in purchasing/sourcing flowers from small scale farmers as well as large scale farmers without growing their own flowers.

type of partnerships (market access versus production/supply) and (c) how the partnerships were governed (contractual versus non-contractual). It also occurred that even though the actors interviewed during the exploratory visit doubted if there was any significant partnerships between the farmers with other actors (especially the national research system), it was necessary to survey the farmers and find out (d) if farmers have any partnerships with other actors especially R&D actors (public research institutes and universities) and (e) determine the level of interactions with these actors and their role in building farmer capabilities

4.4 Sampling: Geographical distribution, farm sizes and export performance

In determining the sample population, the geographical locations as well as farm sizes were important factors to ensure adequate representation. In terms of geographical distribution, the study focused on the five main growing clusters including Naivasha, Nairobi, Limuru, Thika and Athi River areas in Kenya. These regions account for over 90 per cent of all cut flower exports.[39] Moreover, these regions are located within a radius of 100 km from the capital city (Nairobi). This proximity to Nairobi meant that these areas easily accessible from Nairobi from where the research was coordinated. In order to assess the farm sizes, we used the volume of exports in 2007 as a proxy for farm sizes. This choice was informed by the fact that both memberships of industrial associations (KFC and FPEAK) as well as tax returns to the Kenya Revenue Authority and cess collected by the regulator (HCDA) are pegged on the volume of exports.[40].

In order to compile a sampling frame, I visited key organizations dealing with flower exports from Kenya during the pilot visit in Kenya (1 – 18 May 2008). These included the Horticultural Crops Development Authority (HCDA) which licenses all horticultural

[39] Based on interviews from exploratory visits; see also the discussions on clustering in Chapter 2 as well as the geographical distribution map on page 31

[40] See a list of export performance by key farms in 2007 in appendix C

exporters in Kenya. From HCDA, I obtained a comprehensive list of [41]active horticultural exporters (fruits, vegetables and flowers) and their export performance as at December 2007. I also visited the Kenya Flower Council (KFC) and obtained a list of all their 54 members who represent up to 70 percent of all flower exports. Similarly, I held discussions (on phone) with the representative of Fresh Produce Exporters Association of Kenya (FPEAK) and also obtained a list of their members (a copy of which is available on their website[42]). The three lists obtained from these key organizations were used in drawing up the sampling frame.

The sampling frame was arrived at as follows:

- The HCDA database of active exporters 2007 was used as a reference and the list of flower exporters compiled from it. The first criterion for picking flower exporters from the HCDA database was based on membership in the two main industry associations namely KFC and FPEAK. All members of KFC and FPEAK (flowers only) were picked from the HCDA database. A quick scan using this criterion revealed many exporters who were not members of any of the associations.

- In the second criterion, I selected all exporters whose business names contained the following words/phrases: flower(s); flora; and any other flower names for example roses, lilies, orchids etc.

- In the third criterion, the compilation was limited to those who exported a minimum of one tonne (1,000 kgs) in 2007.

These three criteria led to a sampling frame consisting of 148 exporters distributed (by volume) as follows:

- *24 large scale exporters*: these represent those who exported over 1,000 tonnes

[41] Active exporters refer to those who actually export flowers in a regular basis. This is contrasted with those who are registered with the HCDA database but do not export flowers anymore. I obtained the list of horticultural exporters and values for 2007

[42] www.fpeak.org

- *66 medium scale exporters*: those who exported between 100 and 999 tonnes
- *56 small scale exporters*: those who exported between 1 and 99 tonnes

HCDA estimates that there are about 160 flower farmers/exporters in Kenya. The missing 12 exporters [estimated number (160) less the actual picked from the database (148)] could have resulted either (a) because their business names conceal their identity (that is, they are not members of either KFC/FPEAK and their names do not contain any of the search words used in criterion 2). It is also possible that they fall below the 1,000kgs minimum threshold set by the study, that is, they exported less than one tonne in 2007 (criterion 3) or it could also be possible that they did not export any flowers in 2007 and are therefore missing from the performance database.

Having obtained the sampling frame, the next step was to decide on the actual sample size. Bryman (2008) has argued that the decision on actual sample size is a compromise between cost, available resources and the need for precision/representativeness. Similar concerns have been echoed by Scheyvens and Storey (2003) who have provided that as a rule of thumb, 30 cases is usually the minimum for any useful statistical analysis but also note that statisticians often prefer 100 or more cases before doing any analysis.
Our decision on the actual sample size was informed by these three factors: (i) Cost – I chose farms within a radius of 100 kms from Nairobi for ease of transportation and access (ii) Representation – the sample had to include a proportional number of small, medium and large scale farmers. The sample also needed to cover the five main growing regions in Kenya and (iii) Precision – the need to have a large enough number to allow useful statistical analysis. Because we intended to subject the data to statistical analysis, we aimed for no less than 100 respondents. Based on these three factors, I aimed for 80 per cent coverage in order to have as representative a sample as possible.

This translates into 116 farms distributed as follows: 19 large scale; 52 medium scale and 45 small scale.

However once in the field, this approach (based on random sampling) suffered what Sapsford (2007:93) has called *sample attrition* – that is, when the sample is drastically reduced due to non-responses, no-traceable samples, or when the survey yields unusable results. These challenges and details on how they were addressed are outlined in box 2 below.

Box 2: Tales from the field: conceptual and practical challenges

The initial idea behind this study changed considerably once I was in the field. Certain challenges emerged which were not foreseen despite the scoping fieldwork conducted in Nov/Dec 2007 and the pilot fieldwork in May 2008. During the pilot fieldwork, I obtained a database of membership with contacts – postal addresses, telephones and emails – of the major exporting farms from their industrial associations namely the Kenya Flower Council (KFC) with a membership of 54 large scale farms and Fresh Produce Exporters Association (FPEAK) with 28 members. Additional names and contacts were obtained from the HCDA database of active exporters (as at 2007). Using these lists, I derived a sampling frame of 148 flower farms from the HCDA database based on their export performance in 2007 (see list in annex C). From this sampling frame, a sample size of 116 farms was selected based on the criteria outlined above. The farms were divided into small-scale, medium scale and large scale based on the volume of exports in 2007, with the least having exported just one tonne and the largest having exported 20 million tones.

Negotiating access

Upon arrival in Kenya for the first phase of the actual fieldwork, armed with my list of 116 farms, I felt very confident with my sample choice. I quickly made formal contacts with the necessary authorities in the Kenya Flower Council (KFC), Fresh Produce Exporters Association of Kenya (FPEAK), Ministry of Agriculture (MoA), Horticultural Crops Development Authority (HCDA), Kenya Plant Health Inspectorate Service (KEPHIS), Kenya Agricultural Research Institute (KARI) and explained to them my PhD research and its relevance to the cut flower industry. I sent formal letters of introduction and followed up these with phone calls to book appointments for face –

to – face, verbal briefings. All this worked very well and the authorities in these organizations were very supportive. In many instances they assigned specific officers as contact persons to assist me in case I needed any further help/clarifications from the organizations.

Having completed the formal briefings and obtained the necessary goodwill, I embarked on the process of making contacts directly with the farms and this is when the challenges started to emerge. First, the contacts obtained from the industry associations as well as HCDA did not specify the physical location/address of the farms. They only had postal addresses and in some cases, without postal codes. This meant that most of the letters could not be delivered by courier services to the addresses and neither could they be posted. Secondly, most of the telephone numbers in the addresses were no longer functional (did not ring at all), some had changed while some were ringing but went unanswered. This drastically reduced my viable sample from 116 farms to a mere 68 farms which we could reach by courier services, telephone and post. Interestingly, most of the farms' contacts had email addresses on them. The emails were either in the names of company directors such as director@companyname.com or the general company address such as info@companyname.com. However most of these emails went unanswered. I later learnt that some companies are registered as exporters for speculation purposes only, that is, they do not operate on a day to day basis but wait for opportunities when prices of flowers have gone up and they can make quick profits (Fintrac report, 2005). They quickly buy flowers, export and when prices dip; they fold up and wait for prices to go up again.

I sent formal letters of request for interviews to the 68 farms, together with brief introductions (background information) of the study. These letters were sent by post, courier services, email and fax depending on which mode was considered most appropriate to the circumstances of the farms. Over the next several weeks, I embarked on follow-up with telephone calls, email reminders to set up appointments. This is when the second challenge was to come to light: While some farms employed delaying tactics – with statements like, "the director is looking into it", "we shall get back to you", "the person responsible has travelled", "we shall call you back" – the other category insisted that the questionnaire should be mailed to them so they can fill it up in their own time. They were 'too busy for interviews and capable of understanding the issues' – they argued. To the latter group, I posted/emailed the questionnaires. To the former, I kept calling, sending reminders, and calling again. This second challenge was already

altering my initial plans for a face to face administration of the questionnaire. To ensure that the respondents did not encounter any problems of interpretations, I put together briefing notes on the main concepts used in the questionnaire to provide further explanation to the respondents on how to fill as well as what some of the concepts such as 'R&D' meant in the context of the study (see appendix F and H).

Two months into the fieldwork period, and the responses were still slow in coming. The time was quickly passing and there were no signs of success with this focus on the "big guys." Something needed to be done and urgently so! There was need in change of strategy and approach if the research was to succeed. I realized that I was rowing upstream and needed to change course.

In cases where I secured interviews – especially with the large scale farmers – the results of the interviews revealed a third challenge with the approach: The research was designed to focus on cases involving partnerships between small/large scale farmers, and the research instrument (the structured questionnaire) also reflected this focus. However, the question of size/scale being a relative one and with no water-tight definitions (see section on sampling on our categories), it emerged that farmers interpreted the size of their partners relative to their own sizes/scales. Because they did not readily know how much their partners were exporting, they based their estimates of size on the hectarage of the farms. For example, to a large scale farmer doing 200 ha of roses, another farmer doing 20 ha was quite small, while to a small scale farmer doing 2 ha, another farmer doing 20 ha is very big. Still, most farmers did not know the actual sizes (hectarage) of their partners. This third challenge brought into focus the small scale farmers (those who grew 0.125 ha on average) who were below the conceptual radar of the study as initially designed. These small scale farmers do not export their flowers directly and were therefore missing from the HCDA database of active exporters. They were also not members of the industrial associations and their exports were less than the one tonne (1000 kgs) minimum threshold set by the study.

Responding to the challenges 1: Casting the net wider to include smallholder farmers (with less than 1 ha on average).

These challenges were an eye-opener in different ways. First, from the difficulties experienced by the farmers in estimating the size of their partners, and the reflections resulting from this, it occurred to me that I had left out the most critical group/category in the initial design of the study – the smallholder farmers. This omission occurred because while in my mind, the term 'small scale farmers' referred to/included this

group, to the respondents small scale farmers refer to those who grow up to 5 ha of flowers (I later learnt this was HCDA categorization). Besides, because of their very small sizes (and low capabilities), large scale farmers rarely have partnerships with small scale farmers. Instead, most of their partnerships (where they existed) were with medium scale farmers as well as other large scale farmers and exporters. I therefore defined the small scale farmers to include those who exported less than 10 tonnes of flowers in 2007 and relied on other intermediaries (mainly exporters and other medium and large scale farmers) for export market access. The small scale category therefore included farmers with very small holdings (growing 0.125ha on average and exporting primarily through other intermediaries). The medium and large scale farmers included those who could access export markets directly (without intermediaries) besides exporting more than 10 tonnes of flowers in 2007.In order to capture this group of small scale farmers, the conceptual emphasis was broadened to include integration of these small scale farmers into the high value commercial horticulture. This broadening of the focus and emphasis introduced very interesting dynamics into the study. For example, as will be discussed later, it led to the inclusion of a new breed of actors – "the exporters without farms" – into the study. It also highlighted the role of governance in these partnerships and hence the inclusion of global value chain analysis into the theoretical underpinning of the study besides other dynamics.

Responding to challenges 2: from random to cluster sampling

With the emphasis broadened to include partnerships involving small scale farmers, I quickly figured out that it might be easier to start from the small scale farmers and ask them to identify their large scale partners. I contacted the Ministry of Agriculture's horticultural and industrial crops department who referred me to two non-governmental organizations (NGOs) that were working with smallholder farmers. These NGOs were AfricaNOW and the USAID-funded Kenya Horticultural Development Programme (KHDP) being implemented by Fintrac inc. I also approached KARI and HCDA to discuss the possibility of reaching out to small scale farmers (literature had shown that these organizations (NGOs, HCDA, KARI, MoA) had been connecting small scale farmers to large exporters). I secured the cooperation of AfricaNOW, KARI, HCDA and MoA who were quite enthusiastic about learning what their impacts and hoped that the findings of this study would shed some light on the impacts of their strategy.

Since there was no roster or even record of who these small scale farmers were or even their addresses which could be used as a sampling frame, I had to change my sampling criteria. Having established from the literature (secondary reports) that the cut flower farms are clustered in certain regions, I opted for cluster/area sampling (see the section

on sampling). With the help of HCDA, MoA and AfricaNow, I was able to maintain the focus on the initial five key regions: Naivasha, Limuru, Nairobi, Thika and Athi River. These areas had significant populations of small scale farmers besides medium and large scale farmers. Besides, they were located within a radius of about 100 kms from Nairobi.

Responding to the challenges 3: Adjusting the questionnaire to reflect new realities

The officials from the Ministry of Agriculture, HCDA, KARI and AfricaNOW were very helpful in identifying small scale farmers and occasionally accompanied me to the field. But there were more challenges with the research tool. I had to revise the questionnaire to take into account some issues specific to the needs/realities of small scale farmers. For example, the small scale farmers sold their produce in terms of "number of stems" and not kilogrammes/tones. In order to include this into the questionnaire and still capture the tones/kilogrammes of the small/medium and large scale farmers, I contacted the exporters who bought the flowers from small scale farmers and in turn exported them in tonnes/kilogrammes. Using standardized boxes used by these exporters in packing the flowers for export, we calculated the number of stems of flowers which fitted in each box and from this estimated the weight of the number of stems in each box. This approach (estimating the number of stems in kilogrammess) allowed us to incorporate the small scale farmers into the questionnaire together with small-scale farmers Secondly; the small scale farmers had partnerships mostly with "the exporters without farms" and not necessarily other large scale farmers. This meant that we had to include this category of actors into the questionnaire. Moreover, the small scale farmers felt that the concept of "R&D" excluded them and I had to broaden the concept of R&D to include what Stephen Biggs (quoted in Chambers, 1989) has called 'informal R&D' (that is R&D as conducted by farmers and artisans as contrasted with the formal R&D conducted in universities and research institutes). Defined this way, the concept of R&D includes small scale farmers' experimentations with biological control, traditional methods of pest/weed control and "other ways of knowing" which were relevant to them.

4.5 Cluster sampling

The challenges enumerated above necessitated a change in the sampling method as well as strategy in order to survey a relatively representative sample. Sapsford (2007) has noted that cluster sampling can be used to simulate random sampling, especially in cases where there is no sampling frame but the geographical spread of the population is known. Burns (2000) concurs that cluster sampling retains the principle of randomness and is convenient when the population is spread over a large geographical area.

However, despite its usefulness, many commentators also point out to the weaknesses of cluster sampling, notably, that it tends to exaggerate homogeneity in the population and that people closer to the respondent are more likely to be sampled than those far away (Bryman, 2008; Burns, 2000, Sapsford, 2007). In our case, we attempted to counter this weakness by selecting farmers from the different regions/clusters (this meant that farmers were far from each other). Secondly, the farmers interviewed were engaged in partnerships with different exporters and thirdly, the farmers grew different flowers in the different regions. These factors meant that experiences of the farmers were different. Even then, experiences from farmers in same groups/regions, having partnerships with similar exporters seemed to be similar.

By its very nature, cluster sampling is a multi-stage process (Bryman, 2008) since it begins by sampling whole groupings/aggregations of the population (clusters). These groupings/geographical units are then sampled further into sub-units until the desired level is reached (that is, stratification). In this study, this multi-stage cluster sampling was employed. After identifying the five main clusters to study (Naivasha, Limuru, Nairobi, Thika and Athi River), I enlisted the help of extension officers from HCDA, MoA, KARI and AfricaNOW to identify small scale farmer groups[43] in these regions.

[43] Smallholder farmers have been organized into small groups of about 15 – 20 members each

From the farmer groups, small scale farmers were randomly[44] selected to participate in the survey. For representation, the study aimed at interviewing 30 farmers from each cluster, giving a sample of 150 respondents.

4.6 Research Methods

"There's more than one gate to the kingdom of knowledge. Each gate offers a different perspective, but no one perspective exhausts the realm of 'reality' – whatever that may be" Robert Burns, (2000:11)

The words of Robert Burns in the above quote underpin the choice of methods employed in this study. Given the nature of the research problem, this study utilizes triangulation of a number of approaches and methods in order to explore the different angles presented by the research problem (Seale, 1999). The decision to use multiple approaches (quantitative and qualitative) as well as methods (documentary research, surveys, case studies and ethnography) in this investigation was informed by the outcome of the exploratory field visit to Kenya (Nov/Dec 2007); the pilot fieldwork (May 2008) and background reading on the structure and organization of the cut flower industry. Consequently, the study is structured in two inter-related phases; each phase addressing the over-arching questions. Whereas phase I utilizes documentary reviews, key informant interviews and questionnaire survey as the main methods, Phase II employs mainly qualitative approaches and focuses on a few selected cases with in-depth interviews and ethnographic techniques. The various methods used are explained below.

[44] Farmer groups had a list of their registered members. Participants were selected from these membership register.

4.7 Phase I: Quantitative approaches

Quantitative methods in research have been acclaimed as a useful means of generating generalizable statistics on a phenomenon based on a sample of the population. The key strengths of this approach emanate from its ability to permit precision and control (Burns, 2000; Scheyvens and Storey, 2003; Bryman (2008); Sapsford, 2007). Further, through statistical analysis, this approach can be helpful in explaining the correlation between various variables (Burns, 2000). Quantitative data, other than providing some element of precision, allows the researcher to compare rival notions/explanations to a phenomenon (Murkherjee and Wuyts, 1998). It helps in achieving greater clarity and understanding of the problem under investigation. In so doing, it helps to discriminate between the rival plausible explanations (ibid). Quantitative approaches use both primary data collected by the researcher as part of the study or secondary data already published by other organizations or authors. In some cases, primary data collection involves fieldwork (like was the case in my own research). The fieldwork is advantageous in that it allows the researcher to interact with the participants in their locality. This helps in understanding some of the case- and location-specific issues (contextual factors). Primary data can also be collected through surveys in which case the data analysts tend to be remote and distant to the local circumstances. On the other hand, secondary data are often produced by specialized (predominantly official) institutions (Mukherjee and Wuyts, 1998). The data are mostly aggregated using formal accounting frameworks which structure data into the predetermined categories and the production of such data follows standard procedures and techniques which enhance their consistency over time as well as their comparability between years, countries or even regions.

Colleting primary data, while time consuming and expensive, allows the researcher greater flexibility in producing evidence for the research questions at hand. However, such primary data tend to be case-specific, time-specific and location-specific because

their collection depends on the researcher operating in a particular location during a specific period of time. Because of the case- time- and location specificity "it's often impossible to verify the data or to correct inherent biases in data collection." (Mukherjee and Wuyts, 1998:248). In phase I of this study, primary data was collected primarily using a questionnaire survey as discussed below.

4.7.1 Questionnaire survey

The need for a sector-wide survey arose from the exploratory visit conducted in Nov/Dec 2007. The exploratory visit highlighted the need to determine (a) why and when farmers entered into partnerships, (b) the type of partnerships existing (market access versus production/supply) (c) who were the partners and (d) how were the partnerships structured/governed (contractual versus non-contractual). Besides providing some generalizable characteristics about the partnerships in the industry, the survey was also intended to provide a sound basis for selecting the cases to be studied in detail in phase II of the study. The use of questionnaire surveys is an important approach in contexts where information is needed on populations with large numbers of people or where comparative data is required (Woodhouse 1998). The questionnaire focused on four broad areas namely: i) the demographics of the farms, ii) the role of R&D, iii) partnerships and linkages iv) policy environment (see questionnaire attached as appendix G).

The questionnaire was administered by various methods as determined by the circumstances of the farmers (literacy, accessibility, locality, access to information and communication technologies (ICT) facilities etc). First, the large scale farmers preferred the questionnaire mailed to them by post or sent by email. Most of them declined a face to face administration of the questionnaire citing their busy schedules and that they would prefer to fill it during their own free time. Briefing notes were also prepared and mailed with the questionnaires to provide some background information on the key

concepts used in the questionnaire. In such cases where the questionnaires were sent by post or email, I followed up with phone calls to explain/clarify any further issues in the questionnaire. In some cases, it was impossible to locate the physical locations of the farms and the telephone numbers/email addresses given in the KFC, FPEAK or HCDA contact lists did not work (see box 1). In these cases again, I opted to send the questionnaires by post.

In the second approach, I personally administered the questionnaires to the farmers face to face. In cases where they were literate (could read and write), I explained the questions while they filled in the questionnaire. In cases where the farmers were illiterate, I explained the questions and filled in the questionnaire according to their responses. This approach was applied mostly to the small scale farmers.

4.8 Phase II: Qualitative approaches

From the broad generalizations of the survey in phase I, this phase focuses on a few case studies in order to provide a detailed description of how the institutions and governance mechanisms influence the potential of partnerships to build/enhance capabilities. Robert Stake (1978) has noted that case studies will often be the preferred method of research because they may be epistemologically in harmony with the readers experience and thus to that person, a natural basis for generalization. Even though the views on the generalizability of case study findings are subject of constant debate (See for example, Stake, 1978; Lincoln and Guba, 1979; Seale, 1999; Gomm *et al*, 2006), Stake has emphasized the importance of people's 'lived experiences' in understanding the nature of their world. He has further argued that the [45]tacit nature of knowledge (knowledge not easily expressed), and the fact that each person, expert or novice, is a store of immense tacit knowledge, makes case studies a powerful tool in understanding phenomenon. Phillip Woodhouse (1998) concurs with Stake and also emphasizes the

[45] Tacit knowledge includes a multitude of unexpressable associations which gives rise to new meanings, new ideas and new applications of the old (Stake, 1978)

need to capture people's tacit knowledge and perceptions in their capacity as users of services or resources and how these perceptions manifest in particular patterns of decision-making. The cases pursued in this study provide an in-depth understanding on the working of partnerships, how decisions are made, what incentive and reward structures exist and how compliance is enforced. They elucidate the influence that institutions and governance have on the ability of these partnerships to contribute to capability building.

4.9 [46]Case selection criteria

As part of the survey, farmers were asked about their willingness to participate in Phase II of the study (in-depth case studies) and their responses to this question was used for 'screening' those to be followed up for case studies. It was necessary to determine their willingness since the in-depth interviews are time consuming while ethnographic techniques (participant observation and oral testimonies) requires permission to attend meetings and interact with the participants in their 'natural settings'(Hammersley, 1992). Other than this initial screening, selection of the case studies focused on: (i) the type of partnership and main focus (market access versus production supply type) (ii) the institutional set up of the partnerships (contractual versus non-contractual) (iii) the duration of the partnerships (how long the partnership has been going on) and (iv) the status of the partnership (all the cases had to be on-going to give the study the contemporary focus, which is so important in case studies (Thomas, 1998; Yin, 1994))
Based on the above criteria four cases of partnerships were selected for in-depth study. Three cases were contractual (market access type) while one case is non contractual (production/ supply type). The three contractual (market access type) partnerships consisted of one contractual partnership which have been operating for 10 years; one

[46] The term case as used here reflects the definition given by Martin Hammersley (1992:184) and refers to "the phenomenon (located in time and space) about which data are collected and/or analysed, and that corresponds to the types of phenomena to which the main claims of the study relate"

contractual case operating for more than 5 years, one contractual case that has been operating for less than two years while the non-contractual partnership (production/supply type) had been operating for 10 years. These case studies are used in exploring the role of institutions (contracts versus non-contracts) and governance mechanisms in capability building. A number of methods were used in the case studies:

4.9.1 In-depth interviews

Using cases selected along the above criteria, focused in-depth interviews were conducted using a checklist to understand the institutional factors and governance mechanisms that determine the ability of partnerships to enhance capability building. The interviews were intended to 'put a face' to the hard data collected through the surveys. As Sue Meyer (1998:290) recounts, "data themselves are not knowledge. Data need to be interpreted and put into context before they become useful knowledge." Thomas (1998) drawing on the works of Curry (1992) and (Yin 1994), has described case study as an account and analysis of particular events and decisions and can be helpful in illuminating a decision or set of decisions, why they were taken, how they were implemented and what was the outcome. It is therefore important that in order to use case study, there needs to be a contemporary event focus. In the case of this study, the partnerships were on-going and the study sought to interrogate the policy of promoting partnerships as a means of market access as well as capability building. The main characteristics of the two main methods used in the study (structured survey and focused interviews) are summarized in table 10 below:

Table 10: Comparing the two main methods: structured survey and focused interviews

Element	*Structured survey*	*Semi-structured/focused interviews*
Nature of data collected	Mainly quantitative, even though could also capture some qualitative data	Mainly qualitative information
Main objective	To generate a description of the wider population based on a small sample of the population. Useful in contexts where information is required from a large population or comparable data is required	To identify as wide a range of different viewpoints as possible; selection of participants are not related to the wider populations in any quantitative sense.
Sampling	Based on probability sampling where each member of the population stands an equal chance of being surveyed	Based on purposive sampling or key informants. Participants are chosen on the basis of their importance to the purpose of research or distinctive knowledge/viewpoint
Design	Design issues are completed before the survey starts and all informants selected before interviewing begins	Design continues into the interviewing phase because informants are identified progressively making use of earlier interviews
Formulating questions	All questions are defined before interviewing starts and identical sets of questions are addressed to all informants using a questionnaire	Normally begins with an interview schedule, with broad headlines, and supplementary questions are identified and modified in response to the earlier questions. The questions are tailored to each informant and different stages of the research
Analyzing responses	Data organized to understandable patterns using statistical analysis	Data organized by comparing what different informants say about specific themes or questions
Data validation and rigour	Findings validated by probability criteria: the calculations of the likelihood that patterns observed in the data have arisen by chance	Data validated mainly by triangulation and documentation; ensuring that information from different sources lead to the same conclusions

Source: modified by author from Woodhouse (1998)

4.9.2 Ethnographic techniques

Closely linked with the in-depth interviews, I used ethnographic techniques (participant observation) to understand the actual actions of the partners in their natural settings (Hammersley, 1992; Taylor, 2002; Maanen, 1988; Denzin, 1997; Denzin and Lincoln, 2005). This approach was largely dependent on the cooperation of the farmers because it required that I access the premises, attend meetings, and visit their farms in order to observe their activities, ways of life and experiences (Taylor (2002; Hammersley, 1992). I had the chance to interact with the participants, visiting their homes/farms,

participating in their activities while observing the decision-making processes, their interactions and relationships with each other.

During the course of fieldwork, I spent time with the flower farmers in order to understand how they make choices about their partners, make the rules about their small groups, how the contracts are negotiated, how these rules are enforced and the challenges they face. I participated in the following activities during the life of the study:

- *Farmers training workshop:* I attended a farmers training workshop on 'group dynamics and management skills'. This training workshop was organized and conducted by KENFAP[47]/AfricaNOW[48] and KFC[49] at Kiboko Hotel, Limuru[50]. In this two day workshop, leaders of farmer groups from Limuru and Naivasha areas were trained on various aspects group dynamics, leadership skills, group constitution making, good agricultural practices (GAPs), pesticide handling and use amongst other topics. The groups were mixed; including those who had been growing and exporting flowers through contracts with the exporters and the newly recruited ones who were yet to begin cultivation. This meeting helped in identifying some of the concerns and challenges facing small scale farmers in their partnerships with large holders/exporters.

- *Contract negotiation meeting:* I attended a 'contract negotiation meeting' between AfricaNOW (NGO), [51]WVFE (the exporter in Naivasha), HCDA (regulatory authority) and farmers/groups (representatives): the purpose of this meeting was to 'enlighten' farmers of the contract provisions and expectations as well as *modus operandi* of contractual partnerships. The challenges and concerns the farmers had

[47] Kenya Federation of Agricultural Producers
[48] An international NGO operating in Kenya and implementing a project on 'encouraging smallholder farmers' participation in export floriculture'
[49] Kenya Flower Council
[50] One of the study sites/clusters
[51] Real name withheld to ensure anonymity

raised in the training workshop were at play. A pre- prepared contract was presented to the farmers and the NGO officials as well as the HCDA officials together with the exporter explained the provisions, the expectations of each party and penalties in case of default. After long deliberations and without a unanimous agreement, the partners agreed to postpone the contract signing (and continue to work on a non-contractual basis) till they have familiarized themselves with the contract and built enough confidence on the exporter – this they called the "courtship period." The issues of contention were noted as well as how they were resolved.

- *Contract renewal:* In Thika region, I attended contract signing/renewal ceremonies[52]. In this case, another exporter ([53]WAL) was renewing its contracts with small scale farmers in Gitanga/Gatundu areas. With their permission, I accompanied them during this visit and witnessed the process of signing/renewing contracts. I also noted the issues being raised by the farmers, interviewed their officials who clarified some of the contentious issues that were being raised by the members.

- *Collection visits*: On two occasions, I accompanied WAL (the exporter) on their flower [54]collection visits in Thika and Gatundu regions and witnessed how farmers were conducting their grading at the shades; how the company field staff were supporting them in grading and packaging – what they termed 'doing together' – in order to help the farmers learn how to grade on their own'[55].

- *Agronomic visits:* I accompanied the extension officers from the two exporters (WAL and [56]NGL) as well as from the NGOs (AfricaNOW) and HCDA on their field visits and observed their interactions with farmers; the questions being asked by farmers, issues/complaints being raised; how they took orders for pesticides and other

[52] See photos in appendix B
[53] Real name withheld
[54] See photos in appendix B
[55] As discussed under the case studies, the farmers only did preliminary grading....additional packaging was undertaken in the exporters' premises.
[56] Real name with held for anonymity

inputs (this only applied to the exporters) and these would be supplied in the subsequent visits.

- *Horticultural fair:* I attended a two-day horticultural fair dubbed 'the Naivasha Hortifair, 2008[57]. This fair brought together the key players in the horticultural industry in Kenya. I had the chance to interview a number of actors, made contacts for follow ups and access corporate publications such as brochures, flyers, annual reports, strategic plans etc from most of the companies represented.

- *Farm visits:* I visited a number of flower farms ranging from large -, medium -, and small-scale . Most of the interviews were carried out in the farms/farmers premises such as grading sheds and packaging facilities. This enabled me to probe further and corroborate claims made regarding technologies and innovations.

4.9.3 Documentary research

A number of key documents were consulted during the study. These documents, which included amongst others, previous industry studies, national economic surveys, export statistics, regulatory and developmental policies including Acts of Parliament and five-year development plans, electronic databases helped in setting the national context as well as in mapping out the key actors and their roles in the cut flower industry. Besides, during the fieldwork, I obtained constitutions of farmer groups, contracts between farmers and exporters; purchase orders; policy documents, brochures and other corporate documents from the farmers/interviewees.

4.9.4 Key informant interviews

The survey as well as in-depth interviews were augmented by key informant interviews with industry practitioners representing various actors in the industry including; industry associations (Kenya Flower Council (KFC) and Fresh Produce Exporters

[57] This occurred on 12 – 13 September 2008 in Naivasha.

Association of Kenya (FPEAK); Ministry of Agriculture (MoA), Horticultural Crops Development Authority (HCDA) and Kenya Agricultural Research Institute (KARI). These interviews were focused on two key issues: (i) understanding the role of the different actor categories in supporting small scale farmers, with particular emphasis on capability building and (ii) understanding the views and perceptions of the practitioners on the policy and institutional environment. Thirty (30) interviews were conducted representing various actor categories.

4.9.5 Why a triangulated approach?

Triangulation refers to the use of multiple sources of information to test and modify one's understanding (or 'theory') of a given problem or situation. In practice it involves using different methods of inquiry, different informants and different investigators to see whether the ideas and information they generate can be accounted for by the developing theory of the issue under investigation (Woodhouse, 1998). The methods used in this study have been directed largely by the research questions/research problem as well as the practical realities in the field. The details of these (research questions/problem and the practical challenges) have been highlighted in the previous sections. This section summarizes the choice of methods and the benefits of employing the different approaches and methods in this study.

While documentary research mostly highlights coded information from books, policy documents, websites and electronic databases, the use of key informant interviews resulted in key insights and experiences of industry leaders and practitioners and led to better understanding of the structure, organization and challenges of the cut flower industry. These open-ended interviews were useful in filling gaps in the literature besides providing historical information about the growth of the sector and the key policy shifts and their effects on the industry. The survey resulted in generalizable empirical data from a rather 'impersonal perspective' and allowed the description of the

key characteristics of the industry. Besides, the survey through a 'screening process', enabled the selection of cases to be studied in phase II of the study. By selecting the cases from existing partnerships, it afforded the case studies the contemporary focus which is important in understanding how decisions are made and implemented (Thomas 1998). The use of case studies and interviews helped to 'bring life to the data' by augmenting the claims made in the survey by a 'personal touch' and allowing the researcher to further interrogate claims besides helping to explain the trends revealed by the survey. Finally, the observation/ethnographic techniques allowed me to witness firsthand how the claims are being manifested in reality. The use of multiple methods was intended to eliminate bias and shortfalls of single-method approaches.

4.9.6 Data Analysis

Murkherjee and Wuyts (1998:243) have observed two general trends with data analysis and note that, "sometimes you test ideas against data, and at times you get ideas from data" and advise that in conducting analysis, "it is advisable that even as you test your ideas against the data that you don't turn a blind eye to any clues, hints, that may point you towards more interesting insights". They offer the analogy of these two approaches to analysis thus:

> In practice, this dual role requires different but overlapping analytical skills. Testing ideas against data is more like a court of law testing the hypothesis of not guilty according to the available evidence. Getting ideas from data is more like a detective using the available evidence to unravel the real motive/explanations behind the crime, who committed it, how it was done and why. The former employs confirmatory data analysis, using heavy artillery – probability theory and statistical inference – and its mathematical threshold is fairly high given its reliance on formulae and statistical testing; while the latter

> employs exploratory data analysis and is more flexible in nature, making extensive use of graphical tools to look at data. (pp. 246)

In our case, the analysis was more exploratory than confirmatory. Quantitative data derived from the survey were coded and analyzed using SPSS 16.0. The trends emerging out of this analysis provided the basis for further exploration into the role of institutions and governance arrangements in phase II of the study.

The focused interviews in phase II were recorded using an audio-recorder as well as hand-written notes. In line with ethical requirements, consent of the participant was sought before recordings were made (see appendix E for the ethical approval memorandum). The participants were informed that they reserved the right not to be taped and could ask that the recorder be switched off at any stage. They were further informed that they could decline to answer questions if they were uncomfortable with the questions (see interview consent form in appendix I). The recordings from these interviews were transcribed and analyzed using Nvivo 8 package. These interview responses provided insights into the workings of the partnerships, how they were initiated, how decisions were made and how the incentive, rewards and sanctions were enforced. The details of these are presented under the chapters dealing with the relevant analyses and results.

Chapter 5: THE ROLE OF 'FARMER – EXPORTER' PARTNERSHIPS IN CAPABILITY BUILDING

"The main challenge lies in post-harvest .....because you have a very good climate and grow very good flowers. But when it comes to the other end (market), you can't make it. This is a challenge more so to small scale farmers because they can't afford the qualified personnel and (of course) when the crop is damaged, you can't sell it. The other challenge has to do with the customer demands...the customers are demanding on packaging and presentation of the flowers and the quality. This is difficult for the small scale farmers in the sense that you require a lot of finances" Medium scale farmer (December, 2008[58])

5.1 Introduction

As part of its objective of promoting marketing, agro – processing and trade, the Kenyan government is "promoting partnerships between smallholder farmers and agribusiness through contracts" (SRA, pp. 106). These partnerships are conceived as mutual arrangements in which small scale farmers enjoy assured markets for their products, receive extension and advisory services, access inputs and credits while the contractors (agribusiness) benefit from assured supply of commodities of higher quality.

We argue that this conceptualization of small scale farmers' problems as a market access issue leads to a narrow focus of this policy initiative to production of high quality flowers demanded by agribusiness companies as opposed to building broad based capabilities for innovation (applying new knowledge and technologies) to access export markets). Further, the policy emphasizes on inputs (seeds, fertilizer, pesticides etc) and outputs (quality flowers) with little emphasis on the processes that accompany flower production and exports (post-harvestpost-harvest handling, value addition and logistical issues). This chapter examines the 'farmer – exporter' partnerships in the flower

[58] This farmer began as an outgrower producing summer flowers and exporting through a bigger farmer in 1988. She later grew her farm and began exporting her own flowers in 1992

industry with regards to their role and contribution in building capabilities of small scale farmers.

Box 3: Recapping on the capabilities

This thesis draws its definition of capabilities heavily from the works of Leonard – Barton (1992) on "core capabilities" and Teece (1998; 2009) on "dynamic capabilities." Leonard-Barton defines capabilities as the 'knowledge set that differentiates and confers competitive advantage.' Leonard-Barton identifies four dimensions of core capabilities thus: skills and knowledge base; technical systems; management systems and values and norms.

The first dimension, *skills and knowledge base* refers to 'the difficult – to – imitate know – how, talents and experiences', which are embodied in individuals/employees. The second dimension refers to the fact that this knowledge is sometimes embedded in *technical systems.* This resonates with Mackenzie and Wackjman's (1985) assertion that technologies are more than physical artifacts but an embodiment of knowledge. The third dimension refers to *management systems* that is, systems of monitoring and coordination that guide knowledge creation and control, while the fourth dimension – *values and norms* – speaks to the role of institutions that determine how knowledge is generated, shared and controlled.

Teece, Pisano and Shuen (1997) and (1998; 2009) have defined "dynamic capabilities" as the ability to sense and then to seize new opportunities, and to reconfigure and protect knowledge assets, competencies and complementary assets and technologies to achieve sustainable competitive advantage.

The dynamic capability – the ability to sense and seize opportunities – ties in closely with innovation, that is, the application of new knowledge for economic or social benefits. Dynamic capabilities concern whether new knowledge when gained is applied/utilized to enhance the competitiveness of the firm. Such dynamic capabilities

determine the farmers' ability to reconfigure their activities and adapt to their changing contexts. With constant changes emerging from the markets, farmers need to continuously adapt to meet new standards and conditions. The main thrust of this thesis therefore lies on whether the farmer-exporter partnerships lead to learning (gaining new knowledge by farmers) and whether this learning leads to innovation (whether farmers apply the knowledge learnt from such partnerships) and how these two key processes (learning and innovation) influence the farmers' capabilities to respond to challenges and changes in their contexts. The capabilities under consideration are elaborated below:

Production capabilities refers to the knowledge set required for all the pre-harvest activities from deciding on which flower varieties to grow, when to grow it (production calendar), how to grow it (technologies, methods and techniques), which inputs are required (farm inputs such as greenhouses, fertilizers, agrochemicals etc), to when to harvest the flowers (in synchronization with peak demand in the market). Making decisions about these aspects is key to the production of good quality flowers at low costs.

Value addition capabilities refer to the knowledge set required for the range of activities that occur between harvesting of flowers and their arrival in the final markets. They are processes that transform the flowers from the 'raw materials' (mere plant branches, leaves and florets in the farms) to 'finished products' (the attractive, neatly presented aesthetic flowers sitting in flower vases in consumers' houses/offices etc).

Marketing capabilities refers to knowledge about the mechanisms through which the flowers reach their final destinations (the consumers). These marketing capabilities ensure that the farmer can access and retain key markets for their flowers (whether these are export or domestic markets). Developing these capabilities is important not only in encouraging farmers to grow flowers but also in ensuring that they obtain the best prices for their products.

5.2 Survey Results I: The Demographics

5.2.1 Distribution of respondents by farm size

In order to determine the sizes/scale of the respondents, the respondents were asked to approximate the volume of their exports in 2007 according to a prescribed scale (see questionnaire). Amongst a sample of 116 farmers and exporters interviewed, 60 percent were small-scale[59] (exporting less than 10 tonnes of flowers), 26 per cent were medium scale (exporting between 10 and 50 tonnes) while 14 per cent were large scale (exporting more than 50 tonnes) in 2007. These are shown in table 11 below.

Table 11: Respondents' size by volume of exports in 2007

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Small scale farmers	51	44.0	60.0	60.0
	Medium scale farmers	22	19.0	25.9	85.9
	Large scale farmers	12	10.3	14.1	100.0
	Total	85	73.3	100.0	
Missing	n/a	31	26.7		
Total		116	100.0		

The volume of exports in 2007 was used as a proxy for farm sizes. This was deemed appropriate for a number of reasons: First, the HCDA database of exporters in 2007 which provided the initial sampling frame was based on volume of exports; second, HCDA collets export levies from exporters based on the volume of exports. Third, the membership and annual subscription fees to industry associations (FPEAK and KFC) are based on volumes of exports and the Kenya Revenue Authority (KRA) collects taxes based on the values of exports (these values are in themselves calculated on the basis of volume of exports) and lastly, in their partnerships with exporters, farmers are

[59] These were defined in the questionnaire to include farmers who exported less than 10 tonnes and exported primarily through agribusiness intermediaries (exporters).

paid on the basis of the volume of flowers[60] (in the case of small scale farmers, the volumes number of stems) which meet the required standards specified in the contracts.

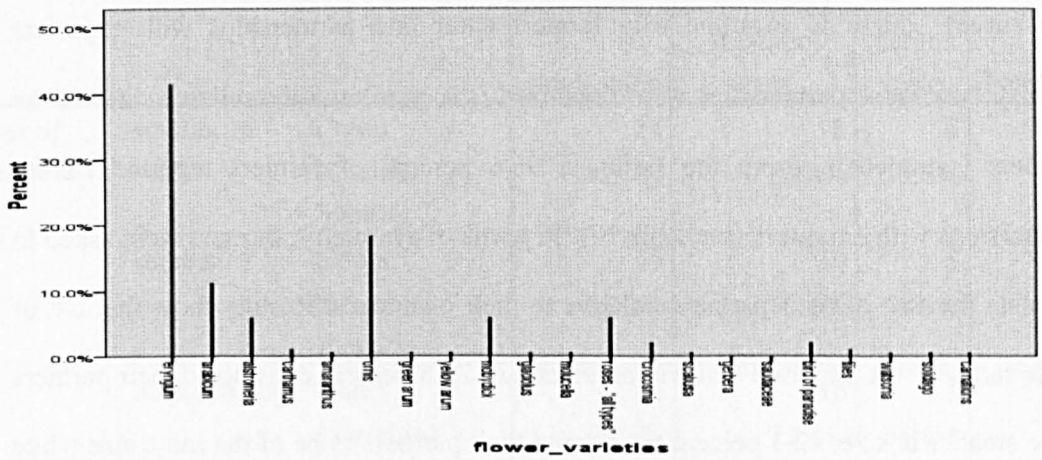
The resultant distribution of the sample mirrors the actual spread of farmers within the industry. The secondary data presented in Chapter 2 showed that whereas there were about 160 medium- and large scale farmers/exporters, small scale farmers were estimated to about 70, 000. Indeed, Kiptum (2005) and Muthoka and Mureithi (2008) have shown that even amongst the 160 exporters, some 24 companies dominate the production and export of cut flowers. The pyramidal structure of the industry is therefore reflected in the sample of respondents in this study.

5.2.2 Main flower varieties

The survey showed that Eryngium (40%), Ornithogalum (17%), Arabicum (11%), Mobydick (6%) and Roses (10%) were the main varieties grown by the respondents (Figure 7). Given the distribution of the respondents (over 80 percent small scale farmers/small scale farmers), this finding is to be expected since the majority of respondents (small scale farmers) ordinarily grow summer flowers. This distribution of the main flower varieties is consistent with an earlier baseline survey conducted by (Fintrac 2005) which found that Eryngium (19%), Ornithogalum (14%), Arabicum (12%) were the main flower varieties grown by small scale farmers. The roses were grown by large scale and some medium scale farmers. The main varieties grown by small scale farmers, their common and scientific names and a brief description of each are provided in the appendix K

[60] In the case of contractual partnerships between small scale farmers and exporters, the payment is calculated on the basis of number of stems of flowers sold. In this study we calculated the volume of flowers sold to exporters by counting the number of stems of each flower variety which fitted in the standardized packaging boxes used by the exporters. From these we estimated the volume of flowers sold by the small scale farmers.

Figure7: Main flower varieties grown by respondents



5.2.3 Ownership structure

The ownership of the farms interviewed was largely local (96.6%) with foreign ownership being 2.6 % and 0.9 % joint venture (table 12). The majority local ownership is attributed to two factors: the sample distribution (most of the respondents were small scale farmers) and the fact that some owners of large scale farms are Kenyans of foreign descent. As such even though the distribution shows a huge local ownership, the participation of indigenous Kenyans in this industry is largely restricted to small-scale and some medium scale farms. The low participation of indigenous Kenyans is attributed to a number of factors, some of which are discussed in Chapters 1 and 2.

Table 12: Ownership structure of the farms

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	locally owned	112	96.6	96.6	96.6
	foreign owned	3	2.6	2.6	99.1
	joint venture	1	.9	.9	100.0
	Total	116	100.0	100.0	

5.2.4 Partnerships: focus, symmetry and structure

The survey sought to examine why farmers enter into partnerships with exporters (focus), how those partnerships were organized (structure) and the relative sizes of the partners (symmetry). From the findings, 96.6 percent of farmers reported having partnerships with exporters (see table 13). In terms of symmetry, farmers were asked to estimate the size of their partners, relative to their own sizes. Results show that out of those farmers who reported being in partnerships, 22.8 percent considered their partners to be smaller in size; 42.3 percent considered their partners to be of the same size while 34.9 per cent considered their partners to be larger in size (see table 14a).

In effect, some 57.7 percent of the farmers were in some form of 'asymmetric partnership'. A cross tabulation of the size of farmers with the size of their partners show that small-scale farmers typically have partnerships with same size (88.2%) and larger partners (70.6%); the medium scale farmers mainly have partnerships with same size (86.4%) or smaller (81.8%) as well as a sizeable proportion of larger partners while large scale farmers predominantly have same size partners (88.9%) (See table 14b)

Table 13: Partnerships with exporters

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	112	96.6	96.6	96.6
	No	4	3.4	3.4	100.0
	Total	116	100.0	100.0	

Table 14a: Symmetry: Size of partner (exporter) relative to respondent (farmers)

		Responses		
		N	Percent	Percent of Cases
size of partners	smaller in size	55	22.8%	48.7%
	same size	102	42.3%	90.3%
	larger in size	84	34.9%	74.3%
	Total	241	100.0%	213.3%

Table 14b: Symmetry differentiated by farm sizes

			size of farmers			
			small scale	medium scale	large scale	Total
Size of partners[a]	smaller in size	Count	27	18	5	50
		% within Identity	52.9%	81.8%	55.6%	
	same size	Count	45	19	8	72
		% within Identity	88.2%	86.4%	88.9%	
	larger in size	Count	36	16	5	57
		% within Identity	70.6%	72.7%	55.6%	
Total		Count	51	22	9	82

Percentages and totals are based on respondents.
a. Group

From the distribution of the choice of partnerships (i.e. small scale farmers preferring same size or larger; medium scale farmers having partnerships across the board and large scale farmers choosing predominantly same size partners), it appears that farmers are guided in their choice by the underlying principles of partnerships as identified by Robinson, Harris and Hewitt (2000), i.e. mutualism, congruence and competencies. For example, when small scale farmers prefer partners of same size or larger, it can be deduced that they gain from these partnerships through exchange of knowledge; they can also access inputs and credit from these partners as well as access training opportunities for capability building. For medium scale farmers, the choice of partners range from smaller, same size and even larger. Again this can be explained by the fact that from their smaller partners, they can access flower varieties which they themselves do not grow; from their same size and large partners, they can share knowledge and 'compare notes' on production, value addition and marketing issues. The large scale farms are mainly vertically integrated and their interactions with same size partners mainly revolve around sharing of information, market access and collective action in policy advocacy.

As regards the focus of the partnerships, most of the farmers (73.9%) entered into partnership in order to access markets (market access type) while 19.6% viewed their major reasons for being in partnerships as production/supply type. "Market access type" partnerships are motivated by the inability of small scale farmers to access export markets due to a number of factors including stringent regulations/standards; technological and capital intensity of production as well as lack of linkages with the markets. These partnerships are largely contractual and are seen to serve the interests of small scale farmers. On the other hand, "production/supply type" of partnerships are initiated by large holders/exporters, who already have markets but either have no products (flowers) or do not have enough quantities. In such cases, the large scale companies purchase flowers from other farmers, consolidate their volumes and export. Such partnerships are largely non - contractual. The remaining 6.5% were in partnerships for other reasons including training, funding, access to inputs and funding (table 15).

Table 15: Main reason (focus) for partnership

		Responses		
		N	Percent	Percent of Cases
focus of partnership	market access	102	73.9%	91.9%
	production/supply	27	19.6%	24.3%
	Other	9	6.5%	8.1%
	Total	138	100.0%	124.3%

As table 16 shows, in terms of the structure of partnerships, 63.4 percent of these partnerships were contractual (having legally enforceable contracts) while the other 36.6 percent were non-contractual (having other forms of agreements including memoranda of understanding; purchase agreements/orders etc). Interviews with farmers showed that contractual partnerships were mainly between small scale farmers and exporters while partnerships between large holders and exporters were mostly non-contractual. This is

attributable to the existing weak capabilities of small scale farmers compared to the strong capabilities of large scale holders. Whereas the small scale farmers required a higher degree to monitoring and coordination, large holders had established a track record and could easily be trusted by the exporters.

Table 16: Structure of farmer – exporter partnerships

		Responses		
		N	Percent	Percent of Cases
Structure of partnership	Contractual	90	63.4%	84.9%
	Non-contractual	52	36.6%	49.1%
	Total	142	100.0%	134.0%

5.3 Survey Results II: Learning and Innovation

5.3.1 Learning from partnerships

Learning is almost a natural outcome of interactions between farmers and exporters. In the survey, 99 % of the respondents reported having learnt something new from the partnerships. This sharing of knowledge leads to broadening of the 'skills and knowledge base of the farmers' (see dimensions of Leonard-Barton's framework) and the type of knowledge (whether for production, value addition or marketing) gained defines what capabilities are improved as a result of the interactions. Responses from the survey sample are presented in table 17a below. It is noteworthy that farmers have rated production capabilities (including indicators for new varieties, new technologies, adaptation of new technologies to the needs of the farm, improved growing methods and complying with new environmental standards) at 58.6 percent (that is new technologies, varieties + other production indicators in the table). However, value addition capabilities are rated low at 18.2 percent and marketing capabilities are rated at 23.3 per cent.

Table 17a: Learning from partnerships

		Responses		
		N	Percent	Percent of Cases
What was learnt from partnership	*(a) Value addition capabilities*			
	Bouquets/new floral arrangements, increasing shelf/vase life, better packaging, avoid spoilage	43	18.2%	41.0%
	(b) Production capabilities			
	new varieties, technologies	76	32.2%	72.4%
	improve growing methods, adapt new technologies and comply with standards	62	26.3%	59.0%
	(c) Marketing capabilities			
	new marketing strategies and comply with marketing standards	55	23.3%	52.4%
	Total	236	100.0%	224.8%

A cross tabulation of the farm sizes with the type of learning from partnerships (table 17b) show that out of the 50 small scale farmers who responded, 80 percent learnt about production capabilities (new varieties, new technologies and new bouquets) and 54 percent learnt about improving their growing methods, adapting new technologies to the needs of their farms and complying with new environmental standards. In contrast, less than half of the respondents (48percent) learnt about value addition (increasing vase life, better packaging and avoiding damage/spoilages while only 40 percent learnt about marketing capabilities (reducing production costs; new marketing strategies; complying with new market standards). Among the medium scale farmers, 33 percent learnt about value addition capabilities while 57 percent learnt about marketing while in the large scale category, 28.6 percent recorded learning about value addition capabilities while 85.7 percent learnt about marketing capabilities.

Table 17b: Learning by farm sizes cross-tabulation

			size of farmers			
			small scale	medium scale	large scale	Total
What was learnt[a]	new varieties, technologies, bouquets	Count	40	16	5	61
		% within Identity	80.0%	76.2%	71.4%	
	increasing shelf/vase life, better packaging, avoid spoilage	Count	24	7	2	33
		% within Identity	48.0%	33.3%	28.6%	
	improve growing methods, adapt new technologies and comply with standards	Count	27	9	5	41
		% within Identity	54.0%	42.9%	71.4%	
	new marketing strategies and comply with marketing standards	Count	20	12	6	38
		% within Identity	40.0%	57.1%	85.7%	
Total		Count	50	21	7	78

Percentages and totals are based on respondents.
a. Group

5.3.2 Innovating as a result of partnerships

This section reinforces the importance of learning from partnerships. It seeks to elucidate how 'what is learnt in the partnerships' is being applied. This is informed by the fact that application of knowledge – putting what has been learnt into use for social and economic benefits – is the essence of innovation.

(i) Production capabilities

The indicators for this capability include whether the farmers engaged in any of the following as a result of their partnerships with exporters: introduced new varieties (89 percent), acquired new technologies (78 percent), adapted new technologies (69 percent), used new combinations of inputs (81 percent) and complied with new environmental standards (74 percent). As the figures indicate, on average, farmers have rated this capability very high, indicating that these partnerships help to develop production capabilities. A breakdown by farm sizes show that small scale and medium

scale farmers seem to have applied knowledge gained under this capability more than the large scale farmers (see table 18 below).

Table 18: Type of innovations resulting from partnerships by farm categories

Types of capabilities	Capability indicators	Small scale	Medium scale	Large scale	Total response
1) **Production capabilities**	Introduced new flower variety	95.6%	100%	50%	**89.4%**
	Introduced new technologies	90.5%	95.0%	50%	**77.9%**
	Adapted new technologies to the needs of the farm	80.5%	55.0%	42.9%	**69.0%**
	Used new combination of inputs	82.5%	85.0%	62.5%	**81.5%**
	Complied with new environmental standards	78.4%	70.0%	75.0%	**73.7**
2) **Value addition capabilities**	Introduced new flower arrangements/bouquettes	16.2%	5.6%	12.5%	**12.2%**
	Improved shelf/vase life of flowers	69.0%	53.8%	44.4%	**56.9%**
	Introduced new packaging materials	55.6%	47.4%	66.7%	**48.6%**
	Reduced number of spoiled flowers	57.1%	45.0%	66.7%	**58.0%**
3) **Marketing capabilities**	Sold flowers in new markets (domestic or exports)	90.3%	83.3%	62.5%	**75.0%**
	Complied with new market standards	84.2%	40.0%	57.1%	**72.1%**

(ii) Value addition capabilities

The indicators here include whether farmers had: introduced new bouquettes/floral arrangements (12 percent), improved shelf/vase life of their flowers (57 percent), introduced new packaging or packaging materials (49 percent), reduced number of spoilages (58 percent). On average, these indicators have been scored less in comparison with either production or marketing capability indicators.

(iii) Marketing capabilities

The indicators for this include whether farmers were able to: sell in new markets (75 percent) and comply with new market standards (72 percent). It appears as a result of being in partnership with exporters, more small scale farmers accessed new markets and complied with market regulations as compared with the large scale farmers. Table 18

below gives a summary of the farmers' responses with regards to innovations resulting from their partnerships with other farmers/exporters.

5.4 Discussion and Analysis

The survey findings point to the following key findings:

(a) That in general, farmers have scored value addition activities lower for both learning and innovation as contrasted with production activities which are scored quite high. Despite this general trend, the survey shows that, small scale farmers learnt more of value addition capabilities (48 percent) as compared to medium scale farmers (33.3 percent) and large scale farmers (28.6 percent).

(b) In marketing, small scale learnt less (40 percent) compared with medium scale farmers (57.1 percent) and large scale farmers (85.7 percent). In general though, it appears that indicators for marketing capabilities have been scored highly for both learning and innovation. This trend suggests that the objective of market access is being achieved fairly well through these partnerships. In the survey, "new markets" were defined to include new exporters, new outlets domestically and new export markets. Marketing capabilities indicators therefore include the fact that farmers can sell through exporters as opposed to the domestic markets; that the small scale farmers can switch to new exporters (and get new contracts with new terms) or even that the larger farmers and exporters can access new export markets for example switch to US or Japan instead of the traditional EU market or even get into new contracts with new groups of farmers.

These trends are the focus of our analysis in this chapter and we draw upon multiple sources of literature including supply chain management (SCM), global value chains (GVC) and innovation systems to provide an explanation to the observed trend.

5.4.1 Beyond the "lock in – lock out" dichotomy

Several analysts have cast doubts on the role of partnerships as a capability building strategy. They have argued that differential power relations (Robinson, Hewitt and Harris, 2000; Smith 2005); asymmetry in information and resources (Christopher and Jutner, 2000; Johnsen and Ford, 2008); dependency (Parker and Hartley, 1997) may undermine the potential for interactive learning and lead to a situation where weaker partners (in this case, small scale farmers) are "locked in" narrow confines of the relationship such as production but are "locked out" of value addition activities that generate premium rents. They have argued that further, the norms of the relationship (its institutional architecture) may lead to weaker partners being held hostage to the partnership, usually through contractual arrangements that skew the relationship in favour of the stronger partners. Our study shows that even though in general terms, trends may exhibit this "lock in – lock out" scenario, a closer scrutiny of the farmer-exporter partnerships demonstrate that whereas farmers gained and applied more knowledge on production aspects than value addition and marketing (as would be expected), small scale farmers were not completely locked out of the value addition activities. As the results of the survey show, small scale farmers learnt more on value addition (48 per cent) than medium scale (33.3 per cent) and large scale farmers (28.6 percent). Our analysis attribute these findings to the role of institutions (contractual versus non contractual) as well as the governance patterns of these 'farmer – exporter' partnerships as will be explained in the sections that follow (see from 5.4.2) and in the next chapter.

When viewed through the lenses of supply chain management literature, 'farmer – exporter' partnerships are analogous to the 'buyer – supplier partnerships'. In this body of literature, this buyer – supplier integration[61] is viewed as an integral strategy of maintaining competitiveness (Christopher and Juttner, 2000) and is argued to have resulted in growing inter – dependency amongst the parties in the supply chain. The cooperation that results from these partnerships is seen as essential pre-requisites for the achievement of long-term mutual benefit (ibid). Such cooperation helps in building the capability of suppliers while affording the buyer the oversight role (through monitoring and coordination) to ensure timely delivery of high quality products. As such, these partnerships are often intended for the mutual benefit of both the suppliers (in our case, small scale farmers) and buyers/customers (in our case, the exporters).

In the 'farmer – exporter' partnerships, and particularly where the farmers are small scale with weak capabilities, building the requisite capabilities becomes an integral role of the lead firms – in this case, the exporters. However, a high level of risk exposure may undermine the extent to which exporters are willing to invest in building the capabilities of their suppliers. For example, these 'farmer – exporter' partnerships are prone to a number of challenges which influence their relationships. First, the exporters have to deal with a large group of weak (and sometimes overly dependent) suppliers. This not only increases their transaction costs but also the costs associated with monitoring and coordination. Secondly, the exporters face the risk of opportunistic behaviour from the farmers (it is sometimes difficult to distinguish poor performance resulting from lack of knowledge or opportunism). Third, there is always the possibility that competitors (other exporters) could tap into the pool of skilled suppliers already developed by one exporter. This risk is even more pronounced from the [62]unlicensed (hence unregulated) agents and middlemen who also operate in the industry. From field

[61] Supplier integration is also called collaborative partnerships, strategic alliances, partnership sourcing
[62] Because these agents are not registered by HCDA, it is difficult to rein them in.

interviews some exporters complained of cases of certain competitors (other exporters) using agents (unregistered middlemen) to buy flowers from small scale farmers in disregard of existing contractual agreements.

These challenges keep the exporters constantly under (competition) pressure and amplify the need for the exporters to be protected or protect themselves from competition, poaching of their skilled suppliers or opportunism.

This need for 'protection' has been emphasized by Kaplinsky (2006) who has argued that in such cases (where lead firms have to invest in building supplier capabilities), the lead firms require adequate safeguards to ensure that competitors don't tap in the pool of skilled producers they have developed. This concern has been echoed by Christopher and Juttner (2000:119) who have also noted that, "partnerships are resource-intensive investments with not only a financial risk, but maybe more importantly, a strategic risk emerging from the increased vulnerability of the parties and their exposure to opportunistic behaviour." In the case of asymmetric partnerships between weak suppliers and powerful buyers, dependency and dominance characterize the relationship. Whereas the weak suppliers tend to be dependent and over – relying on the support of powerful buyers, the buyers in turn tend to be domineering and control the activities of the weaker suppliers. As Rokkan and Buvik (2003:247) have warned, "there's always a great potential of conflicts between companies due to asymmetrical dependence, low commitments to inter-firm cooperation and insufficient communication routines and free – riding[63] behaviour or opportunism."

This need for protection from opportunism, dependency and competition leads to detailed and sometimes, restrictive contractual terms that are likely to keep small scale farmers 'captive' to the whims of these larger buyers and ensure they remain locked in

[63] Free-riding behaviour has been defined as "a situation where the individual firm enjoys the benefits of membership in a collaborative venture without bearing the full costs and constrains related to it." Rokkan and Buvik (2003)

unfavourable relationships that do not fulfill their desired objectives (Kaplinsky and Morris, 2001; Gereffi, Humphrey and Sturgeon, 2005). It would appear therefore, that "locking out" farmers out of the value adding activities is a deliberate strategy intended to conceal information that are likely to undermine the exporters' position in the market.

The concept of 'governance' within the global value chains literature (Humphrey and Schmitz, 2001; Gereffi, Humphrey and Sturgeon, 2005; Gibbon, Blair and Ponte, 2008; Kaplinsky and Morris, 2001) helps to further elucidate the findings. Proponents of governance have argued that besides facilitating market access, governance is a means of fast tracking the acquisition of production capabilities (Humphrey and Schmitz, 2001) and funneling technical assistance to small firms in developing countries (ibid). As such, the concept is useful in understanding capability development in asymmetric power relations especially when some firms/partners ("lead firms") set parameters within which other firms have to operate as is the case with the 'farmer – exporter' partnerships.

> The lead firms in this case (analogous to the "chain captains" in supply chains) define product specifications, quality processes and agronomic practices that the farmers have to adhere to. To ensure that the weaker suppliers adhere to thse standards, parameters and quality processes, the lead firms offer training and offer technical and material support (including credit and inputs) to the suppliers. Through this capability building investments by the exporters, the farmers (especially small scale) get assistance from the exporters ("lead firms/chain captains") in attaining the set parameters. As a result of this assistance they get access to new flower varieties, technologies and knowledge. They also get access to credit and inputs to apply the knowledge gained from

these partnerships in their firms. As the figures in table 18 shows, small scale farmers are implementing the knowledge gained from the partnerships.

The risks associated with this investment in building farmers' capabilities are managed through contracts between farmers and exporters. These contracts are guaranteed by the regulators (HCDA and MoA) who are co-signatories and ensure that both parties adhere to the terms of engagement. The contracts specify the obligations of each partner as well as sanctions in case of breach of the agreements. The exporters use these contracts to create "barriers to entry" (Kaplinsky, 2006) for other players and have institutionalized these barriers by including exclusivity clauses to regulate the activities of suppliers.

5.4.2 Institutionalizing capability building in partnerships: the role of contracts

Institutions are defined as 'the rules of the game' (North, 1990) that is, they represent the agreed and acceptable behaviour patterns, rules, and other social norms that constrain and regulate behavior of the individual actors (Ostrom, 1990; Scott, 2001). These institutions specify the expectations by each actor from their partners. They set parameters for acceptable behaviour and the rewards or sanctions to be administered in case of breach by either partner.

In the context of 'small scale farmer – exporter' partnerships, institutions refer to the rules, norms, structures that determine the relationships between small scale farmers and the exporters. The survey results have shown that 63.4 per cent of all the respondents reported that their partnerships were contractual as compared to 36.6 per cent who were in non – contractual partnerships. In the cases considered here, such partnerships are bound by legally enforceable contracts. The contracts not only define the expectations, obligations and responsibilities of each partner but also spell out what

sanctions/punishment to be administered in case of breach of the contractual terms. As such, these contracts embody the institutions that regulate the partnerships.

5.4.3 Contracts as the embodiment of institutions

The use of contracts as a way of regulating partnerships between exporters of fresh produce and farmers has its roots in the legal notice no. 231 of the agriculture act, cap 318 laws of Kenya. This legal notice established the Horticultural Crops Development Authority (export) order in 1995. The legal notice provides amongst other things that: (a) No person shall export horticultural crops unless he is in possession of a valid export license issued to him by the Authority (b) No licensee shall sponsor the growing of horticulture crops for export without informing the Authority (c) Any production scheme so sponsored [as in (b) above] shall be regulated by a contract and (d) Exporters who refuse to pay farmers for produce [breach the contracts] will have their licenses revoked.

The provisions in the legal notice provide the basis for the oversight role of HCDA in regulating 'farmer – exporter' partnerships. First, by directing all exporters to obtain licenses from the Authority, HCDA has acquired a tool (licenses) with which to regulate the activities of these exporters. It ensures that HCDA has a register of all the exporters operating in Kenya. The export license requires the exporters to declare how they obtain the products which they export. In other words, the exporter has to show whether he/she produces his/her own flowers or purchases from others (including small scale farmers). In the event that the exporter purchases the flowers from small scale farmers, such an agreement (to purchase) must be regulated by a contract and the Authority must be notified of such arrangements. These requirements help to ensure that the regulator has all the information regarding farmer – exporter partnerships. In case of dispute, HCDA acts as the arbitrator between the parties and in extreme cases of breach of contract,

HCDA revokes the contract and the exporter is prohibited from engaging in partnerships with other farmers.

The legal notice laid the foundations for the use of contracts in the horticultural sector. Consequently in 1997, HCDA launched a Code of Conduct as an agreement between the "buyer" on the one hand and the "seller" on the other. The Code of Conduct had the following three objectives:

i. To act as a memorandum of understanding between the buyer and the seller of fresh produce
ii. To serve as a guideline for the buyer and seller in order to conduct good business practices which will be mutually beneficial and help promote the horticulture industry
iii. To act as a guideline or framework for the development of a legally binding contract to be executed by the buyer and the seller

The HCDA framework referred to in (iii) above forms the basis of the contracts between small scale farmers and exporters. It lays broad principles and key elements of a contract to be drawn and entered into by the parties. Of keen interest to this study are the framework's generic provisions regarding the three capabilities: the production capabilities, value addition capabilities and marketing capabilities. The clauses/provisions relevant to these capabilities are reviewed. The generic provisions are (then) compared with actual clauses in the contracts obtained from three case studies of 'farmers – exporter partnerships' presented here. This is intended to highlight how the generic provisions have been used by the exporters in their engagement with the farmers, with a view to explaining the role of institutions in shaping capability building in farmer – exporter partnerships. The generic framework is presented below.

Box 4: HCDA's generic contract framework

(i)	*Production: seeds and input supply, record keeping*
• Buyer and seller shall agree upon who is responsible for supplying high quality certified seeds/planting materials to the grower. • Terms and conditions of purchase and sale of inputs must be included in the contract. Sellers shall agree to undertake production practices and procedures which are necessary and conducive to producing highest quality produce for fresh exports markets. Such practices include: use of approved pesticides, proper application of pesticides according to the labels of the manufacturers and the use and proper application of fertilizers which are recommended for the type of produce to be grown. • In order to ensure product safety, highest quality levels, full traceability and accountability, buyer and seller shall agree on a complete record keeping system for production and handling of produce. • Sellers should be provided with sufficient training on group administration, proper production, handling and grading techniques on a periodic basis.	
(ii)	*Value addition: (post) – harvesting practices, grading and packaging*
• Seller should agree to undertake acceptable management practices for harvesting and handling of produce which ensures high quality levels. • Buyer and seller shall agree and specify responsibilities for inspection and grading of produce, including when and where these activities will occur, determination of when title and responsibility of goods pass from seller to they buyer. • Contract should specify which party is obligated to supply packaging materials and the acceptable conditions of the package on collection. Packaging procedures should also be made clear.	
(iii)	*Marketing compliance*
• Both parties should agree not to engage in any transactions with any other individuals or intermediaries which involve the produce under contract. • Multiple contracts with more than one exporter are discouraged. • Point of rejection of the produce should be agreed upon including conditions for the return of the produce to the seller if rejected by the buyer.	

- Contracting parties should agree to establish payment terms which are acceptable to buyer and seller.
- Penalties should be specified in the contract including compensation in case of breach by either party.

Source: HCDA/MoA/JICA manual (2004)

5.5 Case studies of 'small scale farmers – exporter' contracts

This section draws from case studies of three 'farmer – exporter' partnerships. The information presented has been extracted from actual contracts of on-going partnerships between small scale farmers and exporters. The extracts focus on clauses that are relevant to the three capabilities. The three case studies were selected based on the following criteria:

i. Geography: representation of farmers in different growing areas
ii. Longevity: the duration (life time) of the partnership
iii. Involvement of other intermediaries (such as NGOs) in negotiation
iv. Type of flower variety to be grown

The three cases presented were chosen from three (out of the five) main growing areas. These include: Naivasha (*case 1*)[64]; Limuru (*case 2*)[65] and Thika (*case 3*)[66] regions. Two of the contracts were negotiated and initiated with the help of NGOs (*cases 1 and 2*) while *case 3* didn't have the involvement of the NGOs. In terms of the duration of the partnerships, *case 3* was the longest having been existence since 1998 followed by *case 2* since 2005 and *case 1* had been in operation only since 2007. Longevity of the partnerships is intended to elucidate whether there have been any changes in the institutional arrangements (provisions of the contracts) over time. The role of other actors such as NGOs in the contract initiation or negotiation was intended to show whether the involvement of such parties influence the actual provisions of the contracts.

[64] WVFE/Kagwe floriculture group
[65] NGL/Limuru Kirenga Group
[66] WAL/Gatanga groups

All the three cases involved growing of *Eryngium spp.* This uniformity in the type of flower variety grown is important to ensure there is a basis for comparison of the three case studies since all the partnerships would require similar provisions on production, value addition and marketing. The background to each case study is presented below:

5.5.1 Case 1: Naivasha region

The exporter in this case is a private company initially established as exporter of fruits and vegetables exporting up to 700 tonnes of fruits and vegetables to the EU annually as at 2006. Eighty (80) per cent of the vegetable and fruits exports were sourced from small scale farmers under an out – grower schemes through having contracts with farmers. The director of this company was approached in 2006 by an NGO which was trying to help small scale flower farmers to access export markets. She was recruited (by the NGO) to connect the small scale farmers to the market. This proposition appealed to the exporter because even though she wasn't dealing in flowers, she had always wanted to combine flower exports with her normal export line of fruit and vegetables. Further, she (the director of this company) had some prior experience with flower exports (1995 – 2001) and was also knowledgeable of the flower industry having attended three flower shows/trade fairs in Miami.

Despite this interest, she had been hampered by the lack of capacity to grow her own flowers. Her previous attempt with flowers flopped partly because she was purchasing flowers from farmers who were not organized (that is farmers were not operating in formalized groups) so when the NGO undertook to organize the farmers and train them on group management and provide them with credit to purchase inputs, she decided to give flower exports a second attempt. Her interest had been renewed because one of her major constraints (that of organizing and training farmers) had been solved by the NGO. The exporter entered into flower growing contract with the farmers on October 2007. At the time of this interview, she had been in this contract for one year.

5.5.2 Case 2: Limuru region

The exporter in this case started in 2005 as an off – shoot from a parent company which had been exporting flowers since 1998. The parent company had been exporting its flowers to one of the largest auctions in Holland and had pledged 100 % commitment to this auction under a contractual agreement. This total commitment with one auction limited the parent company's ability to diversify and access other markets/auctions. In order to access these other markets (auctions), the directors of the parent company decided to form another company. Forming a separate company with new identity (name and logos) also helped the parent company to avoid confusing farmers because the two companies were offering different prices differ according to the prevailing at the various auctions. Further to avoid any confusion, the management decided to separate the areas/regions of operation for the two companies that is, some regions for the parent company and others for the off – shoot company (this exporter).

The exporter was approached by an NGO supporting small scale farmers and entered into a contract with a group of 40 farmers in Kambaa, Limuru. The exporter brought in his agronomists who trained the farmers for a year and held field demonstrations for farmers. Other than the agronomists, other stakeholders involved in the project included the NGO staff, Horticultural Crops Development Authority (HCDA) and Kenya Flower Council (KFC). All these actors also helped in providing training to farmers on various aspects of flower growing and group management. The NGO supplied farmers with start – up inputs such as fertilizer, seeds and manure. Further the NGO linked the farmers with a local bank in order to access credit for more inputs. As at the time of interview, the exporter had contracted some 2,000 small scale farmers to grow various types of summer flowers, of which *Eryngium spp* is the main variety.

5.5.3 Case 3: Thika region

The exporter in this case was incorporated in 1998 as a private company exporting summer flowers to the Netherlands and other international markets. The company was approached by a group of farmers from Gatanga region in Thika in 1998. These farmers, who later became the pioneers of his out grower system, had earlier been approached by another agent who sold them seeds and promised to buy and export the flowers once they mature. However when the flowers matured, this agent never came to collect the flowers. Meanwhile, the farmers were aware that the director of this exporting company was knowledgeable in the flower industry and approached him for help. The Director took the flowers and exported them on a pilot basis and the flowers did well in the market. He then went back to the farmers and encouraged them to continue.

Buoyed by that initial success, other farmers got interested and the number of farmers started increasing. Initially, the company did not have any system (that is, the relationship was ad hoc and haphazard) and faced a lot of difficulties. However from these difficulties the company started learning on how to work with the farmers and how to deal with the challenges. At the beginning, the exporter did not have any agronomists on the ground and the farmers would just grow on their own and the exporter collects the flowers when ready. But the director himself was knowledgeable in flower growing and would occasionally advise the farmers but he was unable to visit all the farmers. This is when the company realized they needed a different system (a way of organizing their operations with the farmers). The initial step was to ask farmers to organize themselves into formalized groups and register their groups with the Ministry of Social Services. Once the group is registered, they were required to submit a copy of the registration certificate to the exporter before they can work with them. They then introduced a system of contract agreements – whereby they make a contract with farmers for one year and renew or terminate the contracts at the expiry of each year.

5.6 Clauses on capabilities: extracts of contracts from the three partnerships

Both cases 1 and 2 were initiated by the same NGO. By virtue of the involvement of the NGO in the partnership initiation and contract negotiation processes, the provisions of the sections relating to production, value addition and marketing are identical in the two cases. In both cases, input supply is not part of the contracts. This is attributed to the fact that the NGO linked up the farmers with a local bank through which farmers could access loans and purchase inputs. Interviews with farmers also showed that the NGO provided seeds to the farmers. Because of the above similarities, contract clauses in cases 1 and 2 are presented together. In case 3, the exporters negotiated with farmers without the direct involvement of NGOs in the initiation and negotiation process. As a result in case 3, the exporter provides seeds and inputs for the farmers on a credit basis. Farmers are also encouraged to open a voluntary retained account with the exporter. Both the farmer and the exporter contribute to this account. The exporter manages the account on behalf of the farmers and the farmer can use his/her savings to purchase inputs from the exporter. The three cases are presented below:

5.6.1 Case 1 and 2: Naivasha and Limuru regions

(i) Production clauses
• The grower must comply with all the good agricultural practices (GAPs) in order to produce flowers that meet quality requirements • The exporter through his agronomist/extension officer provides the grower with information on different flower varieties that can be grown • The agronomist/extension officer provides the grower with information on good crop husbandry • The exporter through his/her agronomists provide the grower with information on safe and effective use of recommended chemicals • The exporter provides information on implementation of codes of practice in force that covers safe use of chemicals, environmental conservation, labour record keeping and traceability etc
(ii) Value addition clauses

- The grower shall grade flowers from the farm and transport the flowers to the farmers' central grading house for final grading by the buyer.
- The buyer shall do the final grading at the farmers' central grading house, pack and collect all the client's fresh flowers that meet quality requirements from the farmers' central grading shed.
- The buyer shall take possession of and pay for all the flowers collected from the farmers' central grading shed house which have met market requirements.
- All packaging materials shall be provided by the buyer

(iii) Market compliance clauses

- The grower and buyer shall work towards certification of the farmers' scheme to the required code of practice
- The buyer will provide market information in terms of price, quality feedback reports and any other relevant information beneficial to the client
- The grower and buyer must keep records as pertains to the production scheme which will enable the traceability of the crop and accountability
- The buyer will advise the client on the planting programs that are tailored to satisfy the market at particular times of the year and shall advise accordingly during low market seasons.

Source: Contracts between exporters (1 and 2) and farmers

5.6.2 Case 3: Thika region

(i) Production clauses

Similar to case 1 and 2 above except with respect to supply of seeds and inputs in which the contract provides that:

- The company (exporter) shall source and sell to the farmers, quality and recommended inputs at a fair price as per the market rates. Where the inputs are not available from the company, the farmer can buy from other legal recommended sources.

(ii) Value addition clauses

- The buyer is solely responsible for the grading of cut flowers to the required standards at the collection stations and at the pack house in the main premises.
- The buyer shall provide the necessary documents (farmers purchase voucher or delivery notes) to the seller upon collection or delivery of flowers. Upon receipt of such documents, the flowers cease to be the responsibility of the seller

• The buyer shall provide all the necessary packaging materials and determine the packaging rates to be observed. The packaging materials shall belong entirely to the buyer
(iii) Market compliance clauses
• Similar to cases 1 and 2 above

Source: contracts between exporter 3 and farmers

5.6.3 Implications of the findings on capability building

Capabilities have been defined in this context as the set of differentiated skills, complementary assets and routines that distinguish and confer competitive advantage (Teece, Pisano and Shuen, 1997; Leornad-Barton (1992). This 'knowledge set' is embodied in employee *knowledge and skills* and embedded in *technical systems.* Building these capabilities requires a deliberate management strategy that guides how knowledge is created, shared, applied and controlled (Prahalad and Hamel, 1990; Leonard – Barton, 1992). The discussions in this section examine how the partnerships between small scale farmers and exporters are managed and how knowledge regarding the capabilities are generated and shared between the partners. In the cases presented here, the comparison of the generic framework with clauses in the actual contracts demonstrates that there is a clear distinction of responsibilities between the exporters and the farmers. Exporters have taken responsibility for value addition, packaging and marketing while farmers are responsible for the production of high quality flowers. The cases also show that even though the responsibility for value addition, packaging and marketing lies with the exporters, farmers also participate in the preliminary sorting and grading of the flowers under the supervision of the exporters' agronomists.

In all the three cases, the exporter (through a designated agronomist and other technical staff) provides training to farmers regarding the production aspects, including good agricultural practices, use of pesticides and fertilizers, planting calendar etc. These trainings are aimed at assisting the farmers to produce 'good quality flowers' that is,

flowers which meet the export standards. Quality in this case is defined by parameters that emphasize production aspects. For example, all the three contracts stipulated a 'good quality flower' as one that is: (i) free from pest and disease damage (ii) free from physical damage (iii) good appealing colour as stipulated by the market and (iv) stems of minimum length, head size, weight and thickness as stipulated by the market. These parameters are dependent either on the choice of flower variety, the soil/climate conditions, or good husbandry. As such, the definition of 'good quality flowers' as stipulated in these contracts include activities that range from planting to harvesting and good post-harvestpost-harvest handling (particularly during transportation to the central grading shed) in order to minimize any physical damage. This is important to the farmers because any damage to the harvested flowers lead to rejections by the exporter and constitutes a loss to the farmer.

As a general rule, clauses that relate to value addition assign the responsibilities for grading, bunching and packaging to the exporter. Farmers are only required to harvest the flowers and transport them to the central grading sheds[67]. At the grading sheds, farmers carry out preliminary grading under the guidance of the exporters' agronomists and field staff. This preliminary grading includes sorting flowers based on stem lengths, head sizes amongst other attributes of uniformity. The exporters' field staff then conducts the final grading at the farmers' central grading sheds before taking possession of the flowers that meet the required standards. After this final grading, farmers are issued with invoices indicating the number of stems supplied to the exporter, the number of rejected stems and the amount (payment) due to them. At this point, ownership and responsibility of the flowers passes on to the exporter who transports them in refrigerated trucks to his/her pack house for further grading, bunching and packaging. At the exporters' pack house, depending on the flower variety, flowers are sleeved and subjected to pre-treatment solutions (prepared to specific concentrations)

[67] These central grading sheds are small central collection points, in most cases, with no facilities. See photographs in appendix B for examples of central grading sheds for smallholder farmers.

before they are packaged (in specific manner according to customer specifications) and wrapped in waxed paper before further cooling and shipment (see appendix A for further illustrations).

In order to ward off competition and minimize the exposure to risk, the contracts contain clauses which prohibit farmers from entering into similar contracts with other exporters regarding the same crop for which they already have existing contracts with another exporter. Furthermore, even if the exporter rejects some flowers either on the basis of quality (diseased or damaged flowers) or grades (that is, flowers that do not meet the required grades in terms of length, size of heads etc), farmers are prohibited from selling the rejected flowers to other buyers (whether exporters or in the domestic market). The exporters' field staff are required to supervise and certify that all such rejected flowers are destroyed. This is intended to curb any cheating by farmers who might be tempted to sell flowers to other exporters offering higher prices. Whereas clauses such as these are intended to prevent possible cheating by farmers, they also serve to "lock in" farmers in these partnerships. Farmers who are found to contravene these exclusivity requirements are punished through cancellation of their contracts. Such exclusivity clauses deny farmers the opportunity to sell the damaged flowers rejected by the exporter in the domestic market and result in huge economic losses for farmers. For example, considering that market requirements in terms of sizes and lengths are subject to change during the contract period, farmers incur losses when such changes are communicated to them by the exporters at short notice and they are not able to meet such new requirements. The contracts provide that such changes can be introduced by the exporter after the contract has been signed and states that "any circulars to the farmers for new purchase instructions will form part of this agreement." Using this clause, the exporter can change the specifications of the grades during the growing period. When such have been the case, farmers complained of having suffered

losses as a result of such changes with no recourse to redress. The farmers expressed frustration with this 'silent breach of contract' – when exporters reject flowers on the basis of changed market trends/demands and they have to destroy the rejected flowers without compensation to farmers – who already invested in producing such flowers.

Concluding remarks

As the quote from a medium scale farmer in Kenya at the beginning of this chapter shows, value addition and processing flowers for the market is a key plank in export market access. By training farmers on preliminary grading of flowers, exporters provide a learning opportunity for small scale farmers on value addition to flowers. These training and learning opportunities explain the relatively higher ratings small scale farmers have accorded value addition indicators. In contrast medium and large scale farmers engage exporters on non-contractual terms which do not present opportunities for learning for either party as regards production and value addition. However, as the survey results show, the medium and large scale farmers learnt more on marketing capability indicators. At the same time, the exporters have managed to hold small scale farmers 'captive' to the partnership by using exclusivity clauses that ensure farmers do not enter into agreements with other exporters nor sell their flowers into the domestic markets. This chapter concludes that whereas the dominant literature portray a lock in – lock out scenario in which suppliers are locked out of the high premium value addition processes/activities so that exporters can 'protect' the activities that generate premium rents, a closer scrutiny of the farmer-exporter partnerships demonstrate that the way institutions and governance patterns are structured can yield different results. These findings support other previous studies/findings. For example Kaplinsky (2006) has argued that partners would be reluctant to share knowledge that erodes their rents. He notes that rents arise from scarcity, and therefore "firms which control a particular set of resources are able to gain from scarcity by insulating themselves from competition" (pp.

62). From this it follows that "if all firms have the same capabilities, there are no rents to be earned and incomes will be bid down, or the firm will go out of business... it is only when a firm has developed distinctive competencies that it is able to escape from competitive pressures" (pp.91). Kaplinsky further explains that three key features of core competencies allow rents to be appropriated:

> The first is that they must be distinctive, something which is unique to the firm or a small number of firms. Second, the competencies must be of value to the customer and thirdly, they must be difficult to copy. Without some forms of barrier to entry – which may be legally defined (copy rights and patents) or processes or skills that are difficult to copy – competitors will be able to take advantage of the new market opportunities which have been identified (pp. 91)

In the case of farmer-exporter partnerships, value addition knowledge, customer specifications and technological infrastructure (cold chain and pack houses) constitute distinctive capabilities held by the exporters/agribusiness. The farmers on the other hand lack these capabilities and are dependent on the exporters. Further, given the very small scale at which these farmers operate (most of them own small holdings of average 0.125ha), they do not pose a threat of direct competition. In other words, the small scale farms lack the economies of scale that would enable them offer any meaningful competition to the exporters in the market. The terms of the contract requires that the exporter offer training to the farmers, even though most of the value addition, packaging and marketing are still the responsibility/reserve of the exporters. Still the mode of operation requires that exporters collect only high quality flowers that meet the market standards and requirements. Payment to the farmers is pegged on the number of stems of flowers that meet export quality standards. This requirement compels the exporter to conduct some preliminary grading at the collection points and explain to the farmers the reasons for rejection of some flowers. Further, this finding also confirms what has been

identified as one of the weaknesses of the innovation systems approach: that its focus on interactive learning – a process through which actors cooperate, learn and share knowledge – may lead to underestimation of the conflicts over income and power and that these conflicts may eventually lead to increasing polarization (Lundvall et al (2002). This danger of continued (or even increased) polarization may be worsened by power asymmetry between the actors involved in partnerships. In the case of farmer – exporter partnerships, small scale farmers are likely to remain as 'producers of quality flowers' with little chance of moving up the value chain towards interacting with their buyers and accessing the export markets directly. The exporters are likely to retain the value addition capabilities and continue to derive the associated rents by keeping knowledge about value addition away from the small scale farmers except to involve them in preliminary grading to satisfy the contractual requirements.

Chapter 6: GOVERNANCE AND CAPABILITY BUILDING ALONG THE VALUE CHAIN

When participants in a value chain pass along information on demand characteristics, for example, or on standards and regulations affecting the market such (as sanitary and phyto-sanitary standards), at the same time they are passing important information to shape the direction of the innovation process. If, in addition to a well functioning value chain, an effective innovation capacity exists, this market information will be combined with new and existing knowledge on technological opportunities and information such as farming techniques, post-harvestpost-harvest *processes, and marketing to innovate in response to these market signals. One of the innovation challenges with respect to sustainable agriculture is to expand opportunities and means for resource-poor farmers to become actors and stakeholders in these innovation systems (World Bank, 2007:24)*

6.1 Introduction

As the quote from the World Bank above shows, expanding opportunities for increased and meaningful involvement of resource-poor farmers in the agricultural innovation systems and value chains remains a key challenge to sustainable agricultural development. Even where public-private sector partnerships (PPPs) have been hailed as a viable way of organizing innovation, the challenge remains that of finding governance arrangements that allow these partnerships to deliver on the social development agenda[68]. This challenge of ensuring that innovation systems approaches expand opportunities for resource-poor farmers and serve a social development agenda links closely to the conclusions of the last chapter: (i) that private sector actors will act so as to protect resources and capabilities that generate premium rents; (ii) that interactive learning may be undermined by power inequalities and (iii) that partnerships (such as between farmers and exporters) are prone to challenges of opportunism, dominance and dependence. This chapter focuses on how value chain governance and power dynamics influence small scale farmers' capability building.

[68] This point was emphasized by Andy Hall in his keynote address to the international symposium on "Innovation and Sustainable Development in Agriculture and Food" in Montpellier, France (28.06.2010).

Partnerships between farmers and exporters though hailed as a useful strategy for acquiring new capabilities, faces a number of challenges associated with power asymmetries, opportunism and dominance. These challenges necessitate the protection of lead investors (exporters) from cheating (opportunism) by the small scale farmers as well as the protection of the small scale farmers from dominance by the powerful lead firms. This 'protection' ensures that exporters can recoup their investments while farmers are not subjected to unfavourable relationships. Such protection is achieved in these partnerships through governance and institutional arrangements. These governance and institutional arrangements provide a framework within which power is exercised and resources are distributed within the partnership. The nature and design of these institutions and governance arrangements could provide a conducive environment that favours capability building but could also skew the partnership in favour of the more powerful exporters and only serve to further marginalize small scale farmers. It is this double edged role of institutions and governance that prompts the guiding question for this chapter:

How do the institutional arrangements and governance mechanisms influence the ability of farmer – exporter partnerships in building capabilities of the farmers?

To answer this question, this chapter examines two partnerships representing contrasting institutions (contractual and non – contractual partnerships) and governance (captive and relational governance) as case studies.

6.2 The Kenya cut flower value chain

Schmitz (2005) has defined value chains as the range and sequence of activities required to make a product or a service from its conception, production, distribution and marketing to its final markets. These activities happen at different geographical levels including the local, national, regional and global levels.

Other authors such as Gibbon, Blair and Ponte (2008:318) have referred to value chains as "the set of intra – sectoral linkages between firms and other actors that define global production". These intra-sectoral linkages allow for value addition, quality adherence, standards and consistency of the production, distribution and marketing. A survey by Tips/AusAid (2005) on global cut flower value chains has identified four main channels through which cut flower farmers reach international markets including: (i) selling directly to the auctions, (ii) through an "[69]agent" who in turn sells to the auction, (iii) via an import wholesaler and (iv) directly to the supermarkets/retails stores.

In the EU (where majority of Kenyan flowers are exported) most of the flower sales are handled by auctions in the Netherlands. Farmers and exporters using the auction system must obtain licenses that specify varieties and quantities of flowers to be supplied and guarantee that a certain percentage of their flowers must go through the auction (Mather, 2008). The exporters have agents based in the Netherlands who receive their flowers upon arrival at the airports and prepare them for the auctions. This ensures that flowers that are damaged (during transportation) or which do not conform to the quality and presentability do not get to the auction.

The role of agents is particularly important for developing country farmers and exporters. The agents help in feeding back information regarding consumer trends, demands and such other information as may be relevant to the farmers and exporters. The last two channels constitute direct sales into the end markets. These either occur through wholesalers or retailers based in the importing countries.

[69] The "agents" in this case refer to companies, firms or individuals located in the importing countries (in this case, mainly in the Netherlands) and whose duty includes: passing information on market conditions, demands and trends to the exporters (based in developing countries); they are also responsible for receiving the exporters flowers and preparing feedback reports on the quality and conditions of the flowers. They advise the exporters on improvements needed to ensure fewer spoilages/damage to the flowers.

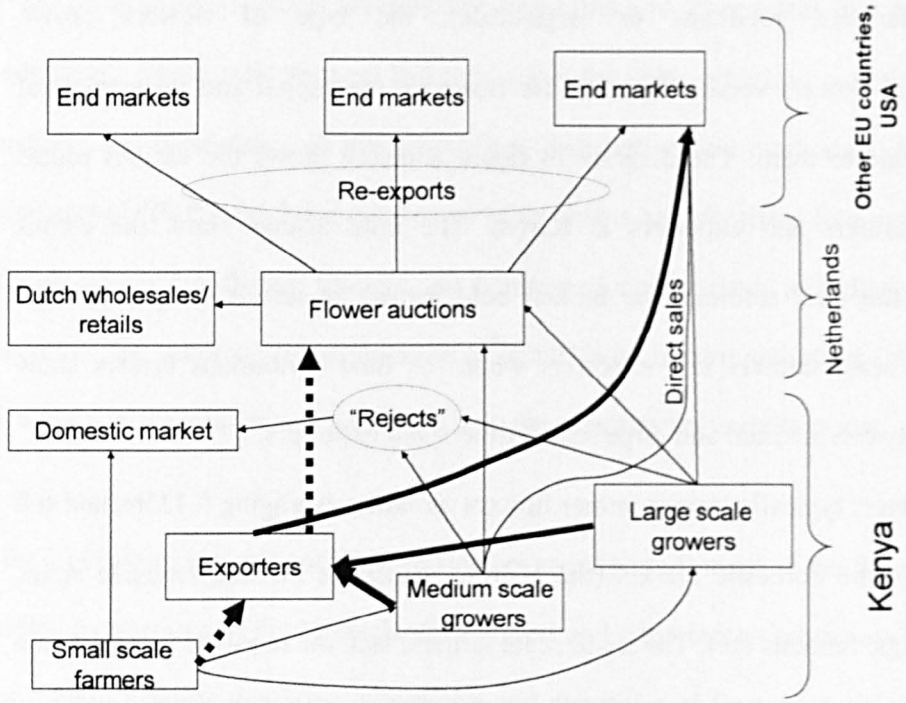
In Kenya, the marketing channels for farmers differ depending on their size (whether small scale farmers, medium- or large-scale), the type of flowers grown (summer/tropical flowers versus [70]greenhouse flowers), the capital and infrastructural facilities available to them. The diagram in figure 8 below shows the various routes used by the farmers and exporters in Kenya. The bold arrows show the chains considered by the case studies. The broken bold arrows represent the partnerships between small scale farmers and exporters while the bold continuous arrows show partnerships between medium and large scale farmers and exporters.

Small scale farmers typically grow summer flowers on farms averaging 0.125ha and sell these flowers in the domestic market (the Nairobi wholesale market, roadside stalls, offices, weddings, funerals etc). The small scale farmers lack the requisite infrastructure and capital to sell their flowers directly into the export markets. Besides the infrastructure and capital constraints, they also face the challenge of high quality and regulatory standards demanded by the export markets. As a result of these challenges, the small scale farmers export their flowers through other intermediaries including exporters (private companies with whom they have contracts), while some of their produce are purchased by medium and large scale farmers who use them as fillers in their bouquets for export. These medium and large scale farmers constitute an export channel for small scale farmers, albeit an indirect one.

The medium and large scale farmers grow greenhouse flowers (mostly roses) using sophisticated greenhouses requiring huge capital investments and high managerial and technical expertise. The farms run into several thousands of hectares with complete cool chain, transportation and refrigeration infrastructure. The farmers export their flowers through the auction as well as through direct sales to the end markets.

[70] This term is used to distinguish between the flowers grown in open fields (summer/tropical flowers) and the other types of flowers which must be grown under greenhouse conditions. The former are largely grown by small scale farmers while the latter are grown mostly by the large scale farmers.

Figure 8: Kenya cut flower value chain.



Source: author.

The proportions of auction versus direct sales differ from company to company. However, flowers which have not met quality standards at the port of exit are diverted into the domestic market as "rejects". The flowers sold through the auction market in the Netherlands either end up with the Dutch whole sales/retailers or get re-exported into the end markets in other EU countries, the USA etc. The medium and large scale farmers also sell through category 2[71] exporters. Using these exporters allow them to access other markets other than their usual markets.

6.3 Governance, power and capability building

The concept of value chain governance derives from the observation that some firms in the chain set and/ or enforce parameters under which others in the chain operate (Humphrey and Schmitz, 2001). Gibbon, Blair and Ponte (2008:319) have defined governance as, "the content and management of these decisions across suppliers and

[71] See section 6.5 for description of exporters categories

sub-suppliers, the strategies behind the decisions taken and management methods chosen to implement them and systems through which their outcomes are monitored and reacted to."

Governance generally occurs when one actor (or group of actors) sets parameters for other actors within the chain. Product and process parameters can also be set by agents external to the chain (Kaplinsky 2000) such as government regulatory agencies. These may be through compulsory and legal standards or voluntary standards. However, parameters set by agents external to the chain only constitute governance when one of the agents in the chain enforces compliance or translate the standards into parameters which it then monitors and enforces (Kaplinsky, 2000; Kaplinsky and Morris, 2001).

Product and process parameters differ depending on the commodities in question but generally include: what to be produced; how it is to be produced; when it is to be produced and how much to be produced. In cases where some actors set such parameters, the governance structures are required to transmit information about the parameters and enforce compliance. The parameters are often set, monitored and enforced through auditing, inspection and testing. These can be done by lead firms or by other agents contracted by them. Still, external agents may set some parameters and expect the lead firms to enforce compliance.

The importance of chain governance in this study derives from at least two of its key functions: it enables market access and fast tracks the acquisition of capabilities (Humphrey and Schmitz, 2001). As regards markets access, it has been noted that the entry into developed country markets by developing country producers is either facilitated or undermined by the chains into which they feed and the decisions of the few buyers (the lead firms) to include or exclude a group of producers from the chain (Dolan and Humphrey, 2000; Dolan, Humphrey and Harris-Pascal, 1999). Kaplinksy

and Morris (2001:60) have further emphasized the need for producers to be connected to the final markets and argued that this connection happens through a number of intermediaries and "different forms of connecting intermediaries will affect the terms of entry into global markets and the capacity of individual producers to upgrade."

This ability of intermediaries to "affect the capacity of individual producers to upgrade", that is, to acquire the necessary capabilities, provides the basis for including GVC in analyzing the role of farmer – exporter partnerships in building the farmers' capabilities. It is argued that high standards (high quality flowers delivered within regular intervals) combined with the high support offered by exporters (training, extension services) provides a learning opportunity and that is likely to help in raising farmers' skills/capabilities.

The role of power dynamics in enabling or hindering this ability to build capabilities has been elucidated by Kaplinsky and Morris (2001:67) who have argued that "the focus on governance highlights both power relations in the chain and the institutions which mould and wield this power." The dynamics of these power relations include the role of institutions (the types of rules with or without legal backing); how they are monitored (which actors set the parameters for the partnership e.g. by agents within the chain or external to the chain) and enforcement (who has the authority to execute sanctions and give incentives). As Kaplinsky and Morris note, "evidence from across the world shows that market forces alone are sub-optimal in achieving these ends and a key function of governance is to compensate for this market failure and to ensure that suppliers develop the capability to comply as rapidly as possible." (pp. 71)

The focus on governance in this chapter therefore seeks to explain the role of exporters (lead firms) in setting the parameters and providing support (technical, financial, advisory and logistical) to the farmers in attaining the set parameters as well as the institutions that regulate these partnerships and how these are coordinated and monitored. We also focus on the role of other actors (the NGOs, research institutes, universities, regulators and input suppliers) in supporting these partnerships, by helping the farmers achieve the set objectives and argue that institutions and governance arrangements either create a facilitative environment or hinder the potential of these partnerships to build farmer capabilities. Noting that governance can be expressed in different ways and that different parts of the same chain can be governed in different forms, this thesis examines two types of governance within the same segment of the chain. The types of governance are represented by two case studies along the 'farmer – exporter' segment of the chain (these are marked by bold arrows in figure 8).

6.4 The 'who', 'how' and 'what' of power dynamics[72]

This chapter uses two case studies to explore how governance and power dynamics affect the potential of these partnerships to enhance farmers' capabilities. Srilatha Batliwala (1993) quoted in VeneKlasen and Miller (2002:41) has defined power as "the degree of control over material, human, intellectual and financial resources exercised by different sections of the society". The control of these resources, Batliwala argues, becomes a source of individual and social power and further notes that "power is dynamic and relational, rather than absolute – it is exercised in the social, economic and political relations between individuals and groups. It is also unequally distributed –

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[72] For more information see: Stakeholder power analysis. IIED (Available from www.livelihoods.org); and tools for analyzing power, inclusion, and exclusion. Catholic Relief Services. (Available at www.justassociates.org)

some individuals and groups having greater control over the sources of power and others having little or no control. The extent of power of an individual or group is correlated to how many different kinds of resources they can access or control."

This degree of control over resources and the power it confers on individuals and groups determine how these groups and individuals behave in their social, economic or political interactions with other actors (whether these are groups or individuals). Hazel Johnson and Linda Mayoux (1998) concur with this definition of power as the degree of control over resources and the effects such power may have on social relations. They note:

> Power has different dimensions and operates in different, inter-related and often mutually reinforcing ways. For example, power generally has easily identifiable material dimensions, determining access to resources, levels of poverty and the range of choices and constraints affecting people's ability to achieve their aspirations. However, it also has more subtle manifestations in ideologies, values and discourses which might be shared unquestioningly by those who are disadvantaged by them. Conformity to unequal social relations can be sustained in this way, and can have the effect that both the subordinate and the relatively powerful are protected from potentially threatening processes of change. Inequality in access to resources and underlying or dominant values may reinforce each other at many levels of social interactions... (pp. 148)

In describing the case studies we focus our attention on this "degree of control over resources and the power it confers on individuals and groups" as well as key elements that characterize the definition of governance. These include: (i) *authority* – that is, describing the level of subordination existing within the partnerships. This concerns largely the extent to which the parties involved can be put in some form of hierarchy. The different ranks within such a hierarchy can be formally defined or can be defined

using such other parameters such as level of education; capital; technologies; infrastructure; access to knowledge of production, value addition and marketing (ii) *influence* – that is, the extent to which one actor in the partnership can influence the behaviour of the other actor (s). This concerns mainly the extent to which one party sets the parameters for others; how the party that sets such parameters enforces the rules/compliance; and whether this enforcement are by parties internal to the partnership or some third party enforces the rules (iii) *institutions* – that is, the rules of the game and how they affect the different actors. The argument here being that institutions would normally appear to be neutral but in reality they will serve one group at the expense of others. In other words, institutions can be used as tools of inclusion or exclusion. Like policies, they will hurt one set of actors while benefiting the other (iv) *decision making processes* – that is, the extent to which the voices/interests of parties to the partnership are taken into account in decision making. This concerns largely whether the parties are represented at the decision making table and if so, by whom? as well as whether the representatives are capable of negotiating with the more powerful actors.

These factors represent the 'who', 'how' and 'what' of the power dynamics. That is: what confers power on individuals and groups; who are the decision makers/wielders of this power? Who enforces sanctions? How the decisions are made, and finally, it looks at the role of policies and institutions. How do they affect the relationship between the actors in the partnership?

6.5 Choosing case studies: contrasting institutional set up and governance patterns

Partnerships between farmers and exporters are either contractual or non contractual depending on (i) main focus of the partnership (whether market access or production supply type) or (ii) the existing farmers' capabilities. There are two categories of

exporters[73]. The first category (marked by bold broken arrow in the diagram) consists of companies which enter into contractual partnerships with small scale farmers (weak capabilities) to produce and supply them (exporters) with specific flower varieties. This category of exporters has their own facilities for transportation (cold chain), grading and packaging (pack house) and storage (refrigeration). This category of exporters sells their flowers predominantly through the auctions in the Netherlands. These exporters have been designated as category 1 exporters[74]

The second category (marked by bold continuous arrows) consists of companies which receive orders for flowers from overseas clients, consolidate such flowers locally from medium and large scale farmers and ship flowers to their overseas clients. These overseas clients comprise mainly direct buyers including wholesalers, supermarkets and retailers. This category sources flowers mainly from medium and large scale farmers who already have strong capabilities (though on limited occasions they also source from small scale farmers). This category of exporters has no infrastructural facilities (for cold chain transportation, pack house nor refrigeration and storage facilities) and the responsibility for production, processing and transportation of flowers to the airport rests with the farmers (from whom they source). This category has no contracts and relies on purchase agreements with farmers. Their relationship is based more on trust and confidence than strict monitoring and intervention by the exporter. This category focuses mainly on direct sales to the end markets. These exporters have been designated as category 2

The two case studies presented here represent partnerships involving these two categories of exporters. The first case study represents exporters in category 1 (small scale farmers; own infrastructural facilities; target mainly the auctions) while the second

[73] Exporters refer to private companies which neither own farms nor grow flowers but source from other farmers (suppliers) and export

[74] See also section 6.2

case on non – contractual partnerships represents the exporters in category 2 (mostly medium and large scale farmers; doesn't own infrastructural facilities and target direct sales). In both cases, the exporters were the primary interviewees and their partners (farmers) were interviewed to counter – check/verify any claims made by the exporters. The exporters in both cases have been in operation for the last 10 years.

Recapping on chain governance

In this thesis, we have chosen the interpretation of 'governance as coordination'; the key advantage arising from this interpretation being that "governance is identified with the form of coordination characterizing the inter-firm exchange at a specific node in the chain – the lead firms and its first tier suppliers." (Gibbons et al, 2008:323). This consideration of governance at specific nodes allows us to discuss governance between exporters (as lead firms) and farmers (as their first-tier suppliers) without considering (and irrespective of) other possible forms of coordination within the entire length of the chain. As noted in Chapter 3, Gerrefi, Humphrey and Sturgeon (2005) have proposed a typology of global value chain governance based on three key determinants namely: (i) the complexity of transactions; (ii) the codifiability of information and (iii) the capability of suppliers. This framework leads to the five typologies of chain governance: market, modular, relational, captive and hierarchy. Before discussing the governance within the farmer-exporter partnerships, it is important to recap on these generic types of governance:

Box 5: generic typology of chain governance

(i) *Markets* as a form of governance occur when the transactions are easily codified, product specifications are simple, and suppliers have capabilities to produce without much input from buyers. This type of governance has also been described as arm's length because buyers and sellers operate in anonymity and neither knows or cares about the other's identity. The products tend to be undifferentiated and commoditized.

Relationships between different links in the chain are transitory and switching customers is relatively easy and costless.

(ii) *Modular* chains occur when the ability to codify specifications extends to complex products and when suppliers have the capacity to use generic manufacturing competencies to supply full packages and modules, lowering costs for buyers to monitor closely and control design and production processes.

(iii) *Relational* chains occur when product specifications can't be easily codified, products are complex and supplier capabilities are high leading to frequent communications between buyers and suppliers within the framework of a certain degree of mutual dependence, which may be regulated through reputation, social ties and/or spatial proximity. Kaplinsky has also noted that in these chains, buyers and sellers tend to know each other identity and most often, relationships are enduring. Each of the parties in these chains tend to have specific skills and areas of expertise.

(iv) *Captive* chains are characterized by the low supplier capabilities, ability to codify complex product specifications, leading to the need for a higher degree of monitoring and coordination from the lead firms.

(v) *Hierarchy* chains arise when product specifications can't be codified, products are complex and competent suppliers are not available and the firm has to develop design and production skills in-house. These chains are akin to what Kaplinsky has called 'internalized chains', that is, when various stages in the value chains are undertaken by different affiliates of the same firm. They are internalized because the costs of procuring them externally are too high – possibly because of the difficulty of ensuring quality and reliability; or because the other suppliers lack the technological capabilities to produce them or because outsiders can't produce them as cheaply.

Source: Gerrefi, Humphrey and Sturgeon (2005); Gibbon, Blair and Ponte (2008) and Kaplinsky (2006)

By applying the Gereffi, Humphrey and Sturgeon framework to the 'farmer – exporter' partnerships with a specific focus on codifiability of product specifications; capabilities in the supply base, degree of explicit coordination required and the power asymmetry between the partners, it emerges that market, modular, and hierarchy chains do not apply. First, in *market* governance there is an arm's length relationship and buyers and suppliers remain anonymous to each other and the products are largely undifferentiated. These provisions are contrary to the situation in these partnerships in that: in both cases, the farmers and the buyers do not treat each other as anonymous (they actually know each other's identity) and the product specifications are determined by market requirements and different markets will demand different flower specifications. Second, *modular* governance also does not apply to these partnerships because whereas they are characterized by "suppliers who have the capacity to use generic manufacturing competencies to supply full packages and modules" suggesting complex transactions where codifiability is high and the production processes is more or less standardized such that any supplier with adequate capabilities to understand production packages and modules can easily manufacture the products. In the case of farmer-exporter partnerships, the product specifications are determined by changing customer tastes, preferences and demands and presentation modules are hardly standardized. Third, the *hierarchy* governance calls for vertical integration, that is, the same firm performing functions at different stages of the production process through its subsidiaries. This type of governance does not apply to our case because the partnerships involve different firms/partners performing different functions. Through this elimination of the market, modular and hierarchy forms of governance, it can be deduced that the case studies of these partnerships represent *captive and relational* forms of governance.

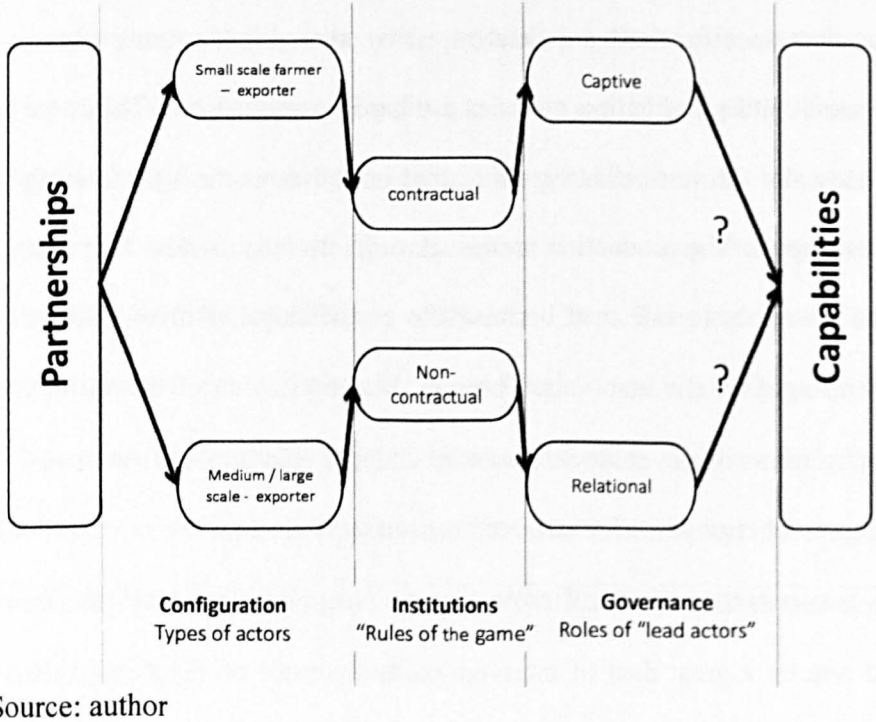
(i) *Captive governance* – the small scale farmers' (suppliers') capabilities are low and require a great deal of intervention and control on the part of the lead firm. The power asymmetry between small scale farmers and the

exporters is quite high. The ability to codify product specifications is high, that is, it is possible to supply production manuals detailing how each flowers should be cultivated. The partnership is monitored through formal contracts *and*

(ii) *Relational governance* – the capabilities of the suppliers (medium/large scale farmers) are high and this is a motivating factor for the buyer to outsource. The power asymmetry between the exporters and the farmers is low and there exists mutual dependence which is regulated through trust, confidence and reputation. The ability to codify the product specifications is low, that is, customer specifications keep changing and each customer have individual (unique) specifications which the buyers must adhere to. The partnership is non – contractual and coordinated through purchase agreements.

These case studies are guided by the framework in figure 9 below:

Figure 9: Institutions, governance and capabilities framework



Source: author

The two cases represent partnerships involving on the one hand, small scale farmers with exporters where the partnership is coordinated through a formal contract and depicting characteristics of captive governance and on the other hand, medium/large scale holders with exporters, where partnerships are non-contractual and depicting characteristics of relational governance. In both cases, the case studies explore the role of governance patterns and power dynamics in influencing capability development.

6.6 Case study A: contractual partnership with captive governance

(i) Company background

Exporter A was established in 1995 as a grower and exporter of summer flowers. The company began as a family business with father and daughter as directors. The initial financing was mainly from family savings and a bank loan. One of the directors (the father) had prior experience with flowers having worked with the flower industry as well as agrochemical industry. In 1998, following a request from a group of small scale farmers to assist in marketing their flowers, the company ventured into out grower system and started having contracts with small scale farmers for the supply of cut flowers to his company before exporting the same to the auctions in the Netherlands. Following this switch to sourcing flowers from small scale farmers, the company stopped having their own farms and now concentrates on the out grower system as the main source of their flowers. The company exports up to six different varieties of flowers including Eryngium, Mobydick, Saundersiae, Ornis, Molucella and Papyrus amongst others.

The company has grown over the last 10 years from having 150 contracted small scale farmers in the year 2000 to a total of 2,000 contracted farmers in 2007. Over the same period, the number of flower varieties, the number of agronomists and total volume of exports have increased as shown in table 19 below. However, the company has not accessed any new market over the same period. This is because it supplies mostly to the

auctions and has entered into a contract with one of the auctions to supply 100 % to this particular auction. This commitment has limited the company's ability to diversify into other markets.

Table 19: Expansion of exporter A (2000 – 2007)

#	Variable	2000	2001	2002	2003	2004	2005	2006	2007
1	Number of small scale farmers	150	500	800	1200	1300	1500	1800	2000
2	Types/varieties of flowers	3	3	4	5	5	6	6	6
3	Number of agronomists/field staff	0	0	0	4	5	6	8	10
4	Number of new markets accessed	0	0	0	0	0	0	0	0
5	Total volume of flowers exported (million stems)	2m	3m	4m	6m	7m	7m	8m	8m

Source: company interviews

(ii) Contract initiation and negotiation

When choosing the farmers to contract, the company considers several factors including the availability of water for irrigation, the altitude and the soil types. Besides these conditions, farmers must be able and willing to commit at least 0.125ha to producing flower varieties which are chosen by the company. The farmers must form groups and register their groups with the Ministry of Social Services. Once the group is registered, they are required to submit a copy of the registration certificate to the exporter before they can enter into contracts. Lodging the certificate of registration with the company serves several purposes. First, it's a confirmation that the groups have formalized their existence (in order to register with the ministry, they are required to have a constitution and list of elected office bearers). Secondly, it serves as a form of consent, that is, it shows that the farmers have given their consent to work with the company. Lastly, the company needs to submit documentary evidence of how it is sourcing its flowers to the regulatory authority (HCDA) and a copy of registration certificate demonstrates that the company has an out grower system for its supply of flowers.

Once the regulatory authority is convinced that the company has established a credible source for its flowers, it issues the company with an export license in accordance with the legal notice no. 231 of 1995 which requires all exporters of fresh produce to obtain such a license from the Authority. Other than issuing licenses, HCDA is a co-signatory to the contracts between exporters and farmers as witnesses to the agreement. A copy of the signed contract is lodged with HCDA so that they are always aware of the agreements between exporters and farmers. In case of disagreements, the Authority arbitrates between the parties to ensure any conflicts are resolved. In extreme cases, where the exporter is at fault, the Authority revokes the licenses and blacklists the exporters. This intervening and regulatory role of HCDA protects both parties (farmers and exporters) and ensures that unregistered agents do not purchase flowers from farmers who have been contracted by licensed exporters and that exporters do not encroach and buy from farmers that have been contracted by other exporters. Besides HCDA, the Ministry of Agriculture is also a co-signatory to these contracts and can also play the arbitration role besides HCDA. The Ministry also offers extension services to the small scale farmers. The contracts generally last for one year after which they are either renewed or terminated.

(iii) Credit and input supplies

The company advices farmers on sources of good planting material and inputs and occasionally, sources and delivers to contracted farmers. However, the company is discouraging the supply of inputs to farmers on credit in order to avoid getting farmers into debt. Their experience has shown that when farmers are allowed to access inputs on credit, they tend to continue spending without controlling their expenditure and do not realize when they are over-spending and run the risk of getting heavily into debts. In such cases where farmers have accessed inputs on credit, when they are paid after deducting the credits, and there is a discrepancy between the farmers' expectation (farmers always know what they are expecting because they are issued with purchase

vouchers and invoices supplied to them at the time of collection) and the net pay (what the company pays out to them), the relationship with the farmers get strained.

In order to avoid getting into a strenuous relationship with its suppliers, the company prefers to encourage them to save and the company helps them 'top up' the saving. The company has developed a system where its contracted farmers are encouraged to start saving immediately they commence producing flowers. For every stem of flower sold, the farmers are asked to save 80 cents, for example, if the stem should fetch Kshs. 7.00, the farmer is paid Ksh. 6:20 cents and for every 80 cents the farmer saves, the company contributes (tops up) 20 cents so that for every stem the farmer sells, the farmer saves kshs. 1:00. This money is saved with the company in a "retained account". The retained account belongs to the farmer but is managed by the company. This money is used largely for inputs so that when the farmer requires inputs (and does not have the money to purchase in cash), they just ask the company which sources the inputs and charge to the account. At the end of the year, any surplus funds in the account are paid to the farmer and the cycle is repeated when the new contracts are signed.

This arrangement for a retained account is voluntary and is included in the contracts only for farmers who want to save through this account. Farmers have a choice at the time of signing the contract to exclude this provision. However, farmers who have opted out of it have to pay cash for inputs that they obtain from the company. For new beginners, the company encourages them to begin with quantities that are economically viable based on the assessment of their start – up capital. The company considers the size of land and how much resources the farmer is willing to commit and advise accordingly. This ensures that the farmer "bites in small chunks" and does not strain. In cases where non-governmental organizations (NGOs) have mediated the partnerships between farmers and this exporter, some of the NGOs provided credit facilities as well as inputs to the farmers. Still, in some cases, the NGOs have guaranteed loans with certain banks on behalf of farmers and this has enabled farmers to access bank loans

using their groups to co-guarantor each other and present the contracts with exporters and their bank statements as further security.

(iv) Farmers' training and extension services

The company offers training and extension services through (a) policy meetings and agronomic visits. Each of these is considered in turn:

(a) Policy meetings

The policy meetings are held twice a year for each group or at such times as determined by the farmers and the directors. During these meetings, the directors (i) 'teach' the farmers how the auction functions/operates, (ii) address any issues raised by the farmers and (iii) jointly plan forward with the farmers. The company uses these meetings to talk about the market and explain to the farmers any price fluctuations during the contract period as well as discuss any projections for the future. Prior to signing any new contracts with farmers, the company must hold these policy meetings with them. For beginners, the company uses these meetings to discuss amongst other things: the expectations of each partner, the auction and any expected future changes. Farmers must understand and agree to these issues/terms before they can be contracted. However, for those who have been contracted, the company can renew the contracts and have the policy meetings scheduled later. Pricing is a key issue during the policy meetings and the company explains to farmers how the prices offered to them are calculated. This is important because some of the farmers can access the internet and know what the actual auction prices are at a particular moment. The company therefore has to explain to the farmers why it is not paying them the price at the auction and the formula used to arrive at the prices.

(b) Agronomic visits

The company (through its agronomists) holds regular trainings sessions for the farmers. As at February 2010, the company had 11 agronomists in different areas dealing with about 2000 contracted farmers. The agronomists visit the farmers on a daily basis

(according to a prepared schedule) in different areas. Each farmer is visited at least twice in a month. During the visits, the agronomist trains farmers on various aspects of production. For example, for every flower variety, the company has developed a production manual detailing how the production should be done and the kind of chemicals and fertilizers to be used and when such fertilizers and chemicals should be applied. This programme (of production, including fertilizer use) is given to farmers and during the visits, the agronomists ensure that the farmers are actually following [adhering to] this programme. The company together with farmers then identifies areas where the farmers need further training and then trainings are organized for them, including on specific technologies.

If the agronomists are not able to handle the training requirements so identified, then the company involves other specialists if the expertise is not available in – house. The specialists are sourced locally from the organization that deals with the specific area. For example, when the training regards organic farming, the company usually invites experts from Kenya Institute of Organic Farming (KIOF) to do the training and in cases where they can get the same training from the public research institutes (such as KARI) or universities, then they approach these R&D organizations for support. Involvement of public research institutes and university departments in these partnerships have been mediated and supported mainly by NGOs. However, there were also cases where KARI had linked up farmers with this exporter. Other than involving experts, the company also conducts their own search on the internet to find information on the particular crops as well as find out from other farmers who are already exporting the same flower varieties. The company also seeks information from input suppliers for example, agrochemical and seed companies (local companies as well as from Holland).

(v) Value addition

After harvesting, all farmers take flowers to a central collection point. This central collection point normally doubles up as a central grading shed. Farmers are encouraged

and supported to construct a central grading shed in a suitable location in their locality. When farmers bring the flowers to the central grading/collection point, they are assisted by the company's agronomists to conduct preliminary grading (removing diseased flowers, arranging by head size, stem length, stage of opening etc) to ensure uniformity in the flowers collected by the company. The company prefers to grade the flowers at the farmers' central grading sheds in the farms so that as the flowers are bought and collected only after they have been graded. This is important because farmers must be given purchase vouchers/invoices upon collection and the company would like to ensure that the flowers collected are not subject to further damage. Besides, as part of the contracts, the company's agronomists are required to supervise the destruction of any rejected flowers to ensure farmers do not sell them (whether in the local market or to other exporters). This is intended to curb any form of cheating by farmers. After the flowers are graded at the farmers central grading/collection shed, the flowers are collected using refrigerated trucks and transported to the company's premises. At the company premises, further quality checks and value addition are conducted in the company's pack house. After this the flowers are packed and kept in the cold store awaiting shipment (see photos in the appendix B for some of these value addition procedures).

6.7 Case study B: non-contractual partnership with relational governance

(i) Company background

Exporter B is the largest consolidator of fresh cut flowers from Kenya. The company is a family owned business employing 11 people and had gross sales of US$ 2 million in 2005. The company was started in 1999 as a small company based at home. The idea was conceived by two sisters and a husband who are the current directors of the company. The company provides consolidation services to large importers of flowers from Europe and America. The buyers/clients contact the company to help in 'building the bulk' and organizing shipment. The company then uses its contacts/network on the

ground in Kenya to source, consolidate and ship the flowers to the buyers according to the buyers' specifications. This relieves the buyers of the challenges of buying from different farms and passing on the role of assorting and consolidating products to the exporter. The company deals through direct sales as opposed to auctions (see the value chain diagram in figure 8). The company's key markets include USA (main market); Sweden, Australia and Germany (see table 20 below)

Table 20: Key exports markets for Exporter B (2005 – 2007

Sweden	32.00%	
Australia	14.00%	
Germany	5.00%	
U.S.A	40.00%	This translates to about US$ 1 million
Others*	9.00%	
	100.00%	

* Other markets include: Italy, Japan and Re – Union. Source: company interviews

(ii) The company's supply base

The company buys flowers from any grower who is ready and willing to sell to them. In 2008, the company was sourcing mainly from 8 – 10 big farms covering about 500 hectares of production in terms of product base. In terms of geographical spread, the company covers many districts including: Thika, Naivasha, Kericho, Kiambu, Machakos, Eldama Ravine and Nairobi. The company deals mainly in roses and a bit of summer flowers. The summer flowers are used as a complimentary to roses, that is, as fillers in bouquets. The summer flowers include gypsophilla, carnations and lilies

(iii) Partnership structure

The company has no contracts with its suppliers and the partnership is largely based on trust that has been established over time. However, the company has agreements with its suppliers indicating that they will buy from them certain varieties of flowers over a period of time. Such agreements are written (mainly because they are demanded) as a requirement by the government and various regulatory agencies. The regulatory agencies such as Kenya Plant Health Inspectorate Service (KEPHIS) which issues

phyto-sanitary certificates to exporters require the farms to authorize the exporter in writing to handle (ship) their flowers. Besides, HCDA also requires all exporters to declare the source of their flowers before they are issued with export licenses. Unlike contracts, these are short term purchase agreements.

Unlike in contractual partnerships where a buyer gives production specifications, farmers grow then the exporter purchases and sells in their own markets, in these non-contractual partnerships, the purchase agreements only confirm that the farmers have allowed the exporter to market their products in the exporters' markets (and in most cases these markets that do not conflict with markets where suppliers are selling at the moment). The signatories to these purchase agreements are the directors of the two companies but these documents are lodged with the relevant government agencies such as KEPHIS and HCDA.

(iv) Price negotiation

Flower prices worldwide are largely set by the auctions in Holland. Even though the company concentrates only on direct marketing, the auctions still affect the prices based on forces of supply and demand. Sometimes when the company has agreed certain prices but there occurs a slump in the world market, it becomes difficult to sustain the agreement and they have to renegotiate. Flowers being perishable products, both parties cannot afford a protracted negotiation. Besides, the farmers also want the company to move their products. This mutual need ensures that a compromise is quickly reached. When prices improve in the auction, the farmer has incentives to send to the auction rather than the direct market, hence the farmers begin to demand better prices and the company has to negotiate with farmers with a view to improving their pricing.

(v) Conflict resolution

The conflicts are minimal in this partnership since the agreement is based on mutual benefits and trust. For example, some of the markets the company access are unique markets which have not been accessed by the farmers for various reasons e.g. the

markets may be small; has stringent requirements or might not be profitable. In such cases, the company has advantages over the farmer because it consolidates from an assortment of farms whereas it may not make economic sense for one grower to venture into these markets. However there are challenges, for example, because of price fluctuations, the company has to negotiate with farmers on a continuous basis or when the company needs more products than the farmers can supply especially when the farmers also need to spread their produce to many of their clients.

(vi) Value addition

The company does not add any value to the flowers. The value addition (grading and packaging) is done at the farm level and the farmer delivers the finished product straight to the airport. The exporter has no infrastructural facilities (no transportation, cold chain or pack house or refrigeration facilities). Flowers are therefore processed by the farmers using their established standards and delivered from their cold rooms to the cold rooms at airport from where the agents at the airport take it to the airline for shipping.

However, based on the purchase agreements (and authorization letters); KEPHIS (the regulatory body that issues phyto- sanitary certificates) is assured that the products the company exports are from farms that have already been certified by them. To guarantee the quality, the farmers deliver the flowers in their own branded boxes and all the packaging bear the logos and address/contacts of the farmer. This is important for traceability issues and helps to exonerate the exporter in case flowers are intercepted at the ports over quality issues.

(vii) Working with small scale farmers

Besides sourcing flowers from medium and large scale farmers, the company also buys from individuals with less than 0.5 ha mainly for summer flowers used as fillers in bouquettes of roses. The company has found it tricky to work with small scale farmers because they (small scale farmers) have numerous challenges including limited production and a higher level of risk exposure. For these small scale farmers (unlike the

medium and large scale farmers) the company has committed prices which hardly change. Any losses arising from this fixed price arrangement are absorbed by the company. This absorption of any losses has been possible because the small scale farmers do not ask for high prices to start with and the percentage of flowers sourced from them is also low (the company gets mainly summer flowers used as fillers in bouquets). In order to 'process and transport' flowers to the airport, small scale farmers rely on government facilities for example, HCDA provides transportation (cold chain) and depots with packing facilities at a cost for the farmers in various regions (see box 8 under section 7.3.2)

6.8 Discussions and Analysis

The two case studies showcase both the institutional configuration as well as the governance mechanisms of farmer – exporter partnerships. The discussions and analysis that follow examines the two case studies at three levels: (i) the power dynamics that characterize the partnerships and how these shape the potential outcomes of the partnerships (ii) the opportunities for interactive learning and innovation arising from these partnerships and (iii) how these (power dynamics and opportunities) have impacted on the three types of capabilities under study: production, value addition and marketing.

6.8.1 Comparing the case studies I: Power dynamics in partnerships

This analysis of power dynamics of the farmer-exporter partnerships focuses on (a) the degree of control over resources by the various actors and the power this control confers upon them (b) the expressions of this power within the context of the two partnerships. Table 21 below shows the different actors mentioned in the partnerships between farmers and exporters and the types of resources that they control. These are divided into material resources (technological infrastructure); competencies (in terms of formally trained manpower); specialized knowledge (including skills and experiences

acquired through formal and non-formal training), and financial resources (their access to credit and financing).

Table 21: Actor – power matrix

	Dimensions of power			
Actors	*Technological infrastructure*	*Competencies (formal training)*	*Specialized knowledge*	*Financial resources*
Universities and research institutes	Have access to labs and research facilities	Highly trained professionals	Highly skilled with disciplinary focus	Research is usually underfunded
Input suppliers	Have advanced research, distribution and marketing facilities	Highly trained staff	Skilled in agronomy; irrigation etc	Invest heavily in R&D and have high sales turn-over
Non-governmental organizations	Low investment in physical infrastructure	Highly trained staff	Specialized in multi-stakeholder processes[75]	Heavily funded by donors and other agencies
Private consultants	Low investments in technological facilities	Highly trained	Skilled in their areas of focus/specialization	Limited access to funding
Small scale farmers	Low investments/ access to technologies	Low formal training	High tacit/ experiential knowledge	Low access to credit/financing
Medium/Large-scale farmers	High technologies including irrigation; cold chain; pack house; transport etc	Highly trained staff especially at technical and management levels	Highly skilled particularly for marketing and value addition	Easy access to credit and financing
Exporters (category 1)	High - they own the cold chain/pack houses, value addition and storage facilities	Highly trained staff at the technical and management levels	High for marketing and value addition.	Easy access to credit and financing
Exporters (Category 2)	Low - they only consolidate but don't own facilities	Highly trained staff at technical and management levels	High especially in business and marketing fields	Easy access to credit and financing
Regulators e.g. HCD and KEPHIS)	High technological facilities including cold chain/ transportation; depots and pack houses	Highly trained technical and management staff	High in technical; marketing and advisory services	Control large amounts from licensing fees; leasing facilities and charging for storage from exporters
Ministry of Agriculture (policy and extension)	Mostly in charge of policy and extension; therefore low technological facilities	Highly trained staff	High in policy; extension/ agronomy	The extension budget is usually underfunded/under-resourced

[75] For more, see: What are MSPs?: http://portals.wi.wur.nl/msp/index.php?What_are_MSPs?

In terms of how this power is manifested/expressed, we revert to the four factors that characterize the definition of governance namely: (i) *authority* – the level of subordination existing within the partnerships, that is the extent to which the parties involved can be put in some form of hierarchy. (ii) *influence* – the extent to which one actor in the partnership can influence the behaviour of the other actor(s). (iii) *institutions* – the rules of the game and how they affect the different actors and lastly, (iv) *decision making processes* – the extent to which the voices/interests of parties to the partnership are taken into account in decision making. These factors and how they are expressed by the different actors are presented in table 22:

6.8.1.1 Captive governance

The partnerships involving small scale farmers and exporters are characterized by a gaping power imbalance in favour of the exporters. The exporters have (an almost) exclusive knowledge of the export markets including prices, customer requirements, seasonal variations in demand, standards and regulatory requirements etc. The exporters also own and control the transport and refrigeration and value addition infrastructure besides having advanced technical and managerial skills. On the other hand, as part of their contribution to the partnership, small scale farmers have control over their land (a minimum of 0.125ha); supply labour (largely family labour) and need to demonstrate that they have access to a source of water (for irrigation during dry weather). The small scale farmers are limited in their access to technological infrastructure; they have low formal education (most of them have not gone beyond secondary school) while a large majority are either illiterate or have primary level of education; and their access to credit and financing is constrained by lack of collateral and the perceived high risks and transaction costs in dealing with them. On the other hand, they have accumulated a wealth of tacit and experiential knowledge on farming (more generally) and flower

production, especially on traditional flowers (that is, flowers that grow naturally in their natural environments/farms).

As a consequence of this power disparity, the exporters hold more authority in the partnership and occupy a dominant position relative to their suppliers. Because of this higher position, the exporters set the rules and parameters within which small scale farmers have to operate and these rules and parameters are institutionalized through formal contracts. In these partnerships, the exporters control the decision-making processes and determine the direction and outcome of the partnership. The small scale farmers on the other hand, are subordinate to the exporters and have limited influence over the decision-making process. They are often presented with contracts that have been pre-drafted and even though there are claims that the terms are always explained and they only sign upon understanding and agreement, the reality is that they lack the capacity to negotiate the terms of the contract and quite often agree to whatever is proposed by the exporters.

The other key actors in these partnerships are the regulators – HCDA and MoA – who are co-signatories to the contracts – and are therefore – witnesses to the partnerships between exporters and small scale farmers. These regulators, because of their statutory functions, occupy a higher position of authority. Through issuing of licenses (and the powers to revoke the same) they can dissolve the partnerships between these parties if they have sufficient grounds to do so. The regulators also have advanced technological facilities for testing (quality) as well as (in the case of HCDA) infrastructural facilities such as refrigerated trucks for transporting horticultural produce, pack houses for value addition and storage. They have highly trained staff in technical and advisory services and collect taxes, fees from licensing, leasing facilities and charging for storage at the airport. As a result of controlling these resources, the regulators act as arbitrators between small scale farmers and exporters in cases of dispute and in extreme cases can withdraw the licenses from the exporters. In their operations, the regulators invoke laws

and statutes relating to their mandates, use licenses and certificates and in some cases apply industrial codes of practice (CoP). Their role in decision-making is limited to arbitration and dispute resolution.

The non-governmental organizations rarely invest in physical technological infrastructure but have highly trained staff, with specialized skills in managing multi-stakeholder processes and are normally well funded by donors and other development agencies. In these partnerships, the NGOs rank higher than small scale farmers in authority and in some cases assist the small scale farmers in negotiating with the exporters, including linking up small scale farmers with exporters and initiating the partnerships where none existed before. The NGOs also link up the small scale farmers with banks and in some cases guaranteed loans with the banks on behalf of the small scale farmers (that is, the NGOs deposited a lump sum amount of money as collateral against which farmers can borrow loans) while in some cases, they provided inputs (seeds, fertilizers etc) to farmers.

The universities and the public research institutes occupy a 'privileged' position arising from their control of high technical competencies and provide technical advise to farmers and exporters but they are usually under-funded and their participation in these partnerships are usually supported by funds from external sources (including NGOs, donors) and this undermines their capacity to influence the outcomes of these partnerships. Their role in decision-making is limited to providing technical advice to the parties involved. The input suppliers view farmers and exporters as customers and in some cases provide technical advice to farmers and may influence pesticide and fertilizer use through marketing/advertising and packaging in affordable quantities for small scale farmers. They have no direct role in decision-making other than providing advice on pesticide, chemical and fertilizer use.

6.8.1.2 Relational Governance

The partnerships involving medium/large scale farmers and exporters are characterized by low power asymmetry. The exporters in these partnerships do not own physical technological infrastructure for transportation, value addition and storage for flowers but concentrate on consolidation (from medium/large scale farmers) and marketing of flowers. They have highly trained technical and managerial staff, particularly in business and marketing fields. They have a relatively easy access to credit and financing. Because of these characteristics, they relate with medium/large scale farmers on an almost equal basis, with negotiations revolving largely about pricing and volumes and less on quality and timely delivery. The partnership is based on mutual benefit and trust and regulated through purchase agreements (which are required mainly for regulatory purposes by HCDA and KEPHIS). By being able to negotiate with farmers, the exporters participate in the decision-making processes about the direction and outcomes of the partnership. The medium/large scale farmers on the other hand, have invested in advanced technological infrastructure including computerized greenhouses, fertigation facilities, cold chain, pack houses and in some cases even charter flights to transport their flowers. The farmers have employed highly trained technical and management staff including agronomists, irrigation engineers and other specialists. Their staff are highly skilled particularly in production, value addition and marketing. As a result, these farmers can negotiate the terms of their partnerships with the exporters, and influence the outcome of the decision-making process. The role of regulators in these partnerships is limited to issuing licenses and certificates to the exporters (on the basis of the purchase agreements between exporters and farmers) while the other actors including universities and public research institutes; NGOs have no direct roles in these partnerships. Input suppliers provide some technical support to

the large scale farmers but these are not directly related to or influenced by the partnership[76].

[76] This is because ordinarily, the farmer would be exporting flowers on his/her own, even without being in partnership with these exporters

	Authority	*Influence*	*Institutions*	*Decision-making*
Small scale farmers	Occupy a subordinate position to exporters	Have limited control over their relationship with exporters	Normally bound by contracts with exporters	Are usually presented with a pre-prepared contract; basically they take decisions made by exporters
Medium/large scale farmers	Operate on a nearly equal basis with exporters	Can negotiate with the exporters	Operate on purchase agreements/informal agreements	By being able to negotiate, they participate in decision-making
Exporters	Dominant over small scale farmers but equal to medium/large scale farmers	Set parameters for small scale farmers but negotiate with medium/large farmers, based mostly on price/quantities	Either contracts with small scale farmers or purchase agreements with medium/large farmers	Control decision-making with small scale farmers; negotiate with medium/large farmers.
Regulators	Occupy a higher position in the hierarchy due to their statutory mandates	Arbitrate between small scale farmers and exporters; issue licenses to exporters; perform quality inspection and can withdraw/cancel licenses	Apply laws and statutes relating to their mandates; Issue licenses and certificates; in some cases they apply industrial codes of practice	Are signatory to the contracts as witnesses to the and only intervene in cases of dispute.
NGOs	Higher than small scale farmers but relate with other actors on equal basis	Can help small scale farmers negotiate with exporters; link small scale farmers with banks and can guarantee loans for small scale farmers; in some cases provide inputs and credit to small scale farmers	Rely mostly on memoranda of understanding with banks, exporters and farmers	In some cases, help farmers negotiate with exporters; banks and other actors
Universities and PRIs	Occupy a privileged position based on their high technical competencies	Provide technical advice to farmers and exporters; may influence the varieties to be grown (based on technical advice)	Use their statutory mandates and agreements between NGOs and farmers	Play a supportive role and have no direct role in decision-making within the partnerships
Input suppliers	View farmers and exporters as customers	May influence access to inputs by packaging in smaller affordable quantities; provide technical advice to large farmers; advise farmers on pesticide use	Rely mostly on good will and customer relations	Have no direct role in decision making besides advising on chemical and fertilizer use

Table 22: Expressions of power in the partnerships

6.8.2 Comparing the case studies II: Opportunities for interactive learning and innovation

According to Humphrey and Schmitz (2001) and Kaplinsky and Morris (2001), enhancing the capabilities of weak suppliers is viewed as an integral role of the lead firms. The lead firms perform this role in various ways including providing training relevant to production, providing technologies and / or inputs necessary for production as well as monitoring and coordinating the activities of suppliers. The extent of involvement of lead firms in performing these functions is dependent on the existing capabilities in the supply base. When the existing capabilities in the supply base are weak, there is a greater the involvement of the lead actors in building these capabilities to ensure supplies meet the quality requirements and are delivered on time.

In order to compare the case studies with respect to opportunities for building farmers' capabilities, this section employs a common framework focusing on a set of three factors namely (i) *Interactions* – the frequency of contact between farmers, exporters and other actors (ii) *Institutions* – the attitudes and behaviors as well as formal (contractual) or informal (non – contractual) forms of monitoring and coordination and (iii) *Investments* – whether there is explicit investment by the exporters in assisting the farmers to meet the standards/quality/specifications.

The interplay between the three factors may contribute to or undermine capability building by increasing or decreasing opportunities for learning and innovation. While interactions provide a platform for acquiring and exchanging knowledge, the institutions create a framework for these interactions as well as conditions for investment (financial, technical and managerial assistance). Building farmers' capabilities require continuous interactions, a favorable institutional framework that supports knowledge exchange as well as a deliberate strategy for technical, financial and managerial assistance.

6.8.2.1 Captive Governance

Faced with weak capabilities in their supply base, the exporters are obligated to invest in building the capabilities of small scale farmers if they are to obtain high quality flowers. The internalization of this capability building function shapes the level of interactions required, the type of institutional architecture and the extent of investment in capability building.

(i) Interactions

Prior to getting contracted, farmers are required to form groups and register with the Ministry of Social Services. The formalization of these groups provides a framework for farmers to interact with each other, learn together and besides making it easy for the company and other actors (including the NGOs, HCDA, MoA, universities and public research institutes and input suppliers) to organize training events for the farmers. In these partnerships, the interactions are continuous over a period of one calendar year after which the contracts are renewed or terminated. During this period, there are multiple interactions between the company and farmers; between the farmers and other supporting actors (NGOs, input suppliers, universities, public research institutes) as well as amongst farmers themselves.

The interactions between farmers and the company occur at three levels: (i) during policy meetings which occur at least twice a year for every group. These policy meetings focus on marketing and planning issues for the partnership and are the major decision-making forums. (ii) during agronomic visits which occur daily for groups of farmers. This is organized such that each farmer is visited at least twice in a month. The agronomists use these sessions to hold regular training for farmers on production aspects (iii) during the weekly collection schedules when the company field staff visits farmers to collect the harvested flowers. The farmers are involved in preliminary grading (sorting) at their sheds and the company also uses these meetings to take requests for inputs (pesticides, fertilizers etc) from farmers. The inputs are supplied during the subsequent visits. Besides these,

there are training events organized for farmers by NGOs in collaborations with other actors.

(ii) Institutions

Monitoring is formal using legally enforceable contracts between farmers and exporters. It is a regulatory requirement for exporters wishing to source from small scale farmers to enter into formal contracts (HCDA export order, 1995). The partnership agreement (contract) provides that the exporters should train farmers on specifics of flower production and preliminary grading. The farmers are provided with production manuals explaining how the production should be done and the kind of chemicals and fertilizers to be used. The partnerships are guaranteed by the regulator (HCDA) and the Ministry of Agriculture both of whom are witnesses to the contracts and act as arbitrators in cases of conflict.

(iii) Investments

Farmers are organized into small groups and the exporters' strategy is intentionally geared towards investment in farmers' production capability through financing and investment in provision of inputs and knowledge. The exporters conduct training to the farmers on a variety of issues including agronomy, group management, and financial management amongst other areas. The exporter supplies planting materials, chemicals and other inputs besides arranging for credit facilities for the farmers. The exporter's contribution to the "retained account" is an example of conscious investment in the farmers' capabilities. Pricing is based on a standard formula and prices are pegged on the auction prices. Because of the investment made by the exporter, the cost of switching suppliers is very high and is seen as last option.

6.8.2.2 Relational Governance

Both parties in these partnerships have the relevant market knowledge (both parties interact directly with actors in the end market), have their own business infrastructure in place (farmers have production, value addition and marketing facilities) and both have high

technical and managerial skills in their various operations. Since the suppliers already have high capabilities, the exporters have no obligations to invest in building the same. However, these exporters occasionally source flowers from small scale farmers. Even in these cases, they don't offer any assistance to the small scale farmers who have to rely on government facilities and infrastructure to transport their flowers to the airport for shipping. This scenario determines the interactions, institutions and investments made in the partnerships.

(i) Interactions

The interactions in these partnerships are regarded as discrete events, distinct from other (previous or future) transactions. Purchase orders normally extend only for a few months and there is minimal interaction between the exporter and the farmers. The exporter relies on the farmers' track record as assurance of quality and timeliness. The exporter offers specifications for flowers as complete documents and the documents are delivered impersonally (usually through emails) with very little discussions.

(ii) Institutions

There are no formal contracts and agreements are put in writing only as evidence to the regulatory authorities (HCDA and KEPHIS) that the parties have agreed to enter into partnership and that the farmer has authorized the exporter to export his flowers. In this case, the flowers are exported in the farmers' branded boxes and labels. Specifications on flower varieties, length, colour, head size etc are provided to the last detail and the suppliers don't make any changes/modifications to the specifications. Any interactions with farmers are viewed as transitory and no attempt is made at building the farmers capabilities. Since the relationship is based on mutual benefits and characterized by trust, reputation and confidence, any conflicts are resolved through negotiation and compromise. There is hardly any involvement of the regulatory authorities in dispute resolution.

(iii) Investments

The exporter views farmers as experts with high capabilities. As such all its suppliers are seen as homogenous with price as the main differentiating factor. Since there is no explicit investment by the exporter in supporting the farmers, supply sources are frequently changed and the cost of doing so is relatively low. For small scale farmers, the prices are fixed over a period of time and the exporter absorbs any losses that arise as a result of price fluctuations during the period.

6.9 Concluding remarks: implications for learning and innovation

Having compared the two case studies on the basis of their power dynamics; institutional set up and the opportunities for interactions and investments in building farmer capabilities, the question that still begs is: how have these opportunities been manifested in practice? What are the implications for learning and innovation arising from the various institutions, levels of interactions and investments on the farmers' capabilities? In this concluding section we compare the two case studies with respect to learning and innovation alongside the three types of capabilities: production, value addition and marketing.

6.9.1 Production capabilities

In *captive governance*, farmers gained knowledge on production as part of the agronomic trainings provided by the exporters' agronomists. The agronomists are required, as part of their contractual engagement, to train the farmers on various production aspects including: providing the grower with information on different flower varieties that can be grown in their agro-ecological regions; information on good crop husbandry; information on safe and effective use of recommended chemicals and information on implementation of codes of practice in force that covers safe use of chemicals, environmental conservation, labour record keeping and traceability etc. As a result of these trainings, the farmers learn of the various new varieties, new technologies for production and in some cases are able to adapt these technologies to their farms. In the process, farmers improve their growing methods,

practices and comply with new environmental standards and regulations. On the other hand, in *relational governance*, the exporter only deals with farmers who already have the requisite production capabilities and no information/ knowledge is exchanged regarding production of high quality flowers.

6.9.2 Value addition capabilities

In *captive governance*, the contracts allocate the bulk of value addition responsibilities to the exporter and the farmers participate only in the preliminary grading (sorting) of flowers. This initial grading is done at the farmer's central grading sheds under the supervision of the exporters' agronomists who conduct the final grading.

After the grading at the farmers' sheds, the exporter collects all the fresh flowers that meet quality requirements from the farmers' central grading shed, makes payments for the flowers, takes possession and transports them in refrigerated trucks to the exporters pack house for further value addition. All the packaging materials are provided by the exporter who also retains the responsibility for packaging the flowers. Because of these provisions, farmers are locked out of the value addition process. In *relational governance*, the exporter adds no value to the flowers and the responsibility for value addition rests with the farmers who supply flowers as 'finished products' ready for shipment. The exporter has no production, transportation or refrigeration infrastructure and relies entirely on the farmers' expertise, experience and track record. As a result, farmers don't learn anything new from the exporters regarding value addition.

6.9.3 Marketing capabilities

Captive governance offers small scale farmers new market opportunities and the exporter supports them by ensuring that their schemes/farms are certified to the necessary codes of practice. This ensures that they meet new market standards. During policy meetings with exporters, farmers are provided with market information in terms of price, quality feedback reports and any other relevant information beneficial to the client such as new standards

and regulatory requirements. Through training on record keeping, farmers learn the importance of traceability and accountability issues. Further the farmers are advised on the planting programs that correspond to the market demand at particular times of the year.

In *relational governance*, the exporters provide the farmers with the opportunity to access new markets (markets other than their traditional markets) since the exporters in this case usually target markets which the farmers have not been able to access either because of low demand or stringent requirements and it would be unprofitable to the farmers to invest in these markets. The quote below from a large scale farmer captures the marketing opportunity provided under this relationship:

"They (exporter) request for my (farmer) products and we have a beautiful relationship because they are able to give me that extra buyer so I don't have to send my flowers to only one area. For example, they (exporter) are now expanding into the American market and when they sell our product, we also feel that we are expanding into that market."[Interviews with a large scale farmer, October 2008]

Other than this opportunity to access new markets, the medium and large scale farmers would normally be well informed of relevant market issues including price, customer requirements, demand cycle and the various standards.

Chapter 7: THE ROLE OF R&D ACTORS IN BUILDING FARMERS' CAPABILITIES

"The flower industry is a constantly changing trade...things keep changing, customer demands are changing, the varieties are changing...it is a fashion kind of industry. You need to constantly learn and adapt to new and changing trends in order to remain in business...you have to be alert all the times." Small scale farmer, Limuru (November 2009)

7.1 Introduction

This chapter builds on chapter 5 and 6 and focuses on capability building from a broader innovation system lenses, that is, it examines the interactions between farmers and the different actors in the innovation system and how these interactions shape the processes of knowledge generation, sharing and application. The mapping of the actors in the system is guided by the different actors' categories that have featured in the partnerships and their interactions with farmers. The chapter begins by revisiting the policy and legal framework (elaborated in Chapter 2) in order to explain how the policy environment may influence the activities of the various actors with respect to learning, innovation and capability building. This is followed by a focus on the roles and responsibilities of the various actors in relation to building farmer capabilities. In order to explore the interactions between farmers and the different actors, we followed three strategies. First, we describe the organizations/actors, their mandates, functions and interactions. This section captures 'what the organization says about itself' (Roche, 1998) in regards to their activities and achievements in relation to capability building. This information was obtained by interviewing the leaders/representatives of these organizations as well as from the annual reports, publicity materials (brochures), websites, strategic plans etc

Secondly, we asked farmers and exporters their views on the roles and performance of the various organizations in order to get 'what they say about the different actors/actor

groupings'. This was done through a survey using a structured questionnaire in which farmers and exporters were asked to rate the different actors according to a prescribed scale (see questionnaire) and their responses for the different groupings were analyzed and compared. The data resulting from this survey tells of how the actors are viewed by their clients (farmers and exporters) and lastly, we held face to face semi structured interviews with farmers and exporters to capture their views, perceptions and opinions in their own words. These have been used as short quotes to highlight the various issues in the thesis. The analysis centers on the trends from the survey as regards knowledge generation, sharing and application.

7.2 Policies, Innovation and Capabilities

The policy environment plays an important role in shaping the behaviour of actors – including their habits and practices. The policies constrain behaviour (the regulatory function) as well as provide the generally agreed principles (and rules of the game) that influence the interactions between actors (the facilitative function). It is these interactions (linkages) between actors that either foster or hinder the exchange of knowledge, technologies and other resources. These interactions and the attendant learning and knowledge sharing are key determinants of whether or not capability building occurs. This section revisits the policy and legal framework review in chapter 2 with a view to summarizing the key trends in the evolution of the policies over time. It considers whether there has been a change/shift in the 'innovation enabling factors', that is, the analysis considers whether there has been a shift:

- Towards more/better participation by the various actors in the innovation system
- Towards more interactions/opportunities for interactions
- Towards increased knowledge sharing
- Towards increased investments in the sector, especially if such investments have been channeled towards knowledge generation, sharing and use

- Towards increased application of science and technology, including mechanisms for harnessing the same towards improving the sector.

This analysis summarizes these shifts in four key areas:

(i) Increased use of /emphasis on S&T including specific R&D

(ii) Shift towards a more liberalized environment/relaxed government controls

(iii) Shift in the intellectual property rights (IPR) policies and regime

(iv) Shift towards the innovation systems approaches

(i) Increased use of /emphasis on S&T including specific R&D

A review of the policy environment shows that Kenya's agricultural policies have recognized the role of agricultural science, technology and innovation in its development endeavour. The role of research in generating new knowledge as well as solving problems within the sector has been acknowledged and upheld in most of the documents. There have been attempts at providing proper funding mechanisms for such research work. Sessional paper no. 1 of 1986 proposed commodity – specific levies as a means of raising research funds while sessional paper no. 1 of 1994 has gone a step further to encourage individual farmers and organizations to support research of their choice.

The sessional paper no. 1 of 1986 proposed a mechanism where agricultural marketing institutions and other organizations would be allowed to collect specific research levies to finance research and development of agricultural crops. This funding strategy has been successfully implemented in tea, coffee and sugarcane. Similar efforts are being piloted in horticulture with the Horticultural Research Fund (HRF). The need for the horticultural research fund arose as a response to the recognition of research challenges including: (i) lack of industry driven and participatory research (ii) limited collaboration between research organizations and the industry when determining research priorities (iii) high reliance on external funds with no contribution from the industry (iv) low dissemination and adoption by stakeholders of research findings and (v) poor research-extension-farmer linkages. In response to these challenges the government and the industry stakeholders felt

the need to operationalize the Horticultural Research Fund. The HRF was established by introducing a levy on horticultural exports to generate funds to address the above constraints. The fund is managed by the Horticultural Crops Development Authority (HCDA) with technical support from the Horticultural Research Fund (HRF) Committee whose membership is drawn from different stakeholders in the sub-sector.

(ii) Shift towards a more liberalized environment/relaxed government controls

It is also evident from the evolution of the policies that over time the government has relaxed the controls that characterized the agricultural sector in Kenya since independence. The advent of economic liberalization policies and the structural adjustment programmes (SAPs) of 1980s necessitated a shift in policies towards a more liberalized environment with minimal government intervention. The sessional paper no.1 of 1986 marks the turning point and sets the tone for relaxed government intervention and encouragement of private sector participation in agriculture.

The paper highlights three key shifts in the government policies as regards the agricultural sector namely: (i) removal of monopolistic trends (ii) reduction of government involvement in commercial activities and (iii) encouraging private sector take – over of some of the government functions. The sessional paper of 1986 also strengthened the role of HCDA and recommended, as a response to constrains in the horticultural sector, the construction of new marketing centres in major urban centres, experimenting with sea freight and market diversification. These policy shifts have had the effect of increasing competition in key agricultural sectors as well as increased private sector participation in agriculture with resultant benefits to farmers and other actors.

(iii) Shift in the IPR policies and regime

Intellectual property rights (IPRs) in the agricultural sector are covered and protected in law as demonstrated by the case of plant breeders rights (PBRs) in the Seeds and Plant varieties Act (cap 326). These have also been emphasized in sessional paper no.1 of 1994, while the establishment of the Kenya Industrial Property Office (KIPO) in February 1990

following the enactment of the Industrial Property Act (cap 509) has strengthened protection of intellectual property in Kenya. In addition, as a signatory of the International Union for the Protection of New Varieties of Plants (UPOV) convention, Kenya recognizes plant breeder's rights, thus giving the country a better access to new patented varieties of crops bred internationally.

(iv) Shift towards the innovation systems approaches

Aspects of innovation systems have been introduced into the policies in the sessional paper no.1 of 1994 where the policy has encouraged industry to develop mutually beneficial contractual links with research institutes for the generation of viable technologies and foster stronger linkages between the farming communities and the agro-industries. This recognition of actor linkages has been carried on in the PRSP (2001) which advocates for pluralism in extension service provision and building a participatory technology development (PTD) and transfer system, while the government also identified the need for S&T coordination (S&T Act, cap 250). The ERSWEC (2003-2007) has sought to, as part of its interventions, put in place a new agricultural extension policy that promotes collaboration with other extension service providers. The Strategy for the Revitalization of Agriculture (SRA) 2004 – 2014 which is the latest policy for modernization and transformation of the agricultural sector has captured innovation systems more explicitly and envisages:

> "the creation of an agricultural innovation system – composed of research institutes, universities and private sector research agencies – where research results reach farmers through public and private extension service providers." pp. 24

In summary, the agricultural (and related) policies recognize and uphold issues relevant to innovation and capability building. Such issues include: i) the role of research in generating new knowledge ii) the need for inclusion of other actors and promoting partnerships, iii) the need for pluralism in provision of extension and advisory services iv) the role of intellectual property rights protection in enabling innovation, research and

learning and v) the role of science and technology in the development of the agricultural sector. These policies provide a favourable environment for the actors involved in the development of the sector generally and specifically the building of farmer capabilities.

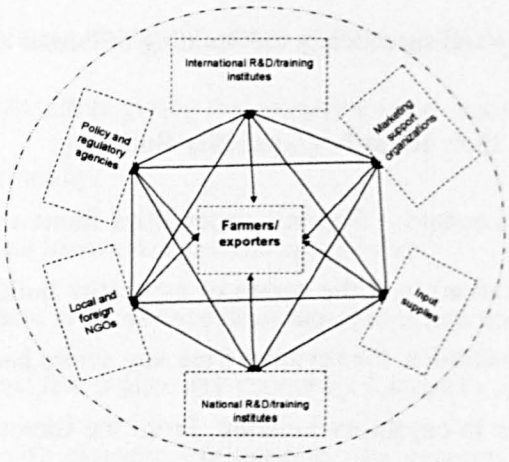
7.3 Mapping Key Actors and their Roles in Capability Building

Based on the four dimensions of Leonard – Barton's capabilities framework, knowledge (its generation, sharing and application) is at the centre of capability building. Given the primary focus of this study on capabilities, the review of the key actors has laid emphasis on the actors that play direct roles in capability building. From the literature review and key informant interviews, the following set of actors have been identified as critical for capability building within the cut flower industry:

- The national R&D and training institutes: These include the public research institutes, the universities, the private research organizations and local consultancies
- The international R&D and training institutes: these include public and private research institutes and laboratories, universities and foreign consultancies
- The input suppliers: These include all suppliers of inputs to the industry including agrochemicals, fertilizers, greenhouses, packaging materials etc
- The NGOs (both local and foreign)
- The policy and regulatory agencies: These include government agencies (and other actors) involved in policy formulation and enforcement

  The marketing support organizations: These are organizations involved in marketing Kenya's products. They provide market intelligence to the industry as well as support the farmers in accessing the markets.

Figure 10: Cut flower innovation system



Source: author

Figure 10 above depicts the cut flower innovation system and shows that in practice, interactions occur amongst all the actors *to varying degrees. However, for purp*oses of this study, specific attention was paid to the interactions between the actors and farmers and exporters. The flower farms are the most critical actors for this study and for the innovation system not only because they are the focus of the study but are also central to the introduction of new innovations into the production, value addition and marketing systems. The farmers however do not act in isolation, but are supported by a wide range of different organizations/actors that perform different but complementary roles. Together, the farmers and the supporting organizations play a key role in bringing new products and processes into economic use. The interactions between the farmers and these organizations contribute to building the capability of farmers, and therefore their ability to continuously innovate and compete. A brief description of the roles of individual actor categories is presented below.

7.3.1 National R & D/Training Institutes

This actor category consists of actors whose mandates involve research, development or training. They include the Kenya Agricultural Research Institute (KARI); the Universities; and private research and consultancy firms. These actors provide knowledge to farmers but also offer training on various aspects of flower growing and exports. Their function within the system is central to building farmer capabilities.

The Kenya Agricultural Research Institute (KARI)

KARI coordinates all agricultural, livestock and crop research in Kenya. A review of KARI's research on floriculture projects from 2001 – 2006 (see table 23) shows a greater attention to issues affecting small scale farmers and summer flowers, comprising 85% of all floriculture research in this period[77]. The research focused on various aspects including introduction of new varieties/adaptation of varieties (30%); plant nutrition/fertilizer efficiency (10%); pests and disease control (20%), yield improvement (25%) and post-harvestpost-harvest handling (15%)

Table 23: KARI's floriculture research projects (2001 – 2006)

#	*Title of project*	*Flower varieties*	*Target group*	*Focus of the study*	*Year*
1	*The effect of Phymyx organic fertilizer on stem yields of arabicum flowers*	Arabicums	Small scale flower farmers	Plant nutrition/ fertilizer efficacy	2004
2	*Observation trials for various summer flowers to determine germination rates and growth characteristics*	Various summer flowers	Small scale flower farmers	Introduction of new varieties	2004
3	*Gerbera on-farm nutrition trials*	Gerbera	Small scale flower farmers	Plant nutrition	2004
4	*Collection and domestication of indigenous ornamental plants*	Indigenous flowering and foliage plants	Small scale flower farmers	Introduction of new varieties	2004
5	*Dissemination of Anthuriums in the coastal lowlands*	Anthurium	Small scale flower farmers	Introduction and dissemination of new varieties	2004
6	*IPM in flowers: alternatives to the use of methyl bromide for soil fumigation in cut flowers*	Various flower varieties	Small and large scale farmers	Pest and disease control	2001

[77] The figures reported here are calculated from table 23 and based on the research projects reported in KARI's annual reports for the period.

7	*Evaluation of Eco-T as a fungicide in cut flowers*	Carnations, lesianthus and statice	Large-scale farmers (Oserian dev. Co. Ltd)	Pest and disease control	2004
8	*Anthurium evaluation and on-farm adaptation*	Anthuriums	Small scale farmers	Introduction/adaptation of new varieties	2005
9	*Evaluation of cut flower production in the north Rift*	Tuberose, gladiolus, asters, ammi and morbydick	Small scale farmers	Introduction/adaptation of new varieties	2005
10	*Evaluation of improved varieties of gladioli and lilies*	Gladioli and lilies	small scale farmers	Yield improvement/ evaluation of new varieties	2006
11	*Development of a micro-propagated protocol for lily*	lilies	small scale farmers	Yield improvement	2006
12	*On-station evaluation of introduced gladioli for flower quality and yield*	Gladiolus	Small scale farmers	Yield improvement	2006
13	*Diffusion of floriculture technologies in Meru district*	Morbydick, tuberose, crocosmia, ornis, eryngium and arabicum	Small scale farmers	Post-harvestPost-harvest, market linkages, plant nutrition and agronomic training	2006
14	*Micro-propagation of planting material for Gerbera jamesonii*	Gerbera	Small scale farmers	Yield improvement	2006
15	*Micro-propagation of morbydick*	Morbydick	Small scale farmers	Yield improvement	2006
16	*Postharvest evaluation of introduced flower varieties of Gerbera and Aclepsia*	Gerbera and Aclepsia	Small scale farmers	Post-harvest quality	2002
17	*Propagation of potted ornamental plants*	Various species of indigenous plants	Small scale farmers	Introduction of new varieties	2002
18	*Integrated pest management options for the control of soft rot in arabicum*	Arabicum	Small scale farmers	Pest and disease control	2003
19	*Characterization of postharvest quality of scabiosa, morbydick and crocosmia*	Scabiosa, morbydick and crocosmia	Small scale farmers	Post-harvest	2003
20	*Mass production of entomopathogenic nematodes for biological control of flower pests (thrips)*	chrysanthemums	Large scale farmers and exporters [with support from Agribio]	Pest and disease control (biological control)	2001

Source: Compiled by author from KARI annual reports (2001 – 2006)

KARI has 25 research centres, each with a specific mandate. *The National Horticultural Research Centre* (also known as KARI – Thika) is nationally mandated to develop the horticultural sub-sector. The Centre's work focuses on the following four objectives:

i. Development and introduction of new flowers into the market:

The Centre has introduced a number of new flowers such as *Gladiolus* (from USA) which is currently being grown in Central, Eastern and Rift Valley provinces in Kenya. Other introductions include lilies, gerbera (from Holland), leather leaf - fern and morbydick which has been developed from indigenous plants.

ii. Propagation and distribution of planting material

With regards to the propagation of planting material, the initial plan was to multiply propagules of introduced species and distribute to farmers however the demand has been very high and the Centre has not been able to cope with the number of requests.

iii. Development of appropriate technologies

Development of new technologies has been multi – disciplinary taking into account key areas such as agronomy, crop protection and post-harvest technologies, with the emphasis on adapting exotic flowers into local conditions by setting up experiments/agronomic studies in disease management as well as trying biological control methods to lessen the use of chemical pesticides and help farmers adhere to the minimum residue levels (MRLs).

iv. Technology transfer

On technology transfer, the Centre has followed several approaches such as on – farm trials where materials developed in the Centre are taken to the farmer and demonstrations carried out on the farms. The other approach to technology transfer employed by the Centre is farmer field schools (FFS) in which the Centre identifies an area and works closely with community – based organizations (CBOs) in transferring the new technologies. The Centre staff train the farmers on agronomy, crop protection, post-harvest technologies and socio-economic issues. The farmers are then asked to reserve an area in which the Centre staff carry out the growing trials in collaboration with the farmers. Field days are also organized during which the farmers are trained to train others.

The Universities

Whereas most public universities in Kenya carry out research in horticulture besides training skilled manpower for the horticultural sector, the more established agricultural

universities in Kenya are Egerton University; Jomo Kenyatta University of Agriculture and Technology and the College for Agriculture and Veterinary Sciences (CAVS) of the University of Nairobi. For example, following the declaration of horticulture as special crops in 1967, Egerton College was selected to train technicians in horticulture and was transformed into a full-fledged university in 1987 and continues to play a leading role in developing the country's horticulture. The University of Nairobi has also been instrumental in the industry, supporting farmers in crop protection, agronomy and providing training to farmers as the case in box 6 below demonstrates.

Box 6: University trains farmers on environment – friendly technologies

The University of Nairobi, College of Agriculture and Veterinary Sciences (CAVS), in collaboration with other actors (UNDP/GTZ & Government of Kenya, with funding from the Multilateral Fund through UNIDO & GTZ Proklima) has established a training facility for piloting the use of alternative methods to Methyl Bromide[78] (MB) in the control and management of soil borne diseases and weeds. The Centre boasts of quality infrastructure consisting of a 0.5 ha greenhouse where roses, carnations and peppers are grown on substrates; well equipped laboratories for testing plant, soil, substrate and irrigation water samples for identification of soil borne pathogens.

The Centre offers training (on site) for large and small scale farmers, extension workers, researchers, lecturers, technicians, students, agrochemical industry personnel, service providers, among others. The training focuses largely on how the alternatives (Metham sodium, substrates culture, steaming, and seed dressing and irrigation techniques) work in production of vegetables and cut flowers. Other than *in situ* training at the facility, the project also organizes workshops whereby farmers are trained on the various MB alternatives as well as provide a forum for farmers to share experiences and exchange ideas on MB alternatives.

[78] Methyl Bromide is a powerful fumigant used for the control of soil borne and storage pathogens and pests and for quarantine and pre-shipment treatments. It is toxic to humans on inhalation and can lead to cancer, eye cataracts and weaken the immune body system.

Farm visits are also organized for users of methyl bromide where the technical team holds discussions with farmers to understand the nature of problems they are experiencing on the farm. Farmers who are willing to adopt alternatives are signed up for piloting and are assisted to acquire the necessary experience with the alternative technologies prior to full-scale adoption. As at the time of this interview (October 2008), the project was reported to have trained about 400 farmers and other participants for both the vegetable sector and cut flower sector.

Methyl Bromide Alternatives Project was initiated in the year 2003 to assist the Kenyan Horticultural Industry adopt effective alternatives to Methyl Bromide in the management of soil borne diseases and weeds. The Montreal Protocol (to which Kenya is a signatory), requires countries to phase out Methyl Bromide by 2015.

Source: compiled by author from field interviews and the project's website (www.mbprojectke.org)

Other universities include Moi University, and Maseno University which also offer programmes in horticulture and some even specifically in floriculture. Some of these universities have joint programmes with flower farms to develop technologies and solve specific problems besides sending students to these farms for internships. MSc and PhD students whose research focuses on specific problems of the industry are also sent to these farms to conduct their studies.

The Real IPM Company (K) Ltd

RealIPM is a private training company focusing on horticultural exporters in African, Caribbean and Pacific countries whose main export market is the European Union. It offers training and consultancy services on all aspects of best practices in sustainable pest and disease management programmes with special focus on compliance with the regulatory regimes governing imports of fresh produce into the EU. RealIPM is championing integrated pest management (IPM) and has trained a number of large scale Kenyan flower farmers (see box 7 below).

Box 7: Private research and training firm champions IPM in cut flowers

Since 2000, RealIPM has been instrumental in developing *Phytoseiulus persimilis* (a predatory mite) as a biological control for spider mite in flowers, particularly roses and carnations. This is intended to completely replace acaricides in roses. The company is mass rearing 30 million miters per week for commercial use. RealIPM is employing three full time graduates to train flower farmers on how to use *Phytoseiulus* and implement IPM of spider mite. This treatment is expected to reduce pesticide inputs in rose production from 50 to 70% and meet all the operator safety standards and customer satisfaction requirements with positive implications for Kenyan floriculture. RealIPM is a registered training provider with the Directorate of Industrial Training (DIT) and has five EUREP GAP – accredited trainers on their team

Source: Bolo, 2005

The International Centre for Insect Physiology and Ecology (ICIPE)

ICIPE through its Plant Health Division carries out research focused mainly in crop protection and has developed a flower scout training program where flower scouts are trained to detect problems and diseases. This training is carried out at the production units in the farms and targets mainly supervisors and management staff of the flower farms. The initial training was funded by the Flower Label Program (FLP) of Germany and the individual companies on a 50/50 basis and has been conducted in selected flower companies in Kenya. The participating companies receive a manual which ICIPE (through its Plant Health Division) has developed for the Kenyan cut flower industry as an identification guide for problems in the industry.

7.3.2 Policy and Regulatory Agencies

Kenya's floriculture industry is regulated by a number of organizations including the Kenya Plant Health Inspectorate Service (KEPHIS), Kenya Bureau of Standards (KEBS), the Horticultural Crops Development Authority (HCDA) and the Kenya Flower Council

(KFC). These actors implement standards, regulations and codes of practice (CoP) to ensure compliance with good agricultural practices (GAPs). Their role in capability building is twofold: i) they conduct trainings (in collaboration with other actors) to ensure that farmers meet standards and regulations ii) by enforcing standards, they stimulate learning in that by trying to meet these standards and regulations, farmers are 'forced' to seek information and improve on their practices.

The Kenya Plant Health Inspectorate Service (KEPHIS)

KEPHIS regulates all matters of plant health and quality control of agricultural products in Kenya. It derives its regulatory authority from various statutes including the *Plant Protection Act* (Cap 324) dealing with importation of plants and plant products, the *Seeds and Plant Varieties Act* (Cap 326) regulating certification and registration of all seed, the *Agricultural Produce (Export) Act* (cap 319) governing the exportation of plant and plant-related products from Kenya, the *Suppression of Noxious Weeds Act* (Cap 325) addressing the prevention, suppression and eradication of noxious weeds amongst other statutes. KEPHIS falls under the Ministry of Agriculture (MoA) and has jurisdiction over phytosanitary matters and a full regulatory authority to seize, turn away, quarantine and destroy all materials that do not meet the Kenyan standard requirements. It works closely with KEBS on phytosanitary issues and routinely inspects and regulates all materials both during active growth as well as at points of exit to ensure compliance with all standard quality requirements. KEPHIS issues a phyto-sanitary certificate which is required by all exporters to prove that the products being exported have satisfied the regulatory requirements before they can access foreign markets.

Kenya Bureau of Standards (KEBS)

KEBS is the national standards body and was established under the *Standards Act* cap 496 of laws of Kenya. It is responsible for setting standards for weights and measures, purity and identity. The overarching mandate of KEBS is to ensure consumer safety through setting standards for nutritional content, tolerance levels for food toxins (e.g. mycotoxins)

and provide facilities for testing and calibration of precision instruments, gauges and scientific apparatus applicable to processed foods, industrial materials, agricultural commodities and manufactured goods.

KEBS which falls under the Ministry of Trade and Industry (MoTI) considers their key role in agriculture as trade facilitation from the farm gate to the consumers by ensuring awareness and compliance with both national standards as well as standards of the importing countries. KEBS has developed (and enforces) the Kenya Code of Practice (CoP) for horticulture which is available to horticultural farmers at a cost of Kshs. 4,530/= (approx. US $ 60) and is in the process of decentralizing its testing facilities closer to major growing areas. This decentralization is being achieved by accrediting specific laboratories (in these regions) which would then be involved in training the farmers, consultancy, providing auditors and assessors and ensuring that the testing is traceable.

The Horticultural Crops Development Authority (HCDA)

HCDA is a state corporation established in 1967 under the Agriculture Act (cap 318) to develop, promote and coordinate the horticultural industry in Kenya. The Authority provides training and extension services to small scale farmers. The farmers are organized into groups and HCDA offers training on group formation and dynamics as part of its extension services. As part of its marketing facilitation, small scale farmers are organized into groups to increase the quantities of produce collected for transportation. HCDA has 8 depots country wide with cold rooms which are meant to serve small scale farmers especially in pre – cooling the horticultural products. At the moment, HCDA cold rooms, refrigerated tracks and depots are under-utilized and are being hired out to exporters who are charged per kilometre and per packing space. Box 8 details HCDA's horticultural produce handling facilities

Box 8: HCDA's horticultural produce handling facilities

Between 1993 and 2001, HCDA with assistance from JIBC (now JICA) implemented a project with the aim of improving post-harvest processing of horticultural produce by

constructing preservation facilities geared towards supporting small-scale horticultural farmers. In response to the inability of small holder farmers to access export markets, HCDA intended to support small scale farmers through purchasing their produce, packing and exporting on their behalf. This intention formed the basis of investing in refrigerated trucks (transportation), pre – cooling (pack houses) and storage facilities (cold rooms).

The horticultural produce handling facilities were aimed at improving the marketing system of horticultural produce by improving post-harvest handling methods and adding value and quality the produce, through integrating production and marketing. The facilities include seven satellite depots with pre-cooling units; the Nairobi Horticultural Centre (NHC) with cold storage and are all provided with transport logistics for produce collection, pre-cooling and delivery to Nairobi. These depots have easy loading bays, digital platform weighing up to 1MT of produce and top pan scales of up to 30kg (for use in collection centres). Plastic crates for collection of produce from centre and delivery to depots and NHC, wooden pallets trolleys, and grading/sorting tables with stainless steel are also provided. The depots have pre-cooling rooms with suction chamber, perforated aluminium plate evaporators and temperature sensors, standby generators with capacity of 100 KVA are available which can provide power for office and pre-cooling rooms during power interruptions. Water is supplied through a borehole with water flow of 3m3 per hour.

For transportation, the project has a fleet of seventeen (17) insulated Mitsubishi Fuso trucks with a capacity of eight tons (8 MT) to move produce from the depots to NHC. Further 27 Mitsubishi canter trucks of 2.5 MT are available to transport produce from collection centres to the depots, distributed as follows: Nkubu, Kibwezi, Machakos and Yatta, three units each; and Sagana Mwea and Limuru five each. Each depot has one Honda Motorcycle and double cabin pick-up for routine field extension and officer operations.

Source: compiled by author from HCDA reports and interviews

The Kenya Flower Council (KFC)

KFC was formed in 1996 by a few leading large scale farmers in response to the growing need for the Kenyan farmers to meet international standards and remain competitive. KFC's vision is to become the lead organization in providing advisory, self-regulatory and promotional services to the floriculture industry in Kenya. The Council aims to promote economic, social and political interests of the floriculture industry through active participation in the determination and implementation of policies governing the sector. KFC is a voluntary membership organization with every new member expected the standards stipulated in its Code of Practice.

Fresh Produce Exporters Association of Kenya (FPEAK)

FPEAK is a trade association representing the interests of exporters of horticultural produce in Kenya. The association was formed in 1975 and has since grown in strength from to 7 to over 70 members. It is composed of ordinary members derived from exporters of fresh cut flowers, fruits or vegetables who must have a business track record of at least six months and affiliate members consisting mainly of organizations that offer support services and inputs to the industry such as airlines, consultants, agro-chemical companies and clearing and forwarding firms.

The FPEAK maintains a lean secretariat whose main role is "linking up" members with key service providers in the industry. The bulk of its work is sub-contracted to other institutions with appropriate manpower and technical infrastructure depending on the type of services required. Besides advocacy in local and international issues and information dissemination and interpretation, FPEAK also offers technical support to groups of members such as technical training and marketing support especially in opening new markets.

7.3.3 Marketing Support Organizations

Floriculture being mainly an export crop requires and benefits from the services of different actors involved in trade, investment and export promotion agencies. In Kenya this category comprises amongst other organizations: Investment Promotion Council (IPC), Export Promotion Council (EPC) and the Department of External Trade in the Ministry of Trade and Industry.

The Export Promotion Council (EPC)

EPC is government owned company established in 1992 with the main aim of export trade facilitation and has the following key activities:

- Market development and promotion: to consolidate and expand existing markets and penetrate new markets such as the new and upcoming markets in the Middle and Far East, the Americas as well as promote intra-African trade open up new markets especially in the horn of Africa and West Africa.
- Product development: working with individual companies and trade associations on improving existing products and introducing new products. EPC works with such individual farms and associations to meet quality, standards requirements and presentations and design of products.
- Capacity building and training for exporters through workshops and providing information to traders. Such training activities are conducted jointly with resource persons obtained both locally and abroad.

EPC has a division charged with provision of timely and reliable business information to all levels of enterprise. The Centre for Business Information in Kenya (CBIK) utilizes modern information systems and technologies to collect, collate, store, retrieve and disseminate data and business information.

The Department of External Trade within the Ministry of Trade and Industry (MoTI)

MoTI deals in coordinating and facilitating external trade between Kenya and its trading partners. The department is the government's lead agency in trade negotiations and is currently spearheading the economic partnership agreements (EPAs) between the EU and

African, Caribbean and Pacific countries (ACP). The department works with civil society, private sector and other government bodies in these negotiations. Besides trade negotiations, the department also organizes and conducts training for exporters on – going negotiations as well as new market requirements and conditions. These training sessions are organized and conducted in collaboration with other relevant bodies.

Investment Promotion Centre (IPC)

IPC was created in 1985 under the investment promotion Act (cap 485) with a mandate of promoting investment in Kenya and attracting foreign direct investments (FDI). IPC also facilitates trade between countries besides coordinating international investment programs. IPC provides the following services:

- Promoting investments by organizing exchange programs, fairs, capacity building and marketing.
- Availing information to investors on incentives, applicable laws, guarantees to investors, banks and interest rates, processing of general certificates
- Analyzing the strengths and weaknesses of policies and producing policy briefs; organizing capacity building and training seminars besides collecting information and relevant data.

7.3.4 Input suppliers

There are a number of companies supplying inputs to the Kenyan floriculture industry including multinational companies such as Bayer Crop Science and Syngenta East Africa. The input supply companies deal mainly in crop protection and production and distribution of pesticides to the farms. Syngenta collaborates with the National Research Laboratories (NARL), which is a section of KARI, to carry out laboratory testing. These collaborative tests focus on, amongst other things, the efficacy of the products and their persistence; environmental and human health effects and effects on non-target organisms. In crop protection, Syngenta gives technical back-up to the farmers regarding pests and diseases,

carry out free inspection tours to identify needs and problems of the farmers and give advice on solutions to the identified problems as after sales service. There is lack of local breeders for the seeds and the few local ones are either foreign companies or their subsidiaries.

7.3.5 Non – governmental organizations (NGOs)

There are diverse origins of Non-governmental organizations (NGOs) but a vast majority of them have arisen to fill gaps left by government functions. These gaps could be related to service delivery to marginalized groups, ineffective linkages between rural poor with government agencies (the intermediary role) or even in advocating for changes in development policies. The NGOs dealing with small scale flower farmers play all these roles to varying degrees. Whereas there are many other NGOs dealing with horticultural farmers in general, this study singled out two NGOs which are directly involved with small scale farmers in the cut flower sector: AfricaNOW and Fintrac

AfricaNOW is an international development organization tackling poverty by helping small scale producers and promoting ethical trade. Through its project on "Enhancing smallholder participation in floriculture in Kenya", it aims to increase income opportunities for small scale flower farmers by reducing their poverty levels and increasing their household income. AfricaNOW has teamed up with the Kenya Flower Council (KFC) to support over 400 flower farmers by initiating partnerships between them and established exporters with markets in the UK and Europe. To ensure they have access to inputs, Africa Now is linking farmers with banks such as Equity Bank and K-Rep Bank in order to help them access start-up costs and overcome the financial constraints. AfricaNOW also offers training to farmers on group formation and management and regularly engages other actors such as Agro-chemicals Association of Kenya (AAK) and KEPHIS in their trainings.

The Kenya Horticulture Development Programme (KHDP) is a USAID-funded project being implemented by Fintrac Inc. The project aims to provide assistance to the fresh and processed food sector in Kenya. Its main areas include: marketing, postharvest handling, processing and agronomic support for small scale farmers and allied agribusiness. In cut flowers, the programme has partnered with the Kenya Agricultural Research Institute (KARI) and flower exporters (Wilmar Agro and Nature Grown Ltd) to support small scale farmers. Whereas KARI conducts research on the suitable flower varieties based on the climate and soil types, produces and distributes seedlings, the exporters provide ready market for the flowers.

7.3.6 The international R&D system: foreign universities and research institutes

Most large scale flower farmers have strong collaborations with the international R&D system mostly in marketing and laboratory testing of their products. Most of the foreign supported training and capacity building in the industry are geared towards achieving standards and maintaining high quality of products into the export markets. This is partly motivated by the fact that the consumers (mostly based in Europe) have more trust for the analysis and tests conducted by these (international) laboratories and as such clearance from these laboratories boosts export sales for the companies.

In technology acquisition, interviews showed that most of the greenhouses and irrigation technologies are imported mostly from Israel and Spain. The choice on the source of the technology is influenced by marketing companies and the farmers' previous experience. Farmers' decisions are based on reliability of technical support, cost, and availability of the products at the time of need. Moreover, Kenyan farmers depend heavily on international breeding companies (mostly from Holland) for their export varieties. These breeding companies have local representatives/branches in Kenya but these are mostly involved in propagation and distribution of these varieties.

It is to be noted that whereas the large scale farmers have maintained strong collaborations with the international actors, the small scale farmers are limited in this respect and their ability to access international knowledge and services is undermined by several factors including costs, lack of knowledge of which actors to contact and the scale of their operations.

In conclusion, this review shows that the critical actors exist and their roles/mandates are clearly spelt out. All the actors interviewed (and represented here) have as one of their roles the training/interacting with farmers. There is considerable emphasis (at least on paper) laid on small scale farmers both in their research and training activities.

7.4 Survey Results: Summary of Findings

The generation and/or acquisition of new knowledge is key to building capabilities because it leads to increasing employee knowledge bases and skills. Farmers acquire new knowledge through (i) in-house/on-farm research and development, including routine experimentation on a daily basis. This is done either in isolation or by engaging in collaborative R&D activities with other actors (ii) sourcing new knowledge from other actors such as research organizations, universities, other farmers etc. This section presents survey results regarding the generation of knowledge as well as the sourcing knowledge from others.

It is important to note that the findings provided here were obtained by interviewing farmers regarding their perceptions on the role and performance of different actors hence the responses only reflect farmers' views regarding knowledge generation and sharing in the industry. The survey covered 116 farmers comprising 60 percent small-scale; 26 medium scale and 14 large scale. The farmers were interviewed on their perceptions of various actors and their importance as sources of new knowledge. Even though informant interviews and literature review identified various other organizations not included in this survey as important in building farmers' capabilities (for example marketing support

organizations), this chapter has focused mainly on the actors that were identified as as being involved in capability building or providing a supportive role in building farmer capabilities. These include the R&D organizations and other actors which have R&D as one of their key functions (such as input suppliers and NGOs).

7.4.1 Generating new knowledge: farmers as researchers

Research and Development is a key source of new knowledge to farmers and they continuously engage in experimenting with new technologies, methods as well as adapting these to suit their conditions. The definition of research and development in this study was broadened to include 'the different ways of knowing' used by different actors to generate/seek all forms of new knowledge (including traditional knowledge). This definition includes what Stephen Biggs (quoted in Chambers (1989) has called 'informal R&D', that is, "R&D conducted by farmers, artisans and other local people" as contrasted with the formal R&D which refers to "the disciplinary activities and procedures of conventional research, as taught at agricultural universities and practiced in government and international agricultural research organizations" (Chambers et al 1989: 165-166).

This broadened definition brought into the scope of this thesis issues of farmer experimentation and indigenous methods/techniques. This is consistent with the 'multiple sources of knowledge' and multiple actors as sources of useful knowledge paradigms within the innovation systems approaches (Gibbons et al, 1994; Nowotny et al, 2001). From the sample, 86 percent of the respondents reported engaging in some kind of R&D while 14 percent reported not conducting any R&D (see table 24)

Table 24: Farmers' engagement in R&D

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	98	84.5	86.0	86.0
	No	16	13.8	14.0	100.0
	Total	114	98.3	100.0	
Missing	N/A or don't know	2	1.7		
Total		116	100.0		

Out of those who reported engaging in R&D, pest and diseases topped the list of their priorities/focus being rated at 30 percent followed by markets (22 percent) and yield improvement (18 percent), breeding/trial for new varieties (17 percent) and shelf/vase life improvement (13 percent) (see table 25a). The combined rating for production related issues (that is, pests and diseases + yield improvement + new varieties) stands at 65 percent compared to a mere 13 percent for value addition (shelf/vase life improvement). This is despite the fact that post – harvest losses and value addition has been identified as a key impediment to the horticultural sector (NES, 2004) accounting for up to 25 percent losses in cut flowers (HCDA, MoA and JICA 2004). It is important to note that while production issues (pests and diseases, yield improvement, new varieties) emerged as key themes for all the farmers irrespective of size, the medium and large scale farmers paid more attention post-harvest/value addition issues (shelf/vase life improvement) as well as market research as compared to the small scale farmers (see table 25b) who have only accorded minimal attention to postharvest and market research (22.5% and 32.5 % respectively) as compared to 42.5 percent and 35 percent for pests/diseases and yield improvement respectively. This trend is to be expected given that while small scale farmers rely on exporters for value addition, post-harvest handling and marketing; the medium and large scale farmers are vertically integrated and have to invest in building both value addition and marketing capabilities in-house.

Table 25a: Farmers' R&D focus

		Responses		
		N	Percent	Percent of Cases
R&D focus	pest and disease control	55	29.9%	57.3%
	breeding/trial for new varieties	31	16.8%	32.3%
	yield improvement	33	17.9%	34.4%
	shelf life improvement	24	13.0%	25.0%
	market research	41	22.3%	42.7%
	Total	184	100.0%	191.7%

Table 25b: R&D focus by the different farm sizes

			size of farmers			
			small scale	medium scale	large scale	Total
Main focus of R&D[a]	pest and disease control	Count	17	7	7	31
		% within Identity	42.5%	38.9%	58.3%	
	breeding/trial for new varieties	Count	7	3	5	15
		% within Identity	17.5%	16.7%	41.7%	
	yield improvement	Count	14	4	6	24
		% within Identity	35.0%	22.2%	50.0%	
	shelf life improvement	Count	9	6	5	20
		% within Identity	22.5%	33.3%	41.7%	
	market research	Count	13	6	8	27
		% within Identity	32.5%	33.3%	66.7%	
Total		Count	40	18	12	70

Percentages and totals are based on respondents.

a. Group

7.4.2 Joint R&D – who are the partners?

Farmers not only seek/generate new knowledge (conduct R&D in house) in isolation but also constantly engage with other actors in research and development. In the survey, 93 percent of farmers reported conducting research with other actors while 7 percent didn't report engaging other actors in research. Farmers rated 'other farmers' as main partners in R&D (39 percent) followed by input suppliers (24.5 percent) and local NGOs (20.7 percent). Local universities and research institutes were rated 3.7 percent, foreign universities and research institutes (2.9 percent), foreign private consultants (2.5 percent) while local private consultants (0.4 percent). The contrast between the choices for partners in R&D is striking. In aggregate, the knowledge – generating organizations are ranked lowest in choice as partners in R&D (see table 26 below).

Table 26a: Farmers' main partners in R&D

		Responses		
		N	Percent	Percent of Cases
Partners in R&D	other farmers	95	39.4%	89.6%
	input suppliers	59	24.5%	55.7%
	local public universities and research institutes	9	3.7%	8.5%
	local private consultants	1	.4%	.9%
	foreign universities and research institutes	7	2.9%	6.6%
	foreign private consultants	6	2.5%	5.7%
	local NGOs	50	20.7%	47.2%
	international NGOs	13	5.4%	12.3%
	Other	1	.4%	.9%
	Total	241	100.0%	227.4%

When disaggregated further (see table 26b), the data show that whereas input suppliers are valued as partners by all the farm categories, only 33 percent of large farmers consider 'other farmers' as important R&D partners as contrasted with small scale farmers (95.8 percent) and medium scale farmers (105 percent). On the contrary, the large farmers rate input suppliers (66.7 percent) and foreign private consultants (55.6 percent) as main R&D partners. The disaggregated data also show that even though the overall partnerships with public research institutes and universities is rated low, 44 percent of the large farmers reported having partnerships with them. This is attributed to the fact that the large scale farmers can pay for the services such as consultancies, research, soil testing etc. The data on table 23 confirm that when KARI focused on problems faced by large scale farmers (mostly pests and disease control), the research was supported by the large scale farmers or other orgnaizations for example Agribio. This ability and readiness to pay for services by large scale farmers is also demonstrated in their engagement with private consultants; international research organizations and even local private research establishments. For example, RealIPM Ltd offers private integrated pest management (IPM) to large scale farms; ICIPE also developed a flower scouting program supported by the large farmers and

the flower label program on a 50:50 basis. The local NGOs are also valued by all the farm categories but more by the small scale farmers.

Table 26b: Main partners in R&D by farm size

			size of farmers			
			small scale	medium scale	large scale	Total
Main partners in R&D[a]	other farmers	Count	46	21	3	70
		% within Identity	95.8%	105.0%	33.3%	
	input suppliers	Count	31	15	6	52
		% within Identity	64.6%	75.0%	66.7%	
	local public universities and research institutes	Count	1	1	4	6
		% within Identity	2.1%	5.0%	44.4%	
	foreign universties and research institutes	Count	5	0	1	6
		% within Identity	10.4%	.0%	11.1%	
	foreign private consultants	Count	0	0	5	5
		% within Identity	.0%	.0%	55.6%	
	local NGOs	Count	20	7	3	30
		% within Identity	41.7%	35.0%	33.3%	
	international NGOs	Count	2	0	0	2
		% within Identity	4.2%	.0%	.0%	
Total		Count	48	20	9	77

Percentages and totals are based on respondents.
a. Group

7.4.3 Sourcing knowledge externally – where do farmers turn?

The importance of different actors as source of new knowledge is a manifestation of the 'value' that farmers derive from interacting/partnering with them. In a way, the extent to which the farmers consider a particular actor important as a source of new knowledge ties in with the likelihood that farmers will choose that actor as partners in R&D. It is not surprising therefore that the rating mirrors closely with the choice of partners for R&D. As table 27 below shows, other farmers, NGOs (local and foreign) and input suppliers are rated as important sources while universities and research institutes (both foreign and

local) and consultants have been rated poorly as key sources of knowledge. For a detailed breakdown of responses by farm size, refer to appendix L

Table 27: Importance of actors as 'source of new knowledge'

Role of actors as source of new knowledge	Rating by respondents (values in percentages)				
	Least important	Not quite important	Important	Quite important	Most important
Other farmers	2	6	14	13	64
Input suppliers	15	10	23	30	22
Local public universities and research institutes	75	11	4	5	5
Local private consultants	74	21	4	1	-
Foreign Universities	75	11	6	6	3
Foreign private consultants	63	12	7	9	9
Local NGOs	36	10	9	15	30
Foreign NGOs	51	4	14	12	19

7.5 Discussion and Analysis

This analysis is premised on the assumption that the 'choice of partners for R&D' and the perception (by the farmers and exporters) of other actors as 'important sources of new knowledge' is a reflection of both the 'value' farmers attach to these partners as well as the 'ease' of engaging the partners in R&D and their role as external sources of knowledge. In summary, the results presented above show the areas where farmers are focusing on in terms of their search for information and new knowledge, the set of actors whom they turn to for this knowledge as well as the farmers' views regarding the provision of such information and knowledge. Based on these findings, there are two trends emerging from the results:

(a) That generally research organizations (both local and foreign) are rated poorly as 'sources of new knowledge' to farmers and are unlikely to be chosen by farmers as 'partners in R&D'. Despite this general trend, the survey shows that large scale farmers

have partnerships with local public research institutes and universities (rated at 44.4 percent) and foreign private consultants (rated at 55.6 percent). The relatively higher ratings from large scale farmers are attributed to their ability to pay for services provided by foreign private consultants and support/subsidize the research activities of local universities and public research institutes.

(b) That farmers obtain knowledge more easily and readily from input suppliers, other farmers and NGOs. Both the input suppliers and NGOs are rated highly as 'sources of new knowledge' and are more likely to be chosen by farmers as 'partners in R&D'

Our analysis and discussions of these emerging trends is guided by the following questions: If policies are favourable (supportive of learning, interactions and innovations) and the key actors are in place (the review shows that the major actors are available in the industry), why have farmers rated the R&D/training actors poorly as sources of knowledge and partners in R&D? What are the NGOs and input suppliers doing differently? What are the implications of these trends for small scale farmers?

The analysis is anchored on the fundamentals of a functional innovation system namely, the existence of a diverse set of actors who are continuously interacting with each other within a given institutional framework to bring new knowledge into use. The IS approach emphasizes that for this overall functionality, the elements of the system (actors) must not only exist, but the linkages between them should be strong enough to allow sharing of knowledge and resources and bringing these (knowledge and resources) into use. To further emphasize this point, Clark (2001) has observed that the individual actors could be strong but the system as a whole is still weak. This is because the functionality of the system is dependent not just on its elements (actors) but also on their interactions (quality of linkages). The roles of the actors, the institutions and their linkages are self reinforcing and should all function well for the overall performance of the system as a whole. This thesis takes the view that organizational culture, its incentives and values shape how the

organization relates with other actors within the innovation system. This system of beliefs, values and routines shapes the propensity to interact, learn and share knowledge with others. It influences how the organization responds to changing contexts as well as the challenges that it confronts in its day to day operations.

7.5.1 Organizational culture and the competing values framework

From the review, it appears the policies are favourable and the key actors are in place yet the performance of the actors in supporting farmers' capabilities is varied. Farmers have rated the performance of NGOs and input suppliers higher than that of the knowledge producing organizations (the R&D/training actors). This thesis argues that this trend may be explained by the organizational culture and routines of the various actors (universities and research institutes versus the input suppliers and NGOs). Cameron and Quinn (1999:14) have observed that for a long time, organizational culture has been ignored in attempts at explaining organizational performance largely because:

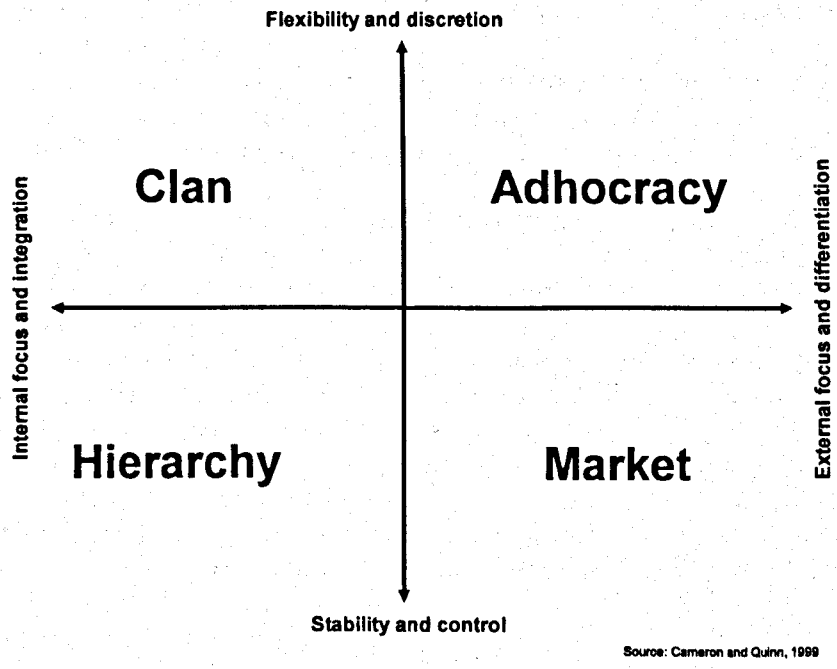
> "It (culture) encompasses the taken-for-granted values, underlying assumptions, expectations, collective memories and definitions present in the organizations. It represents "how things are done around here". It reflects the prevailing ideology that people carry in their heads. It conveys a sense of identity to employees, provides unwritten and often un-spoken guidelines for how to get along in the organization, and it enhances the stability of the social system that they experience." They further argue that at the organizational level, "culture is reflected by what is valued, the dominant leadership styles, the language and symbols, the procedures and routines and the definitions of success that make an organization unique."

The organizational culture and routines constitute the subtle 'informal institutions' that shape the behaviour of actors. They are what actors routinely do; what is considered 'normal' in their environments and how they 'naturally' behave. This culture and routines

have also been referred to by other analysts as the "traditional habits and practices of the actors" (See Mytelka, 2000; Mytelka and Farinelli, 2000 and Hall, Mytelka and Oyeyinka, 2006). They constitute the unwritten codes, patterns of behaviour that determine how organizations respond to changes within their environment. They influence the organization's ability to reconfigure and re-orient its functions in light of changing contexts (Teece, 1996). In our analysis of organizational culture, the thesis focuses on two key areas: (a) how decisions are made (organizational structure, rules and practices) (b) How success is judged, that is, the incentives and reward structures that influence the behaviour of the different actors. Cameron and Quinn have offered the "Competing Values Framework" for diagnosing the dominant cultures within organizations.

This competing values framework is based on two dimensions that define organizational effectiveness. One dimension differentiates organizational effectiveness criteria that emphasize flexibility, discretion and dynamism from criteria that emphasize stability, order and control. That is to say, that some organizations will be considered as effective if they are changing, adaptable and organic; while others will be judged as effective if they are stable, durable and mechanistic. The second dimension, differentiate effectiveness criteria that emphasize an internal orientation, integration and unity from criteria that emphasize external orientation, differentiation and rivalry. These two dimensions form four quadrants, each representing a different set of effectiveness indicators (see figure 11).

Figure 11: The competing values framework



The four quadrants (and the criteria they represent) define the core values on which organizational judgment is made. The four core values/cultures represent opposite or competing assumptions – hence the term competing value framework – that is, flexibility versus stability and internal versus external. The quadrants are also competing or contradictory on the diagonal as the matrix below demonstrates:

Table 28: The four dominant organizational cultures

The Clan Culture	**The [79]Adhocracy culture**
A friendly place to work; people share and relate like an extended family. • The leaders are mentors/parent figures. • The organization is characterized by loyalty of tradition. • The organization emphasizes the long-term benefit of human resources development • Success is defined in terms of sensitivity to customers and concern for people. • The organization places a premium on teamwork, participation and consensus.	A dynamic, entrepreneurial and creative place to work. • The leaders are considered innovators and risk-takers. • The organization is held together by commitment to experimentation and innovation. • The emphasis is on being the leading edge. • The organization's long-term emphasis is one of growth and acquiring new resources. • Success means gaining unique and new products or services. • The organization encourages

[79] The root word for adhocracy is "ad hoc" – meaning that these units are temporary, dynamic and specialized in nature

	individual initiative and freedom.
The Hierarchy culture A very formalized and structured place to work. • Procedures govern what people do. • The leaders pride themselves on being good coordinators and organizers who are efficiency-minded. • Maintaining a smooth-running organization is most critical. • Formal rules and policies hold the organization together. • The long-term concern is on stability and performance with efficient, smooth operations. • Success is defined by dependable delivery at low cost. • The management is concerned with secure employment and predictability.	**The Market culture** A results-oriented organization whose major concern is with getting the job done. • People are competitive and goal-oriented. • The leaders are hard drivers, producers and competitors. They are tough and demanding. • The glue that holds the organization together is an emphasis on winning. • Reputation and success are common concerns. • The long-term focus is on competitive actions and achievement of measurable goals and targets. • Success is defined in terms of market share and penetration.

Source: Cameron and Quinn (1999)

The interaction between organizational rules and procedures with incentives and their influence on the behaviour of individual actors within the organization is also captured in the works of Goetz (1996)[80]. Goetz has provided the framework below to explain these inter-relationships (see figure 12). According to the framework, the organizational structure, its rules, culture and practices (including procedures) create incentives (and disincentives) for staff/agents (individual employees) to behave in particular ways. At the same time, the individual staff/employees help create and recreate the structure and practices. In many cases, the actions of the agents is shaped by the values that the organization uphold, that is, what is considered 'proper', 'normal', 'natural', 'acceptable'. Usually these are the actions that lead to higher rewards in the organization. At the same time, staff/employees bring their personal ideologies and values into the organization and may influence the organizational culture.

[80] Quoted in Roche (1998)

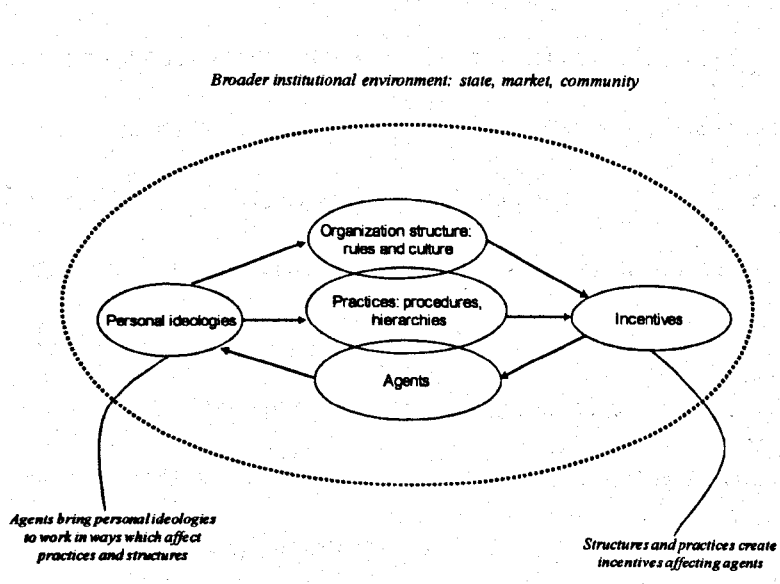


Figure 12: Organization structure, practices and agents
Source: Goetz (1996), quoted in Roche (1998)

Our analysis of the trends observed in this survey is informed by these two frameworks (Goetz, 1996; and Cameron and Quinn, 1999) and focuses on the organizational rules, practices and procedures and their values on what constitutes success.

7.5.3 'Old habits die hard' – exploring the 'peripheral' role of R&D organizations

Hall, Mytelka and Oyeyinka (2006) have noted that the habits and practices of organizations are shaped by the historical, cultural and political settings in which they are embedded. These habits and practices become 'part and parcel' of these organizations and constitute a system of deeply rooted 'cultures and beliefs'. Most of the public R&D/ training organizations in Kenya were formed in the era of the linear models of development characterized by top – down, hierarchical orientations. These orientations were fashionable in the period leading up to the late 1970s. However, the suitability of the linear models was questioned from the period preceding the 1980s when other models began to emerge. In particular, the coupling model (Freeman 1974; Freeman and Soete, 1997) and the chain – linked model (Kline, 1990) began to recognize the importance of feedback mechanisms in innovation. From the mid 1980s beginning with the works of

Lundvall (1985), the innovation systems approach has revolutionized our understanding of how innovation occurs. The systemic interactions between multiple actors (representing both demand and supply domains) have gained prominence. The apparent weak role for the knowledge producing organizations in supporting farmers suggests that the universities and research institutes are 'still stuck' in what Gibbons et al (1994) have called mode 1 science. In this mode, research agenda are set by the researchers/scientists and relevance is determined by the interests of this group and excellence is based on the cognitive authority of peer review. The research is largely disciplinary and the actors involved are largely homogenous. These characteristics suited well the transfer of technology (ToT) models in which research was conducted by the universities and research institutes and the findings passed on to extension agents for onward transmission to farmers for adoption.

The ToT models have been criticized for assuming a uni – directional flow of knowledge with no feedback mechanisms. The ToT model also assumed that farmers will adopt research outputs as given. Research conducted under the Farmer First approaches (Chambers et al, 1989; Scoones and Thompson, 1994 and Scoones and Thompson, 2009) and Farmer Innovation (Critchley, 2007; Critchley and Matunga, 2002; Critchley, 2000; Critchley et al, 1999 and Reij and Ann Water- Bayer, 2001) has shown that farmers continuously adapt the technologies and other research outputs to suit their ever changing contexts. In other words, far from being passive recipients of knowledge produced from the Universities and R&D institutes, farmers are continuously experimenting and innovating.

The inadequacies of the ToT models and mode 1 type of approaches have led to the emergence of other models in agriculture (Farming Systems Research and Extension; Participatory Technology Development; Agricultural Knowledge and Information Systems and the Agricultural Innovation Systems) and mode 2 science to explain what Gibbons et

al, 1994 and Nowotny et al, 2001 have called 'the new production of knowledge'. The mode 2 science acknowledges multiple actors, 'multiple knowledges' and the multiple ways of knowing. This view is consistent with the systems of innovation approach which advocates for close interactions between these multiple actors as a means of promoting learning and innovation. This interaction and learning allows for feedback between the different actors within the system. In the innovation system approach as in mode 2 type of knowledge production, knowledge is generated in the context within which it is applied and research agenda is set by multiple actors and appeals to the wider social and economic goals. Knowledge is produced in a trans-disciplinary manner and its relevance judged on how it addresses the impending needs of its users.

In Kenya, the changes to the models defining knowledge generation, sharing and application from the ToT models to the innovation systems approaches have been reflected in the key shifts in agricultural policies witnessed from the mid 1980s, particularly from the sessional paper no. 1 of 1986 which advocated for private sector participation in agriculture, to the SRA (2004 – 2014) which has specific provisions towards embracing the innovation systems concepts. Why then have R&D/training institutes not embraced mode 2 science? The answer to this question may lie in the organizational structure and operational procedures of these organizations. Even though research institutes have tried (to varying degrees) to engage some other actors in their research (there are isolated cases of involving NGOs and large scale farmers), the organizational structures of these organizations have remained largely hierarchical with strict lines of command. They uphold stability, order and control. Their procedures are still bureaucratic with several layers of approvals before any initiative can be implemented. Robert Chambers (1989:182) has attributed these 'old habits' to the combined effect of training and organizational culture and summarized on the capacity of R&D/training organizations to change thus:

"Normal professional training and values are deeply embedded in the transfer of technology model, with scientists deciding research priorities, generating technologies and passing it onto extension agents to transfer to farmers. Normal bureaucracy is hierarchical and centralizes, standardizes and simplifies. When the two combine, as they do in large organizations, whether in agricultural universities, international agricultural research centres, or national agricultural research systems (NARS), they have an impressive capacity to reproduce themselves and resist change."

These 'old habits' of the research organizations limit their abilities to interact, share and learn and further undermines their effectiveness, despite good intentions, in interacting with and serving farmers. As the case below shows, farmers often feel frustrated when faced with bureaucracies and tend to look elsewhere for solutions.

Box 9: An [81] exporter's experiences with R&D organizations.

Question: You have mentioned that you conduct research and development. Have you tried to involve KARI in these and what has been the experience?

On some crops, yes we have involved KARI but let me say KARI has been like sleeping and is only now trying to wake up. For example, when you go to them, the practices that you find that they recommend...the information they give you on the crop and what you find on the ground is totally different. The information that KARI has been giving is outdated.

However, I would like to add that we have some people in KARI now who have gotten interested into the flower industry and are doing a great job. But 5 years ago, the information they'd give was not practical at all. But now they have improved... for example in KARI – Embu, KARI – Thika, they are beginning to do very well. However they still have little impact because they do the research but the findings remain with them...they don't have a way of getting it out to the farmers.

Question: What about our universities?

[81] This exporter has contractual partnerships with smallholder farmers

As per now, we don't get much from them e.g. JKUAT: I had a problem last year with arabicum...we had a bacterial rot on the crop...leading to huge losses for the farmers and we had tried using chemicals but not effective. Then we approached some people in the university and asked if we could try out tissue culture of the crop and get out clean seeds [planting materials to the farmers] and they made the whole thing look very expensive and almost impossible...so you don't get much help.

As excerpts from the case in Box 9 show, research has not kept pace with development in the flower industry while the industry (and its market) is constantly changing. Farmers are faced with new demands everyday from tightening regulatory frameworks, changing consumer tastes and competition. In order to remain in business, farmers need to respond to these changes in a timely manner. The Universities and research institutes have also been accused of slow response to problems and poor follow up. In the case of disease outbreaks as the experiences of these two medium scale farmers below shows, farmers can't afford to wait for bureaucracies to respond. They need immediate solutions, otherwise they risk losing their entire investments, and with it, their livelihoods:

> My roses suffered a fungal attack and I called in technical experts from KARI. They came to the farm, collected samples but since then, I have never heard from them again. A friend advised me and I took samples to a laboratory in Holland and within three days they had sent me the results via email...*Medium scale farmer, Limuru, (Sept 2008)*

> In 1998, we experienced a strange disease outbreak that wiped out 80 percent of my 2,500 acre orchid farm. I took soil samples to one of the university professors for analysis. They identified the disease as Rhizoctonia and advised me to buy Rizolex which I imported from Japan [since they local stockists didn't have it]. Despite this, my orchids continued to die and I tried to get in touch with the professor but didn't get any help *Medium scale farmer, Kiambu (Sept 2008)*

7.5.4 The NGOs and Input Suppliers: What do they do differently?

In contrast to large bureaucratic public research institutes, NGOs are characterized by small sizes, institutional flexibility, horizontal structures (as opposed to hierarchies) and short communication lines. These structural and operational features of NGOs have accorded them more direct contact with farmers, shorter response time to farmers' requests and endeared them to farmers. These characteristics have made NGOs more responsive to client needs and circumstances. Besides, the NGOs have developed methodologies that enable them to interact with multiple stakeholders. This allows them to appeal to small scale farmers as well as having the capabilities to interact with research institutes and other categories of actors, including government agencies and policy actors. Other than these intermediary roles, NGOs are focused on service delivery with clear objectives and expected outcomes. They are continuously audited and held accountable by their financiers (donors) and as such are always under pressure to demonstrate impact. It is therefore in their interests to get favourable reviews from their clients to ensure their continued survival.

Input suppliers

The responses show that there are strong collaborations between the input suppliers and the farmers. This strong collaboration stems from the way these input suppliers have organized their business and engagement with farmers. The quote from this large scale farmer (50 acres of roses) describing their relationship with input suppliers summarizes this relationship:

> "They are willing to conduct field trials with farmers, and walk together with you in the process. When the trials fail, you don't have to buy the products and they are willing to give you free samples to try. We have developed a good rapport with them and they take our complaints seriously unlike our universities where if you take your samples it takes forever. They have approached the market from a technical perspective not a selling perspective...they train you for free, give you

free samples and they are very active in following up with you for face to face visits till you are satisfied" *Large scale farmer, Nairobi (November 2009)*

Other than promoting their products, the input suppliers offer training and field demonstrations for farmers on the dosage, safety measures on pesticide use, plant protection and good agricultural practices in general. As such, farmers find them friendlier, well trained and a useful source for latest information on their products (agrochemicals, irrigation machinery, warehouses etc). The input suppliers (mainly agrochemicals) have sales and marketing staff who are trained in agronomy and would occasionally visit the farmers to help identify problems in the greenhouses or the fields. This approach has built the confidence and trust between the farmers and input suppliers. However, there is still a challenge when it comes to dealing with small scale farmers. The input suppliers deal more with bulk buying which are mostly out of the reach of small scale farmers. But the situation is changing with agrochemical companies beginning to pay more attention to this segment. Syngenta for example has begun on their smallholder project and are experimenting with smaller and more affordable packaging. As of October 2008, they had employed up to 50 technical staff in their marketing team. They have also rolled out an elaborate radio programme to educate and sensitize smallholder farmers on their available products and their safety.

Concluding remarks

From the innovation systems perspective, interactions between actors lead to knowledge flows, exchange of technology and resources. This knowledge exchange (learning) and interaction in turn contributes to building the capabilities of farmers. This knowledge generation, sharing and use requires actors to value each other's contribution and acknowledge their diversity of opinion, approaches and methods. As Cameron and Quinn (1999) have argued, each organization is associated with a set of values which define its

effectiveness. The values that the organization upholds in turn shape the organization's culture, routines, practices and beliefs. These beliefs, routines and practices create incentives that shape how individuals within these organizations behave and respond to changes and challenges in their contexts. The individual actors (agents) also help to produce and reproduce organization's ideology, routines and practices. From our analysis, it appears that the organizational culture (together with its incentive structures) shapes the propensity of the individual agents/actors within these organizations to interact with other actors (organizations) within the innovation system. It can be argued that the R&D actors project more of a hierarchical culture where procedures, policies, efficiency and stability determine how actors behave. This culture produces limited incentives for agents who would want to operate in a new and potentially 'disruptive' manner. In other words, there is little support for new forms of organization that do not conform to the bureaucratic procedures that characterize these organizations. This need for conformity undermines their ability to interact with farmers. The NGOs project more of a clan culture where success is defined more in terms of sensitivity to customers and people and the organization places premium on teamwork, participation and consensus. The input suppliers are characterized by market culture: more results-oriented with emphasis on winning market share and penetration. This shapes their strategies of engaging farmers and offering technical support as part of their marketing strategy.

Chapter 8: CONCLUSIONS AND RECOMMENDATIONS

"My experience as an out-grower is not what I'd even want to think of because when you are an out-grower, you are not linked to the market. You never know what is happening. [...] Even if one has to be an out-grower, you have to grow out of it...to become also an exporter so as to link with your buyers and know what the buyers want because this is a buyer-seller relationship" Medium scale farmer (August, 2009)

8.1 Introduction

In our discussions with farmers (particularly small scale farmers); public sector actors (including KARI, MoA, and HCDA) and NGOs (AfricaNOW), the quote above seems to capture what these actors see as the ultimate target: direct export market access by small scale farmers. They view partnerships between small scale farmers and exporters as a means to an end rather than an end in itself. Consequently, the public sector actors are experimenting with various ways of organizing farmers towards achieving this ultimate goal. For example, our discussions with a farmers group in Limuru revealed that they have approached HCDA (through its Limuru office) to connect them with a direct buyer. The farmers, through their groups, hope to supply sufficient quantities, on a regular basis to this direct buyer. The HCDA Limuru office confirmed to me during one of the interviews that indeed there were plans to connect this group of farmers to a direct buyer but could not divulge the details since the negotiations were still at a preliminary stage. The farmers live in constant hope that someday they will "grow out of being out-growers" and start exporting their flowers directly.

Having examined the partnerships between farmers and exporters as well as the role of other actors (particularly R&D actors) in building farmer capabilities for flower production, value addition and marketing in the previous chapters, this concluding chapter

considers the main findings in relation to the farmers' aspirations and the government's policies. The main aim of this chapter is to discuss these findings and their likely effects on the broader developmental issues of social equity, poverty reduction and sustainability. In order to do that, the chapter analyzes the inter-linkages between these partnerships, their institutions and governance arrangements and how these enhance or undermine the capabilities of small scale farmers. The chapter begins by revisiting the research problem and questions posed at the beginning followed by a section on the main findings and conclusions in the study. These main findings are briefly discussed in the context of the broader literature and the chapter concludes with some suggestions for policy and implications for future research.

8.2 Recapping on the research problem

This study has focused on the declining participation of small scale farmers in the cut flower sector and the government's policy response to this decline. It was outlined in Chapter 2 that as a result of the declining contribution of small scale farmers, the government of Kenya initiated a number of policy measures aimed at not only stemming further decline but also increasing the participation of small scale farmers in the cut flower industry. The government's policy response revolves around two areas: (i) promoting partnerships between small scale farmers and exporters to facilitate access to export markets as well as to knowledge and inputs and (ii) promoting the agricultural innovation system (AIS) to ensure improved linkages between research, extension and farmers and ensure that research results reach farmers through public and private actors.

This policy response and its emphasis on the two areas above raise a number of issues that formed the basis for this study. First we argued that a functional innovation system requires that all the relevant actors exist in the system; that the policy and institutional framework is supportive and that this institutional framework facilitates continuous interactions between the different actors. It is this continuous interactions that lead to

learning, innovation and capability building. We opined that in the event that any of the three critical factors is not met, then the functionality of the innovation system is impaired and its ability to foster learning, innovation and capability building is brought into question.

Secondly, we have argued that whereas the 'farmer – exporter' partnerships can 'guarantee' markets for the small scale farmers when they sell through the established exporters, attainment of the capability building objective is contingent on a host of factors including the differential power relations between the partners, competition pressure, institutional configuration of the partnerships and opportunistic behavior of the actors amongst others. We argued that based on the interplay of these factors, farmers could either gain from these partnerships or end up being marginalized further as a result of it.

We also noted in Chapter 1 that exclusion of small scale farmers from the high value cut flower export markets results from the choices that different actors make as well as the policy and institutional environment that reinforces such choices. We suggested at the outset that inclusion or exclusion of small scale farmers in this industry can be addressed by ensuring that the choices made by the different actors (organizations) and the policy and institutional contexts in which such decisions are embedded are geared towards building the capabilities of small scale farmers to innovate.

Based on that background, we have examined three inter – related set of issues aimed at understanding: (a) whether farmer – exporter partnerships lead to building the capabilities of the farmers (b) the role of institutions and governance arrangements within these partnerships in influencing the building of farmer capabilities and (c) the interactions between the different sets of actors (particularly R&D) with farmers and whether these interactions contribute to building farmers' capabilities. These issues have been examined by asking three main questions corresponding to each problem area. The main research questions were:

Q1. What is the role of 'farmer – exporter' partnerships in building new capabilities amongst the cut flower farmers?

This question focused on the partnerships between farmers and exporters and assessed whether as a result of these partnerships farmers have developed new capabilities. The analysis combined the use of a structured survey and institutional analysis (case studies of contracts as institutions).

Q2. How do the institutional arrangements and governance mechanisms influence the ability of farmer – exporter partnerships in building capabilities of the farmers?

This question narrowed on the role of power dynamics and governance mechanisms in influencing the ability of partnerships to facilitate capability building. This question has been analyzed mainly using in depth case studies and premised on both innovation systems and global value chain analysis.

Q3. What is the role of R&D actors in building farmers' capabilities?

This question sought to elucidate the interactions between farmers and the different actors in the system, particularly R&D actors. In answering this question, we have focused more on the actors that have been mentioned in the partnerships with farmers.

8.3 Main finding I: Beyond the "lock in – lock out" dichotomy: Even though the general trend suggests that farmers are locked in production activities but locked out of value addition activities, the study finds that small scale farmers learnt and applied new knowledge in value addition, albeit modestly.

Companies employing the lock in strategies tend to achieve long term benefits by creating high switching costs to their customers while also creating high barriers to entry for their competitors (Kaplan and Norton, 2004). The high switching costs can arise from the associated benefits that customers would lose if they opt for competitors' products while barriers to entry seeks to lock out potential competitors for example through patenting, licensing agreements or keeping secret some specialized knowledge that precludes the competitors. The critical role of value addition and post-harvest handling in the success of flower export business cannot be over-emphasized. Poor post-harvest handling not only

leads to damages that are costly to the farmers but also lead to high number of rejections during the inspection. HCDA estimates that up to 25 per cent of cut flowers are lost during post-harvest handling. At the same time, consumers have become more demanding on quality and insist that suppliers guarantee a minimum vase life for their flowers. As such value addition and post-harvest handling comprise the key steps in market access and will make the difference between success and failure. This is because in the end, it is of no use for the farmer to produce good flowers if s/he cannot sell them. This finding highlights a number of issues:

First, even though post-harvest handling and value addition seem to be the "success limiting steps" in the quest by small scale farmers to access export markets, this thesis takes the position that despite the "lock in – lock out" trend (in these partnerships at least), the survey shows small scale farmers are not completely locked out of value addition and their value addition capabilities have improved. Whereas on the one hand the exporters have applied contracts with exclusivity clauses to lock in farmers and increase the switching costs and hold small scale farmers captive to the partnership and limits their ability to learn more of value addition (to process, package and present flowers) by assigning the responsibilities for value addition and post-harvest handling to the exporters, on the other hand the partnerships afford the farmers assured markets and the opportunity to enhance their production capabilities. Moreover, spelling out the responsibilities of each party in a contract not only brings certainty and clarity in the partnership but also provides a guarantee and protection for both parties. This protection is crucial for small scale farmers to ensure they are not exploited by the exporters but equally important for the exporters who invest heavily in these partnerships (by training farmers, providing inputs as well as monitoring and coordination) and yet they are prone to a number of challenges. These challenges relate to the risks associated with of opportunistic behaviour from the farmers as well as the possibility that other competitors could tap into the pool of skilled

suppliers already developed (Mody, 1993; Rokkan and Buvik, 2003; Johnsen and Ford, 2008 and Kaplinsky and Morris, 2001). As such, the exporters need to be protected from the risks posed by these challenges and the contracts provide some level of surety that the partnership will last long enough for them to recoup their investments. Arguing against this "lock in – lock out" scenario therefore would erode the incentives for exporters to invest in building farmers' production capabilities and render the partnership impracticable. This would lead to further marginalization of small scale farmers, particularly considering that the domestic market for flowers is under – developed and they have to rely on exports.

Secondly, this study argues that "locking out" farmers out of the value adding activities appears to be a deliberate strategy intended to conceal information that are likely to undermine the exporters' position in the market. The exporters have managed to lock out the farmers out of these value adding activities by creating barriers to entry. In this case, post-harvest handling and value addition as well as customer specifications constitute 'specialized' knowledge held by the exporters. The contracts have apportioned the value addition and packaging activities exclusively to the exporters who also own (and control) the infrastructure (cool chain, transportation facilities and pack houses) for value addition. This control of the technical infrastructure and specialized knowledge form high barriers to entry that lock out small scale farmers as well as potential competitors.

Thirdly, because learning and capability building is incremental (Cohen and Levinthal, 1990), lessons learnt at each step builds up towards success in the subsequent steps. Increased capabilities are a source of competitiveness (Teece, 1998) and leads to reduced costs, improved performance and reliability (Levinthal and March, 1993). This thesis considers that in the longer term, the knowledge gained from these partnerships will form the "receptor sites" for more advanced knowledge on flowers. The experiences in negotiating contracts, lessons in record keeping and traceability will be useful in future, longer-term engagements. The track record build with the banks in terms of loan

repayments goes a long way in establishing the credit records of farmers and reverse the attitudes of financial institutions regarding doing business with farmers.

Further, Cohen and Levinthal have argued, "accumulating absorptive capacity in one period will permit its more efficient accumulation in the next. By having already developed some absorptive capacity in a particular area, a firm may more readily accumulate what additional knowledge it needs in the subsequent periods in order to exploit any critical external knowledge that may become available." The importance of this argument to our case rests on the fact that when farmers appear to be locked out of value addition activities, they fail to develop "receptor sites" for value addition knowledge and as a result their chances of building up these capabilities later seem limited and they might end up locked up in production – a situation that may further entrench their marginalization. Cohen and Levinthal have capped this "lock-out" argument thus:

> If the firm does not develop its absorptive capacity in some initial period, then its beliefs about the technological opportunities in a given field will tend not to change over time because the firm may not be aware of the significance of the signals that would otherwise revise its expectations. As a result, the firm does not invest in absorptive capacity and, when new opportunities subsequently emerge, the firm may not appreciate them ... consequently, a low investment in absorptive capacity diminishes the attractiveness of investing in subsequent periods even if the firm becomes aware of technological opportunities (pp. 136).

8.4 Main finding II: Institutional set-up, power dynamics and governance patterns are key determinants in interactive learning and capability building

The findings in this study emphasize the role of institutions in shaping the opportunities for learning, interactions and capability building within the context of these partnerships. The role of institutions have been elaborated by Edquist and Johnson (1997) who have noted that institutions (i) may reduce uncertainty; (ii) help manage conflicts and cooperation

between individuals (iii) provide incentives to engage in learning and innovation and (iv) channel resources to innovation.

Other studies including North (1990); Scott (2001) have also emphasized the role of institutions in setting 'the rules of the game' and defining how actors behave in their relationships with others in society. The World Development Report (2002) focused on the role of institutions in supporting markets and noted that institutions: (i) channel information about market conditions, goods and participants, that is, good information flows help businesses identify partners and high – return activities and assess creditworthiness. So institutions can affect the production, collection, analysis, verification and dissemination or withholding of information and knowledge in and among communities and markets and (ii) define and enforce property rights and contracts, determining who gets what and when. Institutions can reduce the potential for disputes and help enforce contracts and by clarifying rights for the disadvantaged in markets, institutions can directly affect the lives of poor people.

In the case of contractual partnerships between small scale farmers and exporters, the contracts create certainty in the partnerships by specifying the responsibilities of partners. The provisions of these contracts not only offer farmers assured markets but also solve some of the intractable problems facing small scale farmers. Generally small scale farmers are characterized with weak technical and managerial expertise, lack of access to affordable credit and limited marketing infrastructure. First, by providing opportunities for training on production, extension service provision and exchange of market information during policy meetings, these partnerships provide opportunities for learning, thus improving the farmers' knowledge base. Secondly, the frequent interactions between farmers and exporters' agronomists; between farmers and other supporting actors such as universities, NGOs, input suppliers and regulatory agencies as well as amongst farmers themselves provide opportunities for knowledge sharing and exchange. Thirdly, the

deliberate investments in training, advisory services and provision of inputs as well as credit facilities to small scale farmers helps in solving capital and credit/financing constraints. Fourth, we have also seen that these institutions can be used to entrench barriers to entry for example, by allocating the value addition and post-harvest handling to the exporters, the farmers' ability to learn in these areas is limited and farmers are likely to remain locked out of these value adding activities. Further the high switching costs associated with the exclusivity clauses which spell the consequences of breaching their contracts with exporters help to lock in farmers in the partnerships.

The other issue coming out of this finding is that the amount of resources each actor controls determines their position, influence and role in decision-making in partnerships. The case studies on partnerships considered here (both contractual and non-contractual) demonstrate this point: In captive governance (involving small scale farmers with exporters), the exporters control knowledge of the market including prices, preferences, demand variations, standards and regulatory requirements; they also own and control transportation, value addition and storage infrastructure and have advanced technical and managerial skills. On the other hand, the small scale farmers are limited in their access to technologies, have low formal education; limited access to credit and financing. As a result of these power disparities, the exporters occupy a dominant position relative to their suppliers and set the rules within which the small scale farmers have to operate. In these partnerships, therefore, the exporters control decision-making and determine the outcome of the partnerships.

In contrast, in the relational governance (medium/large scale farmers with exporters), the exporters do not own the physical infrastructure for transportation, value addition and storage (these are owned by farmers). Both the exporters and farmers have highly skilled manpower in their respective areas of business (that is, exporters in consolidation and

marketing and farmers in production and value addition in flowers) and both can access credit and financing and therefore have strong capital base. Because of this low power disparity, the partnership is based on mutual trust and both parties almost equally participate in decision-making and deciding the direction and outcome of the partnership.

8.5 Main finding III: Structural, cultural and operational procedures influence the propensity of actors to collaborate. In our case, these have undermined the R&D actors' interactions with farmers

The study has shown that the policy and legal framework is supportive of interactions, learning and innovation. However, despite this favourable policy environment and the existence of relevant actors, the interactions between these actors are mixed. Farmers seem to interact and gain more knowledge from NGOs and input suppliers but interact less with universities and research institutes (with exception of large scale farmers). This demonstrates that favourable policies in themselves are important but insufficient in promoting interactions and learning between actors within the innovation systems. Yet given the tacit and experiential nature of farmers' knowledge, interactions (mostly face to face) are key to knowledge exchange.

Given that the policy, legal and institutional context within which all these actors operate is the same, we have argued that this mixed result for interactions can be attributed to the structures, organizational culture, values and operational procedures of the various actors/organizations. By applying the competing values framework provided by Cameron and Quinn (1999) and the framework provided by Goetz (1996) on 'organization structure, practices and agents' we have argued that a firm's organizational culture shapes its propensity to interact with other actors within the innovation systems. We have argued that R&D actors project a more hierarchical culture with its emphasis on internal focus and integration and a preference for stability and control. The NGOs on the other hand, project more of a clan culture with a focus on internal focus characterized by flexibility and

discretion while the input suppliers are defined by a market culture characterized by stability and control and an emphasis on external focus and differentiation.

These cultural dispositions influence how actors interact with the farmers. For example, the bureaucratic structures of the universities and R&D institutes have limited their abilities to interact, share and learn with farmers. By contrast, the NGOs are characterized by small sizes and shorter communication lines. These structural and operational features accord NGOs more direct contact with farmers and a shorter response time to farmers' requests but the NGOs have to rely on funding from their donors who in some cases determine their agenda. Their nature of funding also means that they cannot engage with farmers on a long-term basis and often operate with a shorter-term focus. The input suppliers are motivated by gaining and maintaining market share and their engagement with farmers is driven by this profit agenda

These structural and operational cultures impede the interactions between R&D actors and farmers in spite of the fact that Kenya has a fairly well developed agricultural research system that covers most of its ecological zones, crops, livestock and fisheries. According to the Strategy for the Revitalization of Agriculture (2004 – 2014), there are 28 agencies that engage in agricultural research and employ 833 full-time equivalent researchers. These include both public funded as well as commodity funded institutions and international research institutions. This thesis notes that the weak interactions between farmers and the R&D organizations impedes knowledge flows and undermines capability building. This findings supports other earlier studies such as the SRA which noted that "*impact of research findings and technological breakthroughs on agricultural productivity has been limited due to lack of a comprehensive approach for disseminating findings resulting from poor research-extension-farmer linkages*" (SRA, 2004:10).

8.6 Implications for policy

The economic lifeline which this industry provides to small scale farmers is hinged on their delicate relationship with established exporters. Despite the existence of annual contracts which bring some element of certainty to the partnership, there is no guarantee that these will be renewed (upon expiry at one year). Besides, as the works of Dolan and Humphrey (2000) on the vegetable sectors have shown, any change in the sourcing strategies of the lead firms – the exporters in this case – exposes the small scale farmers to the dangers of total collapse. This eminent danger in over – reliance on partnerships has been emphasized by Kaplinsky (2006: 87-88) who has warned that, "unless the dynamic capabilities, that is, capability to stay ahead of the pack – can be endogenized into the production system, participation in the intensively competitive global markets is unlikely to provide sustainable income". In order to achieve sustainability, attempts to improve the participation of small scale farmers in export – oriented agriculture should focus beyond market access and include systems that enhance their "capabilities to innovate". These capabilities, the dynamic capabilities, prepare the farmers to respond to the constant changes in their environment – whether these changes concern production, value addition or marketing.

Our findings in this study have shown that even though farmers' production capabilities have benefitted from their partnerships with exporters, value addition capabilities have only improved modestly and remain a key challenge to small scale farmers. Similarly, marketing is dependent on knowledge and information passed on by the exporters. Secondly, the findings further show that an interaction between farmers and R&D actors is undermined largely by the structural, cultural and operational procedures of the R&D institutes and universities. Lastly, the study finds that institutions, power dynamics and governance patterns influence opportunities for interactions, learning and innovation within these partnerships.

These findings raise a number of questions which guide our recommendations:

> How can farmers demand for research services in a way that makes the universities and R&D institutes respond? What kind of incentives and reward structures are required to improve the interactions between farmers and R&D actors? Are there new ways of organizing R&D to make it respond quickly to farmers' needs?

There are a number of recommendations that can be drawn from these findings. Each of these recommendations is discussed below:

(i) Articulating farmers' research and training needs

It is understandable that it would be difficult for the R&D actors to respond to individual requests of the many thousands of farmers who need their help in various issues. This is largely because limited resources restrict the operational capacity of public R&D actors but more importantly, any attempt in that direction would yield confusion and inefficiency in the operations of the R&D organizations. As a result, there needs to be found other ways of consolidating and prioritizing the numerous requests from farmers.

One way of going around this problem is to organize farmers into a cooperative, consolidate their requests and have a bigger voice. This recommendation will require small scale farmers to form themselves into an association to champion their interests. Having this sort of association will help in consolidating their interests/requests and hence make it easier for R&D institutes to respond. It will also give them the economic power by consolidating their resources. Already, the fact that small scale farmers are organized into small groups of about 15 – 30 each is a starting point for this kind of association. In these groups, farmers are trained on group management and group dynamics; accounting and financial management and they also learn how to negotiate with the exporters. These small groupings can be coalesced and organized into a larger cooperative with enough financial muscle and political clout to advocate for issues affecting small scale farmers including policy and research issues. The medium and large scale farmers have seized the opportunities that can be derived from such an association and the small scale farmers can

borrow a leaf from Kenya Flower Council (KFC) and Fresh Produce Exporters Association of Kenya (FPEAK)[82].

The other way is to have a 'broker' between farmers and the R&D organizations. The role of innovation intermediaries or innovation brokers has been discussed by Klerkx, Hall and Leeuwis (2009) who have noted that the main purpose of the innovation brokers "is to build appropriate linkages in AIS and facilitate multi-stakeholder interaction in innovation" (pp. 412). They have also summarized the three generic functions of the innovation brokers as (a) demand articulation i.e. articulating innovation needs and visions and corresponding demands (b) network composition i.e. facilitating linkages amongst relevant actors and (c) innovation process management i.e. enhancing the alignment in heterogeneous networks constituted by actors with different institutional reference frames. Following from the findings of these authors, our suggestion is that the NGOs could play the role of 'broker' between R&D organizations and farmers. This is informed by several considerations including the fact that they are trusted by farmers as the ratings in Chapter 7 show as well as that by virtue of their structures and institutional set up, these NGOs have the skills to work with both farmers and R&D establishments. These NGOs could also help in bringing together the farmers and R&D through a research priority setting workshops to ensure that the research conducted by the universities and research institutes reflect farmers' interests and address their needs. As the work of Klerkx, Hall and Leeuwis (2009) show, these innovation brokers (or innovation intermediaries) are already operating in Africa and other parts of the developing world.

(ii) Promoting adhocratic culture within Universities and R&D organizations

Universities and R&D institutes could fill the value addition capabilities gap left by the partnerships between farmers and exporters by conducting training to farmers in cut flower post-harvest handling and value addition. However, for that to happen there will be need

[82] For more on KFC and FPEAK see section 7.3.2 in Chapter 7

for changes on their part relating to their habits, practices and procedures. Some analysts have called for reversals in attitude (Chambers, 1989); reversal of policies (Roling, 1994) and reversal of practices (Farrington and Bebbington, 1994). A change in the incentive and reward systems could also result in the desired changes. For example, proponents of mode 2 science have proposed the need for intended beneficiaries' meaningful involvement in needs identification to ensure that results of such research addresses societal needs (Gibbons et al, 1994; Nowotny et al, 2001). This need for change has also been emphasized by Farrington and Bebbington (1994:203) who have remarked:

> "public sector research institutes in many developing countries need to break out of a prevailing narrow view of research which, whether on-farm or on-station, follows the conventional cycle of diagnosis, screening, testing, wider verification and dissemination. Greater benefits to users, and higher job satisfaction amongst researchers, will result if more attention is paid to inter-institutional linkage strategies in which researchers are given the mandate and skills to identify technologies suitable for local conditions from a wide range of sources and test them with local organizations, reserving only the more intractable issues for specialized testing in a conventional research mode"

These changes will require accompanying changes in attitudes of researchers and procedures of R&D/training institutes towards farmers' R&D (experiments) and innovations. Farmers' informal R&D is often "difficult for professionals to see" (Chambers, Pacey and Thrupp, 1989:166) partly because the researchers/scientists look through the lenses of western science where research follows a prescribed pattern (described by Farrington and Bebbington above). This western view differs from the farmers' experiences and approaches. For example, while reporting on farmer experimentation in Mali, Stolzenbach (1994:155) has noted that farmers' experiments are based on 'tacit knowledge' and is a combination of experience, intuition and practical know-how that can only be learned in the context of application. The reversal of attitudes

and the ability to unlearn old habits, while difficult to achieve, hold the key to a more interactive engagement between the farmers and research organizations.

In order to interact effectively with farmers, the universities and R&D institutes will need to learn more of what Cameron and Quinn (1999) have described as an adhocratic culture – that is, they need to encourage individual initiative and freedom of their staff, project a more entrepreneurial and dynamic posture with increased incentives for risk taking and commitment to experimentation and innovation. One way of achieving this change (given the difficulty of changing entrenched bureaucracies) has been proposed by Clark (2000:86) as that of creating "interdisciplinary research centres" within universities and R&D institutes. Clark argues that "in many cases such a centre will be based on a new research area and will often have been funded by a specific donor (or group of donors) which have decided to promote this new field...In some cases, faculty are attached part time to such centres, thus enabling them to maintain contact with their disciplines while at the same time trying out new research ventures". Both Clark (2000) and Feller (2002) however warn of leadership and management challenges associated with running such interdisciplinary centres especially as regards budgetary control, quality and performance appraisal of staff. Such challenges notwithstanding, there are indications that universities in developing countries are beginning to experiment with this new approach. For example, the Faculty of Veterinary Medicine at Makerere University in Uganda has recently received financial support from DFID's research into use (RIU) programme to set up such an interdisciplinary research centre. According to the Makerere University Faculty of Veterinary Medicine (2010:2) proposal document, the Makerere In-Training Community Service (MINTRACS Centre) "presents a structure for governance, organization and management that serves the interests of Makerere University (and its partners) while exercising independent or semi-autonomous governance built on good practices from similar organizations." Among the key objectives of MINTRACS Centre are:

i. Provide appropriate and timely logistical and infrastructure support for various initiatives/activities agreed to be undertaken on behalf of or in cooperation with government departments, private sector, NGOs and development partners

ii. Strengthen linkages between policymakers, academic institutions, and the commercial sector to improve utilization/integration of research information into practical applications and commercialization as well as decision-making processes in order to leverage skills, know-how and networks for greater efficiencies in output

iii. Help integrate higher education more directly into community needs and aspirations

As MINTRACS' objectives demonstrate, universities have begun responding to the charge of ivory towerism and are experimenting with various ways of addressing societal needs. Creating a framework that allows a Centre to operate 'outside the bureaucracy' as the case of Makerere shows may well be the answer to escaping organizational and institutional rigidities.

(iii)Strengthening market intelligence gathering

At the moment, small scale farmers rely on exporters for up – to – date information on the export market. HCDA has the mandate for gathering this market intelligence and yet interviews with farmers highlighted inefficiencies and inadequacies with this process. For example, farmers have to make requests at the regional level (e.g. Limuru) and these requests are sent to the headquarters (where there are internet access and IT facilities) for them to be addressed. This process is slow while farmers' requests are sometimes urgent and often by the time the farmers' requests are addressed, things have changed. However, with the arrival of the undersea optical fibre cable in Kenya (in 2009), and the government's adoption of an e-government strategy, there is increasing internet penetration and most of the government offices are being connected to the internet. This development is expected to make market intelligence gathering easier, faster and cheaper. Moreover,

with internet costs falling, farmers could access the internet from cafés and check what is prevailing in the markets.

8.7 Limitations and suggestions for future research

There are a number of limitations with our study. Firstly, we recognize that organizations/actors are not static entities but are dynamic and change rapidly in response to their contexts. These changes are determined by the actions and decisions of several other actors in on-going, complex interactions that are in turn shaped by forces/pressures external to the particular organizations. Such pressures could come from the market, the policy environment or the institutional structures within which the actors/organizations are embedded. It is therefore to be understood that this study provides only a snapshot of the interactions between farmers and the different stakeholders. This snapshot is limited to the period of the study and it does not attempt to predict what might happen in the future nor how these interactions have been in the past. Such an analysis would require other tools, such as historical analysis of the interactions between the farmers and different stakeholders over a period of time.

Secondly, the pressures that shape how actors respond/behave are quite complex. Even though, the study has attempted to review the policy environment in a timeline, we recognize that policies are only a subset of triggers to innovation. Other such triggers as disease outbreaks, price fluctuations, entry of new rules/standards, changing consumer tastes, etc could have affected the outcomes that have been observed. The precise manner in which such factors could have affected the actors responses are not fully discussed in this thesis.

Thirdly agents (individual employees within organizations) can shape, alter or reinforce organizational practices and cultures. As such, certain individuals within organizations may operate outside the norms and begin to create a mini-culture within their

organizations. It is to be considered that even though the interactions give a generalized picture of the different organizational cultures, internal differences do occur. These internal differences are associated with power relations and individual interests of the various agents/actors. It is not uncommon for the same individual to exhibit different habits and practices depending on the situation and how it (the situation) affects his/her interests (whether it advances or undermines those interests). For example, a large scale farmer will respond to policies that seek to increase taxes by projecting a particular set of behaviour and show a completely different behaviour pattern when discussions focus on lowering taxes. It is also not uncommon to find an actor who exhibit different habits and practices while dealing with different types of actors e.g. a researcher may show a particular pattern of behaviour while interacting with an NGO but exhibit a completely different set of habits while interacting with a farmer. Even within the same category of actors e.g. 'farmers', the researcher may react differently to large scale and small scale farmers.

As such, while traditional habits and practices of the actors are useful in explaining the broad and general behavioural patterns, they are inadequate in explaining the shifting patterns of individual actor responses in different contextual scenarios. Actor behaviour are learnt and de-learnt in response to the context, opportunities and threats to the actors' interests. We argue that actors are capable of changing these behaviours to suit their place in the social power structures. For example, a university researcher who treats farmers with contempt will appear humble and loyal while dealing with a donor representative or a captain of industry (corporate leader). Similarly, a banker may dismiss a chairman of a farmers union but embrace an NGO representative dealing with farmers. These shifting positions/ reactions are informed by the actors' perceptions of their standing in the power hierarchy and their social standing relative to the other actors. As such, even though there is a general trend, it is possible that certain actors within these groupings would exhibit

divergent behaviour patterns. However, the research did not go to the extent of interviewing individual employees to find out these 'different' agents.

Fourthly, the study has focused on 'farmer – exporter' partnerships even though there were indications that 'small scale farmer – large scale farmer' partnerships do occur. These however were not pursued, partly because of the low responses from large scale farmers. The challenges that could have resulted in the low responses from large scale farmers have been explained in box 2 (chapter 4). Further to these challenges, the post election violence that rocked Kenya after the 2007 general election (Dec 2007/Feb 2008) disrupted the activities of most of the farms in the 'hotspot' areas such as Naivasha. It is not clear to what extent this contributed to the low responses from the large scale farms. However it is conceivable that due to the disruptions of the post election violence, some farms had not fully re-opened by the time this fieldwork was conducted (August 08 – Feb 2009).

Lastly, one of the key strengths of the global value chain analysis rests on its ability to bring into focus the international spread of economic activities across the globe. However, our study is limited to the national segments of the cut flower value chain and as such fails to fully account for the role of international buyers in farmers' capability building. The link between these international buyers and the farmers are seen as the exporters who have direct links with agents at the auctions or the supermarkets and wholesales in the importing countries. Because of this limitation, the study has also not delved into the differences between auctions and direct buyers, even though this could highlight some interesting insights into how the organization of these buyers (whether in auctions or direct buyers) influence their interactions with their suppliers, especially developing country producers.

It is on the basis of these limitations and findings from our research that the following suggestions for future research are recommended:

First, we recommend that future research should focus on the role of these individual agents within organizations in shaping and reinforcing the organizational culture, routines and practices, to elucidate the internal tensions (arising from personal ideologies/values and the institutional culture); how these tensions give rise to 'deviant' behaviour patterns and create 'mini-cultures' within organizations and what lessons can be learnt from these in search of ways of organizing innovations and promoting institutional change.

Secondly, a study into the partnerships between small scale farmers and large scale farmers would present a different scenario of capability building where the lead firm is vertically integrated. There are also cases of partnerships between small scale/medium scale farmers and the large scale farmers and these could give insights into partnerships where the competition is more direct, that is, between two vertically integrated firms. These different partnership scenarios could highlight different institutional and governance patterns and the power relations in such partnerships

Thirdly, it might be useful to conduct a historical analysis to map the changes in the interactions between the different actors under changing policy regimes. For example, in Kenya the policy environment has witnessed key shifts from direct government controls to liberalization; towards an innovation systems approaches and towards a more robust intellectual property rights regimes.

Lastly, the role of international buyers in building their suppliers' capabilities, particularly the developing country farmers, would warrant further research. Such research could benefit also from highlighting how the auctions differ from direct markets (supermarkets and wholesales) in supporting the capability development of their suppliers.

REFERENCES

African Union (2005). Status of Food Security and Prospects for Agricultural Development in Africa, AU Ministerial Conference of Ministers of Agriculture, Jan 31 – Feb 1, 2006, Bamako, Mali

Barrientos, S (1998). 'How to do a literature study' in Thomas, A; Chataway, J and Wuyts, M (eds) *Finding out fast: Investigative skills for policy and development.* The Open University, UK

Batliwala, S (1993). *Women's empowerment in South Asia: Concepts and Practices.* New Delhi: Food and Agriculture Organization/Asia Pacific Bureau of Adult Education. Draft paper

Bell, R.M and Pavitt, K.L.R (1993). "Technological accumulation and industrial growth: contrasts between developed and developing countries", *Industrial and corporate change*, vol. 2 no. 2, pp. 157 – 2010

Biggs, S. and Matseart, H. (2004). Strengthening poverty reduction programs using an actor-oriented approach: examples from natural resources innovation systems. AgREN. Network paper

Biggs, S. D. (1990). A multiple source of innovation model of agricultural research and technology promotion. *World Development,* 18(11): 1481–1499

Bolo, M (2005). Agricultural Systems of Science, Technology and Innovation: The case of Kenya's floriculture industry. Technical report submitted to the Technical Centre for Agriculture and Rural Cooperation (CTA), the Netherlands.

Bolo, M; Nancy, M; Rachael W; Virginia, M and Daniel, K (2006). Research Priorities for Kenya's Cut flower Industry: Farmer's Perspectives. *Techno-policy brief 14.* African Technology Policy Studies Network (ATPS). Nairobi, Kenya

Bolo, Maurice Ochieng (2008). "Learning, innovation and cluster-based growth: the case of Lake Naivasha cut flower cluster in Kenya", in Douglas Zhihua Zeng (ed.), *Knowledge, Technology, and Cluster-Based Growth in Africa.* Washington, D.C.: World Bank

Britton, B (2005). Organizational Learning in NGOs: Creating the motive, the means and the opportunity. Praxis paper no. 3. International NGO Training and Research Centre (INTRAC)

Bryman, A (2008). Social Research Methods. 3rd edition. Oxford University Press. Oxford.

Burns, R. B (2000). Introduction to Research methods. Sage Publications. London, Thousand Oaks and New Delhi

Cadell, M and Pinter, R (2005). 'Institutional development: theory, policy and practice' part 1 of TU872 *Institutional Development: Conflicts, Values and Meanings.* Technology: a postgraduate level course, The Open University. Milton Keynes.

Cameron, K. S and Quinn, R. E (1999). Diagnosing and Changing Organizational Culture: Based on the Competing Values Framework. Addison-Wesley Publishing Company, Inc.

Chambers, R (1983). Rural Development: Putting the last first. Addison Wesley Longman. Essex.

Chambers, R (1989). 'Reversals, Institutions and Change' in Chambers, R; Pacey, A and Thrupp, L. A (eds). Farmer First: Farmer Innovation and agricultural research. Intermediate Technology Publications. London.

Chambers, R; Pacey, A and Thrupp, L.A (eds) (1989). Farmer First: Farmer Innovation and Agricultural Research. Intermediate Technology Publications. London.

Chataway, J. C (1992). *The making of biotechnology. A case study of radical innovation.* PhD Thesis. The Open University.

Chataway J, Smith J, Wield D. (2005). Partnerships for building science and technology capacity in Africa: UK and Canada perspectives. Paper Presented to Conference 'Building Science and Technology Capacity with African Partners: An Africa-Canada-UK Exploration, London, 31 Jan–1 Feb (papers available on www.Scidev.Net—*Accessed 10* February 2005).

Chataway J and Wield D. (2000). Industrialisation, innovation and development: what does knowledge management change? *Journal of International Development* 12(6): 803–824.

Chataway, J (2005). Introduction: Is it possible to create a pro-poor agriculture-related biotechnology? *Journal of international development* vol. 17 pp. 597 – 610

Chetley, A and Vincent, R (2003). 'Learning to share learning: an exploration of the methods to improve and share learning', London: Exchange. Available at www.healthcomms.org

Christopher, M and Juttner, U (2000). Developing strategic partnerships in the supply chain: a practitioner perspective *European Journal of Purchasing and Supply Management* 6, 117 – 127

Clark N, Hall A, Sulaiman R, Naik G. (2003). Research as capacity building: the case of an NGO facilitated post-harvest innovation system for the Himalayan hills. *World Development* 31(11): 1845–1863.

Clark N, Yoganand B, Hall A. (2002). New science, capacity development and institutional change: the case of the Andhra Pradesh-Netherlands Biotechnology Programme (APNLBP). *International Journal of Technology Management and Sustainable Development* 1(3): 196–212.

Clark, N (1985). The Political Economy of Science and Technology. Basil Blackwell Ltd, United Kingdom.

Clark, N (2000). Public policy and technological change in Africa: Aspects of institutions and management capacity. *Journal of economic studies* Vol. 27 no. 1 /2, 2000 pp. 75 - 93

Clark, N (2001). Innovation Systems, Institutional Change and the New Knowledge Market: Implications for Third World Agricultural Development. UNU-INTECH Discussion paper series no 2001-10

Cohen, W M and Levinthal, D A (1989). 'Innovation and Learning: The two faces of R&D' *Economic journal* vol. 99 (397) pp. 569 - 96

Cohen, W. M; D.A Levinthal (1990). Absorptive capacity: A new Perspective on Learning and Innovation. *Administrative Science Quarterly*, Vol. 35, No.1, Special issue: Technology, Organizations and innovation. (Mar., 1990), pp. 128-152

Commission on Sustainable Development (1998). Background Paper 12 on Technology Cooperation and Assessment. United Nations Commission on Sustainable Development. Geneva.

Crewe E, Harrison E. (1998). Whose Development? An Ethnography of Aid. Zed Books: London.

Critchley WRS and Mutunga K (2002). Local innovation in a global context: documenting farmer initiatives in land husbandry through WOCAT Land Degradation and Development, vol 14, pp 143-162

Critchley, W. (2007). Working with Farmer Innovators – A practical guide. 68 pp. CTA, Wageningen, the Netherlands.

Critchley, W.R.S. (2000). Inquiry, initiative and inventiveness. Farmer innovators in East Africa. *Physics and Chemistry of the Earth*, 25 (3), 285-288

Critchley, W.R.S., Cooke, R., Jallow, T., Lafleur, S., Laman, M., Njoroge, J., Nyagah, V. & Saint-Firmin, E. (1999) (eds) *Promoting Farmer Innovation.* Nairobi: Workshop Report no 2, Regional Land Management Unit (RELMA).

CTA/UNU-INTECH/KIT (2005). Methodological Framework: Analyzing the Agricultural Science, Technology and Innovation (ASTI) Systems in ACP Countries. CTA, Wageningen, The Netherlands

Curry, S (1992). 'Case studies', Unit 7 of *Research methods in Financial economics* (ed. M. Wuyts), University of London, School of Oriental and African studies, External Programme, MSc in Financial economics

Denzin, K.N (1997). Interpretive Ethnography. Ethnographic practices for the 21st Century. Sage Publications, London and New Delhi.

Denzin, K.N and Y. S. Lincoln. (2005). *'Introduction: The discipline and Practice of Qualitative Research'* in Denzin, K.N and Y. S. Lincoln (eds). 2005. The sage handbook of Qualitative Research. 3rd edition. Sage Publications Inc. London and New Delhi

Dolan C, Humphrey J, (2000). "Governance and trade in fresh vegetables: the impact of UK supermarkets on the African horticulture industry" *Journal of Development Studies* 37 147 – 176

Dolan C, Humphrey J, Harris-Pascal C, (1999). "Horticulture commodity chains: the impact of the UK market on the African fresh vegetable industry", WP 96, Institute of Development Studies, Brighton, Sussex

Dolan, C; Opondo, M and Smith, S. (2004). Gender, Rights and Participation in the Kenya Cut Flower Industry. NRI report no. 2768, National Resources Institute. London, United Kingdom.

Dosi, G; C. Freeman; R. Nelson; G Silverberg and L. Soete (1988). Technical Change and Economic Theory. Pinter Publishers, London and New York.

Ducatel, K (1998). Learning and Skills in the Knowledge Economy, DRUID working paper on 98-2

Edquist, C (2001). Innovation Policy – A systemic approach *in Archirbugi and Lundvall (eds) The globalizing learning economy*. Oxford university press, New York

Edquist, C. (1997). Systems of Innovation: Technologies, Institutions, and Organizations, Pinter, London.

Edquist, C. and Johnson, B. (1997). "Institutions and Organizations in Systems of Innovation". In: Edquist, C. (ed): *Systems of Innovation: Technologies, Institutions and Organizations*. Pinter Publishers. London, pp. 41-63.

Farrington, J and Bebbington, J.A (1994). 'From research to innovation: getting the most from interaction with NGOs' in Scoones I, Thompson J (eds). Beyond Farmer First: Rural People's Knowledge, Agricultural Research and Extension Practice. ITDG Publishing: London.

Feinson, S. (2003). National innovation systems: overview and country cases. http://www.cspo.org/products/rocky/Rock-Vol1-1.PDF

Feller, I (2002). New organizations, old cultures: strategy and implementation of interdisciplinary programs. *Research evaluation*, vol. 11, no 2 pp. 109 - 116

Fintrac (2005). Summary report: Baseline Survey of Kenyan Smallholder Flower Sector. Horticultural Development Centre (HDC). Nairobi, Kenya

Francis, J. (2009). Innovation systems, food security and economic development: Lessons from the ACP region. Wageningen, the Netherlands

Freeman, C (2002). Continental, national and sub-national systems – complementarity and economic growth. *Research policy 31* (2002) 191-211

Freeman, C and Soete, L (1997). The Economics of Industrial Innovation. Third Edition. Creative Print and Design. London and Washington

Freeman, C. (1974). *The Economics of Industrial Innovation*, Harmondsworth: Penguin Books.

Freeman, C. (1987). Technology and Economic Performance: Lessons from Japan, Pinter: London.

Freeman, C. (1988). 'Japan: A new national innovation system?', in G. Dosi, C. Freeman, R. R. Nelson, G. Silverberg and L. Soete (eds.) Technology and economy theory, London: Pinter.

Gebreeyesus, M and Iizuka, M (2010). 'Discovery of the flower industry in Ethiopia: Experimentation and Coordination'. A paper presented at the 8th International Globelics conference on *Making Innovation Work for Society: Linking, Leveraging and Learning.* 1 – 3 November 2010, University of Malaya, Kuala Lumpur, Malaysia

Gereffi, G. (1994). 'The Organization of Buyer-Driven Global Commodity Chains: How U.S. Retailers Shape Overseas Production Networks', in G. Gereffi and M. Korzeniewicz (eds), *Commodity Chains and Global Capitalism*,Westport: Praeger, pp. 95–122.

Gereffi, G. (1999). 'International Trade and Industrial Upgrading in the Apparel Commodity Chain', *Journal of International Economics,* 48: 37–70

Gereffi, G; Humphrey, J and Sturgeon, T (2005). The governance of global value chains. *Review of International Political Economy* 12:1 pp 78 – 104

Gibbon, P; Blair, J and Ponte, S (2008). 'Governing of global value chains: An introduction', *Economy and Society*, 37: 3 315 – 338

Gibbons, M., C. Limoges, H. Nowotny, S. Schwartzman, P. Scott, and M. Trow. (1994). *The new production of knowledge: The dynamics of science and research in contemporary societies.* London: Sage.

Goetz, A. M (1996). 'Understanding Gendered Institutional Structures and Practices' presentation for Oxfam meeting on Gender and Organizational Change

Gomm, R; Hammersley, M and P. Foster (2006). Case study method: Key issues, key texts. Sage publications

Hall A, Bockett G, Taylor S, Sivamohan MVK, Clark N. (2001). Why research partnerships really matter: innovation theory, institutional arrangements and implications for developing new technology for the poor. *World Development* 29(5): 783–797.

Hall AJ, Yoganand B, Sulaiman RV, Rajeswari Raina S, Shambu Prasad C, Naik Guru C and Clark NG (eds). (2004). Innovations in innovation: reflections on partnership, institutions and learning. Andhra Pradesh, India

Hall, A (2005). Capacity development for agricultural biotechnology in developing countries: An innovation systems view of what it is and how to develop it. *Journal of international development* vol. 17 pp. 611 – 630

Hall, A (2006). Public Private Sector Partnerships in Agricultural System of Innovation: Concepts and challenges. UNU-MERIT Working Paper Series no. 2006 – 002 Maastricht, the Netherlands

Hall, A; Mytelka, L and Oyeyinka, B (2006). Concepts and guidelines for diagnostic assessements of agricultural innovation capacity. UNU-MERIT working paper series no 2006-017. Maastricht, the Netherlands

Hammersley, M (1992). What's wrong with ethnography? Methodological explorations. Routledge, London and New York.

HCDA (2008). *Horticultural News* (January - April 2008)

HCDA, MoA and JICA (2004). Cut Flower Production and Marketing Manual. Nairobi: Coregra Concepts

Horton, D., R. Mackay, A. Andersen, and L. Dupleich. (2000). Evaluating capacity development in planning, monitoring, and evaluation: A case from agricultural research. ISNAR Research Report No. 17. The Hague: International Service for National Agricultural Research.

Humphrey J, Schmitz H, (2002). "How does insertion in global value chains affect upgrading in industrial clusters?" *Regional Studies* 36 1017 – 1027

Humphrey, J and Schmitz, H (2001). *Governance in global value chains* in Gereffi and Kaplinsky (eds). The value of value chains: spreading the gains from globalization. *IDS bulletin volume 32, no. 3.*

IFAD Pamphlet 6 on "Understanding Power and Processes" available at *www.ifad.org/english/institutions/guidance/6.pdf* accessed on 17/06/2010

Ikiara, G.K (1995). Country studies: Kenya in Wangwe, S (ed) Exporting Africa: Technology, Trade and Industrialization in sub-Saharan Africa. UNU/INTECH Studies in New Technology and Development. Routledge: USA and Canada

Johnsen, R.E and Ford, D (2008). Exploring the concept of asymmetry: a typology for analyzing customer supplier relationships. *Industrial Marketing and Management* 37, 471 – 483

Johnson, A. (2002). *Functions in Innovation System Approaches.* Göteborg, Sweden: Chalmers University of Technology.

Johnson, H and Mayoux, L (1998). 'Investigation as empowerment: using participatory methods' in Thomas, A; Chataway, J and Wuyts, M (eds) *Finding out fast: Investigative skills for policy and development.* The Open University, UK

Kaplan, S. R. and Norton, P. D. (2004). Strategy Maps: Converting Intangible Assets into Tangible Outcomes. Harvard Business School Press: Boston, Massachusetts.

Kaplinsky, R (2000). Globalization and Unequalisation: What can be learned from Value chain analysis? *The journal of development studies*, vol. 37 (2) pp. 117 - 146

Kaplinsky, R (2006). Globalization, Poverty and Inequality: Between a rock and a hard place. Cambridge: Polity

Kaplinsky, R and Morris, M (2001). A Handbook for Value Chain Research. IDRC

KARI (2003). Development of gladioli and lilies for local and export markets. Technical note series. Nairobi, Kenya, KARI.

KARI (2008). KARI Annual Report (2001). Nairobi, Kenya.

_____ (2008). KARI Annual Report (2004). Nairobi, Kenya.

_____(2008). KARI Annual report (2002). Nairobi, Kenya.

_____(2008). KARI Annual Report (2003). Nairobi, Kenya.

_____(2008). KARI Annual Report (2005). Nairobi, Kenya.

_____(2008). KARI Annual report (2006). Nairobi, Kenya.

Keeble, D., Lawson, C., Moore, B. and Wilkinson, F. (1999). 'Collective learning processes, networking and "institutional thickness" in the Cambridge region', *Regional studies,* vol. 33.4, pp. 319-332

Kiggundu, R (2006). Innovation Systems and Development: The journey of a beleagured Nile Perch Fishery in Uganda. PhD Thesis. United Nations University Maastricht Economic and Social Research and training Centre on Innovation and Technology (UNU-MERIT)

Kingston, W (1984). The Political Economy of Innovation, *Studies in Industrial Organization* volume 4. Martinus Nijhoff publishers. The Hague, the Netherlands

Kiptum, B, K (2005). *Building export markets for Kenyan flowers: challenges and opportunities facing small scale flower growers in Kenya.* Paper presented at the ATPS/CTA National Dissemination and Exhibition Workshop on the Flower Industry in Kenya on March 31, 2005 in Nairobi.

Klerkx, L., Hall, A and Leeuwis, C. (2009). 'Strengthening agricultural innovation capacity: are innovation brokers the answer?', *Int. J. Agricultural Resources, Governance and Ecology,* Vol. 8, Nos 5/6, pp. 409 – 438.

Kline, S. J (1990). 'Models of Innovation and their policy consequences' paper presented at NISTEP international conference on science and technology policy research – what should be done, what can be done. Tokyo

KNBS (2007). Kenya Facts and Figures, 2007. Ministry of Planning and National Development. Kenya National Bureau of Statistics (KNBS) Nairobi, Kenya

Korovkin, T (2003). "Cut flower exports, female Labour and Community participation in Highland Ecuador", *Latin American perspectives* 30(4), 18 – 42

Lall, S. (1992). "Structural problems of African industry", in Stewart, F., Lall, S. and Wangwe, S.M. (Eds), Alternative Development Strategies in Sub-Saharan Africa, Macmillan, London, pp. 103-44.

Leonard-Barton, D (1992). Core Capabilities and Core Rigidities: A Paradox in Managing New Product Development. *Strategic Management Journal* vol. 13, 111 – 125

Levinthal, D.A and March, J. G (1993). 'The myopia of learning' *Strategic management journal* vol. 14 pp. 95 – 112 (1993).

Lincoln, Y. S and E. G. Guba (1979). *The only generalization is: There's no generalization.* Reprinted in Gomm, R; Hammersley, M and P. Foster (2006). Case study method. Key issues, key texts. Sage publications

LINK *look* (2010). *Entrepreneurs: What sort do we really need?* Learning, INovation Knowledge (LINK). June 2010. UNU – MERIT

Lundvall, B.-Å (1988). 'Innovation as an interactive process' in Dosi et al (1988) *Technical Change and Economic theory* Pinter publishers London and New York

Lundvall, B.-Å (2001). 'Innovation Policy in the Globalizing Learning Economy' in Archibugi and Lundvall (2001) The globalizing learning economy. Oxford University Press

Lundvall, B.-Å and Johnson, B (1994). The Learning Economy *Journal of Industrial studies.* 1(2):23-42

Lundvall, B.-Å (1985). 'Product innovation and user-producer interaction, industrial development', *Research Series 31,* Aalborg: Aalborg University Press

Lundvall, B.-Å; Johnson, B; Andersen, E.S and Dalum, B (2002). National Systems of Production, Innovation and Competence building. *Research Policy* 31 (2002) 213-231

Lundvall, B-Å. (ed.) (1992). National Innovation Systems: Towards a Theory of Innovation and Interactive Learning, Pinter, London.

Maanen, J. V (1988). Tales of the field. On writing ethnography. University of Chicago press. Chicago and London.

Macbeth, D.K (1994). The Role of Purchasing in a Partnering Relationship. *European Journal of Purchasing and Supply Management. Vol. 1 no. 1 pp. 19-25*

Mackenzie, D and Wacjman, J. (1985). *The Social Shaping of Technology,* Milton keynes, Open University Press

Makerere University Faculty of Veterinary Medicine (2010). Proposal for 'Promotion of graduate vocational excellence and community service through establishment of a Makerere In-Training Community Service (MINTRACS) Centre'. Unpublished proposal document.

Mather, C. (2008). Value chains and tropical Products in a changing Global trade Regime. ICTSD project on tropical products, Issue paper no. 13, International Centre for Trade and Sustainable Development, Geneva, Switzerland

Mayer, S (1998). 'Critical issues in using data' in Thomas, A; Chataway, J and Wuyts, M (eds) *Finding out fast: Investigative skills for policy and development.* The Open University, UK

Ministry of Agriculture (2008). Horticulture Annual Report, 2007. Ministry of Agriculture, Kenya.

Mody, A (1993). 'Learning through alliances'. *Journal of economic behaviour and organization* vol. 20 (1993) 151 - 170

Murkherjee, C and Wuyts, M (1998). 'Thinking with quantitative data' in Thomas, A; Chataway, J and Wuyts, M (eds) *Finding out fast: Investigative skills for policy and development.* The Open University, UK

Muthoka, N. M and Muriithi, A. N, (2008). "Small holder summer flower production in Kenya: A myth or prospect?" Acta Horticulturae 766, ISHS (2008)

Mytelka, L (2004). *'From clusters to innovation systems in traditional industries'* in Mwamila, BLM; Trojer, L; Diyamett, B and Temu, A.K (eds) Innovation systems and innovative clusters in Africa. Proceedings of a regional conference Bagamoyo, Tanzania

Mytelka, L (2009). How technological change excludes the poor. Draft paper, July 2009.

Mytelka, L and Farinelli, F (2000). "Local clusters, innovation systems and sustained competitiveness" Discussion papers no. 5 United Nations University Institute for New Technologies

Mytelka, L.K and Bortagaray (2007). Strengthening the agricultural innovation system in Columbia. An analysis of the Cassava and Cut flower Sectors. Unpublished technical report.

Mytelka, Lynn K (2000). 'Local systems of Innovation in a Globalized World', *Industry and Innovation*, Vol. 7, No. 1: 15-32

Nelson, R. (ed.) (1993). National Innovation Systems. A Comparative Analysis, Oxford University Press, New York/Oxford

Ng'ethe, N and W. Owino (eds) (1998). From Sessional Paper no. 10 to Structural Adjustment: Towards Indigenizing the Policy Debate. Regal Press. Nairobi, Kenya

North, D.C. (1990). Institutions, Institutional Change and Economic Performance. Cambridge University Press. Cambridge

Nowotny H; P. Scott and M Gibbons (2001). Rethinking Science: Knowledge and the Public in an age of uncertainty. Cambridge: Polity

Odhiambo-Mbai, C (1998). 'The nature of public policymaking in Kenya: 1963 – 1996' in Ng'ethe, N and W. Owino (eds): From Sessional Paper no. 10 to Structural Adjustment: Towards Indigenizing the Policy Debate. Regal Press. Nairobi

ODI (2004). Bridging Research and Policy in International Development - An Analytical and Practical Framework. RAPID Briefing paper 4pp. (Available from ODI website).

OECD (1997). National Innovation Systems. OECD Publications, Paris

Ostrom, E. (1990). Governing the commons: the evolution of institutions for collective action, Cambridge, Cambridge University Press

Oyelaran-Oyeyinka B. (2004). Learning, knowledge and skills: implications for firm-level performance in African industry. *International Journal of Technology Management and Sustainable Development* 3(2): 91–113.

Parker, D and Hartley, K (1997). The economics of partnership sourcing versus adversarial competition: a critique. *European Journal of Purchasing and Supply Management* vol. 3, No. 2 pp. 115 – 125

Power tools series: Stakeholder power analysis. IIED (Available from www.livelihoods.org)

Prahalad, C.K and Hamel, G (1990). The Core Competence of the Corporation. *Harvard Business Review,* May-June, 1990

Reij C and Waters-Bayer A (eds) (2001). *Farmer Innovation in Africa: a source of inspiration for agricultural development* Earthscan Publications Ltd, London, 362 pages

Republic of Kenya (1977). The Crop Production and Livestock Act cap 321 Laws of Kenya. Government Printer, Nairobi

_____(1981). The Standards Act cap 496 Laws of Kenya. Government Printer, Nairobi

_____(1979). The Agricultural Produce (Export) Act cap 319 Laws of Kenya. Government Printer, Nairobi

_____(1983). The Agricultural Produce Marketing Act cap 320 Laws of Kenya. Government Printer, Nairobi

_____(1979). The Plant Protection Act cap 324 Laws of Kenya. Government Printer, Nairobi

_____(1986). Sessional Paper no.1 of 1986 on Economic Management for Renewed Growth. Government Printer, Nairobi

_____(1986). The Agriculture Act cap 318 Laws of Kenya. Government Printer, Nairobi

_____(1991). The Agricultural Finance Corporation Act cap 323 Laws of Kenya. Government Printer, Nairobi

_____(1991). The Seeds and Plant Varieties Act cap 326 Laws of Kenya. Government Printer, Nairobi

_____(1994). Sessional Paper no.1 of 1994 on Recovery and Sustainable Development to the Year 2010. Government Printer, Nairobi

_____(1980). The Science and Technology Act cap 250 Laws of Kenya. Government Printer, Nairobi

_____(2001). The Poverty Reduction Strategy Paper (PRSP)2001-2004. Government printer, Nairobi

_____(2003). Economic Recovery Strategy for Wealth and Employment Creation (ERSWEC, 2003-2007). Government Printer, Nairobi.

_____(2004). Strategy for Revitalizing Agriculture (SRA, 2004 - 2014). Government printer, Nairobi, Kenya,

_____(2004). National Export Strategy (NES,2004 – 2007). Government Printer. Nairobi

Robinson, D; Hewitt, T and Harris, T (eds) (2000). *Managing Development: Understanding Inter-organizational Relationships,* London, Sage Publications in association with the Open University.

Roche, C (1998). 'Organizational Assessments and Institutional Footprints' in Thomas, A; Chataway, J and Wuyts, M (eds) *Finding out fast: Investigative skills for policy and development.* The Open University, UK

Rokkan, A.I and Buvik, A (2003). Inter-firm cooperation and the problem of free riding behavior: an empirical study of voluntary retail chains. *Journal of Purchasing and Supply Management* vol. 9, pp. 247 – 256

Roling, N (1994). 'Facilitating sustainable agriculture: turning policy models upside down' in Scoones I, Thompson J (eds). Beyond Farmer First: Rural People's Knowledge, Agricultural Research and Extension Practice. ITDG Publishing: London.

Rothwell, R (1992). 'Successful Industrial Innovation: Critical Factors for the 1990s', *Research and Development Management,* Vol. 22, no.3 pp. 221 – 239

Sapsford, R (2007). Survey Research, 2nd ed. Sage publications, London, Thousand Oaks and New Delhi.

Scheyvens, R and D. Storey (eds) (2003). Development fieldwork. A practical guide. Sage publications, London, Thousand Oaks and New Delhi.

Schmitz, H (2005). Value chain analysis for policymakers and practitioners. International Labour Office, Geneva

Schumpeter, J (1934). The Theory of Economic development. Cambridge, Mass.: Harvard University Press

Scoones I, and Thompson J (eds). (1994). Beyond Farmer First: Rural People's Knowledge, Agricultural Research and Extension Practice. ITDG Publishing: London.

Scoones I, and Thompson J (eds). (2009). Farmer First Revisited: Innovation for Agricultural Research and Development. Practical Action Publishing: London.

Scott, W. R (2001). Institutions and Organizations. 2nd edition. Thoudands Oak, CA: Sage

Seale, C (1999). The quality of qualitative research. Sage publications.

Sharif, N (2006). Emergence and development of the National Innovation Systems Concept. *Research Policy* 35 (2006) 745-766

Smith, J (2005). 'Context-bound knowledge production, Capacity building and new product networks,' *Journal of International Development.* Vol. 17 pp. 647 - 659

Sonko, R; Njue, E; Ssebuliba, J.M and de Jager, A.(2005). "Pro-poor Horticulture in east Africa and South East Asia: The horticultural sector in Uganda." Wageningen University and Research Centre. Wageningen, Netherlands.

Spielman, D.J (2005). Innovation Systems Perspectives on developing Country Agriculture: A Critical Review. ISNAR Discussion paper 2. International Food Policy Research Institute (IFPRI) Washington D. C

Stake, R. E (1978). *The case study method in social inquiry.* Reprinted in Gomm, R; Hammersley, M and P. Foster (2006). Case study method. Key issues, key texts. Sage publications

Stalk, G., P. Evans and L. Shulman (1992). 'Competing on Capabilities: The New Rules of Corporate Strategy, *Havard Business Review* March – April 1992

Start, D. and Hovland, I. (2004). Tools for Policy Impact: A Handbook for Researchers (available on ODI website).

Stolzenbach, A (1994). 'Learning by improvisation: farmer experimentations in Mali'in Scoones I, Thompson J (eds). Beyond Farmer First: Rural People's Knowledge, Agricultural Research and Extension Practice. ITDG Publishing: London.

Storper, M. (1993). 'Regional worlds of production: learning and innovation in technology districts of France, Italy and the USA', *Regional Studies*, vol. 27.5, pp. 433-455

Sturgeon, T. (2002). 'Modular Production Networks: A New American Model of Industrial Organization', *Industrial and Corporate Change,* 11(3): 451–96.

Taylor, E (1996). Invention, Innovation and the Innovation Process. Block 1 readings, *Technology and Innovation Policy Research module.* The Open University, UK

Taylor, S. (2002). *'Ethnographic Research: A Reader'* Sage Publications. London, Thousand Oaks and New Delhi in association with the Open University

Teece, D. J (1998). Capturing value from knowledge assets: the new economy, markets for know-how and intangible assets. *California Management Review*, vol. 40 no. 3. Spring 1998

Teece, D. J (2009). Dynamic capabilities and strategic management: organizing for innovation and growth. Oxford university press. Oxford.

Teece, D. J (1996). Firm organization, industrial structure and technological innovation. *Journal of economic behaviour and organization* vol. 31 (1996) pp. 193 – 224

Teece, D. J; Pisano, G and Shuen, A (1997). Dynamic Capabilities and Strategic Management. *Strategic Management Journal* vol. 18:7, 509 – 533

Riungu, C (2005). '*Kenyan flower growers could move to Ethiopia after Lome Convention ends*' a lead article in the *The East African*, 2 – 8 May, 2005. A weekly publication in East Africa published by the Nation Media Group

Thoen, R., Jaffee, S., Dolan, S and Ba, F (2000). Equitorial Rose: The Kenyan – European Cut flower Supply Chain." World Bank, Washington, DC. USA

Thoen, R., S. Jaffee, C. Dolan and L. Waithaka (1999). Equitorial Rose: The Kenyan – European Cut Flower Supply Chain. www1. Worldbank.org/wbiep/trade/c papers/ Roses2Kenyasupplychain.pdf. Retrieved on 22-sept-2004

Thomas, A (1998). 'Challenging cases' in Thomas, A; Chataway, J and Wuyts, M (eds) *Finding out fast: Investigative skills for policy and development.* The Open University, UK

Tips/Ausaid (2005). "Trade information brief: Cut flowers and Foliage." Trade and Industrial Policy Strategies (TIPS). South Africa

Tools for analyzing power, inclusion, and exclusion. Catholic Relief Services. (Available at www.justassociates.org).

UN Millennium Project (2005). Innovation: Applying Knowledge in Development. Task Force on Science, Technology, and Innovation. Earthscan, UK and USA.

UNCTAD (1996). UNCTAD's science, technology and innovation policy reviews (STIP). Science and Public Policy 23(6): 385–390.

UNDP (1994). Annual report for 1993, New York, June.

UNDP (1998). Capacity assessment and development in a systems and strategic management context. Management Development and Governance Division, Technical advisory paper no.3. New York, NY: United Nations Development Program.

UNESCO (2005). *Towards Knowledge Societies*. First UNESCO World Report, with preface by Koichiro Matsuura, Director General of UNESCO. Paris: UNESCO Publishing.

Uzzi, B. (1997). 'Social structure and competition in inter-firm networks: the paradox of embeddedness', *Administrative Science Quarterly*, no. 42, pp. 35-67.

VeneKlasen, L and Miller, V (2002). *A new weave of power, people and politics: the action guide to advocacy and citizen participation,* World Neighbours; reprinted by ITDG publishing 2006

von Hippel, E (1988). The Sources of Innovation. Oxford University Press. New York and Oxford

What are MSPS: http://portals.wi.wur.nl/msp/index.php?What_are_MSPs?

Wijnands, J. (2005). "Sustainable International Networks in the Flower Industry: bridging empirical findings and theoretical approaches" Scripta Horticulturae. The Hague, ISHS. October 2005

Woodhouse, P (1998). 'People as Informants' in Thomas, A; Chataway, J and Wuyts, M (eds) *Finding out fast: Investigative skills for policy and development.* The Open University, UK

World Bank (2001). 'Building institutions: complement, innovate, connect and compete' in World Development Report 2002: Building Institutions for Markets. World Bank. Washington, D.C

World Bank (2007). Enhancing agricultural innovation: How to go beyond strengthening research systems. Agriculture and Rural development (ARD), World Bank, Washington DC

Yin, R. K. 1994. Case study research: Design and methods. London: Sage.

Young, E. and Quinn, L. (2002). Writing Effective Public Policy Papers: A Guide for Policy Advisers in Central and Eastern Europe. Open Society Initiative.

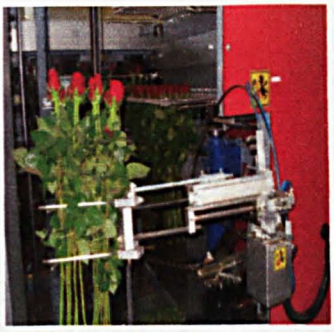
APPENDICES

A. Flower value addition processes in large scale farms

After harvesting, the flowers are transported from the farm/field in trucks (left) to the in-take cold room where they are received, keeping track of time and performing quality checks (right). This cold room is the first control point where quantity and quality checks begin to eliminate any live pests, diseases and the cut stage for the flowers are checked. Any physical damages on the stems, leaves or over-open flowers are isolated and removed. Staff are required to confirm that all stems touch the solution/water in the buckets and that buckets are not damaged or leaking. The time taken from the field to the cold store is recorded.

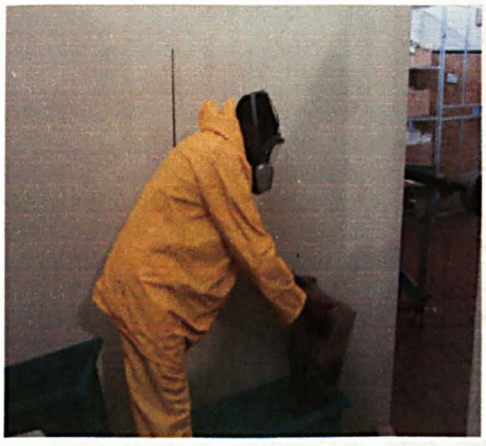
Defoliation: Once the flowers are in the receiving cold room, workers are required to defoliate flowers for easier handling. During defoliation, the leaves are removed according to specific quality control instructions, taking care to ensure that flower heads do not come into contact with water or the body. The flowers are delivered based on orders.

Grading and bunching: In the large scale farms, grading is done using special grading machines which are capable of sizing and bunching.


Manual grading and bunching: Besides machine grading, companies also conduct manual grading of flowers. Workers are seen here performing manual grading and bunching of flowers

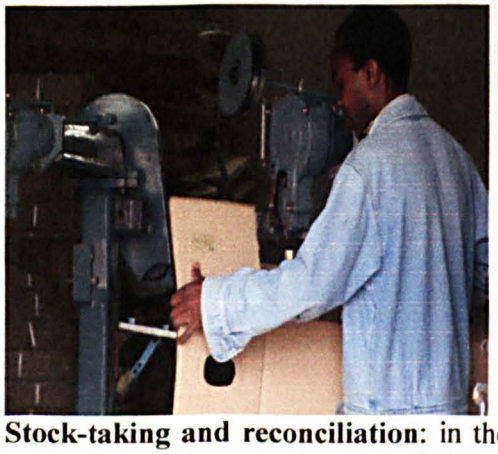
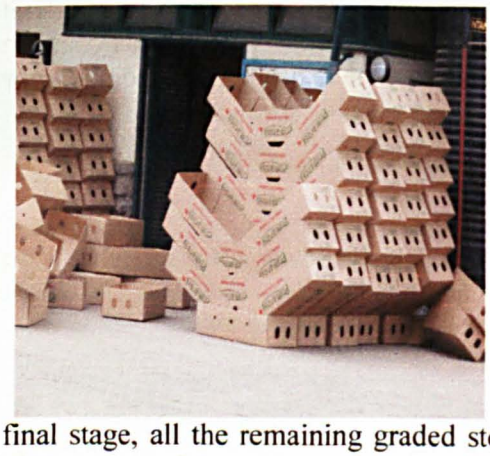

Sleeving: In the sleeving area, flowers are differentiated according to customer requirements and flower foods are added based on each customer's specifications. The flowers are then labeled and the positions of the labels checked; the bunches are checked for uniformity of cut stage of the flowers to ensure there is no mix up in the bunches. Checks are also performed to ensure that the flowers are defoliated in accordance with customer's requirements; the correct flower food is given in the right ratios and the bunches are correctly and tightly tied together. After all the quality procedures are performed, flowers are subjected to chemical treatment – that is, flowers are treated to chemical solutions for preservation and devitalization. The worker on the left photo is seen here subjecting graded flowers to a chemical solution while the photo on the right shows flowers which have been processed ready for export.




Packing: Here flowers are packed according to each customer's requirements. Different customers have different requirements and packing styles. The boxes are then strapped three times from the lower side of the box and on the top of the box. All the staff in packing are trained on every process in grading to ensure they are conversant with the entire process. The supervisor in charge of packing is responsible for producing the packing list which details what has been packed in the boxes in readiness for shipping. The strapping of boxes should be tight in order to avoid movement of flowers in the box.



Packaging materials (boxes): The large scale farmers make their own branded boxes for packaging and exporting the flowers. A technician is seen here preparing the boxes using a machine (on the left) while on the right are complete branded boxes

Stock-taking and reconciliation: in the final stage, all the remaining graded stocks and un-graded stocks as well as the sales from the previous day are counted and noted. Staff in the photos below are seen recoding the stocks and reconciling the sales records. Stocks are taken by dates and variety and the first graded stocks are the first to be sold to customers.

Storage in the final cold room: Flowers that have been processed and ready for export are stored in the final cold room before they are shipped. In the final cold room, minimum temperature range of 2 – 5 degrees is maintained. To ensure the flowers are not infected, the cold room is sprayed daily and fumigated once a week. The flowers should stay in this cold room for at least 4 hours to ensure they are properly pre-cooled before they are dispatched. The trolleys are washed weekly and care is taken to avoid any spilt water in the floors. The cold room is cleaned on a daily basis.

B. Flower processing: small scale farmers

Contract signing: The partnership between small scale farmers with the exporters begins with the signing of contracts between the two parties. In these photos, small scale farmers are seen renewing their contracts with exporter in Thika region. The exporter's agronomist (extensionist) explains the contract terms to the farmers before they sign. New farmers have to understand and agree to the contract terms while those who already had contracts renew their terms for a further one year. All contracts run for a period of one year each after which they are either renewed or terminated.

Training in production and extension support: As part of their contractual obligations, exporters are required to provide extension and advisory services to the farmers to ensure they produce high quality flowers. In this photo, the exporter's agronomist (left) is seen visiting one of the farmers at her farm. The agronomist is employed by one of the main exporters in the region and seen here with her (right) is one of their contracted farmers. Note that the flowers are grown in open fields

Transportation to the central grading shed: After harvesting, farmers transport the flowers (in wheelbarrows, bicycles or sacks) to the central grading shed. The photos below show members of a flower growing group organize flowers for collection. On the left, farmers are seen performing preliminary grading and bunching with the supervision of the exporter's agronomist (in hat and dust coat (left) in Kandara, Thika region. On the right, the exporter's agronomist (lady in hat and dust coat) leads grading and bunching flowers in farmers' shed – Naivasha region. Looking on is one of the farmers.

Grading and bunching: Small scale farmers are seen here grading flowers (left and centre) using improvised grading tables (benches) and bunching flowers (right). These preliminary grading and bunching processes are conducted at the farmers' central grading shed before the flowers are collected by the exporters for the final grading and packaging in the exporters pack houses.

Stock taking and collection: After the preliminary grading and sorting, the exporter issues the farmers with purchase vouchers before taking possession of the flowers. The vouchers indicate the number of stems collected; the number of damaged flowers and the amounts due to the farmers. The photos here show some members of a flower farmers association. The farmers were taking stock of their flowers before they are collected by the exporters – Limuru. On the right are flowers ready for collection.



Exporter collects flowers from farmers: The exporter's field officers and agronomists collecting flowers from the field. On the left the agronomists are loading bunched flowers from the farmer into their truck while on the right; they are preparing the collection boxes.


C. Kenya flower export performance 2007

Kenya Flower Export Performance 2007

	Name Of Exporter	Total Exports (2007) in Kgs
1	Homegrown (K) Ltd	19,538,576.00
2	Frigoken Limited	17,904,684.00
3	Vegpro (K) Ltd	10,979,816.00
4	Kenya Horticultural Exporters	8,914,434.00
5	Wilham (K) Ltd	8,582,463.00
6	Sher Agencies	7,596,557.00
7	East African Growers	5,815,354.50
8	Oserian Development Co. Ltd	5,683,309.50
9	Carzan Flowers K Ltd	2,571,854.00
10	Primarosa	2,293,713.25
11	Finlay Flowers	1,771,765.00
12	Karen Roses	1,549,429.00
13	Nini Limited	1,425,390.00
14	Suera Flowers Ltd	1,381,673.00
15	Mt. Elgon Orchards/Andersen	1,366,311.00
16	Panda Flowers Ltd	1,303,594.50
17	Bigot Flowers Kenya Ltd	1,223,194.00
18	Enkasiti Flower Growers Ltd	1,120,309.00
19	Wima Flowers Ltd	1,120,220.00
20	Maridadi Flowers Ltd	1,085,567.00
21	Panocal International Ltd.	1,073,149.00
22	P. J Dave Flowers	1,043,331.00
23	Liki River Farm	1,029,379.00
24	Isinya Flowers Ltd	1,013,257.00
25	Zena Roses Ltd	999,951.50
26	Tropiflora Ltd	984,125.00
27	Batian Flowers Ltd	981,850.00
28	Linssen Roses	939,453.00
29	Shalimar Flowers (K) Ltd	919,581.00
30	Timaflor Ltd	880,067.00
31	Garden Flora Ltd	869,385.00
32	Agriflora K Ltd	841,708.31
33	Maji Mazuri Flowers Ltd	818,397.00

34	Longonot Horticultural Ltd	791,013.00
35	Bilashaka Flowers	789,767.63
36	Everflora Ltd	756,491.00
37	Kongoni River Farm Ltd	719,555.00
38	Equator Flowers K Ltd	717,399.00
39	Penta Flowers	711,107.00
40	K-Net Flowers Ltd	694,251.00
41	Harvest Limited	683,199.00
42	Wildfire Flowers	682,685.00
43	Dave Roses Ltd	667,058.00
44	Star Flowers (K) Ltd	663,999.00
45	Valentine Growers	658,833.00
46	Simbi Roses	626,265.00
47	Ol-Njorowa Ltd	604,477.00
48	Charm Flowers Ltd	587,849.00
49	Bekya Floriculture	580,394.00
50	Doralco Kenya Limited	566,183.00
51	Countrywide Connections Ltd	561,418.00
52	Gatoka Ltd	553,939.00
53	The Flower Hub Limited	543,102.00
54	Mweiga Blooms	538,765.00
55	Magana Flowers	489,119.50
56	Windsor Flowers Limited	488,473.28
57	Kariki Limited	465,092.00
58	Red Land Roses	453,607.00
59	Aquila Development Co.	431,699.00
60	Waridi Ltd	423,209.75
61	Njambiflora	382,510.00
62	Mosi Ltd	381,378.00
63	Tambuzi Ltd	367,252.00
64	Sarkish Flora Limited	364,043.00
65	Lobelia Farms	358,207.00
66	Elbur Flora Ltd	357,267.00
67	Live Wire Limited	352,490.09
68	Maua Agritech Ltd	346,976.53
69	Subati Ltd	338,959.00
70	Mahee Flowers Limited	327,488.00
71	Lake Flowers	319,799.00
72	Wilmar Agro.	317,856.00
73	Sote Flowers	284,898.00

74	Nature Grown Ltd	266,214.00
75	Kisima Farm	248,149.00
76	Lauren International Flowers Ltd	236,317.00
77	Sirgoek Flowers Co. Ltd	223,832.00
78	Charm Flowers Ltd	206,704.80
79	Mayflower K Ltd	182,741.00
80	Tsara Rozen (K) Ltd	172,040.00
81	Hamwe Limited	160,508.00
82	Sophia Roses	156,975.00
83	Ngong Roses	143,945.00
84	M/S Maaskant Flowers	136,592.00
85	Celinico Flowers	129,947.00
86	Locland Kusuma	122,150.00
87	Fides K Ltd	112,698.00
88	Flower Processing Kenya	110,655.00
89	Flower Direct	105,479.00
90	Terrasol (K) Ltd	105,039.00
91	Kenya Highlands Nurseries	102,311.00
92	Kenfloraa Ltd	97,928.00
93	P.J Dave Flora Limited	93,281.00
94	Terra Fleur	88,596.00
95	Lathyflora Kenya Limited	84,572.00
97	Pj Flowers Ltd	77,033.00
98	Floricult	75,288.60
99	Van Kleef Roses Kenya Ltd	74,041.40
100	Flora Kenya Limited	72,863.00
101	Beverly Flowers Ltd	71,410.00
102	Pollen Limited	70,422.00
103	Rap Vegflow Exports	69,500.30
104	14 Flowers Ltd	68,247.00
105	Hamer Kenya Ltd	67,877.00
106	The Plant Factory Kenya Ltd	66,500.20
107	Subati Flowers Ltd	65,159.80
108	Auction Flowers K Ltd	54,649.00
109	Sande Kenya Ltd	54,600.00
110	Planet Flower Ltd	51,184.00
111	Lillies Africa Ltd	29,548.00
112	Caly Flora	29,272.00
113	Kudenga Ltd	27,012.00

114	Jaynet Flowers Kenya	20,552.00
115	Schmuelling (K) Ltd	19,826.00
116	Maridadi Flowers Ltde	18,302.00
117	Flora Market Kenya Ltd	18,035.00
118	Nikita Flowers Ltd	17,410.00
119	Black Petals Ltd	17,261.00
120	Sian Agriflora Limited	17,119.00
121	Mobyflora Import Export Kenya	16,950.00
122	Rebby Touch Flowers	16,796.00
123	Florema Kenya Ltd	15,939.00
124	African Flora International	15,210.00
125	Pp Flora Ltd	13,144.90
126	Flamingo Flora Ltd	11,600.00
127	Longonot Farm	10,740.00
128	Robet Flowers	10,510.00
129	Sian Roses Ltd	9,196.20
130	Bawan Roses	8,856.00
131	M/S. Molly Flowers (K) Ltd	7,997.00
132	Neptune Flower Agencies	7,314.50
133	Kingsley Flowers	5,656.00
134	Carnation Plants Ltd	4,760.45
135	Savannah Florists Enterprises	4,694.00
136	Flower Petals	4,502.00
137	Wayne Flowers	4,325.40
138	Bisomax Fruits Flowers And Vegetables	3,396.00
139	Super Florawings Fresh	3,163.40
140	Uhuru Flowers Ltd	3,065.00
141	Jerome Flowers Agencies	2,801.00
142	Matasia Valley Roses Ltd	2,757.00
143	Hephen Flowers	2,641.00
144	Rimi Flora	2,176.00
145	Cykwa Flowers Ltd	2,000.00
146	Global Flora Ltd	1,819.00
147	Jim Flora	1,206.00
148	Doralca Flowers	1,000.00
	Totals	141,284,987.29

E. Ethical clearance memorandum

From Sheila Peace
Deputy-Chair, The Open University Human Participants and Materials Research Ethics Committee
Research School
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Extension 54240

To Maurice Ochieng Bolo

Subject Agricultural Innovation Systems in Developing Countries: Partnerships, Institutions and Capabilities in Kenya's cut flower industry
Ref HPMEC/2008/#451/1
Date 04/07/2008

This memorandum is to confirm that the research protocol for the above-named research project, as submitted on 19/06/08, is approved by the Open University Human Participants and Materials Ethics Committee, subject to satisfactory responses to the following:
You are asked to:

1. Consider the risk to the researcher (alongside the participants) of the information that may be disclosed concerning markets, financial dealings, partnerships. While the participants will be assured of confidentiality and anonymity, dissemination will need to be handled sensitively addressing generic themes.

2. Clarify how participants will obtain transcripts from interviews and take part in validation.

The scrutiny panel would like to commend your application as having been very thoroughly prepared.

At the conclusion of your project, by the date that you stated in your application, the Committee would like to receive a summary report on the progress of this project, any ethical issues that have arisen and how they have been dealt with.

Sheila Peace
Deputy-Chair, OU HPMEC

AGRICULTURAL INNOVATION SYSTEMS IN KENYA

Partnerships, Institutions and Capabilities in the cut flower Industry

Background and context

Partnerships between flower farmers are a common feature in Kenya. These partnerships take various forms and are described as either outsourcing or out growers' schemes. Their objectives vary from increasing production to export market access and occur between farmers of different farm sizes, technological capability, managerial and technical competence, different localities as well as varying degrees of marketing networks and infrastructure.

Through these partnerships farmers exchange knowledge, share skills, technologies and also learn about changes in market standards and requirements. As such, these partnerships play an important role in the overall success of Kenya's cut flower industry. Moreover, through these partnerships, farmers offer technical assistance to their partners to ensure high standards and good agronomic practices are adhered to.

Faced with little support from the government extension system, farmers use these partnerships to obtain information relevant to the success of the industry. However the extent of these partnerships and their actual contribution to the success of the industry, as well as their role in building the capacity of farmers have not been studied and documented. This means that valuable lessons from the experiences have not been picked up but also that evidence on which to seek policy support is largely lacking.

Why is this study important to the industry?

This study seeks to fill this void by addressing the following issues:

- What is the role of inter-farm partnerships in stimulating learning and innovation in the industry? By answering this question, the study will generate empirical evidence from the farmers themselves on the role of these partnerships on the success of the industry.
- How are the partnerships governed? These partnerships come in various forms: some are contractual (with formal contracts) while some are non-contractual (agreements such as MoUs). The study will document the experiences of farmers who have engaged with either contractual or non-contractual partnerships. These experiences will help other farmers deciding on how best to structure their own partnerships
- How do the government policies affect these partnerships and how would the farmers like the government to help facilitate them? The policy environment determines not only the cost of doing business but also guarantees the security of investments. This study will document the views of the farmers on the government policies and the impact of these policies on the industry.

How will farmers benefit from the research?

There are at least two ways in which this research will benefit the farmers. Firstly, the research will provide the opportunity to share knowledge and experiences on the role of partnerships as a way of stimulating learning and innovation. This helps in building networks and knowing who to contact when you have similar problems. The knowledge could also lead to new business/partnership opportunities.

Secondly, by assessing the impact of government policies on the industry, the research will compile the collective voices of all the exporters regarding their experiences and recommendations. This empirical evidence will be useful for farmers and their associations in advocating for policy change/support for the industry.

How will the data be collected and when?

This study has been organized in two phases. Phase I will include a sector-wide survey in which information will be collected from the 150 farms actively engaged in exports according to HCDA records for 2007. The farmers will be requested to fill in a short questionnaire to answer some of the questions of the study. This phase will run from August 2008 till October 2008.

Based on the responses to the questionnaire, some of the farms will be selected to participate in Phase II of the study in which farmers will tell their experiences with these partnerships. This phase will use a semi-structured questionnaire and the interviews will be audio-recorded. The recording will only be done with express permission from the participant/farmer who retains the right to refuse to be recorded. The recordings will then be transcribed and shared with the participants if they so wish. This phase will take place in early 2009.

How is the confidentiality of the farms/companies assured?

This research will be governed by strict ethical guidelines of the Open University as well as British laws on data protection. I have undertaken to protect the identity and confidentiality of both the participant and their farms and observe all Kenyan laws on intellectual property, data protection and confidentiality. Any information collected in the course of this research will be used for academic purposes only. Further, all the participants and their farms will remain anonymous and any information that may lead to the identification of the participant will only be used after written approval from the participant is obtained. The data will be used in their aggregated and generalized form only. Short quotations from the interview may be used in the report but only with the consent of the participant. I have given the contacts of my supervisors and university authorities in case you have any further concerns.

How will farmers get feedback from the research?

There are a number of channels for giving feedback to the participants. First, individual participants will have the right to request for transcripts of their own interview. Upon

request, these will be provided to the individual participants. Secondly, I shall organize dissemination workshops to share the findings of this study with all the participants. This will take place towards the end of the study in Nairobi, Kenya.

Who should farmers contact for further information?

If you have further queries, please contact me at the first instance. My address in Kenya during this fieldwork will be:

Maurice Bolo,

African Technology Policy Studies Network

3rd Floor, The Chancery Building, Valley Road

P.O. Box 10081 – 00100,

Nairobi, Kenya

Tel (office): +254 – 20 – 2714092 / 2723800

Tel (mobile) 0727 701 917

Fax: +254-20- 2714028

Email: m.o.bolo@open.ac.uk or ochibolo@gmail.com

You could also contact my supervisors whose email addresses are given below.

1. Professor Joanna Chataway

   E-mail: j.c.chataway@open.ac.uk

2. Prof. Norman Clark

   E-mail: n.clark@open.ac.uk

I look forward to your support and participation in the study and continued future collaboration.

With best wishes,

Maurice Bolo,

PhD student/Researcher

AGRICULTURAL INNOVATION SYSTEMS IN KENYA

Partnerships, Institutions and Capabilities in the Cut flower Industry

Statement on Confidentiality

I undertake to protect the identity, data and confidentiality of all participants in this study and their farms. All information will remain anonymous and all data will be used in their aggregated form only. The information collected will be used for academic and policy purposes and will not be disclosed to any third parties. In the event that I need to use any individual farm data, express prior permission will be sought and written approval obtained from the farm's management.

A brief summary of the research focus and objectives has been provided. However, if you wish to discuss any aspect of this study, please contact me at m.o.bolo@open.ac.uk or my supervisors in the addresses below:

1. Prof. Joanna Chataway
E-mail: j.c.chataway@open.ac.uk

2. Prof. Norman Clark
E-mail: n.clark@open.ac.uk

Signature.....

Maurice Bolo, Researcher

FARM DEMOGRAPHICS

1.1 Name of farm/farmer..... Year established.....

1.2 What are the most important flower varieties for your farm? *Please name any three*

a) .....
b) .....

c) .....

1.3a What was the annual export volume of your farm in 2007? *Please give figures in tonnes (number of stems)*

.....

1.3b What was your farm's annual sale in 2007?

a) Less than Kshs. 1 million
b) Between Kshs. 1 million - Kshs. 50 million
c) Over Kshs. 50 million

1.4 What is the ownership structure of your farm?
a) Locally owned
b) Foreign owned
c) Joint (foreign/local ownership). If jointly owned, what is the percentage (%) of local equity..... and foreign equity.....?
d) Other? *Please specify*.....

1.5 Is your farm a branch of a larger farm? a) Yes b) No

1.6 If yes above, are you growing same varieties of flowers as the larger farm?

a) Yes, we are growing exactly the same varieties
b) Yes, some varieties are the same but we also grow additional different varieties
c) No, we are growing completely different varieties

1.8 Do you receive any support from the larger farm? A) Yes b) No

1.9 If yes, what kind of support? *You may choose more than one*

a) Marketing
b) Financial
c) Technical/scientific support
d) Management/administration
e) Procuring new products

1. RESEARCH AND DEVELOPMENT

2.1 Do you conduct research and development (R&D)? – (including on-farm trials and experimentations) a) Yes b) No

2.2 If yes above, what is the main focus of your research? *You may choose more than one*

a) Pest and disease control (including biological control)
b) Breeding/trial for new varieties
c) Yield improvement
d) Shelf life improvement
e) Market research

2.3 What percentage (%) of your total annual budget is allocated to research and development? *Give percentage (%)*

2.4 What percentage (%) of your total workforce is dedicated to research and development? *Give percentage (%)*

2.5 Do you conduct research in partnership with other actors in the flower industry?
A) Yes b) No

2.6 If yes, who are your main partners in research and development? *You may choose more than one*

a) Other farmers
b) Input suppliers
c) Local public universities and research institutes
d) Local private consultants
e) Foreign universities and research institutes
f) Foreign private consultants and laboratories
g) Local (national) NGOs
h) Foreign (international) NGOs
i) Other? *Specify*.....

2.7 How would you rate the importance of the following actors as a source of new knowledge for your farm? *Please circle your rating in a scale of 1 (least important) to 5 (most important)*

Actor	**Rating**				
a) Other farmers	1	2	3	4	5
b) Input suppliers	1	2	3	4	5
c) Local public universities and research institutes	1	2	3	4	5
d) Local private consultants	1	2	3	4	5
e) Foreign universities and research institutes	1	2	3	4	5
f) Foreign private consultants	1	2	3	4	5
g) Local (national) NGOs	1	2	3	4	5
h) Foreign (international) NGOs	1	2	3	4	5
i) Other? *Please specify*.....	1	2	3	4	5

2.8 Over the last five years (2002 – 2007), has your farm engaged in any of the following activities? *You may choose more than one*

a) Introduced a new flower variety in your farm?

b) Introduced new equipment/machines into your farm?

c) Substituted your growing techniques/methods?

d) Adapted new technologies to the needs of your farm?

e) Used new combinations of inputs for better quality?

2. PARTNERSHIPS AND LINKAGES

3.1 Do you have partnerships with other local flower exporters?

a) Yes b) No

3.2 If yes, in what category do your partners fall?

Size of the partner	**Name of the partner(s)**
a) Smaller in scale	
b) Same scale	
c) Larger in scale	

3.3 What is the main focus of your partnership?

a) Export market access

b) Production/supply

c) Other? *Please specify*.....

3.4 How is your partnership structured?

a) Contractual (legally binding contracts)

b) Non-contractual (other forms of agreements e.g. memoranda of understanding (MoUs)

3.5 **As a result of the partnerships identified in *Q 3.2*,** have you engaged in any of the following activities? *Please tick the appropriate box and give examples. Kindly note that these activities relate **only** to the partnerships in Q 3.2 above*

Category A	**Yes**	**No**	**Please give examples**
a) Introduced a new flower variety?			
b) Acquired new technologies/machines?			
c) Introduced new flower bouquets?			

Category B	Yes	No	Please give examples
d) Improved the shelf-life of flowers?			
e) Changed your packaging materials?			
f) Reduced the number of spoiled flowers?			

Category C	Yes	No	Please give examples
g) Adapted new technologies to the needs of your farm?			
h) Used new combinations of inputs for better quality?			
i) Complied with new environmental standards?			

Category D	Yes	No	Please give examples
j) Selling in new markets?			
k) Reduced your production costs?			
l) Complied with new market standards?			

3.6 Did you learn something **new** from your partnerships with exporters?

a) Yes b) No

3.7 If yes, what did you learn? *You may tick more than one category*

a) New varieties, technologies and bouquets

b) How to increase shelf life, better packaging and avoid spoilage of flowers

c) How to improve our growing methods, adapt new technologies to our requirements and comply with environmental standards

d) How to reduce production costs, new marketing strategies and how to comply with marketing standards

3.8 How did this learning take place? *You may tick more than one*

a) Farm visits
b) Workshops
c) Hiring new staff
d) Consultants
e) Research & Development
f) Informal meetings

3.9 To what extent did your partnership with the exporters achieve its intended objectives? *Please circle your rating in a scale of 1 (least achieved) to 5 (fully achieved) where applicable*

Partnership	Objectives partnership	Achievement rating
1) Partnership with smaller-scale exporters	a) Production/outsourcing	1 2 3 4 5
	b) Market access	1 2 3 4 5
	c) Other? *Specify*.....	1 2 3 4 5
2) Partnership with same-scale exporters	a) Production/outsourcing	1 2 3 4 5
	b) Market access	1 2 3 4 5
	c) Other? *Specify*.....	1 2 3 4 5
3) Partnership with larger-scale exporters	a) Production/outsourcing	1 2 3 4 5
	b) Market access	1 2 3 4 5
	c) Other? *Specify*.....	1 2 3 4 5

3. NATIONAL POLICY ENVIRONMENT

4.1. How would you rate the availability of the following factors and their contribution to the success of the cut flower industry in Kenya? *Please circle your rating from 1 (weakest) to 5 (strongest)*

Factors	Rating
a) Government support and incentives	1 2 3 4 5
b) Presence of well trained and skilled manpower	1 2 3 4 5
c) Role of local universities for R&D in flowers	1 2 3 4 5
d) Availability of appropriate laws and enforcement	1 2 3 4 5
e) Quality of physical infrastructure (power, water, rail/road)	1 2 3 4 5
f) Availability and access to finance and business loans	1 2 3 4 5
g) Opportunities for staff training	1 2 3 4 5
h) Access and costs of farm inputs	1 2 3 4 5
i) Marketing support and infrastructure	1 2 3 4 5
j) Extension service and farmer support	1 2 3 4 5

PHASE II OF THE STUDY – INSTITUTIONAL CONTEXT OF PARTNERSHIPS

Phase II of this study will focus on the factors influencing the success or failure of partnerships and the importance of national policies in promoting such partnerships. It will involve in-depth, face-to-face interviews and will give participants the opportunity to "tell their stories", share their insights and experiences regarding their involvement in partnerships and how the national policies has influenced the success or failure of partnerships.

Q: Please indicate if you would be happy to participate in phase II of the study

a) Yes, I would be happy to participate and share my views in phase II

b) Yes, but I would need further explanation

c) No, I would not be interested in phase II of the study

Please indicate your contact person for future correspondence regarding the study.
Name: .....
Position: .....
Telephone (*office*): .....
Mobile (*optional*): .....
Email: .....

H. Definition of terms

Dear respondent,

Below are a few definitions of some of the terms used in the questionnaire for ease of understanding and interpretation.

I. **Agricultural innovation systems**: this concept refers to the manner in which the different actors/players in the agricultural sector interact to share knowledge, information, technologies and resources that help bring new products/services of economic/social benefits into use. It recognizes that all actors (farmers, researchers, input suppliers, regulators, policymakers etc) hold valuable knowledge that should be harnessed for the benefit of the sector and the country at large.

II. **Research and development:** In this study, we define research and development quite broadly. It includes all processes involved in the search for new knowledge. It includes the use of both modern as well as traditional/indigenous science and techniques. This broad definition ensures that the day-to-day experiments by farmers (e.g. in biological control and new ways of planting) are captured. It widens the scope of research and development beyond what researchers and scientists do and instead includes the efforts of all the actors in search of new knowledge.

III. **Partnerships**: Partnerships are defined as voluntary associations in which the partners share knowledge, expertise and resources. In the context of this research, we are looking at partnerships involving flower farmers (with each other) as well as

with other players/actors within the agricultural sector. Of great importance are partnerships for market access (in which partners help one another to access export markets/marketing) and production/supply or out-growers' schemes between farmers and exporters. These partnerships can be between farms of equal or unequal sizes.

I. Interview consent form

This consent form is an agreement to participate in the research and to be interviewed. It sets out principles of confidentiality and data protection and is an assurance to you on how the information you provide will be used.

Your participation is entirely voluntary and you may decline to answer any question, stop the interview at any point or even withdraw from the study at any point. Any such voluntary decisions will not affect you nor your farm in any negative way.

The data and any information provided to me in this study will be treated with utmost confidentiality and will not be revealed to any third parties. Such data and information will be used for academic and policy purposes only.

The results of the study and the final report will be in their generalized and aggregated forms only and all participants will remain anonymous. I may use short quotes from the interviews in my report but these will not identify you or your farm. In case I need to use any individual farm data, express written permission will be obtained from you.

You may request individual transcripts of your interview and you will get an executive summary of the research findings upon completion. The in depth interviews will be audio-recorded and you retain the right to refuse to be recorded, stop the recording at any stage and request that some information not be recorded.

If you have any further questions, please feel free to ask for more information from me or my supervisors whose contacts are given below.

1. Prof. Joanna Chataway

   E-mail: j.c.chataway@open.ac.uk

2. Prof. Norman Clark

   E-mail: n.clark@open.ac.uk

Participant:

Name.....

Signature.....

Date.....

Researcher:

.....

Name: Maurice Bolo

K. Description of the main summer flowers grown by small scale farmers in Kenya

Common name	Scientific name	Description
Eryngium	*Eryngium sp.*	Eryngium has yucca-like foliage, is stiff and stands erect in even the most blinding heat. Ideal for gardens as specimens or in small groups. It can be found year-round within Kenya but is native to southern Europe and North America. It's propagated by seeds or vegetatively
Arabicum/ Ornis	*Ornithogalum saundersiae*	This flower is native to south Africa and is propagated through seeds or vegetatively. The plant is easily adaptable and grows better in well drained soil. It prefers some direct sun but also thrives in very hot, sunny and dry locations.
Alstromeria	*Alstroemeria aurantiaca*	Alstromeria is native to South America (Brazil and Chile) and is propagated through vegetative means. Its leaves twist from the base so that what appears to be the upper leaf surface is in fact the lower leaf surface. This very unusual botanical feature is easily observed in the leaves.
Carthamus	*Carthamus tinctoris*	Suited for both cut flower and dried flower arrangements. It has orange, yellow, and cream flowers. Dried flowers are used as a food coloring or dye for clothes and cosmetics. It originated in the USA; Canary Isles and the Mediterranean. It's propagated through seeds.
Mobydick	*Asclepia sp.*	Mobydick can be used as fillers for cut flower arrangements. It comes in intense gold, scarlet, and deep red shades and works well with sunflowers. It is also a good garden plant for attracting butterflies.
Gladiolus	*Gladiolus sp*	Gladiolus is native to sub – Saharan Africa and Eurasia. The flowers are variously colored, pink to reddish or light purple with white, contrasting markings, or white to cream or orange to red. The flower spikes are large and one-sided and they are

		united at their base into a tube-shaped structure. Propagation is vegetative.
Molucella	*Molucella leavis*	Propagated through seeds, these plants are native to the Mediterranean and North West India. The flower turns light brown when dried. It is an annual and can be found within Kenya.
Crocosmia	*Crocosmia crocosmiiflora*	These plants are native to south Africa and their leaves are sword-shaped. If planted in autumn, covering is necessary for at least the first year. After a year they are fairly winter hardy. They can be found year-round within Kenya.
Gerbera	*Gerbera hybrid*	Gerbera is widely used as a decorative garden plant or as cut flowers; Its colors include white, yellow, orange, red, and pink. The centre of the flower is sometimes black. Often the same flower can have petals of several different colors. They are native to south Africa and propagation is vegetative.
Solidago	*Solidago gardensis*	Solidagos are easily recognized by their golden inflorescence. They have slender, usually hairless stems and they have bright, golden yellow flower heads. They are native to North America, Europe and parts of Asia. They are propagated using rhizomes or seeds

Source: compiled by author from various sources

Appendix L: Importance of different actors as source of new knowledge by farm sizes

Size of farmers * farmers as source of new knowledge

		source of new knowledge: farmers					
		least important	not quite important	important	quite important	most important	Total
Small scale	Count	1	1	4	6	36	48
	% within size of farmers	2.1%	2.1%	8.3%	12.5%	75.0%	100.0%
Medium scale	Count	0	0	0	3	19	22
	% within size of farmers	.0%	.0%	.0%	13.6%	86.4%	100.0%
Large scale	Count	0	1	3	3	5	12
	% within size of farmers	.0%	8.3%	25.0%	25.0%	41.7%	100.0%
Non responses	Count	1	5	9	3	12	30
	% within size of farmers	3.3%	16.7%	30.0%	10.0%	40.0%	100.0%
Total	Count	2	7	16	15	72	112
	% within size of farmers	1.8%	6.3%	14.3%	13.4%	64.3%	100.0%

Size of farmers * local public universities and research institutes as source of new knowledge

			Source of new knowledge: local public universities and research institutes					
			least important	not quite important	important	quite important	most important	Total
size of farmers	Small scale	Count	22	2	0	2	0	26
		% within size of farmers	84.6%	7.7%	.0%	7.7%	.0%	100.0%
	Medium scale	Count	13	0	0	1	0	14
		% within size of farmers	92.9%	.0%	.0%	7.1%	.0%	100.0%
	Large scale	Count	5	4	1	1	1	12
		% within size of farmers	41.7%	33.3%	8.3%	8.3%	8.3%	100.0%
	Non responses	Count	17	2	2	0	3	24
		% within size of farmers	70.8%	8.3%	8.3%	.0%	12.5%	100.0%
Total		Count	57	8	3	4	4	76
		% within size of farmers	75.0%	10.5%	3.9%	5.3%	5.3%	100.0%

Size of farmers * foreign universities and research institutes as sources of new knowledge

			Source of new knowledge: foreign universities					
			least important	not quite important	important	quite important	most important	Total
size of farmers	Small scale	Count	25	1	2	1	0	29
		% within size of farmers	86.2%	3.4%	6.9%	3.4%	.0%	100.0%
	Medium scale	Count	12	1	0	0	0	13
		% within size of farmers	92.3%	7.7%	.0%	.0%	.0%	100.0%
	Large scale	Count	4	4	2	1	1	12
		% within size of farmers	33.3%	33.3%	16.7%	8.3%	8.3%	100.0%
	Non responses	Count	14	2	0	2	1	19
		% within size of farmers	73.7%	10.5%	.0%	10.5%	5.3%	100.0%
Total		Count	55	8	4	4	2	73
		% within size of farmers	75.3%	11.0%	5.5%	5.5%	2.7%	100.0%

Size of farmers * foreign private consultants as sources of new knowledge

			Source of new knowledge: foreign private consultants					
			least important	not quite important	important	quite important	most important	Total
size of farmers	Small scale	Count	20	0	0	0	2	22
		% within size of farmers	90.9%	.0%	.0%	.0%	9.1%	100.0%
	Large scale	Count	13	0	0	0	1	14
		% within size of farmers	92.9%	.0%	.0%	.0%	7.1%	100.0%
	Medium scale	Count	5	1	0	3	3	12
		% within size of farmers	41.7%	8.3%	.0%	25.0%	25.0%	100.0%
	Non responses	Count	5	7	5	3	0	20
		% within size of farmers	25.0%	35.0%	25.0%	15.0%	.0%	100.0%
Total		Count	43	8	5	6	6	68
		% within size of farmers	63.2%	11.8%	7.4%	8.8%	8.8%	100.0%

Size of farmers * local NGOs as sources of new knowledge

			Source of new knowledge: local NGOs					
			least important	not quite important	important	quite important	most important	Total
size of farmers	Small scale	Count	12	2	4	3	13	34
		% within size of farmers	35.3%	5.9%	11.8%	8.8%	38.2%	100.0 %
	Medium scale	Count	10	1	0	2	3	16
		% within size of farmers	62.5%	6.3%	.0%	12.5%	18.8%	100.0 %
	Large scale	Count	6	1	2	2	1	12
		% within size of farmers	50.0%	8.3%	16.7%	16.7%	8.3%	100.0 %
	Non responses	Count	4	5	2	6	10	27
		% within size of farmers	14.8%	18.5%	7.4%	22.2%	37.0%	100.0 %
Total		Count	32	9	8	13	27	89
		% within size of farmers	36.0%	10.1%	9.0%	14.6%	30.3%	100.0 %

Size of farmers * foreign NGOs as sources of new knowledge

			Source of new knowledge: foreign NGOs					
			least important	not quite important	important	quite important	most important	Total
size of farmers	Small scale	Count	13	1	3	0	7	24
		% within size of farmers	54.2%	4.2%	12.5%	.0%	29.2%	100.0%
	Medium scale	Count	13	0	1	0	0	14
		% within size of farmers	92.9%	.0%	7.1%	.0%	.0%	100.0%
	Large scale	Count	7	1	2	2	0	12
		% within size of farmers	58.3%	8.3%	16.7%	16.7%	.0%	100.0%
	Non responses	Count	4	1	4	7	7	23
		% within size of farmers	17.4%	4.3%	17.4%	30.4%	30.4%	100.0%
Total		Count	37	3	10	9	14	73
		% within size of farmers	50.7%	4.1%	13.7%	12.3%	19.2%	100.0%

Size of farmers * input suppliers as sources of new knowledge

			Source of new knowledge: input suppliers					
			least important	not quite important	important	quite important	most important	Total
size of farmers	Small scale	Count	3	4	5	14	15	41
		% within size of farmers	7.3%	9.8%	12.2%	34.1%	36.6%	100.0%
	Medium scale	Count	2	1	1	11	3	18
		% within size of farmers	11.1%	5.6%	5.6%	61.1%	16.7%	100.0%
	Large scale	Count	0	0	7	3	1	11
		% within size of farmers	.0%	.0%	63.6%	27.3%	9.1%	100.0%
	Non responses	Count	9	4	9	0	2	24
		% within size of farmers	37.5%	16.7%	37.5%	.0%	8.3%	100.0%
Total		Count	14	9	22	28	21	94
		% within size of farmers	14.9%	9.6%	23.4%	29.8%	22.3%	100.0%

Size of farmers * local private consultants as sources of new knowledge

			Source of new knowledge: local private consultants				
			least important	not quite important	important	quite important	Total
size of farmers	Small scale	Count	23	4	0	0	27
		% within size of farmers	85.2%	14.8%	.0%	.0%	100.0%
	Medium scale	Count	11	0	1	0	12
		% within size of farmers	91.7%	.0%	8.3%	.0%	100.0%
	Large scale	Count	3	7	2	0	12
		% within size of farmers	25.0%	58.3%	16.7%	.0%	100.0%
	Non responses	Count	16	4	0	1	21
		% within size of farmers	76.2%	19.0%	.0%	4.8%	100.0%
Total		Count	53	15	3	1	72
		% within size of farmers	73.6%	20.8%	4.2%	1.4%	100.0%