AN ANALYSIS OF THE ACTORS, PERCEPTIONS AND INSTITUTIONS OF LARGE-SCALE EXPORT-ORIENTED HORTICULTURE IN LAIKIPIA COUNTY, KENYA

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DECLARATION

This thesis is my original work and has not been submitted in any other university for a degree.

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DEDICATION

This thesis is dedicated to the actors involved export horticulture sector in Kenya. Strive to better the agro-industrial food system and enable better outcomes for local populations as well as the international markets.

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ABBREVIATIONS AND ACRONYMS

AFFA	Agriculture, Livestock and Fisheries Authorities
ASL	Above sea level
ASAL	Arid and Semi-arid Lands
BRC	British Retail Consortium
CETRAD	Centre for Training and Integrated Research in ASAL Development
CESS	County Market charges
CPR	Common Pool Resources
CPD	County Integrated Development Plan
CSR	Corporate Social Responsibility
EU	European Union
EUREGAP	European Retailers Good Agricultural Practice
ETI	Ethical Trading Initiative
FAO	Food and Agriculture Organization
FDI	Foreign Direct Investment
FFV	Fresh fruits and vegetables
FGDs	Focus Group Discussions
FPEAK	Fresh Produce Exporters Association of Kenya
GHI	Global Hunger Index
GOK	Government of Kenya
Global GAP	Global Good Agricultural Practice
Ha	Hectares
HCDA	Horticulture Crops Development Authority
HCD	Horticulture Crops Directorate
HACCP	Hazard analysis and critical control points
IAGAS	Institute of Anthropology, Gender and African studies
IDIs	In-Depth Interviews
KCSE	Kenya certificate of secondary education
KIIs	Key Informant Interviews
KFNSP	Kenya Food and Nutrition Security Policy
KM	Kilometre
KNBS	Kenya National Bureau of Statistics
KRA	Kenya Revenue Authority
KPHC	Kenya Population and Housing Census
KPLC	Kenya lighting and power company
KES	Kenya Shillings
LEAF	Linking Environment and Farming
LSLAs	Large-scale Land Acquisitions
MALF	Ministry of Agriculture, Livestock and Fisheries
MRL	Minimum Residue Levels
NACOSTI	National Commission for Science, Technology and Innovation
NAWASCO	Nanyuki Water and Sewerage Company
NEMA	National Environment Management Authority
NHIF	National Health Insurance Fund
NIE	New Institutional Economics

NSSF	National Social Security Fund
NGO	Non-Governmental Organization
OECD	Organisation for Economic Co-Operation and Development
PAYE	Pay As You Earn
PPE	Personal Protective Equipment
PCPB	Pest Control and Produce Board
PHI	Post-harvest interval
PVS	Private Voluntary Standards
QA	Quality assessment
QC	Quality Control
QMS	Quality Management Systems
SACCO	Savings and Credit Cooperative
SGFS	Sustainable Governance of Food Systems
SPS	Sanitary and Phytosanitary Standards
SSA	Sub-Saharan Africa
SOFI	State of Food Insecurity
SQV	Save Quality Food
TSB	Tender stem broccoli
U.K	United Kingdom
USD	United States dollar
UoN	University of Nairobi
WRA	Water Resources Authority
WRUAs	Water Resource User Associations

ABSTRACT

The study explored large-scale export horticulture in Laikipia County as an agro-industrial food system. It established the actors, described the relationships between actors and institutions (formal and informal); examined actor perceptions of food security in export horticulture and determined how the existing institutional settings and changes in export horticulture relate to other food systems. The study was based in an export horticulture investment (farm and pack-house). It adopted an exploratory research design and utilized the new institutionalism theoretical approach to guide the inquiry. Methodologically the study adopted in-depth interviews (IDIs), key informant interviews (KIIs), focus group discussions (FGDs) and observations as methods of data collection. Data was then coded and analysed thematically along the lines of the specific objectives.

The study findings indicate that actors in the global value chain include investors, workers, outgrowers, distributors and markets/ consumers. State and non-state actors were also identified as relevant to the food system operations. In addition, formal and informal institutions ('rules of the game') that define the operations and functioning of the food system were also identified and included; policies and structures for regulation of the value chain, labour management as well as the norms of self-organization among the workers. These rules of the game are set by the different actors based on their perceptions, access to resources and positions in the food system. The institutional settings and changes of export horticulture were described from an emic perspective.

The study recommends a re-examination of resource use and sharing among the different food systems. Given that different food systems including large-scale export horticulture, smallholder agriculture and pastoralism co-exist in arid and semi-arid zones competing for resources, there is potential for conflict as indicated in the study findings. The Ministry of Agriculture and Irrigation and the Agricultural Sector Development Program (ASDSP), in their mandate to ensure sustainable resource use and allocation for the different food systems, need to look into the institutional settings and changes governing common pool resources namely land and water. This will ensure proper sharing of resources required for the production of food and contribute to the national food security agenda. The study also recommends additional qualitative research to better situate large-scale export horticulture as an agro-industrial food system with a global value chain. There's need for larger data sets involving more export-oriented horticulture establishments from across the country to further interrogate the institutional setting and changes.

CHAPTER ONE: BACKGROUND OF THE STUDY

1.1 Introduction

Export horticulture is the fastest growing agricultural sub- sector in Kenya over the last two decades and accounts for 33 per cent of the country's gross domestic agricultural product and ranks as the third foreign exchange earner after tourism and tea (Otieno, 2016; GoK, 2017).The sub-sector is regarded as an agro-industrial food system based on the economies of scale producing for mass markets outside of the production area(Colonna et al., 2013). It is dominated by large-scale horticulture production of mainly fruits and vegetables owned by multinational companies targeting the European market (GOK, 2012; HCDA, 2013; GoK, 2017). Notably, 80 per cent of Kenya's horticulture is practiced by smallholder farmers producing mainly for the domestic markets at local and national levels. Some of the smallholder farmers also produce as outgrowers for the multi-national companies for exporting mainly to Europe (Ongeri, 2014; Ulrich, 2014).

The horticulture sector which is currently the leading agricultural subsector in Kenya, has evolved from small-holder farming to large-scale export production dominated by multinational companies (Colonna et al., 2013; AFFA, 2014) . Much of the food consumed from this agro-industrial food system has undergone multiple transformations, travelled substantial distances, passed through different hands and been subject to insitutions which include a host of laws, standards and regulations (Henson and Humphrey, 2010; Colonna et al., 2013).

Agriculture is the mainstay of Kenya's economy just like is the case in many other Sub-Saharan African countries (GoK, 2010; FAO, 2016). Agriculture contributes directly to approximately 25 per cent of Kenya's gross domestic product and another 27 per cent indirect contribution (GoK, 2017). Local, regional and agro-industrial food systems participate in food production for

different markets (Colonna et al., 2013; FAO, 2016). Notably though, while the agricultural subsector is thriving and producing tonnes of food products for export, Kenya recorded a 2016 global hunger index (GHI) score of 21.7 points. This GHI reflects the on-going international to national hunger crisis whereby 795 million people globally still suffer from severe hunger and malnutrition (Grebmer et al., 2016). Kenya has periodically faced major food insecurity problems in spite of the steady growth recorded for instance in the export horticulture sector (GoK, 2011; GoK, 2014b; MoALF, 2015). This is in spite of the many global efforts and resources that have been dedicated towards boosting agricultural production to almost double over the last 50 years (De Schutter, 2014).

New institutionalism and political ecology analyses in social anthropology regard this national to global hunger situation as not simply a natural one resulting from the unmet demands of the ever-growing population (Godfray et al., 2010; De Schutter, 2014). However, the global food crisis is seen rather as the outcome of problems related to the unequal access, governance and distribution of common pool resources (CPRs) for the production of food among the current food systems (Godfray et al., 2010; Haller et al., 2013). The existing food systems are therefore regarded as having failed in their contribution to the attainment of the right to food resulting in the national to global food crisis. This therefore calls for strategies beyond the most immediate response of just increasing food system productivity (Godfray et al., 2010; Colonna et al., 2013; De Schutter, 2014). There's need for additional research to highlight the dynamics of the current food systems such as export horticulture when regarded as an agro-industrial food system setting to detail the actors and their perceptions as well as the institutional settings and changes that exist.

As such evidence based data accessed through multidisciplinary research can provide in-depth perspectives into the current food systems and their inter-relationships (De Schutter, 2014; Stephan et al., 2015). Such findings will be useful for the understanding of the current food systems to inform a re-orientation and address the food situation locally and globally in the long term. A food system analysis based on the concept food system sustainability as posited by Colonna et al (2013) offers a multidisciplinary perspective that can be applied in social anthropological studies of food systems. This multidisciplinary perspective puts into context the global political economics of food and agriculture and enables insight into food systems such as export horticulture in Kenya when regarded as an agro-industrial food system (Oguamanam, 2015; Colonna et al., 2013). The study described the actors and their perceptions, the formal and informal insitutions (rules and regulations) as well as the institutional settings and changes in the food system. The study further detailed how export horticulture also viewed as a large-scale land investment (LSLA) co-exists with other national and local food systems namely; pastoralism and smallholder farming in terms of their individual and aggregate contributions to food security and food sustainability.

1.2 Statement of the Problem

Kenya's value of horticulture has quadrupled in the last three decades and is now the largest exporter of horticultural produce in Sub Saharan Africa with a 16 per cent share in the European market (GOK, 2012; Otieno, 2016). While Kenya's export horticulture began with a small number of Asian-owned family enterprises in the 1960s, several well-financed exporters had joined the sector by the 1980s (Dolan and Humphrey, 2004; English et al., 2004; Jaffee, 1992). The horticulture sector has evolved over the years since the pre-colonial period when its structure, policies, production and marketing begun being shaped (Jaffee, 1992). International

investments (foreign direct investments) in the Kenya grew rapidly after independence and these included investments into the horticulture sector (Dolan and Humphrey, 2000; Harris and Muthugu, 1992; Jaffee, 1992). The multinational exporters viewed direct sales of export horticulture produce to retailers in Europe as a way to exploit their advantages in investment, scale and market linkages (Dolan and Humphrey, 2000; Jaffee, 2003).

The export horticulture production is market driven with increasing stringent food safety standards resulting from increased consumer awareness and a series of food safety failures in the 1990s (Humphrey, 2008; MacGregor et al., 2014). Kenya's export horticulture production driven by rising global demands has thus expanded beyond the 'traditional' mountainous high yielding areas into arid and semi-arid (ASALs) zones (Ulrich, 2014). The ASALs such as Laikipia County are often prone to common pool resources (CPR) contestation among the different food systems given the poor rainfall and frequent dry spells (GOK, 2013; Ulrich, 2014). Notably, Laikipia County is generally food insecure in relation to availability, sustainability, access and utilization of food in spite of the massive production activities for instance in the export horticulture sector with limited research on the contributions of the sector to local food demands (GoK, 2011; GoK 2014b).

Despite arid climatic conditions in Laikipia County, the horticulture sector is booming with growth recorded from one company in 2004 to over 30 horticulture companies in 35 farms as of 2014 (Schuler, 2004; Lanari, 2014). These agro-industrial food system production units (export horticulture companies) are competing against other food systems in the region for the already scarce resources including water and arable land (Schuler, 2004; Lanari, 2014; Ulrich, 2014; Lanari et al., 2016; Zaehringer et al., 2018).

Developments in export horticulture when regarded as an agro-industrial food system in Kenya can be related to the issue of changes in relative prices as in the institutional analysis model of Ensminger (1992). The rise of market prices for horticulture products triggers investments and changes actors' access to labor, bargaining power and institutional settings as land and other common pool resources are much more devoted to this sector (Ensminger, 1992). Further, from existing literature export horticulture is seen as one of the bright spots of African development as it has raised production standards in agriculture; created supporting industries, and provided considerable employment in rural areas (Dolan and Humphrey, 2000; Ongeri, 2014).However, critiques argue that increased globalization in export horticulture does not always benefit the poor (Asfaw et al., 2010; Maertens et al., 2012). Additionally, studies have highlighted the impact of the development of the horticulture sector on river water resources on the upper Ewaso Ng'iro basin (Schuler, 2004; Lanari, 2014) as well as on the implications export horticulture as a large-scale investment to rural livelihoods in Laikipia County (Zaehringer et al., 2018; Ulrich et al., 2012; Letai, 2011).

From a social anthropological perspective, export horticulture producing fresh vegetables and fruits for the international market is regarded as having its own culture and institutional settings. These institutional settings and culture are defined by the management and / or by the employed work force and include norms, values, formal and informal rules and laws, regulations as well as power relations among the different actors (North, 1991; Ensminger, 1998; Haller et al., 2013). There are multi-level stakeholders in the horticulture sector beginning at the governance level and driven by insitutions such as the international and national standards and regulations (Weinberger and Lumpkin, 2008; GOK, 2012;).

Export horticulture in Kenya has as such so far been described variously in existing literature but not yet fully exhausted in detailing it as an agro-industrial food system (Colonna et al., 2013). The sector is currently dominated by large-scale production of mainly fruits and vegetables owned by multinational companies targeting the European market, but with limited documented literature to detail the food system actors, institutional dynamics and detail the processes and activities therein. Utilizing the new institutionalism theory and the food system sustainability perspective, this study interrogated large-scale export oriented horticulture in Laikipia County as an agro-industrial food system.

The holistic in-depth food system analysis of export horticulture as an agro-industrial food system gives insights into the institutional setting of this global value chain namely, institutions ('rules of the game'), actors, their roles, perceptions, involvement and linkages with other food systems (North, 1991; Ensminger, 1998; Colonna et al., 2013; Haller et al., 2013). These findings form the basis upon which further research on export horticulture in Kenya can be carried out and as well as inform the re-orientation of national to global food policies and strategies. The study thus detailed the in-depth emic insights into export horticulture as an agro-industrial food system and responded to the following research questions;

1. Which actors are involved in large-scale export-oriented horticulture in Laikipia County?
2. What are the actor perceptions of this food system in regard to food security and sustainability in Laikipia County?
3. What is the relationship between formal and informal institutions ('rules of the game') and actors in large-scale export-oriented horticulture in Laikipia County?
4. How do the existing institutional settings and changes in large-scale export-oriented horticulture relate to other food systems in Laikipia County?

1.3 Objectives

1.3.1 Overall Objective

To explore the actors, perceptions and institutions of large-scale export-oriented horticulture in Laikipia County, Kenya

1.3.2 Specific Objectives

The study sought to: -

1. To establish the actors in large-scale export-oriented horticulture in Laikipia County.
2. To examine the actor perceptions on overall food security and sustainability in Laikipia County.
3. To describe the relationship between institutions (formal and informal) and actors in large-scale export-oriented horticulture in Laikipia County.
4. To determine how the existing institutional settings and changes of large-scale export-oriented horticulture relate to other food systems in Laikipia County.

1.4 Rationale of the Study

The information generated from this study contributes to social anthropological perspectives on food systems in Kenya based on a written account of export horticulture in Laikipia County. The in-depth analysis founded on the emic perspectives of actors in an agro-industrial food system, allows for an understanding of the institutional setting structures; actions and interactions of actors involved in the horticulture production. These insights on the institutional settings are useful to the generation of new knowledge in Social Anthropology on the current food systems in relation to actor roles, perceptions and interactions in export horticulture.

Additionally, the detailing of the processes, institutions and actors power relations enables an understanding of the functioning and operations of horticulture production useful for the Agriculture, Livestock and Fisheries Authorities (AFFA) and in particular the Horticulture Crops Directorate (HCD) in promoting the sustainability of the export horticulture sector. This can be achieved by re-examining the National Horticulture Policy (2012) to incorporate strategies for ensuring that all actors in export horticulture enjoy equitably from their contributions in the global value chain.

Since the study concentrated on those parts of the food system that are relevant at the local scale; it helps to clarify how local institutional settings of food systems (such as land rights and access to related common pool resources like water) relate to food sustainability i.e. right to food and other human rights, to issues of trade and to the sustainable use of the cultural landscape ecosystem. The study therefore provides information on the dynamics of common pool resource sharing and use. Further, the study provides insights into the linkages of horticulture with other food systems such as pastoralism and smallholder agriculture.

These food systems interact by accessing common pool resources for the production of food. Given that they co-exist in a semi-arid zone there is potential for conflict of these shared resources, namely land and water. Such information is useful for the Ministry of Agriculture and Irrigation and the Agricultural Sector Development Program (ASDSP) in their mandate to ensure sustainable resource use and allocation for the different food systems to ensure food security.

1.5 Assumptions of the Study

The study was based on the following four assumptions;

1. There are several actors involved in large-scale export oriented horticulture as an agro-industrial food system in Laikipia County.

2. There exists actor perceptions' on their centrality on food security and food sustainability as relates to the agro-industrial food system in Laikipia County.
3. There exist close linkages and relations between the institutions (formal and informal) and actors in large-scale export oriented horticulture in Laikipia County and these linkages are evolving.
4. That the institutional settings and changes have a bearing on large-scale export oriented horticulture as an agro-industrial food system in Laikipia County.

1.6 Scope and Limitations of the Study

The study setting was a large-scale export horticulture investment located in Laikipia County. This allowed for long term in-depth exploration of the actors, institutional settings and changes over a period of time. The focus was on the actors in export horticulture and their perceptions; the relationship between these actors and formal/ informal institutions, and the existing institutional settings and changes. The study population was actors linked to large-scale export horticulture production in Laikipia County.

Limitation: Given the qualitative nature of the study, a small sample size was utilized to enable in-depth inquiry and allow for a detailed understanding of the study topic. There would be problems of generalization of the study findings in similar settings from a quantitative perspective.

Solution: A small sample size was selected to enable in-depth information on the topic to be explored and inform the study. The participants were interviewed and observations made in the study setting over a period of time as a way of gaining a fuller understanding of actors, institutional settings and changes in export horticulture. However, personal observation (not

backed by in-depth study) on other horticulture companies within the study area suggest some shared institutional settings for export horticulture production. The findings will be used with caution in unrelated contexts or settings.

Limitation: Community entry was another study limitation given the formal private company set up of the study population. The researcher needed permission from the owners of the export horticulture investment to gain access to the study setting and interact with its actors who formed the study sample.

Solution: The researcher liaised with relevant stakeholders and leveraged on the existing networks in the study area to gain entry into the study population and access the study sample. The researcher sought authorization from the county administration and education offices and there after sought permission from the management of the company studied herein. The permission to access the company took some time given the bureaucratic authorization channel within the farm management structures. Once the researcher entered the horticulture farm, the management at the farm level remained as the main point of contact throughout the study. The researcher was allowed entry and interaction with the actors within the establishment with caution not to interfere with the work, activities and processes.

Limitation: The exploratory research methodology which required an extended stay in the field setting for the data collection through qualitative interviews and observation was a new research perspective for the company management and initially also a limitation to the study. At the onset, the management was not used to hosting a researcher for a long duration of time while interacting with the labour-force and activities on a day to day basis. They had interacted with quantitative research approaches that only took a short period of time for data collection mainly

through survey questionnaires or collection of soil samples at the premises. These quantitative research activities were without much involvement with the work at the farm, a new approach that this study was introducing. The methodology was one of the points of scrutiny for management before giving the permission with reservations of extended interactions especially with workforce being a risk to documenting and highlighting with malice the operations of the company.

Solution: Throughout the study period, the management sought to understand the study but also became more accommodating with the realization that the research was purely for academic use. At the onset there were weekly feedback sessions with the management for the first four weeks of fieldwork. On Mondays when the management had crop walks in the farm the researcher had the opportunity to interact and share feedback on the status of research and progress. On two occasions, in December 2016 and February 2017, the researcher had supervision visits and hence structured sessions for feedback on progress and way forward with management and university supervisors. Thereafter, the feedback was unstructured and provided on an on-going need basis.

Limitation: While the farm had approved of the study, accessing the workers for informed consent and interviewing was challenging. While the research started the assumption was that all study participants would be willing to take part in the study, some workers declined taking part in the study citing tight working schedule while others were uncomfortable to be interviewed and other even audio-taped for fear of incrimination by the management in case the interview data was compromised and their opinions known. 10 out of the 30 workers were uncomfortable in giving written consent as they felt that signing the informed consent document was a breach in

their confidentiality. The researcher also found out that not all the workers were able to read and write and so being asked to sign a consent form was uncomfortable for them.

Solution: The study respected the decision of the workers who declined to participate in the study but continued to interact with them informally at the study setting. Additionally, with consultation with the supervision team, the study only sought verbal informed consent in respect of the study sample dynamics and need for confidentiality and anonymity. For participants who declined audio recording but were willing to participate in the interview, the study opted to document field notes immediately after the session.

For instance, in one focus group discussion that comprised workers at the horticulture farm, they declined the use of the recorder citing possible sharing of the content with the management. When the researcher sought to find out their reservations for recording and even earlier on for giving the written consent for other study participants, their fears were fuelled by a 2014 experience where the company hired a consultant to address worker discontent. The consultant recorded individual grievances of workers that included lack of welfare and little wages. The meetings with the consultant were also audio-taped on the premise that the issues would be addressed for the wellbeing of the workforce. However, a few weeks after the exercise, most of the workers who participated in the consultant's meeting were dismissed without much explanation from the management. After re-assuring the group about the confidentiality of their responses and also the objectives of the research which was purely for academic purposes, the discussion went on but there was no recording. The researcher kept short-hand notes and there after compiled a detailed transcript of the proceedings on the discussion.

1.7 Definition of Key Terms

Actors: refers to persons linked to the large-scale export horticultural value chain in the study area.

Large-scale export-oriented horticulture: it's the production of fresh vegetables and fruits for export markets based on the economies of scale, and on processes for specialized production while reducing on transaction costs and maximizing profit**.**

Bargaining power: refers to the ability of an actor to get something they want from someone by using their social status, wealth or the ability to manipulate ideology (Ensminger, 1992).

Common Pool Resources (CPRs): these are natural or human made resources including land and water where one actor's use subtracts from another's use (Haller, 2013).

Food system: refers to an interdependent network of stakeholders (companies, institutions, public and private organizations) localized in a given geographical area (county, state or multinational regions) participating directly or indirectly in a flow of goods and services geared towards satisfying the food needs of one or more groups of consumers both locally and outside the region considered (Colonna et al., 2013).

Food sustainability: It focuses on the conditions under which food is produced and further circulated until reaching consumption as well as the consequences this has in relation to reduction of poverty and inequality, right to food, food security, socio-ecological resilience, and environmental integrity (Colonna et al., 2013).

Institutions / 'rules of the game': refer to the formal and informal rules, regulations, norms, values and laws that govern interactions of different actors and activities in the export horticulture sector (North, 1990; Haller, 2013).

Institutional settings: refers to social interactions comprising of the ideologies, organizations and bargaining power positions of different actors and structured by formal and informal rules and regulations in export horticulture (Haller, 20).

Perceptions/Ideologies/Narratives: refers to the people's views and values about the world and includes discourses and narratives, which serve to justify actions and are used to increase the actors' bargaining power and the selection of the institutional setting he/she favours (Haller, 2007).

Relative prices: refers to the externally influenced changes in prices for goods in relation to other goods (Ensminger, 1992).

Organisation: refers to a unit in which people manage themselves and act collectively (Ensminger, 1992).

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter presents a review of literature relating to export horticulture across the following subheadings: Actors and institutions in the export horticulture sector; changing trends in the sector; perceptions of actors and the institutional settings and changes in export horticulture. The chapter highlights the knowledge gaps relevant to the study from the literature review and ends with a discussion of the theoretical and conceptual frameworks which guided the study.

2.2 Actors and institutions in Kenya's export horticulture sector

Export horticulture in Kenya is dominated by intensive large-scale production of fruits, vegetables and cut flowers owned by multinational companies. Horticulture forms part of the agro industrial food system linked to a global value chain dominated by large-scale growing of flowers, fruits, vegetables and herbs for export (HCDA 2014). The sector is now the fastest growing and is ranked third in terms of foreign exchange earnings from exports after tourism and tea (MoALF, 2015). There are also small-holder farmers producing under outgrower arrangements for the multinational companies (GoK, 2014; Ongeri, 2014). Kenya has had a long history of growing horticulture crops for both domestic and export markets. Export horticulture in Kenya has grown from a small trade centred on Asian vegetables (okra, chillies) during the 1960s to an extensive trade that delivers approximately 75 products to dozens of overseas markets (Jaffee, 1992; English et al., 2004). To date, smallholder farmers still remain important for the Kenyan horticulture sector despite the major shift towards large-scale production, as they still produce a considerable portion of export crops as outgrowers (Ulrich et al., 2012;Ongeri, 2014; Muindi et al., 2015).

On the other hand, a few major companies in a highly buyer-driven market environment carry out the actual exporting (Dolan and Humphrey, 2000). The physical environment is of importance in the development of export horticulture. This is because every horticultural product has its own ideal requirements in terms of climate, soils and even altitude. To meet these specifications, export horticulture companies look for the right natural growing conditions. If natural conditions are not ideal, these companies then have to be capable of economically controlling these conditions, for instance, through irrigation (Tyler, 2006). Kenya has a wide range of climatic conditions due to differences in altitude, and as such there is a wide-range of crops can be grown and for long growing periods (HCDA, 2013).

In Kenya, agriculture dominates in its contribution to the gross domestic product (about 25 per cent), and further accounts for 65 per cent of Kenya's total exports, 18 per cent and 60 per cent of the formal and total employment respectively(MoALF, 2015). Large-scale export-oriented horticulture provides opportunities for waged based labor with more women being engaged in the sector than men. Most of the work on the large-scale farms is done on a seasonal basis and, so there is longer working time during the high season and a reduced demand for workers during the low season (FPEAK, 2013). Agricultural export sector accounts for the bulk of women's trade related activities in Sub-Saharan Africa (SSA) but remains under-researched. Horticulture exporters create employment in their own farms and also through the purchase of produce from small scale holders often engaged as outgrowers (Odongo, 2007; Muindi et al., 2015). The horticulture industry employs over six million Kenyans directly and indirectly (GoK, 2012; HCDA, 2013).

Notably though, these export horticulture companies have their own strategies for keeping their labor costs as low as possible, normally through the use of migrant workers, legally or illegally (Tyler, 2006; Ehlert et al.,2011; Muindi et al., 2015). Most of the work on the large-scale farms is done on a seasonal basis and, so there is longer working time during the high season and a reduced demand for workers during the low season (Chan, 2013; Muindi et al., 2015)Many of the workers employed in this sector are either unskilled or semi-skilled and are employed on a casual / seasonal basis(Barrientos et al.,2004). Laikipia County for instance has over 1085 hectares of land dedicated to horticulture and employs about 4700-7400 persons (Kiteme et al., 2008).

Women especially those in rural areas have been engaged in agriculture since the agrarian revolution. In Sub-Saharan Africa women have the highest average agricultural labour force participation in the world, an estimated 62.5 per cent in 2012, compared with 36.4 per cent globally (Farnworth et al., 2013). Additionally women as farmers account for nearly 50 per cent contribution to the agricultural labor force in Sub-Saharan Africa (SSA) (Njobe and Kaaria, 2015). That said, however, rural poverty tends to be associated with a vulnerable employment status. The workers in large-scale export horticulture are mostly female and unskilled are able to benefit from short-term work contracts that offer them minimum wages and bonuses as incomes (Barrientos et.al., 2004). Sparse evidence from SSA and elsewhere shows that the impact of expanding agricultural products is generally less favorable to women and varies based on socio-cultural differences in gender division of labor (Joekes, 1995).Women's predominance in insecure forms of employment as in the case of large-scale export horticulture is embedded in social norms that consider women more compliant and better suited for horticultural work such as tilling, harvesting and packaging coupled with perceptions that women's income is

complementary rather than being regarded as essential for household wellbeing (Barrientos et al., 2004; Smith et al., 2004).

In Kenya just like other Sub-Saharan African Countries like Zambia (65 per cent) and South Africa (52 per cent) most workers in export horticulture are female (Barrientos et al.,2004) . An estimated 80 per cent of the French bean industry labour is provided by women. Overall, unlike men, women are active at every point in the global value chains. For example, Sunripe Ltd (a French bean exporting company) reported that it employs 500 people in its pack-house, of which women make up 80 per cent and men the remaining 20 per cent. Women make over 70 per cent of farmers in Farm Concern International (FCI) labour force(AFCAP, 2013). According to the 2011 ILO data, SSA had the highest level of working poor at 65 per cent and one of the highest levels of arrangements, and pervasive gender- and age-based inequalities, and one of the highest levels of vulnerable employment at 77.6 per cent, whereby the share of women in vulnerable employment was the highest globally at 85.6 per cent (ILO, 2014; FAO 2014).

Studies have also looked at gender in smallholder horticulture highlighting division of labor; the role of women; the challenge of land tenure and access to resources for farming that most of the female smallholder farmers lack and the limited bargaining power position women are thus confined to (Dolan, 1995; Dolan, 2001; Dolan, et al., 2002; Ongeri, 2014). Interestingly, it is mostly women who formed the largest proportion of over 75 per cent of seasonal workers in horticulture production as has also been documented in other studies (Kioko, 2010; Dolan, 2001).

Product consumers and the destination markets that are mainly in the EU are also vital in the Kenya's export horticulture. According to Pay (2005) high value fresh produce tends to require intensive pest and disease control with hazardous agro-chemicals which if used irresponsibly, are

very harmful to local workers and potentially to consumers and thus requiring a stringent regulatory environment related to food safety. Increasingly buyers in Europe will only deal with registered suppliers who have satisfied strict ethical criteria defined by the set standards and regulations (Asfaw et al., 2010; Ouma, 2010; Karki et al., 2016; Otieno, 2016).

Regulating authorities for export horticulture sector are key actors and they enforce national and international regulations relevant to the sector activities including use of common pool resources. The Horticulture Crops Development Authority (HCDA) now Horticulture Crops Directorate (HCD) established in 1967, continues to facilitate the coordination of various participants in the industry without directly managing and controlling the horticulture trade mostly because of limited staff and resources (HCDA, 2013; Meme, 2015). Other authorities include Fresh Produce Exporters Association of Kenya (FPEAK), Ministry of lands and natural resources (Mbithi, 2008; G.O.K, 2012).

International investments (foreign direct investments) in the Kenyan horticulture sector also grew rapidly after independence and these included investments into the export horticulture sector. Foreign direct investment (FDI) typically contributes to, among others, the role of the private sector in development of any country's economy (OECD, 2008). The unpredictable decline of coffee and tea prices in the1980s further contributed to a more intense diversification into vegetables which fetched higher commodity prices. Foreign acquisition of land through FDI in developing countries, such as Kenya, has been there since colonial times (Lanari, 2014; Njoroge and Okech, 2011; Schuler, 2004) . In the context of this research, the term land acquisition is applied to include actual purchases or leases of land by foreign or non-citizen entities, for purposes of investments in the export horticulture sector.

Efficient and economical transport is also to be considered as it largely contributes to the value of the produce and time is highly valued. Transport service providers are therefore key actors in the export horticulture sector. They define the cost of transporting the product in the shortest time possible to meet the high value produce threshold (McCulloch and Ota, 2002). Notably, half the wholesale cost of African fresh produce in European markets is represented by the cost of transport, storage and handling. A cold chain also needs to be maintained from farm to retail outlet in Europe. The longer the shelf life that can be offered to the buyer in Europe, the better will be the commodity price(Tyler, 2006; Nzioki, 2013).

The EU is the main destination market for horticulture products and the shortest air transport distances are from West Africa, but East Africa (and in particular Kenya) has developed much larger volumes of produce. Interestingly though, the leading position held by Kenya just a few years ago though has been challenged by the entry of new African producers such as Egypt which is closer to the European market and hence with significantly reduced freight costs (Dolan and Humphrey, 2000; Humphrey, 2004).

Commercial Horticultural Companies in Laikipia County

Export oriented large-scale horticulture production of vegetables and flowers targeting the European market started in the study area in the early 1990s (Schuler, 2004). The region has over 1085 hectares of land dedicated to horticulture and employs about 4700-7400 persons (Kiteme et al., 2008). Overall, about 60 per cent of the study area population derives their livelihood from agriculture which contributes 75 per cent of household incomes (GoK, 2014b, GoK, 2013). The region's different food systems compete for land, capital, and water, with access to water being particularly hotly contested (Ulrich et al., 2012; Letai, 2011).

From the Laikipia County horticulture companies' inventory, Lanari (2014) identified 30 horticultural companies that operated at 35 farms and covered an area of 1385 ha in 2013. Only 10 of the 35 listed farms produced only fruits and vegetables. The other farms were engaged in the production of flowers and also mixed flower and vegetables production. The study focus was limited to exploring the dynamics including actors, perceptions and institutional settings of export horticulture production of vegetables and fruits (Lanari, 2014).

Table 2.1: A Summary food safety and quality regulators for the export horticulture value chain (Source: Author, 2018)

Levels of regulation	Regulating authorities	Responsibilities
International	**Private Voluntary standards and regulators**	
	European Union (EU)	Sets the quality and safety standards Comprises EU and U.K retailers that define the private voluntary standards (PVs) Audits producers and processors for quality and safety of the horticulture products Heavily sanctions deviation of protocol that threatens food safety
	Global Good Agricultural Practices (Global GAP);	Global GAP has options1 and 2 with several options: There is single farm certification under option 1 which requires a day of vetting without the Quality Management Systems (QMS) component and has one certification fee, one registration and one MRL test for a farm annually. This option however doesn't apply for large groups with multiple sites as they cannot be said to have the same level of homogeneity as a single farm with only one management team
	British Retail Consortium (BRC);	BRC Global Standards is a leading brand and consumer protection organisation, used by over 26,000 certificated suppliers over 130 countries, with certification issued through a global network of accredited certification bodies. BRC Global Standards' guarantee the standardisation of quality, safety and operational criteria and ensure that manufacturers fulfil their legal obligations and provide protection for the end consumer. BRC Global Standards are now often a fundamental requirement of leading retailers, manufacturers and food service organisations
	Fairtrade	Fairtrade is a global movement with a strong and active presence in the U.K, represented by the Fairtrade Foundation. Fairtrade sets social, economic and environmental standards for both companies and the farmers and workers who grow the food we love. Fairtrade certifies products and ingredients**:** License the use of the FAIRTRADE Mark on products and packaging to signal this.
	LEAF (Linking Environment and Farming)	The leading organisation delivering more sustainable food and farming. LEAF Marque is an environmental assurance system recognising sustainably farmed products.
	Retailer's individual certifications. For example, TESCO Natures Choice and Marks and Spencer (M &S) Select Grower Assurance standards	TESCO Natures Choice is a norm that producers/suppliers of TESCO Supermarkets chain all over the world have to follow to supply fresh fruits and vegetables for salads. Marks and Spencer (M&S) Select Grower Assurance standards are set out in our Codes of Practice and cover a much wider range of product. They now apply to suppliers of basic fresh produce, prepared produce, nuts and dried fruit, frozen produce, and produce in chilled/short shelf-life products.
	Ethical Trade Initiative (ETI) certification	ETI exists to improve working conditions in global supply chains by developing effective approaches to implementing the ETI Base Code of labour practice. The ETI Base Code is founded on the conventions of the International Labour Organisation (ILO) and is an internationally recognised code of labour practice.

National	**State regulators**	
	Horticulture Crops Directorate (HCD)	Horticultural Crops Directorate (HCD) which was formerly known as Horticultural Crops Development Authority ('*HCDA*') was established under the *Agriculture Act, Chapter 318* of the Laws of Kenya, through *Legal Notice No.* 229 of 1967 Aims to promote, develop and coordinate the production and marketing of horticultural produce
	Kenya Bureau of Standards (KEBS);	Specifies the requirements for legal compliance, the responsible procurement of inputs, safe production, handling and marketing of fresh fruits, vegetables, herbs and spices. KS 1758-2:2016
	Kenya Plant Health Inspectorate Service (KEPHIS)	The Lead Regulator and Facilitator of Globally Competitive Agriculture Issues sanitary and phytosanitary certifications to horticulture companies
	Pest Control Products Board	Serves to execute the PCP Act of the government of Kenya, of Ed. 1983 to ensure access to safe, quality, and efficacious pest control products for animal, plant, and human health while safeguarding their health and the environmental protection.
	Federation of Kenyan Employers (FKE)	Federation of Kenya Employers (FKE) is the national umbrella body and the voice of employers in Kenya. It serves as a platform for the articulation of key concerns of the employers in Kenya in the areas of socio-economic development. FKE is the most representative employers' organization in the country, representing the employers' interests both locally and internationally. It was established in 1959 under the Trade Unions Act Cap 233
	Non-state regulators	
	Fresh Produce Exporters Association of Kenya (FPEAK)	Kenya's premier trade Association representing growers, exporters and service providers in the horticulture industry. A focal and coordination point for the horticulture export industry. Support growers and exporters by providing technical and marketing information and training, act as an information centre, and run active lobbying and advocacy programs to enhance the sector's competitiveness
	Kenya GAP	FPEAK owned standard on Good Agriculture Practice, which targets horticulture farmers in Kenya. It takes into consideration the internationally accepted practices in growing fresh produce that will result in food that is safe to eat for the consumer, while ensuring conservation of the environment as well as the health and safety of those doing the production.

2.3 Export horticulture actor perceptions of food security and sustainability

Export horticulture companies are regarded as large-scale land investments by multinationals and there is on-going debate on the local to national impact of these investments in the target regions and countries. The debate of the large-scale land acquisitions (LSLAs) is going on amidst the increasing global demands on agricultural land resulting from increased population, the on-going global food crisis, increased dietary needs and the use of bio fuels (Godfray et al., 2010). The potential benefits of export horticulture as a LSLA include insurance against food price shocks and increased global food supply cannot be over emphasized. However, these land deal transactions often take place at the expense of and without the informed consent from prior land users, a fact often ignored by the governments and the investors (Anseeuw et al., 2012; De Schutter, 2011; Borras et al., 2011).

Large-scale land investments such as export horticulture often emphasize the rapid increase in yields they can produce and the additional employment they can provide yet these additional benefits of agricultural production are not felt locally (Anseeuw et al., 2012). However, the loss of access to land often results in notable dietary, social, cultural and economic consequences of the communities in the target areas (De Schutter, 2011; Borras et al., 2011). There is limited literature on this perspective in Kenya's export horticulture with most of the literature highlighting the benefits and boom of the sector.

Food (private) standards for horticulture products, especially fruits and vegetables for instance, the EUREGAP set up by a group of European retailers, have been increasing sharply since the early 2000s (Maertens and Swinnen, 2009). On the one hand, these standards are regarded as responding to the wellbeing of the consumers in the destination markets as key aspects of production including pesticide content which are harmful to health are considered (Dolan and

Humphrey, 2004). On the other hand, these regulations may be regarded as a means by which the large-scale producers are dominating the sector and pushing away small-scale producers who often are not able to meet the set standards (Henson and Humphrey, 2008). These aspects require further exploration through research due to limited documented evidence from Kenya.

Additionally, for competitiveness, horticulture production relies on cheap and easily accessible workforce (Tyler, 2006). With the influx of immigrant population in the study area and a lack of economic opportunities for unskilled laborers, cheap workforce became easily available. To meet growing demands from European markets, large-scale producers also started to source produce through contract farming arrangements with smallholder local farmers as outgrowers (McGregor et al., 2014; Ongeri, 2014; Lanari, 2014). There have been positive economic impacts linked to the growth of the export horticulture sector in the region and at the household level availed through wage labor or outgrower farming schemes (Ulrich, 2014: 393). The employment and outgrower opportunities however present bargaining power dynamics in regard to the wage labor arrangements despite the legal provisions on minimum wages (GoK, 2007).

However, with mostly seasonal employment the export horticulture investments provide limited, permanent employment, low salaries and poor working conditions (overtime work, health risks and insecure employment tenure) yet the primary source of most of the immigrant workers. Similar findings are reported elsewhere with workers having to depend on other income possibilities, subsistence production or even the support of relative and friends through informal organization. These labor arrangements can be viewed as capitalist exploitation of a peasant society (Chan, 2013; Ulrich, 2014; CARE, 2016). Consequently, the seasonal workers and outgrower farmers thus depend on other income possibilities, subsistence-oriented production or

the support of relatives and friends. As such, these labor-arrangements can be interpreted as capitalist exploitation of the peasant society.

2.3 Relationship between institutions and actors in export horticulture

In Kenya, agriculture dominates in its contribution to the gross domestic product (about 25 per cent), and further accounts for 65 per cent of Kenya's total exports, 18 per cent and 60 per cent of the formal and total employment respectively(MoALF, 2015). Horticulture forms part of the agro-industrial food system linked to a global value chain dominated by large-scale growing of flowers, fruits, vegetables and herbs for export. The sector is now the fastest growing and is ranked third in terms of foreign exchange earnings from exports after tourism and tea (MoALF, 2015).

While Kenya's export horticulture began with a small number of Asian-owned family enterprises, several well-financed exporters had joined the sector by the 1980s, viewing direct sales to retailers as a way to exploit their advantages in investment, scale and market linkages (Jaffee, 2003; Dolan and Humphrey, 2004; Njoroge and Okech, 2011). To date, small-scale outgrowers still remain important for the Kenyan horticulture sector despite the major shift towards large-scale production, as they produce a considerable portion of export crops (Schuler, 2004; ACDI/VOCA, 2009; Ongeri, 2014).

From 2000 onwards, Kenya's horticulture production of vegetables, fruits, and flowers experienced a concentration and exports have since been on a steady increase. Kenya exported 394,387 tonnes of 189 differentiable horticulture produce worth Kes 89.3 billion in 2013 alone (Meme, 2015). Vegetable, fruit and cut-flower horticulture shifted away from small-scale outgrower systems toward larger production units from the late 1990s onwards and smaller companies lost ground in the horticulture business to medium and larger companies. As

competition has intensified, many small and medium-sized exporters have shifted to growing crops for the large exporters rather than shouldering the risk of exporting (Dolan and Humphrey, 2004; Tschirley et al., 2004).

However, despite the increase in large export farms, exporters still source at least some of their produce from their own farms because; control over one's own production guarantees continuity of supply and reduces the risk of losing suppliers to competitors and also provides them with hands-on-problem solving capabilities In an industry increasingly characterised by innovation and the need for rapid problem-solving, these are important (Dolan and Humphrey, 2000; Dolan and Humphrey, 2004; Ongeri, 2014). Some exporters (and their associated importers) also believe that vertical integration provides greater control and greater scope for reducing costs (Dolan and Humphrey, 2000). According to Gereffi (1995), as industries become globalised, exporters face shorter time periods in which to exploit their competitive advantage. The rewards for the early innovators of new varieties, presentations and packaging are extremely short-lived and virtually every developing country in the world with a suitable climate is now trying its hand in the export horticulture trade (Gereffi et al., 2017).

Notable is that the power in the supply chain lies in possessing resources and capabilities that are not easily substitutable. Established exporters have some protection from the competence and relationships that they have built up over time, including knowledge of production and post-harvest processes; investments in specialised facilities; and relationships based on trust and reciprocity with overseas customers in the short-term (Boehlje et al., 1998). These capabilities decrease their vulnerability to substitution within the supply chain, either from within Europe or from another external supply source (Dolan and Humphrey, 2004). Food standards have also brought about changing trends in the export horticulture sector. Private standards often go

beyond food quality and safety specifications and include ethical and environmental considerations as well (Henson, 2008; Otieno, 2016).

The food standards comprise new regulations and requirements from national and international governments as well as from private actors. These standards have focused on different issues such as product quality, food safety and increasingly also ethical and environmental concerns and this has brought changes in the food related processes in the export horticulture sector (Ouma, 2010; Maertens and Minten, 2012). This strict food safety and quality standards resulted from a combination of several factors in the market. First, as consumer incomes increase, so does the demand for quality and safe food rather than quantity. With increased demand the consumers are willing to pay more for a guarantee of lower / no risk of microbial contamination or traces of pesticides and other disease-causing agents (Dolan and Humphrey, 2004; Henson and Humphrey, 2010; Ouma, 2010).

Secondly, trade liberalization in relation to high-value horticulture products has increased opportunities for agricultural exports with greater flows from developing countries which notably have less developed food safety systems to developed countries that are food safety conscious (Opondo, 2000; Pay, 2005; Ouma, 2010; Otieno, 2016). Thirdly, the improvements in technology and systems have made it much easier to measure food contaminants and document their impacts on human health. Finally, with several global food scares such as Salmonella and Listeria contamination of fruits and vegetables, as well as BSE and avian flu; consumers, producers and legislators are more aware and keener on the risks related to food safety snags (Henson and Humphrey, 2010; Ouma, 2010; GoK, 2012; Lee et al., 2012).

2.4 Institutional settings and changes in export horticulture

The horticulture industry in Kenya forms part of the export food system and includes export growing of flowers, fruits and vegetables for export. Currently the horticulture industry is the fastest growing agricultural subsector and is ranked third in terms of foreign exchange earnings from exports after tourism and tea. The growth in export horticulture though is not felt in other agriculture as well as foreign income earning subsectors (GOK, 2014). However, given the steady growth of the Kenya's export horticulture sector, production has over time spread beyond the high yielding mountainous regions into more arid zones like in Laikipia County region (Ulrich, 2014; Lanari et al., 2016).

As a result of this expansion to regions with varying climatic and agronomic conditions, most horticulture companies rely on both rain-fed as well as economically modified conditions for crop production and utilize land to maximize production (Lanari, 2014). The growth in export horticulture production of fruits and vegetables in developing countries has also been coupled with dramatic changes in governance patterns of the trade in the sector. This is driven by two key factors related to the European market. The first factor is the increasingly multifaceted strict environment for control of food safety, particularly pesticide residues and conditions for post-harvest processing as well as environmental and labor standards (Pay, 2005; Tsimbiri et al., 2015).

Many large food companies, supermarket chains (the main buyers of the horticulture produce) and NGOs have engaged in establishing private food standards – that are often stricter than public requirements – and have implemented food quality and safety standards in certification protocols, including GLOBAL G.A.P.; Ethical Trading Initiative (ETI); Tesco's Nature's Choice and Save Quality Food (SQV) Programme (Otieno, 2016; Ouma, 2010). Although private

standards are legally not mandatory, many of them have become indirectly mandatory because of export pressure by a large share of buyers in international agri-food markets requiring compliance with such private standards (Henson and Humphrey, 2008). Kenya's export horticulture sector also subscribes to these standards as EU is its main destination market (HCDA, 2014).

The second set of factors is the increasing involvement of retailers (supermarkets) in export horticulture trade of mainly fresh fruits and vegetables (FFV) which is credited to the strategic importance of the products. Fresh fruits and vegetables are one of the few items for which consumers will change their choice of the stores and because they are income-elastic products (Kaplinsky, 2004). These changing trends and institutional transformations in this sector need further exploration to put into context export horticulture in the study area and highlight the relationship between actors and the formal and informal institutions.

History of land tenure in Laikipia County

In pre-colonial Kenya land in Laikipia County extending into the Rift valley region was mainly owned by pastoral communities as community lands where water, land and pasture were utilized communally. When Kenya became a British colony lands in this region were taken up by the white settlers alongside the Nyandarua ranges and regarded as White Highlands (Kohler, 1987). At this time the pastoral communities were pushed away into Mugogodo forest area. The White settlers had casual workers in their farms and establishments who were mainly from the Agikuyu and Ameru communities.

As the colonial era came to an end in the late 1950s into early 1960s, the settlers begun to leave the colony back to Britain and hence disposed of their properties and lands. Following Kenya's independence in 1963, the land previously occupied by the white settlers was designated to be

given back to the Africans. Prior to independence government initiated programmes to register customary land as private property (Swynnerton Plan) and to reallocate land that had been isolated during colonisation. According to Kohler (1987), from 1961 to 1978, the government bought land from European settlers who were keen to sell their land. This land acquired by government was either divided into individually owned plots that were assessed to provide for full subsistence and a surplus cash production – or handed over as extensive ranches to wealthy and powerful Kenyans. However, in spite of their large coverage, the government settlement schemes didn't meet the demand for land by the massive landless population (Kohler, 1987).

Consequently, people organized themselves into groups / co-operatives to mobilize resources with which they would then buy land in large tracts from settlers on their own. Such groups reached several thousand members" (Kohler 1987: 31). Notably, for the private initiatives, public funds were crucial as the government provided credit facilities through the AFC to over one thousand group for purchases of land (Kohler, 1987). It is however important to note that not all land acquired post-colonial era was for immediate use; and also, not all the colonial land was re-sold to government or private settlement groups. Some chunks of land were still left in the ownership of large-scale landholders (Kohler 1987; Wiesmann, 1998).

The largest settlement schemes were dominated by beneficiaries of the KANU dominated district governments and in particular the Kikuyu squatters, while the Luo and Maasai were nearly not allocated any land. In general, "the complex bureaucratic processes of land re-allocations used favored those with money, education and contacts" (Hornsby, 2012: 120). This resulted in ethnic and violent tensions around the issue of land which are ongoing upto date (Kanyinga, 2009). Therefore, the government and private initiatives for redistribution of land can be viewed as not having achieved an equal allocation of land repossessed from the colonial regime. Moreover, it is

not described in the literature considered, how post-colonial land acquisitions influenced the access and use of land for large-scale horticulture, an aspect of focus in this study.

According to Kohler (1987) and Wiesmann (1998), in Laikipia the land settlement resulted in long-term effects. The settlements resulted in significant immigration and population growth in the region. Notably a majority of the immigrants came from ecologically high-potential areas where land had become scarce (Wiesmann, 1998). In 1994, the majority of small-scale farmers in Laikipia were Kikuyu (89per cent) from the current Nyeri, Muranga and Kiambu Counties. The Ameru (8per cent) of the current Meru County were reported to occupy almost exclusively the eastern part of Laikipia. Small-scale farmers who were previously farm laborers or squatters in the region were found to be of an insignificant proportion (Wiesmann, 1998: 99).

Given the semi-arid conditions of Laikipia County, the new immigrants had limited expertise in agriculture other than the rain-fed practices horned in their ecologically high-potential zones of origin. As such the new land owners converted the expanses of land previously dedicated to rain-fed beef ranching and wheat cultivation into irrigated small-scale mixed farming portions to allow for their practise of the traditional agro-pastoralist production (Wiesmann, 1998). Accordingly, the management of land and related resources such as water was transferred from exclusively few large-scale land users to include a larger sub-set of individual smallholders (Kohler, 1987; Wiesmann, 1998).

Numerous studies have documented that river water as the main source for irrigation farming practices in the semi-arid area (Gichuki et al.,1998; Wiesmann, 1998; Gichuki, 2002; Kiteme et al., 2008; Lanari et al., 2016). Over time, this has resulted in the over use and depletion of water an already scarce resource in the region as well as conflicts over the access by the numerous food systems including the smallholder agro-pastoralists and large-scale users such as wildlife

conservancies, private ranches and horticulture investments in the region (Lanari, 2014; Ulrich, 2014; Lanari et al., 2016).

2.5 Knowledge gaps

Over time, large-scale export oriented horticulture in Kenya has evolved from small-holder farming to large-scale agro-industrial farming owned by multinational companies producing mainly for export. This is the case in Laikipia County where, despite arid and semi-arid climatic conditions, the horticulture sector is still growing and thus utilizing more resources overtime. There is also a lot of food being produced through large-scale export oriented horticulture, and a lot of workforce engaged but there still remains limited holistic literature that can provide a deeper understanding of the major transformations and the formal and informal insitutions-rules, regulations, values and norms- 'rules of the game'- that define the operations and functioning of large-scale export oriented horticulture especially in resource scarce setting as is the case of Laikipia County.

The impact on the regional and on the domestic systems related to large-scale export oriented horticulture as an agro industrial food system analysed from an institutional analysis perspective (Ensminger, 1992) might be twofold: First, access to land and related common pool resources of importance for local food systems that are also important to fix shortcomings- utilization of common pool resources in a resource scarce area; producing food consumed outside of the production area- of the of the agro-industrial food systems for local actors- agro-pastoralists, small holder farmers within same ecosystem- might be affected as access to these will be reduced which also reduces food security.

Second, the agro-industrial food system which links to the global value chain might provide opportunities such as jobs but it needs to be understood for whom jobs are provided and in which quantity and quality and with what impact on community, household and intra household dynamics in relation to gender, generational aspects among others. These dimensions of large-scale export oriented horticulture have not been however requires further exploration through research as there is limited research and scholarly articles in relation to the different aspects of large scale production horticulture in Kenya.

This study sought to address these knowledge gaps to unravel the institutional settings and power relations of actors with different bargaining power positions in large-scale export oriented horticulture in Laikipia County, Kenya. Utilising the new institutionalism theory and the food system sustainability approach this study established the actors in large-scale export oriented horticulture; described the relationship existing between the different actors and the formal and informal institutions; the perceptions of actors in relation to impact, risk and insecurity in regard to their involvement in large-scale export horticulture as an agro-industrial food system. The study further detailed all the food related processes and activities, the actors and their relationship with sector-specific institutions as well as the institutional changes and interactions with other food systems. The study therefore provides a thorough analysis of a food system by interrogating large-scale export oriented horticulture regarded as an agro-industrial food system in Laikipia County, Kenya.

2.6 Theoretical Framework

To respond to the research objectives, the actor oriented new institutionalism theory and the food system sustainability concept were utilised to unravel the institutional setting (property rights, rules, and laws, regulations, norms of formal and informal kind) as well as the actors and their

involvement (Ensminger, 1992; Colonna et al., 2013; Haller, 2013). The concept of food system sustainability, as posited by Colonna et al. (2013), offered the alternative of analysing the export horticulture as an agro-industrial food system beyond asking whether people had enough food in terms of availability, access, and adequate utilization, which represents the "official" definition of food security (FAO, 1996).

Analysis of the food system utilizing the concept of food sustainability looked critically into current food system processes, activities and institutions and described the problems of access, governance and distribution of resources (Colonna et al., 2013). The concept of food systems built on four food-related activities: production; processing; packaging, distribution, and retailing/ consumption and anchored on the theory of new institutionalism in social anthropology responded to the research objectives.

2.6.1 New institutionalism theory in Social Anthropology

New institutionalism theory (Haller, 2013; Lesorogol, 2008; Ensminger, 1992; Ostrom, 1990; North, 1990) was utilized to inform the theoretical framework upon which the study was anchored. According to (Haller, 2013; Ensminger, 1998) new institutionalism theory is defined as the study of how institutions affect the behaviour of individuals and how individual behaviour affects the evolution of institutions. The role of incentives is fundamental to these relations (Ensminger, 1998). Institutions or governance mechanisms can be either formal or informal in nature and are regarded as the 'rules of the game' (North, 1990).

The core concept posited in Ensminger (1992) model of institutional analysis is that social forces (ideology, institutions, organizations, bargaining power, and relative prices) cannot be understood in isolation but rather they interact with each other in a pre-determined manner. Institutions are developed and enforced by a central authority or by the members of a social

group (local community) in which culture they are entrenched. Institutions such as property rights systems or laws are developed by the state (formal institutions) or by local communities (informal institutions), where they are embedded in their culture (Ostrom, 1990; Ensminger 1992, 1998).

Institutions also enable co-operation to form a shared normative framework of a social group and include values and conventions with codified regulations and laws as well as informal codes of conduct, norms and rules (Ensminger, 1992; Haller, 2013). Institutions are dynamic and are constantly created and recreated (Ensminger, 1992; Lesorogol, 2008). They help individuals form expectations about the conduct of others and thereby enable co-ordination and cooperation. These institutions provide rules, constraints and incentives to groups and individuals that are instrumental to the governance of exchanges especially in economic activities, collective action, and in sustainable resource use (North 1990; Haller, 2013).

History of New institutionalism theory in Social Anthropology

Different approaches can be subsumed under the label of New Institutionalism (Coase, 1937; Olson, 1965; North, 1990; Ostrom, 1990; Bromley, 1992; Becker and Ostrom 1995; Ensminger, 1992, 1998; Haller, 2007, 2013). The term 'new' suggests an 'old' institutionalism perspective. The old institutionalism can be traced to Veblen (1919) who argued that institutions generally play an important role in economic activities but he never clearly defined this role (Haller, 2007). Veblen's position seems like an assumption that rules in a society are important for economic decisions and that the individual representation of 'economic man' is redundant as it does not explain economic evolution and technological transformation (Hodgson, 1993). Veblen suggested an alternative to the theory of the rational individual being able to calculate everything (Hodgson, 1993).

However, according to Haller (2007), the old school of institutionalism did not systematically present the role and influence of institutions (formal and informal rules of the game) in the decisions of actors. The theory of firm Coase (1937) is seen to highlight the initial steps towards a new institutionalism approach as he tried to show why this form of capitalist organization was important. Of note is that economists and anthropologists differ in perspectives when discussing processes of institutional settings and changes.

Economists tend to regard institutions as constant while concentrating on the aspect of change in exogenous factors such as relative prices and the outcome of individual behaviour (North, 1990). However, for anthropologists, when referring to change, they tend to see changes in relative prices as given and focus on institutions when explaining economic action (Ensminger, 1992; Haller, 2013). In light of the differing perspectives, Ensminger (1992) borrows from earlier theorists and applies new institutional economics (NIE) to anthropology to introduce a new endogenous category representing cultural beliefs and values (ideologies) and attaches it to the pre-given equation. Ensminger (1992) outlines this in a model of socioeconomic change with such partly real and partly metaphysical illustrations which include 'ideology', 'institutions', 'organizations', 'bargaining power', and 'relative prices'.

Notably, different theories in anthropology, political science and economic history discuss how management regimes evolve and the influence they eventually have on the economic strategies of individuals and groups of actors (Haller, 2013). Haller (2013) suggests that humans are capable of organizing themselves and crafting institutions for sustainable use of common pool resources such as pastures and much more. Depending on the bargaining power of actors such institutions allow for a sustainable use of CPR in a given situation and also allow for negotiation

on changes to the institutions so that they can adapt to changing environmental dynamics (Haller, 2002).

2.6.2 Relevance of the theory to the study

The New Institutionalism theory was utilised to explore the institutional setting in large-scale export horticulture and respond to the objectives of this study. The study explored the institutions, ideology, bargaining power and organization; power relations of the different actors and how these influences the formation of the institutional setting and therewith actors' interactions within the agro-industrial food system.

From the lens of new institutionalism in social anthropology, looking at large-scale export horticulture in Kenya, in relation to institutional settings and change; ideologies, institutions, organisations and bargaining power were regarded as endogenous spheres that influenced each other and were themselves influenced by external factors.

Consequently, the physical/social environment (land and related common pool resources-CPRs), technology (infrastructure and machinery for production, processing and distribution) and population (producers, processors, distributors, regulators and consumers) combined to influence the relative prices which then interpellated the process of internal change (institutional settings) which itself comprised the dynamic interplay of institutions (formal and informal), organizations (self-organization for welfare), bargaining power positions and ideology (Ensminger, 1992).

The product of this process of internal change within the sector then in turn influenced the social/political behaviour. The changes in the socio-political structure (such as national and international laws; informal institutions or product standards (such as the GLOBAL GAP) and natural environment); population (demographic changes) and technology (technological

changes), which together influence so-called "relative prices" (Ensminger, 1992) that cause challenges in the export horticulture institutional settings.

2.7 Conceptual framework

The conceptual framework (see figure 2.1) is adopted from Ensminger (1992) model of institutional change and slightly modified to align to the objectives of this study. The conceptual framework illustrates the relationship between the dependent and the independent variables of the study.

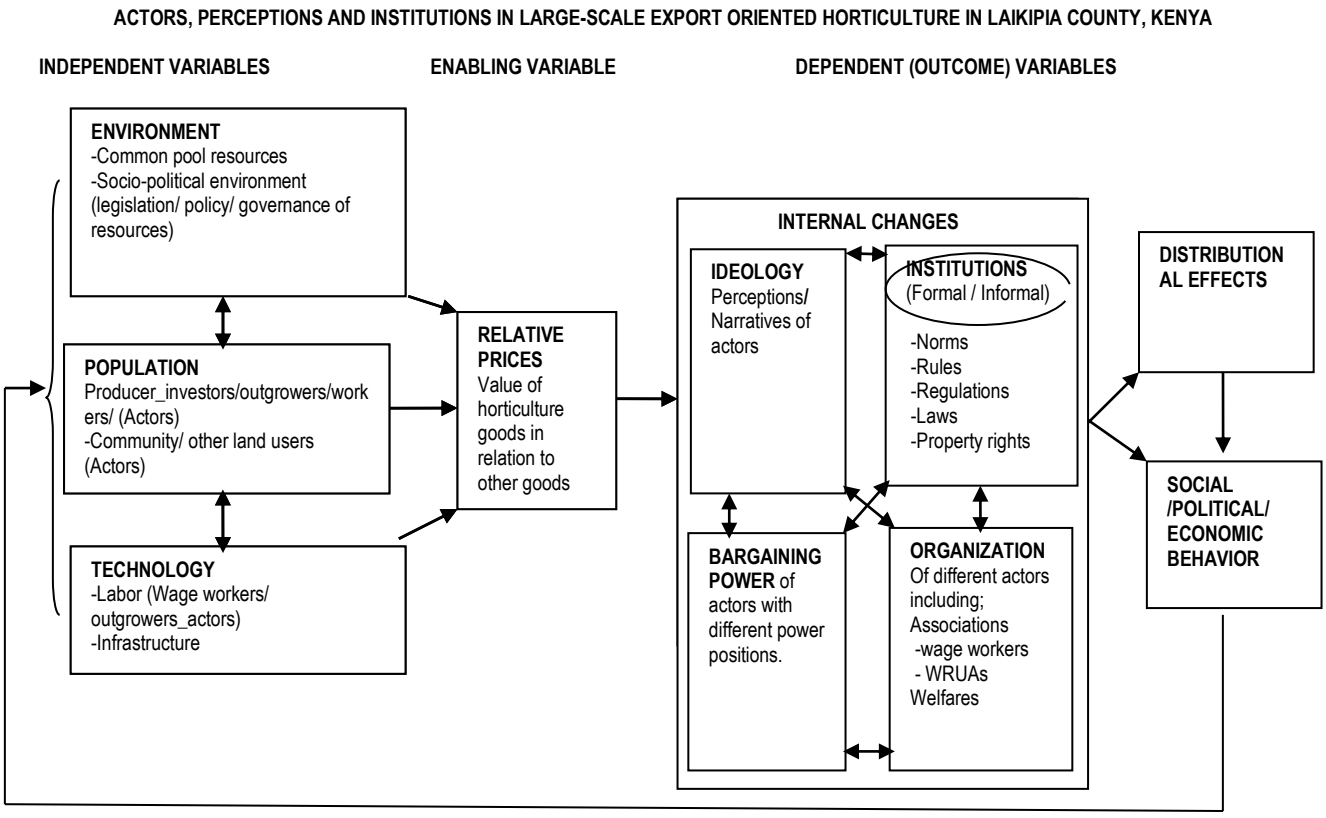

Figure 2.1 Conceptual framework: Adopted and modified by author. Source: Ensminger (1992).

The independent variables explain what happens and represent a causal relationship. These independent (causal factors) variables include; the different actors including the environment, population and technology that are involved in commercial horticulture in Laikipia County.

The actors have between themselves a modifying effect. Additionally, each actor influences changes in relative prices (market prices of the horticulture products). The changes in relative prices represent an enabling variable and causes institutional setting changes namely; change in ideologies/ narratives, organizations, institutions and in the bargaining power of the different actors in the commercial horticulture – as seen in the commercial horticulture company.

The changes in the institutional setting are manifested in the social, political and economic behaviour change as well as in distributional effects. These consequently influence the actors and the process is repeatedly felt in commercial horticulture and the co -existing local food systems.

CHAPTER THREE: METHODOLOGY

3.1 Introduction

This chapter presents the context within which the study was conducted. The chapter describes the study site which details the administrative boundaries, topography and climate. However, more emphasis is put on land availability and use and the population livelihood aspects as relevant to the study. The chapter also details: the research design, the study population and unit of analysis, sample size and sampling procedure, and the data collection methods, processing and analysis. Additionally, it also discusses the ethical considerations that the study observed.

3.2 Study Site

Location and administrative boundaries

The study was based in a horticulture investment (comprised of a farm and onsite pack-house) in Laikipia County, Kenya (GoK, 2014). The horticulture investment also works with smallholder outgrower farmers in Meru County and Nyeri Counties (Map 3.1 and 3.2).

Laikipia County is divided into five administrative sub-counties (formerly districts) namely: Laikipia Central, Laikipia East, Laikipia North, Laikipia West and Nyahururu sub-counties. The sub-county headquarters are at Lamuria, Nanyuki, Doldol, Rumuruti and Nyahururu respectively (GOK, 2013). The study site is located within Laikipia North sub-county.

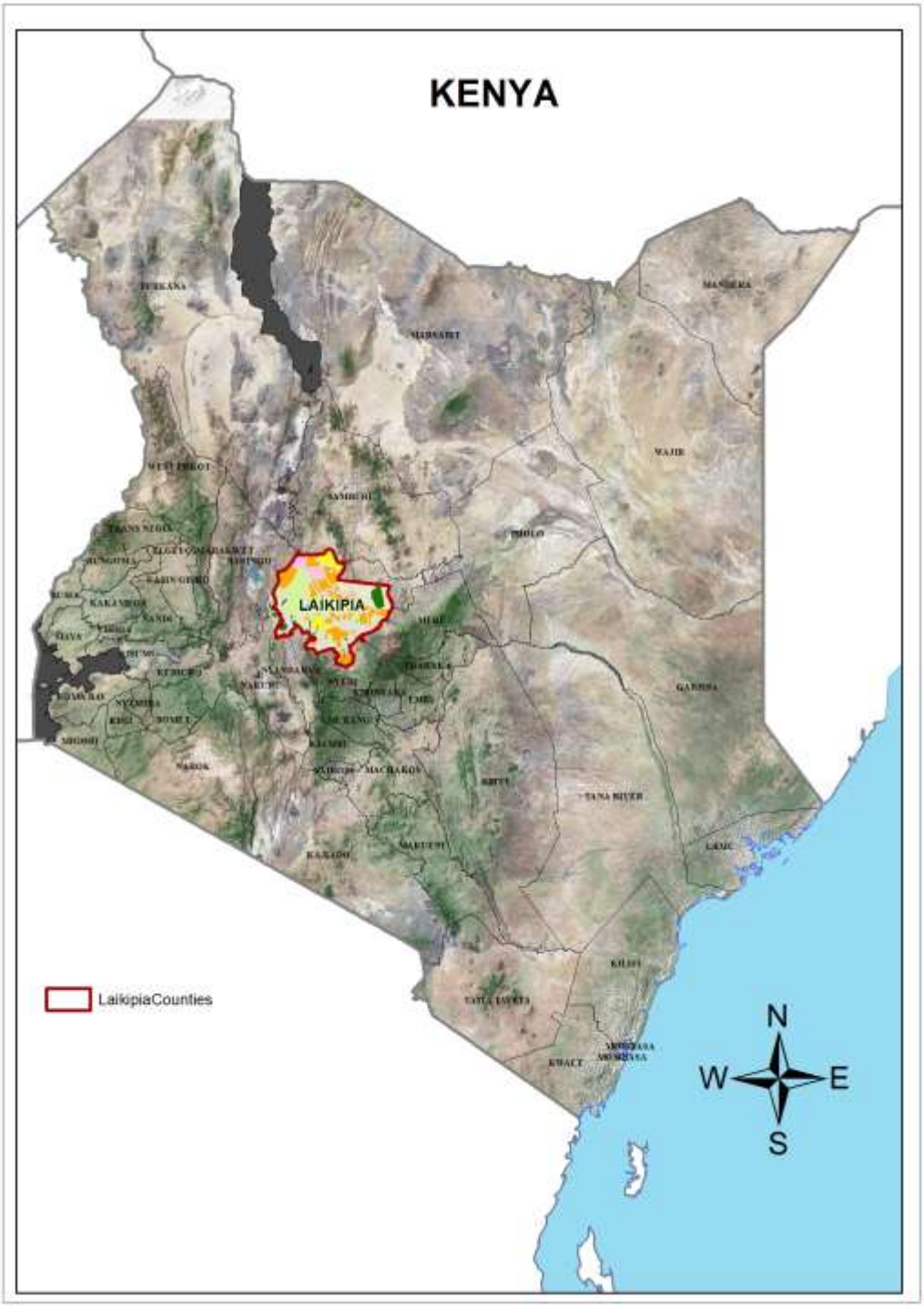

Figure: 3.1 Map of Kenya highlighting Laikipia County (Source: CETRAD@2018)

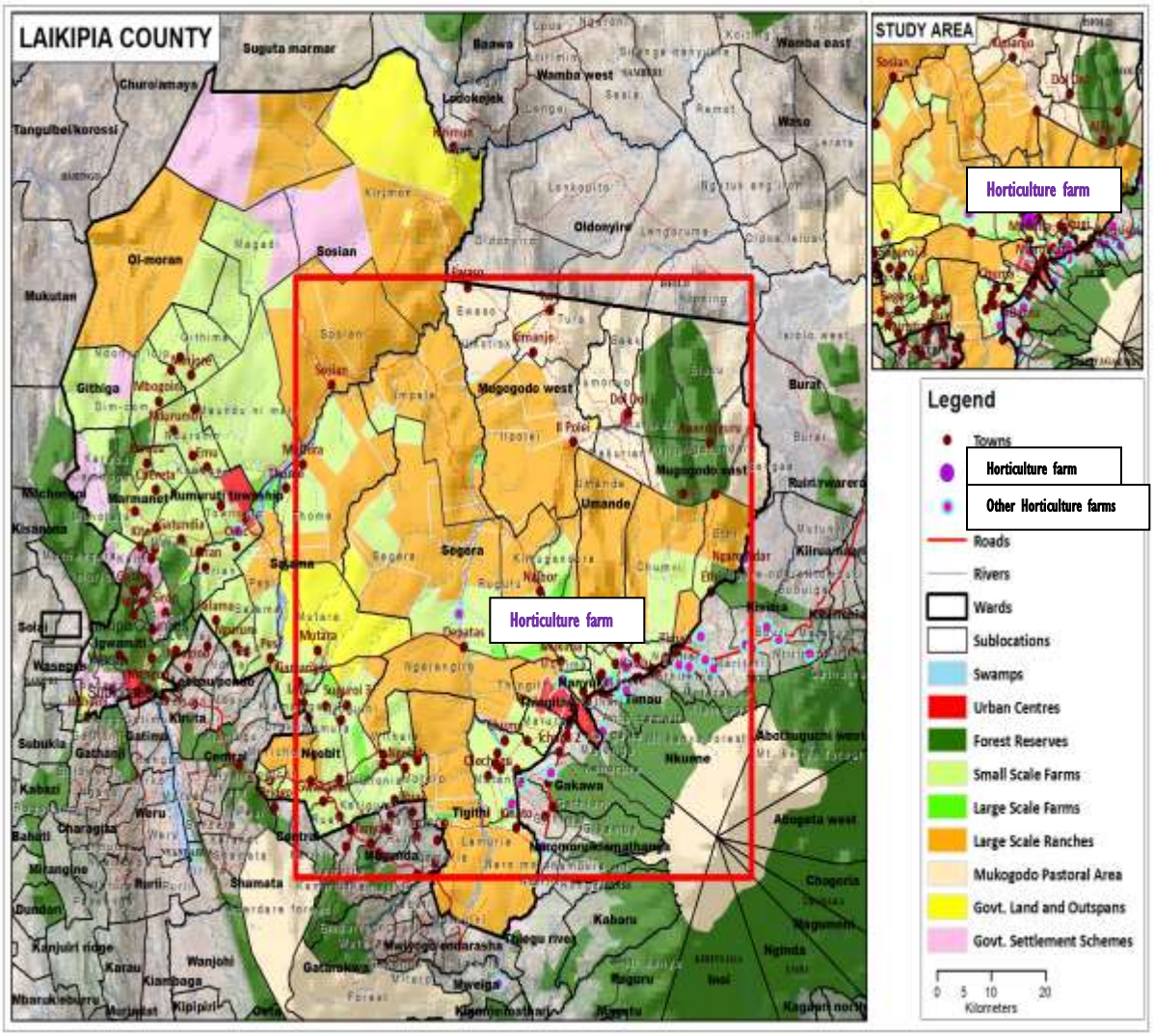

Figure 3.2: Map of the study area: Location of horticulture investment in Laikipia County (Source: CETRAD@2018)

Topography and climate

The climate in the study area varies from humid to semi-humid on the mountain slopes, and semi-humid to semi-arid on the lowlands (GOK, 2013). Due to the great natural gradient, the basin traverses seven ecological zones: (1) the afro-alpine (above 3500 m above sea level -a.s.l.-), (2) the upper mountain slopes (2200–3500 m a.s.l.), (3) the lower mountain slopes (1900–2200 m a.s.l.), (4) the volcanic highland plateau (1700–1900 m a.s.l.), (5) the highlands on basement

complex (1700–1900 m a.s.l.), (6) the hills and scraps (1200–2500 m a.s.l.), and (7) the lowlands (800–1200 m a.s.l.). In the humid to semi-humid upper mountain slopes, mean annual rainfall can reach 1000–1500 mm, while in the arid low- lands it can be as low as 350 mm (Gichuki et al., 1998: 16).

The elevation and orientation of topographical features have a strong influence on these rainfall patterns which are divided into 4 seasons. The first one is the long rains from mid-March to mid-June that provide 29– 40 per cent of annual rainfall. The continental rains begin from mid-June to mid-September and mainly grace the western edge of the basin, with diminishing importance in the northern and eastern edges. The third season is characterized by the short rains from October until December, and finally, the dry season beginning in January that ends mid-March when the long rains recommence (Gichuki, 2002:115–117).

Population livelihoods and demographics

The total population for Laikipia County was 399,227 comprised of 198,625 males and 200,602 females (GOK, 2010). This population was projected to be 427,173 persons in 2012 and is also expected to rise to 457,514 and 479,072 in 2015 and 2017, respectively. The county has a large youthful population with over half of the county's population being below the age of 35 years (GoK, 2010; GoK, 2014b).

The total number in the employment category was 214,981 persons (105,734 males and 109,247 females) representing 53.8 per cent of the county population. The number of the employment category is 230,030 in 2012 and is projected to increase to 246,368 and 257,977 in 2015 and 2017 respectively. This calls for programmes that will create employment and other income generating opportunities for this ever-increasing population to reduce levels of unemployment and its associated adverse effects in the county (GoK, 2014b).

Land use and availability

There are different economic activities going on including export horticulture production, pastoralism, smallholder subsistence farming, and ranching. Export horticulture farms offer employment to many of the people in the study area; in addition, there are other food producers in the region, including large ranches as well as medium- and small-scale farms (Kiteme et al., 2008; GoK, 2014b; Lanari, 2014). (GoK, 2013; GoK, 2014a). Arable land constitutes 1,984 km^2, non-arable land constitutes approximately 7,456km^2, and urban areas constitute 243.3km^2 out of the 9,642 km^2 total land mass.

There are 5 distinct land use patterns heavily influenced by the climatic conditions and the ecological zones. These include: pastoralism, mixed farming, ranching, large-scale export horticulture, agro-pastoralism, and marginal mixed farming (GoK, 2013; GoK, 2014a). The average farm size for small scale holders is 0.8 hectares (ha) while for large-scale holder's is 8.1ha. The ranches in the county hold an average of 4,048.58ha. Average land holding in the group ranches per household is 3.33ha. The percentage of land owners with title deeds is 65.3 and there are about 4,712 squatters in the county distributed in Kwa Mbuzi (1,021); Kahurura (1,090); Kandutura (400); and Ontilili villages (GoK, 2013; GoK, 2014a).

There are 580km^2 of gazetted forest land. Part of the forests especially in Ng'arua and Rumuruti have been excised for agricultural and settlement purposes (GoK, 2013; GoK, 2014a). The Southwest part of the county has the highest potential for forestry and mixed farming due to its favourable climatic conditions. These conditions have resulted in some areas especially around Marmanet being the most densely populated. The eastern and northern parts of the county are suitable for grazing while the plateau lying in the central and the northern parts of the county is suitable for ranching (GoK, 2013; GoK, 2014a).

The South-western part of the county has the highest potential for forestry and mixed farming due to its favorable climatic conditions. These conditions have resulted in some areas especially around Marmanet being the most densely populated. The eastern and northern parts of the county are suitable for grazing while the plateau lying in the central and the northern parts of the county is suitable for ranching (GOK, 2013). The study area encompasses an area of roughly 220,000 km^2 from the peak of Mt. Kenya (5199 m) to an average height of 1000 m in the Laikipia Plateau and the Samburu Lowlands (Kiteme et al., 2002, 332). The upper basin of the Ewaso Ng'iro North stands as a reference point for the study area. It is approximately 15'200 km^2 in size and covers six per cent of the Ewaso Ng'iro North drainage basin, representing 2.8 per cent of the total land area of Kenya (GoK, 2013; GoK, 2014a).

Most of the commercial medium- and large-scale horticulture farms are located between 1700 and 2500 m a.s.l. on the upper and lower mountain slopes, as well as in the highlands of Laikipia County. Therefore, they are part of important ecological interactions within the Upper Ewaso Ng'iro North Basin where depleted river water resources in the upper reaches of the system have great consequences on downstream users (GoK, 2013; Lanari, 2014).

3.3 Research Design

This study adopted an exploratory research design. This allowed for generation of in-depth information through triangulation of qualitative data collection methods to respond to the study objectives. The research started with an exploratory phase that commenced soon after the company agreed to host the researcher as a student at the horticulture investment to learn and collect research data. With preliminary data from the in-depth interviews, discussions and observations, different actors linked to the horticulture investment were identified. Topics regarded as important were identified based on the daily and specific actions and interpretations

of actors through the day to day interactions. The data collection tools were revised at this point to incorporate the topics in consultation with the supervision team.

By the end of the study, total of 52 in-depth interviews targeting different cadres of workers and neighbours of the horticulture setting; 10 key informant interviews targeting management of the horticulture setting, representative of county and national administration linked to export horticulture, land and water; and four focus group discussions segregated by gender and comprised of members of the neighbouring area as well as workers from the horticulture setting, were conducted over a field work period of 8 months. The interviews were audio-taped with permission from the participants. Observations recorded as field notes were made to complement the data from the interviews.

3.4 Study Population

The study population included all export horticulture companies based in Laikipia County. Export horticulture in the study area mainly comprised multi-national companies with large-scale investments (farms and / pack-houses). The companies were involved in the production of vegetables, fruits and cut flowers, with several local small-holder farmers acting as outgrowers for these companies (Lanari et al., 2016; Lanari, 2014; Schuler, 2004). The region had approximately 35 large-scale export horticulture investments with almost comparable institutional settings and dynamics (Lanari, 2014; Ulrich, 2014). Actors and insitutions linked to one such horticulture investment (with farm and onsite packhouse) formed the sample population.

3.5 Sample size and Sampling procedure

Since the study adopted a qualitative approach, the sample size couldn't be pre-determined. It started with looking at actions and interactions of actors and insitutions linked to one export

horticulture investment. The study site was sampled purposively based on the following inclusion criteria;

i. It produced fruits and vegetables for export to the European market and,
ii. That had workers who represented the local population,
iii. That had been in the horticulture sector for at least 5 years and produced within the study area.
iv. It was located downstream of the Ewaso Ng'iro basin

Out of the 35 listed horticulture farms in Laikipia County only 10 produced only fruits and vegetables (Lanari, 2014). The other farms were engaged in the production of flowers and also mixed flower and vegetables production. This horticulture investment sampled for this study was located downstream of the Ewaso Ng'iro basin unlike the other nine that were concentrated upstream. The downstream location of the horticulture company was a key consideration in the sampling given that water was a key factor considered in vegetable and fruit production (Lanari, 2014; Lanari et al., 2016). Actors and institutions linked to the export horticulture investment where the study took place constituted the unit of analysis. The interview informants and focus group discussants were sampled conveniently based on the following inclusion criteria;

i. Able to voluntarily give verbal informed consent,
ii. Willing to participate in the study,
iii. Linked to the horticulture investment. These included: representatives of management, workers at different cadres in the farm and pack-house, county and national government representatives. Their participation was subject to their linkage to export horticulture production and willingness to voluntarily participate in the study.

Any study participant not willing and / able to volunteer to participate in this study was excluded from the sample.

3.6 Methods of Data Collection

Table 3.1 Summary of data collection methods and participants

Data collection tool	Informant (s)
In-depth interviews (N= 52)	37 Wage (seasonal) workers 9 permanent workers at different cadres in the horticulture investment 5 members of the neighboring communities (small holder farmers and pastoralists)
Focus Group Discussions N = 4	Segregated by gender Comprised of between 6 to 8 member per group 2 for representatives of neighboring communities (small holder farmers and pastoralists) (Females group= 8 discussants; Male group= 6 discussants) 2 for Workers at the horticulture investment (Females group= 7 discussants; Male group= 8 discussants)
Key informant interviews N=08	Management of export horticulture (3 representatives) and state actors Representatives of the local authority (1 administrative chief and 1 village elder); Representatives of outgrowers (1 outgrower group secretary and 2 individual outgrower farmers; State (1 representative of Laikipia County agriculture office) and non-state actors (1 Water officer working with Water Resource User Associations-WRUAs) at the county level

3.6.1 In-Depth Interviews

In-depth interviews were the primary data collection method and targeted different levels of workers in the horticulture investment as well as informants from communities neighbouring the study site. A total of 52 in-depth interviews were carried out over a period of time and the interviews were stopped after the researcher reached saturation in relation to the informants detailing of the issues raised in the interview guides (see table 3.1). The interviews were structured to allow for data from informal conversation and formal interview questions to be captured. The in depth interviews were carried out with 37 seasonal and 9 permanent workers in the different departments 1 agronomist on attachment within the horticulture investment; 5 members of the neighbouring community to represent the small holder and agro-pastoralists in

the study area who were linked to the horticulture investment by proximity and sharing of water and land as common pool resources (CPR) for food production.

Through the in-depth interviews, the following issues were teased out in line with the study objectives: the different actors; relationship between actors and institutions; perceptions and interpretations of the different actors given their different positions within the investment. The interviews also established the existing institutional settings and how these related to other food systems in Laikipia County. In- depth interview guides (Appendix 2 and 3) providing a checklist of themes used to conduct the interviews.

3.6.2 Observation

Observations were useful for the researcher's better understanding of the daily lives of the actors in the export horticulture and surrounding areas for the period of the study. The researcher was attached to the export horticulture investment and lived in the neighbouring area for the entire duration of the research. This data was collected as the researcher interacted with workers and activities at the export horticulture investment, and also in the neighbouring areas among the community members. Observation checklist guide was utilized (Appendix 4) and field notes maintained with detailed records of the on-going encounters in the study setting. Observations on food system processes, events and activities of the actors were made for the entire duration of the study. The direct and indirect observations enabled access to information on the actors, the relationship between the actors and institutions as the actor perceptions manifested in actor-specific activities.

3.6.3 Key Informant Interviews

Key informant interviews (KIIs) targeted informants considered knowledgeable about export horticulture production institutional settings, changes and actors in the study area (see table 3.1).

These included interviews with 3 representatives of management at the horticulture investment, 2 representatives of the local authority (1 administrative chief and 1 village elder); 1 outgrower group secretary and 2 individual outgrower farmers who had lived in the neighbourhood of the horticulture investment since its establishment and had existing outgrower arrangements; as well as with state (representative of Laikipia County agriculture office) and non-state actors (Water officer working with Water Resource User Associations-WRUAs) at the county level.

The key informant interviews provided additional information on the different actors; relationship between actors and institutions; perceptions and interpretations of the different actors given their different positions within the investment. The interviews also established the existing institutional settings and how these related to other food systems in Laikipia County. A total of 10 key informant interviews were conducted based on KII guides (Appendix 6 and 7).

3.6.4 Focus Group Discussions

Four focus group discussions (FGDs) that targeted workers in the company and community actors linked to the company as the informants were conducted (see table 3.1). Two FGDs were with workers and two with community actors, each comprising between six to eight discussants segregated by gender were carried out.

The FGDs were platforms for discussing and providing consensus on the relationship between actors and existing informal and formal institutions as well as the institutional settings and changes in export horticulture. The FGDs provided additional qualitative data that complemented the in-depth interviews and observations. FGD guides (Appendix 5 and 8) were used to collect the data.

3.6.5 Secondary sources

Secondary data were obtained from already published county and national reports, journals, and data by researchers involved in similar work or related topics to the research. Information relating to the export horticulture sector, the different actors, and institutions there in was sourced from journal articles, books, other theses and relevant policy documents at the county and state levels and used to put this study into perspective.

3.7 Data processing and Analysis

The study findings were analysed thematically based on the grounded theory approach to inform the study objectives. Data obtained through the qualitative interviews was transcribed and translated into English transcripts for coding and analysis as most of the interviews were conducted in Swahili. The field notes were also transcribed for analysis. Names of informants and places that were identifiers were replaced with pseudonyms on the transcripts for anonymity and confidentiality of the study participants.

Once transcribed, the interview transcripts were reviewed for accuracy. Coding was done manually. The researcher read through the transcripts repeatedly to identify and list inductive codes. The codes were used to develop a codebook which was flexible to include new codes, delete or merge other codes as the analysis went on. After coder agreement and transcripts review, themes were identified in line with the study objectives.

The themes revolved around study objectives. The four themes that guided the analysis are; actors in export horticulture; the relationship between institutions (formal and informal) and actors; actor perceptions of food security and sustainability, and the existing institutional settings and changes of large-scale export horticulture in relation to other food systems in Laikipia County.

Additional information was included from the key informant interviews, focus group discussions and field notes taken during the fieldwork. Ethical considerations were applied to data collection and subsequent analysis. Study findings were integrated and presented as thick descriptions and complemented with verbatim quotations.

3.8 Ethical Considerations

The study adhered to the code of ethics to ensure that the study did not harm the participants in any way. The study participants were identified informally during the exploratory phase during which the researcher was allowed to familiarize with the setting by making observations and participating in the different farm and pack-house activities and processes. After the initial introductions, the company management allowed the researcher to freely interact with and select potential participants without interference. However, the researcher was required to give periodic feedback on the progress of the fieldwork to the management without disclosing participant details.

The potential participants were then given details of the research including any fore seen or anticipated risks and how to tackle them in case they occur, and any benefits or compensations beforehand. Questions or concerns from the potential participants regarding the study were addressed by the researcher. Informed verbal consent and permission to audio-tape the interview was sought before the interviews were conducted. Permission to audio record was sought from the participants with explanations given on the need to record the interviews to ensure accuracy of information shared and for subsequent transcription for analysis. To ensure maximum comfort for the study participants, the researcher interviewed the actors at a time and a place of their convenience.

The study aimed at ensuring minimum distress on the actors interviewed and they were as such encouraged to exercise their right of voluntarism in deciding whether or not to participate in the study. Their participation or lack thereof in the study did not in any way affect their involvement in their day to day activities in the study area. The farm was not made aware of participants that agreed or declined to participate in the study. Study participants were also encouraged to terminate the interview at any point when they felt the need to or even skip questions they were not comfortable to respond to during the interview.

Names of the informants remained anonymous through use of pseudonyms (Bernard 1995). In the analysis the pseudonyms which were mainly numbers and letters were used. Anonymity was observed by use of pseudonyms to replace names or titles at work as identifiers in the recordings (both audio and field notes) and in the transcripts. Confidentiality of the information shared by the participants was maintained to safeguard their relationship with the export horticulture investment. This study was approved and a research permit issued by the National Commission for Science, Technology and Innovation (NACOSTI). Further collaboration and approval was sought from the County level education and agriculture offices and the export horticulture company.

People who have informed the study have been duly acknowledged in the study findings. It was noted that the information they share would be useful for providing insights into the actors and institutions in export horticulture as an agro-industrial food system. The information would be useful for policy recommendations to enhance food sustainability. The study findings will also be used for the purposes of obtaining a Doctor of Philosophy Degree in Anthropology of the University of Nairobi. A copy of the work will be deposited at the University of Nairobi digital repository for use by other researchers.

CHAPTER FOUR: ACTORS IN LARGE-SCALE EXPORT HORTICULTURE

4.1 Introduction

This chapter presents the findings and discussion on the actors and their perceptions in large-scale export horticulture in Laikipia County. The chapter details the different actors and their characteristics. The different actors were identified along the export horticulture value chain to include; Investors as producers and processors; workers as producers and processors, outgrowers as producers; distributors, and the market / consumers as summarized in table 4.1. State actors including county and national government officers that provided the regulatory framework for export horticulture were also identified as in table 4.1.The actors had different roles along the export horticulture value chain as producers, processors, distributors and consumers, with some like the investors having multiple roles.

Actors in export horticulture were identified through in-depth interviews. These findings were reinforced with additional information obtained from observations, key informants and focus group discussants. Observations of the different actor activities and interactions complemented the findings on actor perceptions.

Table 4.1 Value chain actors in export horticulture (Source: Author, 2018)

Actor	Role in the value chain	Comments
Owners/ Investors	Producers Processors Distributors	Invests in common pool resources for production i.e. water and land Modifies the environment through technology and expertise for production Enjoys all year-round demand for high quality produce from the market Engages labor for production and post-harvest handling (wage workers and outgrowers) Export the horticulture produce
Workers	Producers Post-harvest handling (processors)	Over 80 per cent unskilled labor on short term 1-3 months' contracts 10 per cent permanent labor (mostly skilled) Low literacy levels Over 75 per cent women as unskilled labor
Outgrowers	Producers	They are contract farmers producing fine beans and baby corn Subject to strict vetting for compliance with production requirements Work often in farmer groups Receive farming incentives on credit from export horticulture investment Assured market of produce
Marketing Agent	Distributor	Based in the United Kingdom (U.K) The agent is a shareholder in the horticulture company Coordinates orders, sales and customer service on behalf of the horticulture investment
United Kingdom (U.K) population buying from chain stores like Tesco, Waitrose, Mark and Spencer	Market / Consumer	Influences the international Private voluntary food safety and quality standards Buyer driven Determines the market prices Highly competitive with many producers from Africa, South America and Europe bringing similar produce
County and National government	State actors	Regulation of business operation, and management of common pool resource

4.2 Investors as Producers / Processors in large-scale export horticulture

The investors as owners were identified as value chain actors playing the role of producer and processor in this study. The horticulture investment (farm and pack-house) where the study took place produced fresh vegetables, herbs, and fruits for the United Kingdom (UK). The horticulture company was established as a family owned private company in the 1970s, and as highlighted in the excerpts had become one of the leading horticulture exporters in the region:

> *The horticulture company that owns this farm is actually among the biggest Kenyan companies distributing to Europe, competing alongside other big fresh fruits and vegetables export companies such as Vegpro, AAA growers and Finlays* (KII_01, Manager, Horticulture investment, Laikipia County).
>
> *The company started way back in early 1960's as an export consortium of a group of people exporting to Europe under the same umbrella organization. It was somehow state owned* (KII_02, Manager, Horticulture investment, Laikipia County).

It had a long history that traced its origin from a state-owned to a limited exporting company as detailed in the excerpts from interviews with the horticulture investment manager and administrative officer respectively:

> *The company started way back in early 1960's as an export consortium of a group of people exporting to Europe under the same umbrella organization. It was somehow state owned* (KII_02, Manager, Horticulture investment, Laikipia County).
>
> *In 1977 the exporting company was restructured after one of the exporters smuggled some coffee to Europe. This incident exposed the company to a possible ban from the international horticulture markets. At that point the main shareholders, decided to register it as a limited (1977) company that now operates as a private family owned business* (IDI_06, Administrative officer, Male, 38 years).

The study site set up in 2004 / 2005 is the first of farms that constituted an exporting company's production units in compliance with changing horticulture production requirements as summarised in the excerpts from in-depth and key informants:

> *This farm is just a branch of a bigger exporting company with headquarters in Nairobi. This Nanyuki farm was started in response to a strict legislation passed by the European Union on the minimum residue level* (IDI_02, Quality control officer, Male, 33 years).
> *This and other farms belonging to the company were set up as from 2004 so that we have more control over production processes and activities to comply with the stringent international food safety standards and remain in the market* (KII_01, Manager, Horticulture investment, Laikipia County).

The investors set up the production unit and facilities for post-harvest management to enable the production, processing and distribution of export horticulture produce. Owners and investors provided the capital to access the land, water, technology and material inputs. They engaged outgrowers and employ workforce for the labor intensive horticulture production. As of 2017,

the investors had three big farms and pack-houses including the investment in Laikipia County. In addition to acquiring the land, the investors had capital investments for setting up the infrastructure for the operations and running of the export horticulture investment. Notably, the large-scale export horticulture investors had integrated technology into the processes and activities for production and post-harvest handling to guarantee safety, efficiency, freshness and quality of the high value yet perishable products.

4.2.1 Overview of the horticulture investment

Export horticulture production in the study setting involved a lot of activities that took place in the production unit organized in open fields and greenhouses. The activities were well coordinated to make the process from planting to harvesting efficient and compliant to market standards as summarized in figure 4.1 and further illustrated in the excerpts from some of the in-depth informants:

> *The program for production is prepared with considerations for food safety and quality standards as well as customer specifications. It is implemented in such a way that there was always crop growing and that which is ready for harvesting at a given point* (IDI_31, Crop manager, Female, 41 years).

> *Harvesting is done daily and we usually identify the blocks to be harvested like a week in advance to ensure that the produce is free of any chemicals from pesticides. Water is also very important because as harvesting is on-going the crops need to be irrigated to continue to yield more produce* (IDI_16, Scout, Female, 22 years).

> *Production involves a lot of activities from land preparation, planting as well as monitoring the crop constantly for water, fertilizer and pests until it is harvested. Also, after harvesting, in the grading shed the produce is weighed, recorded and labelled ready for transportation to pack-house* (IDI_01, Supervisor, Female, 28 years).

Production was a multifaceted process needing a lot of mechanical and manual labor input. For the different activities there were different workers assigned at a time as well as machinery and infrastructure in place to facilitate the processes. The following excerpts help to elaborate these aspects of production dynamics in export horticulture:

For harvesting to take place we need the workers, crates for the putting the produce, sheds for keeping the produce away from direct sun as well as ready transport from the farm to the pack-house (IDI_20, Supervisor, Male, 32 years).

This land has already been ploughed by the tractor and is ready for planting. It is just that the tractor prepares the bed for planting but it cannot put straight furrows on the soil that will be for planting the seed and this is what the women are using the sticks for (IDI_22, Agronomist on attachment, Female, 22 years).

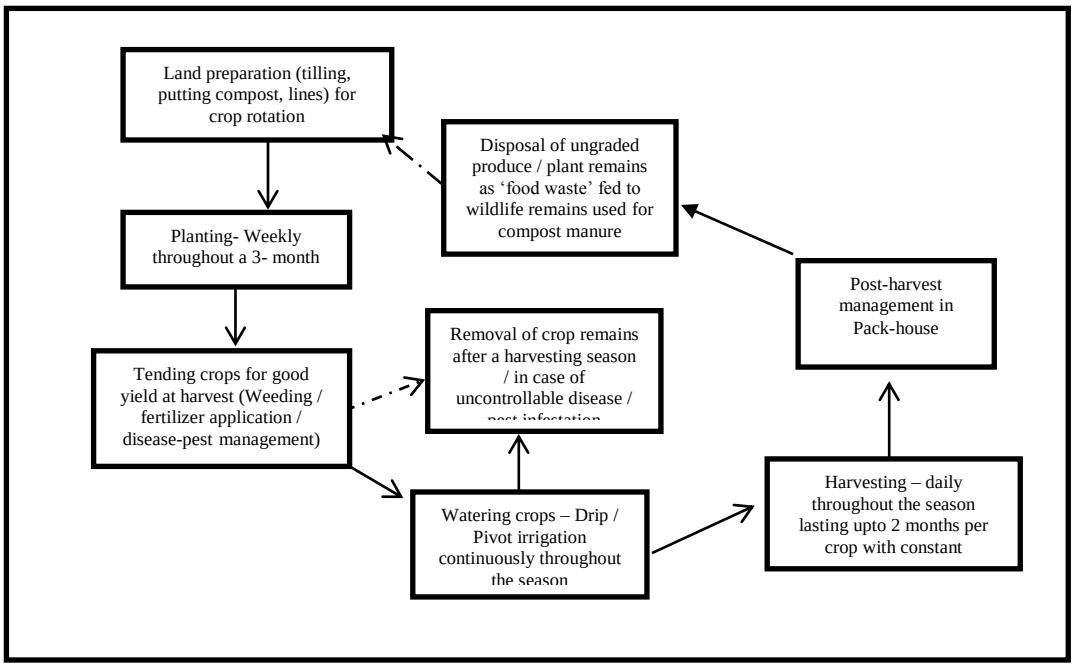

Figure 4.1: Summary of activities in the production unit of export horticulture. (Source: Author, 2018)

In the fields and greenhouses, different crops were grown including vegetables and high care products as the investor worked at creating a market niche as a diversified horticulture product producer and exporter. This is as illustrated in plate 4.1 and espoused in the excerpts:

We have tender stem broccoli and runner beans which we grow throughout the year as well as, peas, mangetout, herbs, and sugar snaps which are seasonal based on the market demand. We have a big farm and so we rotate the crops in different blocks for the different planting seasons (IDI_12, Farm clerk, Male, 31 years).

New varieties of crops are being grown here in the NPD / high care (greenhouses) but on a much smaller scale. Currently we have pak choi – Chinese cabbage (purple, green, baby spinach, mustard) and herbs (sage, basil, garlic, chives, leeks) as well as onions (bulb and spring) (IDI_39, Supervisor, Female, 52 years).

The following excerpts detail the major vegetables produced in the horticulture investment namely: runner beans and tender stem broccoli (TSB):

> *Runner beans are always on high demand and sometimes we get worried when what we have in the farm does not meet the market demand. We actually call it the 'green gold' in this farm. Sometimes we can have projections and yields are affected by water shortages and we cannot produce as much as we had expected* (IDI_31, Crop manager, Female, 41 years).

> *Tender stem broccoli (TSB) is our year-round product. It is what we started planting when this farm started and we have always had it in all the seasons. It is sold as a variety of products including; tips, tops, spears and combo, all from the same crop (*KII_01, Manager, Horticulture investment, Laikipia County).

Raspberry fruits were also produced and were the most recent crop in production. During the study period, raspberry was being grown for the second season. As is elaborated in the excerpts the farm was scaling up the production of raspberry fruit as it was a more lucrative product in the market:

> *We are now growing raspberries for the third year. In the first year it was planted as a trial and to gauge the productivity and logistics in the value chain. From the 2nd year we planted the raspberries for commercial markets* (IDI_07, Crop manager, Male, 32 years).
> *Raspberry is a good product that we are now diversifying with as it is fetching good prices and is also a high demand product. However, it requires a lot of work to produce and we have even hired an expert to manage that product line* (IDI_06, Administrative officer, Male, 38 years).

Plate 4.1: Picture summary of the variety of produce 1. Runner beans ; 2. Tender Stem Broccoli (TSB) ; 3. Raspberry fruits and 4. Baby leaves (Photos taken by Author, 2017)

The horticulture crops were water intensive and there were elaborate considerations for watering crops based on several factors as summarized in the excerpts:

> *Horticulture crops are water intensive and the farm practices irrigation farming because there are periodic water shortages. For instance, one crop of broccoli required upto 20 litres of water from planting to harvesting* (IDI_32, Farm worker, Male, 28 years).

> *Tender stem broccoli (TSB) the projections per block of half hectare is about 1.5 tonnes and can be harvested for upto 2 months if trimmed and irrigated well during the harvesting period* (IDI_19, Supervisor, Male, 41 years).

Irrigation was an important aspect of production and technology was incorporated into the process to enable efficiency and water management as informed by the in-depth interview excerpts:

> *The farm practices irrigation farming. Drip and pivot irrigation systems are used at the farm to complement each other in providing the most efficient and reliable crop watering system. The terrain, type of crop and the need to reduce water wastage informed the irrigation systems in place given that the farm experiences water scarcity challenges periodically* (IDI_38, Farm worker, Male, 37 years).

> *We have an elaborate water pumping system in place that connects the river to the dam reservoirs and to the drip and pivot irrigation systems. The water circulation system is also connected to a manhole as an outlet for contaminated and dirty water from the farm* (IDI_40, Farm worker, Male, 42 years).

To support the growth and better yields from the different crops, application of fertilizers, micro-nutrients and compost were key activities in the production processes as is detailed by the excerpts from some of the study informants:

> *They are putting compost media into black polythene bags to be used as hydroponic where the crops in the green house are usually grown. The compost media is most preferred for use in the green house because it is highly nutrient for the crops. Compost is made up of mainly all organic waste from the farm including animal manure* (IDI_08, Supervisor, Male, 33 years).

> *Almost all the crops on the farm need the main nutrients namely; phosphorous, Potassium, and Nitrogen which happen to be the main fertilizer components (macro nutrients)* (IDI_41, Scout, Female, 26 years).

For technology integration in production, there was also a fertigation in place in the premises to automate fertilizer and micro-nutrient application alongside the drip irrigation as well summarized by one of the in-depth informants:

> *The fertigation unit is a recent technology through which the farm is feeding the required micronutrients and fertilizers to crops* (IDI_09, Farm worker, Male, 27 years).

Additionally, pests like thrips, white flies and aphids as well as diseases such as powdery mildew were common in green vegetables and if not controlled damaged the crops and affected crop yields and supplies as informed by the excerpt:

> *Produce damaged by pests and disease affects our market supply and is a loss to the investor. This is because the consumer is very strict on the cosmetic specifications as much as the food safety standards for minimum residue levels and foreign organisms*

> *being found on packed produce like caterpillars on broccoli. The penalties are very damaging to the producer* (IDI_02, Quality control officer, Male, 33 years).

The horticulture investment therefore relied on integrated pest management (IPM) with different methods and technologies adopted for handling diseases and pests to maintain product quality and safety as explained by the different study informants:

> *For spraying to take place the process usually starts from the scouting department. The scouts walk around the farm (in the assigned phases) to inspect the field and identify which pests / diseases are infesting on the crop and advise on the spraying/ pesticide management strategy to be used* (IDI_10, Scout, Female, 24 years).

> *The baby leaves including all pak choi varieties are greatly affected by pests such as Thrips and Diamond Black Moths (DBMs) and so we grow them in the greenhouses to keep off these pests. For snow peas they were often affected by powdery mildew* (IDI_08, supervisor, Male, 33 years).

> *The maize is usually planted at the edges of a bed with runner beans/ TSB/ snow peas mainly as a windbreaker but also to keep some of the green eating pests at bay* (IDI_18, Recorder, Male, 43 years).

> *Fertigation as a technology is helping out as the farm is adopting hydroponic planting where crops are grown in Cocopeat with no humus and then fertigated to grow free of pests and diseases* (IDI_37, Supervisor, Male, 47 years).

The use of pesticides was highly regulated given that the market standards were very particular on the minimum residue levels (MRL) on produce to ensure food quality and safety as espoused in the excerpt:

> *This farm is good because they use good pesticides- Level 4 (environmental / human friendly pesticides). The crop is usually inspected for residue levels (MRLs) when being exported. It is only in very dire circumstances that they use level 3 – very strong-chemicals. However though, when you compare with the local market farmers it is worse as they use level one pesticide. Level one pesticides effectively eliminate all pests but are very harmful to both humans and the environment* (IDI_25, Agronomist on attachment, Female, 22 years).

To enable traceability of production and inputs, the farm invested in farming program software (E-ticketing farming technology) used to monitor the processes from planting, weeding, fertilizer application and pest management until the crop is ready for harvesting as further espoused:

Therefore, once the scouts assess the pests / diseases thresh hold on the crop they report to the crop walk administrator who manages the E-ticketing program. The computer program utilized a ticketing and labeling system that authorized inputs and monitors the processes (IDI_12, Male worker, Production unit, 31 years).

Post- harvest management in the onsite Pack-house facility

At the study site produce was delivered to the pack-house facility from the production unit as well as from outgrowers contracted by the horticulture company an aspect better detailed in the excerpts from in-depth and key informants in this study:

As producers, the customer is the pack-house. They give us product specifications from market / customer who deals directly with the pack-house, and then the pack-house communicates with us (IDI_07, Crop manager, Male, 32 years).

We have contracted farmers around this region and they produce and supply different products. We have groups of several farmers who are contracted and monitored by this farm to supply products on program like for instance fine beans coming in from the Timau group (KII_01, Manager, Horticulture investment, Laikipia County).

The onsite pack-house facility was set up in line with international standards outlined by the British Retail Consortium (BRC) for fresh produce packaging facilities. It included elaborate technologies and systems to enable efficient processes, aspects further elaborated by informants in the excerpts below:

This pack-house was set up as an integrated facility within the horticultural farm. The structure conforms to the stringent international standards for packaging facilities. These standards are subject to vetting and annual certification by the British Retail Consortium (BRC) (IDI_02, Quality control officer, Male, 33 years).

The facility is set up using state of the art modern modified atmosphere technology with an elaborate cold chain management system, automated weighing and conveyer belt technologies. It has been constructed in such a way that no openings are allowed in the building structure to keep off any rodents / pests (KII_02, Manager, Horticulture investment, Laikipia County).

The pack-house operated on a 24-hour working schedule and uninterrupted power supply was mandatory to enable operations in the pack-house and in the farm. The Kenya power and lighting company (KPLC) supplies electric energy and we have invested in huge generators next to the pack-house facility to ensure automated power backup in the event of electricity blackout (KII_01, Manager, Horticulture investment, Laikipia County).

The pack-house comprised of different sections for the post-harvest management activities and processes, as is detailed by the in-depth informant in the following excerpt:

The pack-house comprises the following sections: Intake with a cold room (blast chillers); the floor (Grading, trimming, weighing, labelling, packaging) – and cold room (blast chillers) for storage awaiting dispatch and a loading zone (IDI_26, Supervisor, Female, 34 years).

As at the time of the study different activities took place for post-harvest management as summarised in figure 4.2

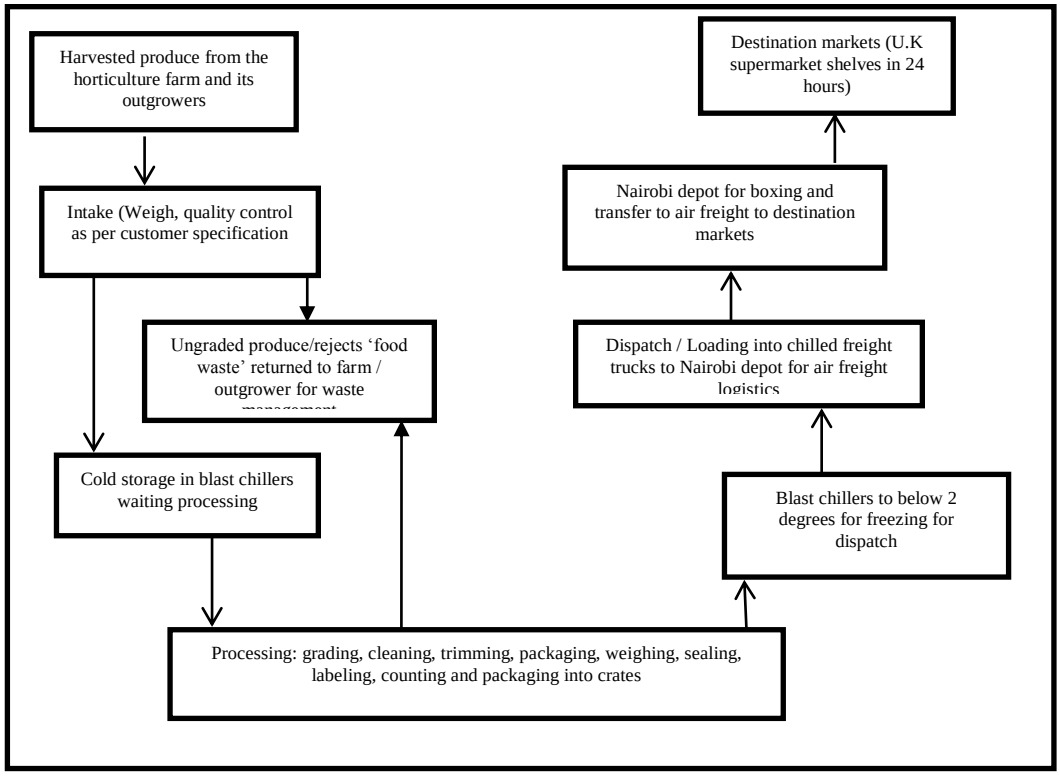

Figure 4.2: Summary of pack-house departments and activities for postharvest management (Source: Author, 2018)

At the pack-house intake, raw produce was received and assessed for quality and bulk weighing of produce as a first of the processes to take place in post-harvest management. These intake activities are as detailed in the in-depth interview excerpts from different informants in the horticulture investment:

> *I do quality assessments on raw produce received from the farm or the outgrowers. I check whether there are any defects and confirm the quality based on the customer specifications. If it's for example tender stem broccoli, the first thing is to check and record the temperature that it has arrived with from the farm. The second thing I do is to check the produce for any defects or micro-organisms like woody stems and caterpillars respectively* (IDI_011, Female worker, 21 years).

> *First of all, at receiving we do quality checks and the intake checks where we weigh the produce to assure the supplier that what I harvested and send to you arrived in the same weight. As for quality we pre-cool the product as fast as possible to extend its life, then go into the processing block where we do a lot of activities including the grading, trimming, slicing, then packaging and finally labeling* (IDI_02, Quality control officer, Male, 33 years).

From the intake the produce was then recorded, cleared as meeting the customer specifications and thereafter forwarded to blast chillers for cooling:

> *There is also a screening table usually for detecting caterpillars in snow peas/sugar snaps. The illuminated lights on the screening table are also useful for trapping any flying insects in the pack-house and maintain ultimate food safety* (IDI_03, Team leader, Male, 29 years).

> *At the cold-room temperatures are controlled to ensure that the produce is kept fresh at low temperatures of about 2 degrees centigrade* (IDI_04, Male worker, 26 years).

In the floor/ processing zone, activities that took place included screening for quality check, grading, trimming/ cutting, packing, weighing and labeling of products as espoused in the excerpts and illustrated in plate 4.2:

> *From the cold room, (following the order of which produce that came through the intake earliest) produce is taken to the floor where on different sections with different teams of 8-15 people per table it is graded, trimmed, weighed, labelled, packed, sealed and according to the different customer specifications* (IDI_26, Supervisor, Female, 34 years).

> *My work in the pack-house started as a grader in 2011. Once the product has been packed it is passed on to the sealing section and onto the stacking bay through a conveyer belt which ensures efficiency and minimizes on the manual processes of perhaps having a grader having to move produce from one point to another* (IDI_03, Team leader, Male, 29 years).

Plate 4.2: Pictures capturing grading, packaging, weighing and sealing of produce in the pack-house along the conveyer belt circuit. (Photos taken by author, 2017)

Hygiene, safety and maintenance were also sections in the pack-house facility that supported efforts for quality and safe products as espoused in the excerpt:

> *Because for everything to flow smoothly in the pack-house hygiene is to be observed. In handling food, cleanliness is a must. As the people working in hygiene we take care of ensuring cleanliness for largest percentage* (IDI_014, Male worker, 36 years).

Additionally, traceability was followed up in the pack-house through labelling of produce through the different stages until a final product with a bar-coded label as further detailed in the excerpt:

> *In the pack-house produce would be graded and packaged with labeling for easy traceability to the farm in case of any safety and quality queries in the markets* (IDI_011, female worker, 21 years).

> *At the pack-house the quality assurance team maintains a shelf life of the produce for quality control and also for verification and traceability in case of any customer complains on the status of the produce. As such in case of any complains the company can be able to trace the weak link in the cold chain management. Is it at the company, at the airport, freight services or at the distributor in the UK?* (IDI_02, Quality control officer, Male, 33 years).

The label was linked to the computer program with details of each product from production to packaging for quality and safety controls. Since horticulture crops are highly perishable, fast tracking post-harvest management processes is key to enhancing the shelf-life and value of the

products. Transport (road / air) arrangements were in place to ensure the shortest time was taken from farm to fork and under cold chain as elaborated in the excerpts:

> *Transport of the highly perishable produce in the shortest time is important for preserving freshness. From the farm to pack-house we give an average of 20 minutes. And within 24 hours of harvesting, a product should be in a supermarket shelf in the United Kingdom* (IDI_31, Crop manager, female, 41 years).

> *Some of the freight companies that this company subcontracts are Sky train, Kenya airways (KQ), UAE, British airways- with whom they have pre-existing contracts. The freight arrangements are made in our Nairobi office* (KII_02, Manager, Horticulture investment, Laikipia County).

The cold chain was well outlined and facilitated from the farm to the market with clear standard operating procedures in place as is elaborated in the excerpts:

> *The produce is then stacked into crates and kept in the cold room (blast chillers) awaiting loading into trucks for transportation to Nairobi and thereafter to the airport and into the UK market. Once loaded into the freight trucks usually fitted with the cold chain to maintain low temperatures, it takes about 4 to 5 hours to get to Nairobi* (IDI_04, Male worker, 26 years).

> *For cold chain management, some of the trucks transporting products to Nairobi have automatic chilling settings which adjust along transit. Others however have to be manually charged at the farm and arrive in Nairobi at about 5 degrees. At the Nairobi depot the products are put into boxes and cargo freight arrangements made. Once the products are handed over to the airlines, it is hence forth their responsibility to ensure the cold chain is managed all the way to the destination market* (KII_01, Manager, Horticulture investment, Laikipia County).

Produce that did not comply with the consumer specifications was rejected and returned to source (either the outgrower or kept for disposal in the farm).

As espoused in the study, the investors were driven by the international to national food standards that defined the setting up and day to day functioning of the export horticulture institutional setting for the production of fresh vegetables and fruits (Henson, 2008; Lee et al., 2012; Otieno, 2016). As large-scale producers they can monitor the processes for traceability and guarantee quality and safety of the final product. This secures their market share and profitability

from export horticulture as an agro-industrial food system with a global value chain (Borot de Battisti et al., 2009; Maertens and Swinnen, 2012; Ouma, 2010).

As illustrated in the study and reported elsewhere, export horticulture is a beneficial venture for investors as well as the local communities as they are able to generate income from the sale of fresh fruits and vegetables, offer employment and income for outgrower farming (Dolan et al., 2002; Dolan and Humphrey, 2004; Humphrey, 2004; Weinberger and Lumpkin, 2008 ; Fink, 2014; MacGregor et al., 2014).

Investors as actors in the agro-industrial food system played several roles in the value chain including; production, processing and distribution of the horticulture products to the consumers (Jaffee, 2003; CARE, 2016). From the study, the investors provided the capital to access the land, water, technology and material inputs to enable the operation and functioning of the large-scale export horticulture in Laikipia County as is also documented in other literature (English et al., 2004; Henson and Humphrey, 2010).

4.3 Workers as Producers / Processors in large-scale export horticulture

Workers in the horticulture farm comprised of both skilled and unskilled labor that was engaged on permanent and short-term wage-based contracts respectively. Work in large-scale horticulture was open for hire without discrimination as per company policies. Many workers especially women found short term sources of income through the wage employment opportunities in large-scale horticulture as summarised in the excerpt from an expert interview with the County Agriculture officer:

> *In the morning in Nanyuki town, you will find about 20 buses or more that ferry workers both from the management level and the farm hands moving across to the various farms. The locus of their operation is Nanyuki town* (KII_09, County Agriculture officer, Male, 47 years).

Permanent workers

The permanent workers (mostly skilled labor and at management and administration level) is done through the company headquarter human resource office (Nairobi). The permanent workers made up just slightly over one per cent of the total workforce at the horticulture investment. The permanent workforce mainly offered management, technical and administrative support to the operations in horticulture production and post-harvest handling, aspects highlighted in the in-depth interview excerpt:

> *The management tasks mainly included coordination of production, staff management, technical support as well as quality control and assessment either in the farm or at the pack-house and other supporting units such as security, kitchen/canteen, clinic, residence and security* (IDI_06, Administrative officer, Male, 38 years).

The management level staff was recruited from the horticulture investment's main office in Nairobi. As is highlighted in the excerpts below, a majority of the workers at this management level in the horticulture investment were male:

> *We have a team of 12 members that includes the general manager (1), the farm and pack-house managers and their deputies (5), the crop managers (4) and the human resource (2) staff* (KII_01, Manager, Horticulture investment, Laikipia County).

> *In the management so far, we have 3 women, one in pack-house, and 2 in the production department as outgrower liaison and crop manager respectively* (IDI 13_Farm office assistant, Female, 22 years).

The management team mainly reported to the recruiting office and the farm based human resource office. Most of the management and administrative office workers had a long history with the exporting company owning the study site. Most the workers had even worked in the company's other production units, with the least having about two years working experience in the study site as illustrated in the excerpt detailing the career trajectory of one of the managers:

> *I have worked for over ten years in this farm and grown from a general worker to my current role. I started work here with only a Kenya certificate of secondary education (KCSE) qualification the company has been supportive of my career advancement. I now*

> *have a Master of Science degree qualification in horticulture science* (KII_01, Manager, Horticulture investment, Laikipia County).

The management / administration of the farm had over the years of working in the horticulture setting regarded it as their own investment. They worked closely with the owners of the horticulture investment and in their talk about the farm they often mirrored the sentiments of its owners. In their talk of the horticulture investment, in terms of ownership and management their sentences start or include the first-person representation of speech; 'We'. The management therefore was present to talk about the farm on behalf of the owners who were rarely available on site. There were also about 50 unskilled workers (a group of farm supervisors and general workers) who were also on permanent work contracts as explained in the excerpt:

> *There are some workers recruited in the formative years of the horticulture farm, in the period upto 2010 and were entitled to retirement benefits. After that formative period until 2010, the workforce is now mainly contracted on short term periods not exceeding one-year wage-based agreements (*(IDI_28, Farm office assistant, Female, 25 years).

However, as highlighted in the following excerpts, the workers didn't seem to understand the dynamics of the terms of engagement for permanent work in the export horticulture setting:

> *This company is not straight forward. Sometimes the criterion for permanency is not so clear so we have settled for casual labor even when we have qualifications. Like me I have been working here for 4 years now, on and off usually on a 3 month renewable contract yet I have a diploma in Agriculture* (IDI_29, Farm worker, Female, 26 years).

> *They do not seem to hire permanent staff anymore. Anyway at least for casual, when one wants to leave it is without strings attached but for a permanent employee one has to always worry about their severance pay* (IDI_12, Farm clerk, Male, 31 years).

Seasonal workers

The bulk of employees (over 80 per cent) in the horticulture investment were the seasonal (casual) labourers. The seasonal workers comprised of unskilled/semi-skilled workers hired on

short term daily wage basis an aspect detailed in the excerpt from an interview with the Administrative officer:

> *For the seasonal staff we give them contracts are varying from between one to three (1 to 3) months renewable based on work availability and performance. Like now we are recruiting for the raspberry section, we need harvesters, recorders and supervisors* (IDI_06, Administrative officer, Male, 38 years).

The recruitment of the seasonal workforce was mainly handled by the human resource office and the farm-based clinic and was with minimum requirements. The seasonal workers were hired depending on the labor demands in relation to production and market targets at the horticulture investment. The following excerpts further detail the recruitment process and requirements:

> *I was recruited last week and I reported to work today (7th November 2016). I was asked to bring copies of my National Social Security Fund (NSSF), National Health Insurance Fund (NHIF), national identification (ID) and the Kenya Revenue Authority (KRA) pin) but I forgot the ID. I will bring it tomorrow* (IDI_23, Female worker, 29 years).

> *The company employs people all over. It does not check whether you from this area or not or even if you went to school or not. As long as you have the particulars that can allow you to be given that job and there is a vacancy, then you are recruited immediately* (IDI_42, Supervisor, Female, 29 years).

4.3.1 Socio-demographic characteristics of the seasonal workers

The socio-demographic characteristics of the seasonal workforce included education level, age and gender. Low literacy levels was a characteristic of the seasonal workforce as illuminated in the excerpts given that the level of education was not considered during their recruitment at the horticulture investment:

> *Only about 70 per cent of workers here have completed primary school education. The 30 per cent combines those that never attended formal schooling with those started secondary school education dropped out at some level and those that have completed and attained a secondary level certificate* (IDI_21, Head supervisor, Female, 43 years).

> *From our records, most of the workforce are young men and women born 1990s with mostly a class 8 education and a few having proceeded to secondary school* (IDI_21, Head supervisor, Female, 43 years).

The workforce age categories varied between 18 and 65 years old, with the majority being a youthful workforce aged between 18 and 45 years old. The largest gender proportion of the unskilled labor (over 75 per cent) were women as expounded in the excerpts:

> *The average age of a farmer across Kenya and even here in Laikipia County is individuals over 60 years. However, when you come to horticulture you will find very vibrant young people between 18 and 35 years of age* (KII_09, County Agriculture officer, Male, 47 years).

> *Currently there are about 1073 employees with the farm having about 600 and the rest being in the pack-house. Of the workers, the majority are women because most of the work here is done better by women than men* (IDI_31, Crop manager, Female, 41 years).

At recruitment a seasonal worker needed not have any previous work experience. They were deployed based on their availability and willingness to work. For the farming and pack-house activities, most of the workers learned on the job. As detailed in the following excerpt, the initial recruitment for the seasonal workforce was mainly as general workers (see Table 4.2) at a daily wage rate of Kes 240 with possibility to graduate to a different cadre and department with time:

> *From a general worker to a supervisor the daily wage varies on a case by case assessment where the human resource office and farm manager agree with an individual on how much they will earn. The minimum daily wage is Kes 240 and a supervisor earns approximately Kes 500* (IDI 13_Farm office assistant, Female, 22 years).

For instance, in the harvesting department in the farm and grading in the pack-house workers earn bonuses for kilograms harvested or packed above the day's target as explained in the excerpts:

> *The work in pack-house especially at the floor is dependent on targets per group / table which has about 18-21 people. A table usually has a target of 1200kgs (1.2 tonnes) and any excesses to these are paid as bonuses which are shared among the table members. Sometimes a person may sign for even upto Kes 800 a day against the daily wage of Kes 295 for pack-house workers (*IDI_11, Female worker, 21 years).

Workers were usually assigned tasks based on their preference and / availability of work in the different sections in the farm and in the pack-house. They mainly handled the daily activities of

the farm and pack-house as well as in the support staff section mainly in the kitchen, security and hygiene as summarised in the excerpts:

> *Now our job is just for planting, we prepare the land after it is cultivated by a tractor and then we broadcast the seeds. Later on, another group comes to weed, and another comes to put fertilizer, then there are others come to harvest* (IDI_29, Supervisor, Female 52 years).

> *Spraying of crops for pest and disease management is a job usually done to meet a day's target. At the point the day's target is accomplished, work for that day is counted as completed. The sprayers can rest for the remainder of that day until it is their time to clock out after 8 hours at work depending on what time they clocked in* (IDI_34, Supervisor, Male, 40 years).

In the course of time, a general worker could be redeployed as a team leader or supervisor based on their experience and dedication to work. Table 4.2 summarizes the workers categories in the export horticulture set up. Notably though, as elaborated in the following excerpt, availability of work at times surpassed the individual choice of where to work as they would at times be assigned to work where there was seemingly more to be done:

> *Since I came to this section as a supervisor, I have noticed that fewer women are assigned to fertilizer which is usually a target-based task with no bonuses in pay. This means that the women do more work for just the ordinary pay of Kes 240 a day unlike other departments like harvesting where they are paid with bonuses. So today I have complained about this to the farm manager and I was given two additional workers and so I now have eight women in total for the same portion of work earlier assigned for six (*IDI_36, Farm supervisor, Female, 48 years).

Table 4.2: Worker categories in horticulture production (Source: Author, 2018)

Categories of workers	Terms of engagement	Tasks
Management (General manager; Farm / Pack-house managers; Deputy managers; Crop managers)	Permanent; Recruited from company head offices in Nairobi; Average 2 years working history with the company	Coordinate operations and administration for horticulture production in the farm and pack-house Give projections and targets for horticulture produce for a season Manage labor
Support staff Kitchen, canteen, security, front office, farm clerks	Seasonal / permanent Recruited from horticulture farm on a rolling basis	Support the management in welfare and management
Head supervisors	Permanent and pensionable; Mostly in the fields; Comprises workers employed in the formative years of the farm; Have over 7 years of experience.	In charge of the scouts, supervisors, team leaders and general workers. Coordinates work allocation and target setting Reports to the management
Scouts	Seasonal with longer contracts of upto one year; Some are students (crop science, agronomy) on industrial attachment;	Crop monitoring throughout the season for pest management and tending Reports to head supervisors and crop managers Follow up produce in the farm throughout its cycle to ensure that the needed procedures are applied to eventually have quality and quantity produce from the crops. They provide a quality check perspective within the farm set up from planting until produce is ready for harvest. From that point the quality control (QC) takes up the follow up for quality produce.
Quality control (QC) workers	Seasonal with longer contracts of upto one year.	Often found in the harvesting department and at the pack-house Ensure that quality of picked produce is as per customer specifications from farm to pack-house; and in the pack-house throughout the processing until it is a finished packed product ready for dispatch. Reports to quality assurance and crop managers
Supervisor	Seasonal / permanent	Supervisors are charged with labor management. They are usually given to oversee a department alongside one or two others. Oversees daily work allocation and target accomplishment In charge of general workers and team leaders. Most of the supervisors have been promoted overtime having started out as general workers. In some cases, a scout may also double up as a QC; a team leader may also be the supervisor.
Team leader	Seasonal	Works with the supervisors especially in the pack-house to follow targets in smaller groups in the different sections Usually general workers who've been assigned the additional responsibility to coordinate the activities of the group / table they are working in.
General workers (in farm and pack-house)	Seasonal	Assigned some tasks in different departments like grading, harvesting Reports to supervisor and team leader Over time given the work output a general worker may graduate in to a team leader/ QC or supervisor

As reported in the study the export horticulture investment provided job opportunities for many wage workers from the region. Export horticulture farms such as the study site employ several thousand farm workers, who at the same time are also smallholders (Kiteme et al., 2008; GoK, 2014b; Lanari, 2014). Notably workers in export horticulture engaged mainly in the informal economy offering them short term contracts with minimum wages and no security of tenure. Similar findings are reported elsewhere (Schuler, 2004, Kiteme et al., 2008; Ulrich, 2014).

Export horticulture offers unskilled workforce employment where the level of education is a key factor affecting the level of informality as reported in this study. According to ILO (2018), globally, when the level of education increases, the level of informality decreases. People with secondary and tertiary education qualifications are less likely to be in informal employment compared to workers who have either no education or completed primary education (ILO, 2018).

The sector employs mostly seasonal workforce to engage in the production and the processing activities. Skilled and unskilled workers of varying cadres form vital actors in this sector as illustrated in this study and reported elsewhere (Schuler, 2004, Kiteme et al., 2008; Ulrich, 2016). Depending on the specific situation and product, the labor requirement may be seasonal and it may also need to be highly skilled, but it needs to be relatively low cost to maintain a competitive advantage over European production and processing (Tyler, 2006; Afari, 2013). The low cost for labor meant poor working conditions and terms of reference as illustrated in the study findings and reported in other studies (Tyler, 2006; Kioko, 2010).

Rural labour markets such as the one presented by large-scale export horticulture settings such as in this study present high levels of informality, multiple job-holding and casual work arrangements, and pervasive gender- and age-based inequalities(Njobe & Kaaria, 2015). In Kenya, casual and temporary workers are legally required to be promoted to permanent status

after eight months, but they are often found returning year after year on a renewed temporary contract as illustrated in this research (GoK, 2007). According to the 2011 ILO data, SSA had the highest level of working poor at 65 per cent and one of the highest levels of informal work arrangements, and pervasive gender- and age-based inequalities. The region also had one of the highest levels of vulnerable employment at 77.6 per cent, whereby the share of women in vulnerable employment was the highest globally at 85.6 per cent (ILO, 2014; FAO 2014).

Notably, informal employment such as is offered in export horticulture is a greater source of income for women who made upto 75 per cent of the workforce. This finding however is contradictory of the ILO (2018) report on the informal economy where men at 63.0 per cent are more than for women (58.1 per cent). That out of the two billion workers in informal employment worldwide, just over 740 million are women (ILO, 2018). The divergence here though is in the general sense where this ILO data captures workers in all informal economy settings globally. Women are reported to be involved in agriculture since historic times though with sparse evidence to account for their labor input. In Sub-Saharan Africa women have the highest average agricultural labour force participation in the world, an estimated 62.5 per cent in 2012, compared with 36.4 per cent globally (Farnworth et al., 2013).

According to the ILO (2018), women are more exposed to informal employment in most low- and lower-middle income countries such as Kenya and are more often found in the most vulnerable situations. This corroborates the study findings where most of the workers who are immigrants in Laikipia County. Work in the horticulture investment for minimum wages yet with limited bargaining power as they need the jobs although temporary and too demanding of time and commitment to meet their daily food and other livelihood needs. Similar findings are reported in other studies focused on general agriculture and also export horticulture (Dolan,

2005; Dolan et al., 2002; ILO, 2011; AFCAP, 2013). A discussion on gender dynamics is export horticulture is advanced later in this chapter.

In the study area, Schuler (2004) demonstrated that a handful of workers on one farm in 1991 had grown by 2003 to about 5,900 workers across different companies. Presently, there are at least 30 horticulture companies employing an estimated 11,600 workers in the last decade (Lanari et al., 2016; Schuler, 2004). In addition to the economic opportunities of horticulture for the producer, the high labor demands of horticultural production and related processing industries have the added benefit of local employment generation, development of the local areas and exchanges of good agricultural practices (CARE, 2016; GoK, 2014; Ongeri, 2014).

In addition to the economic opportunities of horticulture for the investors, as illustrated in this study, the high labour demands of horticultural production and related processing industries have the added benefit of local employment generation, development of the local areas and exchanges of good agricultural practices (CARE, 2016; GoK, 2014; Ongeri, 2014). The food-related activities of the export horticulture sector of growing, processing and packaging fresh produce are normally both technically demanding and highly labor intensive(IFPRI, 2004; Weinberger and Lumpkin, 2008;Ulrich, 2014).

Additionally, with the export horticulture sector pushed into arid and semi-arid (ASAL) zones with limited water resources, large-scale production is often interrupted when there are water shortages (Kabiru et al., 2017; Ulrich, 2014 ;Chan, 2013). Downscaling production translates into reduced work load and thus the need to also downsize the labor force and reduce on costs of production. This though often impacted negatively on the workers livelihoods as it terminated their income earning without adequate notice to prepare for transition. This means lost job

opportunities and unsecured livelihoods for the workers most of whom solely depend on export horticulture for their subsistence.

4.4 Outgrowers as producers in large-scale export horticulture

The outgrowers were farmers contracted as producers by the export horticulture company. The excerpt explains the engagement for outgrowers in line with regulations that are largely informed by the international food safety and quality standards and the company's aim to meet the customer specifications:

> *Outgrowers usually include individuals or farmer groups that have met the horticulture company's basic standards and regulations for farming* (IDI_46, Farm outgrower technician, Male, 39 years).

The outgrowers were from all over Kenya, with some supplying produce to Laikipia County based pack-house. Other outgrowers from outside the study region supplied their produce to the Nairobi and Mwea pack-houses. Outgrowers were important actors in export horticulture as they would provide buffer supply when there was a dry spell, usually typical of a semi-arid climate area but not conducive for continuous production of fresh vegetables in Laikipia County explained in excerpts from key and in-depth informants:

> *When it dries up here in Laikipia, our outgrowers in Narok and Kinangop still have some rain and so we are getting some produce from there to keep the supply chain working* (KII_01, Manager, Horticulture investment, Laikipia County).

Outgrowers were usually engaged as individuals or farmer groups after thorough vetting to comply with the set standards and regulations for export horticulture farming. The standards and regulations were founded on the international food safety and quality standards (Private Voluntary Standards - PVS) and the company's aim to meet the customer specifications. Outgrowers also benefitted from technical assistance and capacity building offered by the

company as detailed in the excerpt from an interview with the horticulture investment's outgrower technician:

> *As a technical person for outgrowers I train them and they can as well visit the farm and learn from what we are doing* (IDI_46, outgrower technician, Male, 39 years).

The exporter provided farming supplies and incentives including farm gate collection of produce to the outgrowers. The supplies were given on credit payable from the proceeds of the produce within a given farming season as summarized in the excerpt:

> *For french beans the period between planting and first harvest was 45 days. Thereafter the harvesting would go on for about 2 months if the crop was well irrigated and from a quarter of an acre a farmer can earn upto Kes 200,000 within one season* (IDI_44, Outgrower, Female, 32 years).

The export horticulture investment also empowered the outgrowers to enable them to have better produce aligned to the international standards as in the case narrated in the following excerpts by the horticulture investment management and one of the outgrowers:

> *One of our customers [a supermarket chain in the U.K] did the fair-trade beans competition for local farmers. In this case one of the outgrower groups won and they are using the money for community projects without us interfering* (KII_01, Manager, Horticulture investment, Laikipia County).

> *Another thing about our outgrower group is that we were able to enter into the world markets under the fairtrade. We were voted the best group here because of supplying a lot of quality beans to the horticultural exporter* (KII_04, Outgrower farmer group secretary, Laikipia County).

Export horticulture has potential for substantial economic, social, health and environmental opportunities to smallholders and the rural poor (AFFA, 2014; CARE, 2016; Ongeri, 2014; Weinberger and Lumpkin, 2007). In the study area, sunny weather and the water from the mountain have made Laikipia, Meru, and Nyeri counties home to a booming export horticulture industry (Lanari, 2014; Schuler, 2004). Outgrowers are engaged by the large-scale producers and thus earn incomes from the global value chain, though on a much smaller proportion than in the

1990s. Outgrowers of export horticulture are therefore said to be able to earn extra incomes, gain better access to markets and improve their livelihoods (Dolan, 2001; ACDI/ VOCA, 2009; Ongeri, 2014; Fink, 2014). Working with the exporting companies as an outgrower is as viewed as an opportunity to earn some additional income and provide money for subsistence and for contributing to smallholder farming activities (Afari, 2013; Ongeri, 2014; CARE, 2016; Lanari et al., 2016).

However, over the years the involvement of outgrowers has been greatly affected by the increasing market standards whose compliance costs are to be met by the individual outgrowers. This has over time resulted in outgrowers being dropped off the value chain as they do not meet the market threshold for quality standards as explained in the excerpt:

> *We gave them the new regulations, for those who managed we continued with them and for those who did not manage by the new standards we had to let them go because it was very difficult to have everybody on board* (IDI_06, Administrative officer, Male, 38 years).

As in the study findings, horticulture investments rely much less on the outgrowers to provide produce as they focused more to produce from within their own well-established large-scale farms. Outgrowers also had to meet the transaction costs of 'rejects classified as food waste' having been graded out based on cosmetic specifications of shape, size, and colour in spite of their labor, land and capital input to have the produce ready. This finding has been reported elsewhere (Colbert and Stuart, 2015).

In relation to unsecured livelihoods linked to this agro-industrial food system, the reducing participation of smallholder farmers in horticulture has been mainly attributed to the rising costs in production associated with the need to comply with the national regulation and the increasing international food standards (Asfaw et al., 2010; Henson and Humphrey, 2010; Ouma, 2010). Exporters now typically take up production to reduce on the transaction costs of risk and move

away from the more traditional spot markets that were arguably much easier to access for the smallholder farmers (ACDI/VOCA, 2009; MacGregor et al., 2014).

In the study site the company exports 80 per cent from its own production and 20 per cent from the outgrower. The horticulture farm grows its main vegetables and fruit for export namely; tender stem broccoli, runner beans Chinese baby leaves and raspberry. Other studies have also reported this reduced participation of outgrowers in the export horticulture, with the companies setting up their own establishments to guarantee production aligned to market standards (CARE, 2016; Mcllouch and Otta, 2002; Dolan, 2001). The exporters such as the study setting now rely on the outgrowers to provide a percentage of their export produce but now also produce more within their own well-established farms (ACDI/VOCA, 2009; MacGregor et al., 2014; Fink, 2014).

The strict adherence to international food standards is beneficial for consumer satisfaction (Ouma, 2010; McGregor et al., 2014). However, it is the outgrower farmer who has to bear the costs of compliance without any additional profits (Ouma, 2010; Ongeri, 2014; CARE, 2016).The working arrangement institutions are defined and controlled by the export horticulture investors. However this is to the loss of opportunities and incomes for outgrowers. The outgrowers, if not organized or supported by a larger producer were not benefiting as much given that the certification would disqualify a lot of them from the value chain (Njoroge and Okech, 2011; Ouma, 2010; Fink, 2014).

As reported in the study, outgrowers also face severe constraints as they are only able to produce as long as they can access water for irrigation and given the semi-arid climate, there are seasons in the year they cannot benefit from this venture (Adeoye et al., 2012; Fink, 2014; Lanari et al., 2016) . This means that for the largest part of local households engaged in rural economy neither

profiting from wage labour nor from outgrower schemes seems to be a long enduring and resilient activity, while access to common pool resources (CPRs) such as water is seriously curtailed (Weinberger and Lumpkin, 2007; MacGregor et al., 2014; Otieno, 2016).

Within the export horticulture investment setting the outgrowers had lesser bargaining power positions given their dependence on the investments for markets, farm inputs and technical capacities provided on credit as illustrated in this study and reported elsewhere (McGregor et al., 2015; Ongeri, 2014; Henson and Humphrey, 2010; Dolan and Humphrey, 2004). Additionally, the unfair practices in trade related to stringent and costly market standards in the agro-industrial food system as defined by the institutional settings, factors which have substantial effects on food waste levels greatly affect the outgrower farmer ability to fully benefit from the agro-industrial food system, and by extension their livelihoods and food security (CARE, 2016; Colbert and Stuart, 2015; Zaehringer et al., 2018).

4.5 The market / consumers in export horticulture

The market was identified in the study as a key value chain actor. The main market for Kenya's export horticulture products is the European Union (E.U.) specifically, the United Kingdom (U.K) as elaborated in the excerpt:

> *Once in the UK the product is handed over to the marketing agent –who then distributes to the specific supermarkets including Waitrose, Nature's choice and Tesco* (IDI02_Quality control officer, Male, 33 years).

The availability of the market ensured timely consumption of the high value yet perishable horticulture products. The following excerpt highlights the aspect that availability of the market was a key factor for producers to consider:

> *The fresh fruits and vegetables are highly perishable and therefore require a ready market. Since this farm was set up and even earlier from the 1970s when the horticulture company started we have over the years established and have a stable market base in the United Kingdom* (KII_02, Manager, Horticulture investment, Laikipia County).

Distributors in large-scale export horticulture

The services of distributors were aligned to the buyer-driven markets with the need to meet the standards thresh-hold for cold chain management, food handling and transportation. The Laikipia County horticulture investment linked to the markets through a U.K-based agent as explained in the excerpt by one of the managers:

> *We have an agent that is also part of the company. The agent is based in the U.K and handles the goods before they are distributed to the specific destinations* (KII_02, Manager, Horticulture investment, Laikipia County).

Once the produce arrived in the U.K, the cargo handlers handed it over to the agent for distribution and logistics to ensure that the produce is on the supermarket shelves in good time and condition as detailed in the excerpts by informants from the horticulture investment:

> *The agent handles the customer relations with the retailers in the market, manages orders and projections for produce throughout the season and is also charged with handling the produce once it arrives in the United Kingdom* (KII_02, Manager, Horticulture investment, Laikipia County).

> *In the UK the cold chain responsibility is held by marketing agency to secure the product until it reaches the customer. The product shelf life when chilled can be up to 15 days* (IDI_02, Quality control officer, Male, 33 years).

Notably, the market is highly competitive with particular quality standards and specifications for which the products were tailored to meet. The market was also very particular on the cosmetic specifications of the products as much as the safety and quality. At the onset of a working partnership, as explained in the following excerpt, the market mainly comprised of supermarket chains usually agreed on with the producer on the targets and specification of products:

> *We agreed with the customers through the agent on; the terms of engagement in terms of specifications, standards for safety and quality and the commodity unit prices. Based on such agreements, then the farm makes projections for the different seasons to satisfy the market demand* (IDI_07, Crop manager, Male, 32 years).

As in the study findings elaborated in the excerpts, the market utilised the private voluntary standards to regulate and check the quality and safety of horticulture products:

> *Once the products are in the United Kingdom there is also thorough vetting and inspection for MRLs. If a batch of produce is caught with an excess of the minimum residue levels then the country of origin of that produce is penalized from exporting- not just the company that owns the produce but the entire country (*IDI_02, Quality Control Officer, Male, 33 years).

> *Other certifications and standards that the horticulture companies are needed to comply with; Global GAP, Linking Agriculture to Environment (LEAF) Retailer regulation standards e.g. Tesco-for the farm* (IDI_07, Crop manager, Male, 32 years).

This finding on the private voluntary standards as key for the export horticulture production was further advanced as espoused in the excerpt by one of the key informants:

> *Internationally, the export horticulture investment had committed to global competitiveness through third party certifications to the required standards. Additionally, supermarkets like Tesco had individualized standards and regulations which they expected compliance with* (KII_02, Manager, Horticulture investment, Laikipia County).

While able to comply with the market standards and align to the trade regimes to a large extend, as illuminated in the study findings, the production capacity of the horticulture investment was often affected by water shortages resulting from the erratic weather and drying up of rivers in the Laikipia County:

> *For this company to produce for export we rely mainly on the market demand and access to water to determine the production* (KII_01, Manager, Horticulture investment, Laikipia County).

> *At times actually, it is that we struggle to meet the ever-increasing demand especially when we are faced with the perennial water shortages in this region* (IDI_06, Administrative officer, Male, 38 years).

As illustrated in this study, the horticulture sector's production of vegetables, fruits and high care products is market driven with increasingly stringent food safety standards resulting from consumer awareness and a series of food safety failures in the 1990s (Humphrey, 2008; MacGregor et al., 2014). In export horticulture, the European Union (EU) remains as Kenya's most important trading partner and accounts for over 75 per cent of horticultural exports (Henson and Humphrey, 2010; Otieno, 2016). Kenya, over the years has benefited from duty and quota-

free market access for its horticultural produce under the Cotonou regime and more recently through the Economic Partnership agreements (Ouma, 2010; Otieno, 2016).

The quota-free market access has been crucial in the rise in the value of horticultural export produce by an approximated seventy (70) per cent in the last decade (Otieno, 2016). However, despite this notable growth in value, Kenya's horticultural exports still experience restrictions in international to local markets in regard to competitiveness. These are challenges that are in relation to standards and regulations compliance in order to access the EU markets (Dolan and Humphrey, 2004; McGregor et al., 2010; Otieno, 2016). Despite the stringent standards, the consumer-led demand for these products has been increasing steadily in the last three decades with Kenya’s value of horticultural products quadrupling within this last decade (Otieno, 2016; GoK, 2017).

As illustrated in this study, the export horticulture sector in Kenya produces for specific consumers who define the market standards. The horticulture products were mainly targeted at retail consumers in the United Kingdom (UK) who accessed the produce from their preferred supermarket shelves. The consumers were safety and quality conscious and thus the stringent measures around the production of the food products (Ouma, 2010; McGregor et al., 2014; Otieno, 2016). As reported in this study, the consumer dictates the farming inputs, the characteristics (colour, size, shape) and the price of the horticulture produce. Similar findings are reported elsewhere (Dolan and Humphrey, 2004; Colbert and Stuart, 2015).

These international food standards and regulations often referred to as private voluntary standards (PVS) defined the export-oriented horticulture markets (Dolan and Humphrey, 2004; Ouma, 2010; GoK, 2012). As reported in the study findings, the private voluntary standards are key drivers in the establishment of large-scale horticulture production units in Kenya as in the

case of the horticulture investment where the study took place. Some of the key standards to which the horticulture companies have to align to include the Global GAP, LEAF, and BRC for pack-house processes (Dolan and Humphrey, 2004; Asfaw et al., 2010; Maertens and Swinnen, 2012; Weinberger and Lumpkin, 2008). The Global Good Agricultural Practices (GAP) formerly EUREGAP is a market driven certification developed by EU retailers to ensure product safety, environmental protection and the health and safety of workers and animals. The horticulture farm also ascribes to Kenya GAP which is also benchmarked in the Global GAP standards.

Retail chains together formed consortiums for regulation of produce on farm and in pack-house to ascertain quality, specifications for preference and safety for their wellbeing (Humphrey and Henson, 2010; Asfaw et al., 2010; Maertens and Swinnen, 2012). The consumer benefits most especially from the international to national food safety and quality standards as their final product was thoroughly vetted and certified at no extra cost(Borot de Battisti et al., 2009; Lee et al., 2012).

4.6 National to county state actors

As reported in the study, the Horticulture Crop Development Authority (HCDA) now the Horticulture Crops Directorate (HCD) was in charge of horticulture and was mandated with the implementation of the National Horticulture policy. The Pest Control and Produce Board (PCPB) monitored the use of pesticides and chemicals in export horticulture production. The horticulture investment was also vetted by Kenya Plant Health Inspectorate (KEPHIS) and Kenya Bureau of Standards (KEBS) for Sanitary and Phytosanitary certification (SPS) as further elaborated in the excerpts:

> *The products are also inspected by Kenya Plant health inspectorate Service (KEPHIS) for any pests and much recently for minimum residue levels (MRLs) from pesticide use* (IDI_25, Agronomist on attachment, female, 22 years).

> *The national regulators for export horticulture quality standards are the Phytosanitary certification from the Kenya Plant Health Inspectorate (KEPHIS), Kenya Bureau of Standards (KEBS), the Pests Control and Poisons Board (PCPB). They carry out sanitary and phytosanitary standards vetting, audit and certification of both production processes in the farms and of the finished products in the airports before they are cleared for export* (KII_09, County Agriculture officer, Male, 47 years).

The investment had to also align to international and national labor laws and provisions such as the international labor laws, Kenya employment act (2007) and the industrial act (1967). Business licensing was done at the national level with the company subject to export revenue taxes at that level. In the national to local coordination of the horticulture sector, as summarized in the excerpts, there were different actors and insitutions involved over time:

> *For business authorization the company is licensed annually and cleared by the Laikipia County government where it is located. The company also pays levies for transportation of produce across the counties* (IDI_06, Administrative officer, Male, 38 years).

> *We are members of the Fresh Producers and Exporters Association of Kenya (FPEAK), is an association of flowers and vegetables growers, which liaises with government institutions for compliance to market standards. There's also the Horticulture Crops Directorate and Kenya Plant Health Inspectorate that look into the issues of minimum residue levels (MRLs)* (KII_01, Manager, Horticulture investment, Laikipia County).

The state actors at the national and county levels also played the role of common pool resources -CPR- (water and land) management. As detailed in the excerpts, state actors authorised land tenure and access; water access and use as well as environmental management:

> *For environmental management, the horticulture farm is audited and certified annually by the National Environmental Management Authority (NEMA). We are audited and certified both locally and internationally for environmental conservation and management* (IDI_37, Supervisor, Male, 47 years).

> *The use and regulation of water is handled from the national government through the Water Resource Management Authority (WARMA) through water resource user associations in the sub catchment areas* (KII_07, Water officer, Female, 30 years, Laikipia County).
> *We have metres at the pumps for managing water from the River; we pay monthly rates to WARMA. Also, the Nanyuki Water and Sewerage Company (NAWASCO) provides tapped water services payable monthly* (KII_01, Manager, Horticulture investment, Laikipia County).

Additionally, there were local to national regulations and levies charged to the export horticulture investment. As reported in the study, the horticulture investment as a limited company was licensed annually and cleared for business by the County government (s) where it had presence. The aspect of market and other charges for export horticulture at the national and county governments is discussed later as an emerging aspect on institutional changes in horticulture production.

CHAPTER FIVE: PERCEPTIONS OF ACTORS IN LARGE SCALE EXPORT HORTICULTURE

5.1 Introduction

This chapter presents findings and a discussion aligned to the second study objective that sought to find out the large-scale export horticulture actor perceptions of food security and sustainability in Laikipia County. The perceptions of workers and investors as producers in the export horticulture value chain are also presented and discussed. Perceptions (views and values about the world and includes discourses and narratives) of producers in export horticulture as an agro-industrial food system were expressed in key informant interviews and in-depth informal conversations.

Their perceptions were informed by their ideologies and narratives regarding the food system and its viability in relation to food security and food sustainability. Their perceptions often influenced / were influenced by the formal and informal rules of the game in the horticulture setting.

The investors as producers and processors in export horticulture mainly regarded the investment as a beneficial venture for business as well as for the community. According to investors, export horticulture provided income opportunities to them as investors as well as their workers as well as outgrowers and benefitted surrounding communities. Workers as producers and processors in the horticulture investment In conclusion therefore, workers expressed varying perceptions in regard; to the working opportunities the company provided, the conditions of work, the welfare as well as the health and safety.

5.2 Perceptions of investors as producers and processors

Investors perceived the horticulture establishment as a big investment that was beneficial to the communities around it. Between the horticulture investment and the community, there existed unwritten / informal arrangements and rules regarding sharing of common pool resources like land and water with the community. As illustrated in the excerpts below, the investors regarded this arrangement as being mutually beneficial for the investment and the community at large:

> *We have Kariunga police station and another police base at Muramati and we supply them with water on a weekly basis* (IDI_06, Administrative officer, Male, 38 years).

> *We have even donated some part our farm which still has its natural vegetation and is not arable at the moment to the community to graze their cattle. And in return they are taking care of this place* (KII_01, Manager, Horticulture investment, Laikipia County).

According to the investors, as further detailed in the excerpt, the good relation with the neighbouring community was important for the export horticulture investment as it secured its territory, produce and investments:

> *To be very honest the community has been very supportive. You can see even when we have these cattle rustlers we just hear of it from very far but they don't come around* (KII_01, Manager, Horticulture investment, Laikipia County).

Since the company had acquired the farm as unutilized large tract of land with few residents living around its environs, they regarded their investment as beneficial for their business as much as to the communities in the surrounding areas as illuminated in the excerpts:

> *This company is making good use of the land. At the time of acquiring it, the land was unutilized and no one was benefiting* (IDI_07, Crop manager, Male, 32 years).

> *By having set up their investment here, we played a role in powering the local area. It is after this farm had set base in the locality that electricity and road network in the area improved* (KII_01, Manager, Horticulture investment, Laikipia County).

The horticulture investment provided jobs and outgrower (contract) farming opportunities that provided incomes useful for the livelihoods of wage workers and outgrowers. As illustrated in

the following excerpts, the horticulture investment also contributed to community development through corporate social responsibility initiatives:

> *[*Development*]That is what we are doing today at the community. It is part of our corporate social responsibility. It is development of our employees because they are from the local community. They are part of the community* (KII_02, Manager, Horticulture investment, Laikipia County).

> *There was no development in this area when this farm was established. But when we came we analysed and felt that the community was suffering and there wasn't even a nearby school. Quite a number of our work force is just from the local community so we have given them employment. But again, they have no place to take their children to school. That is why we came up with Muramati primary and secondary schools… then we handed it over to the government, now it is being run by the government. Though we are still providing transport to all the teachers from town to school daily free of charge* (KII_02, Manager, Horticulture investment, Laikipia County).

From the investor perspective as further elaborated in the excerpt, the setting up of their horticulture investment opened up the local area to development by government and even other local and foreign investors who ventured into real estate, horticulture small-scale farming and livestock keeping:

> *It is until this farm was started that infrastructure like roads, mobile network and electricity were put in place. As you have already noticed this Muramati-Timau road newly constructed and not even complete. In earlier years of this farm it was a dry weather road that was impassable in the rainy season (*KII_02, Manager, Horticulture investment, Laikipia County).

As alluded to in the excerpts, the investors further regarded horticulture as a sector that is beneficial to the economy and relevant in the food security and sustainability discourses at the local and national governance levels:

> *The produce grown around this area is mainly for horticulture. We have the population that is increasing in Nanyuki town is because of the farms around it. Imagine if the horticulture farms were not there, Nanyuki would be a military town. But now it is very big because of horticulture* (IDI_07, Crop manager, Male, 32 years).

> *The government should support horticulture 100 per cent and they should emulate what we are doing and they do local calls for every community. If they had irrigation or they had dams around, Kenya would not be having issues with famine. Kenya can sustain*

> *itself. Maybe the government's good will to enable accessibility for communication and training of farmers. You know in farming you can have water you can have all other resources but without the knowledge you can do nothing* (KII_02, Manager, Horticulture investment, Laikipia County).

In their perspective, other agricultural subsectors could benefit from export horticulture best farming practices relevant for securing yields and improving the wellbeing of the population. The investors therefore regarded the horticulture investment positively and even talked of the need to further expand as the global market was still vast. Also, regarding the market of the horticulture produce, the investors mainly produced for export and did not focus on local markets. This is because in their perspective the products were not commonly consumed locally and that they had not yet met the demand in their preferred market (United Kingdom) as elaborated in the excerpts:

> *We have limited our target consumers to the export markets to focus on quality. Additionally, these horticulture products such as runner beans, tender stem broccoli, the baby leaves varieties (pak choi, mustard spinach) and even baby corn are not staple foods for the local population* (KII_01, Manager, Horticulture investment, Laikipia County).

> *The market in the Europe is still vast. As long as we are providing quality fresh produce then we are always sure of a ready market. There is also a lot of potential in increasing our product diversity and quantity because the market is vast. We are even yet to fully meet the demand in the Europe and venture further to the Middle East for example before we can think of the local markets here in Kenya* (KII_02, Manager, Horticulture investment, Laikipia County).

Because the horticulture investment was focused on export quality for the produce, the raw products from the farm were graded for compliance with international food safety and quality standards as well as customer specific cosmetic requirements for colour, size, shape and texture. This meant that there were a lot of 'food rejects / food waste' from the gross product volume at a given time as elaborated in the excerpts from different informants linked to the horticulture investment:

> *The rejects / food wastes were usually food products not meeting the specific consumer preferences for appearance, size, colour and shape. Sometimes from the overall raw produce only about 60 per cent is packaged as a final product with the rest falling short of the specifications of the consumer market. Of the 40 per cent some of the produce is ranked as grade two and taken to the Nairobi pack-house where it is processed as a high care product* (IDI_02, Quality control officer, Male, 33 years).

> *The food waste from rejects of horticulture products are nevertheless fit for human consumption having been produced in high safety and quality standards. We dispose the rejects just within the premises to feed wildlife or prepare compost manure* (IDI_07, Crop manager, Male, 32 years).

As highlighted in the following excerpt, the food waste was disposed in the farm or by the outgrower depending on where it had been sourced:

> *The remaining portions were usually decomposed for production of manure needed for enriching the farm's soils. If rejected produce was from an outgrower, part of the contractual agreement was that it was returned to them for disposal* (IDI_31, Crop manager, Female, 41 years).

The horticulture produce was usually graded out based on customer specifications and disposed mainly in the farm by being fed to the wildlife in the surroundings namely; baboons reared as part of a wild life conservation measure. The remaining portions were usually decomposed for production of manure needed for enriching the farm's soils as further detailed in the excerpt:

> *Rejects or remnants from the farm produce are often used up in the canteen to prepare meals for the staff or fed to the baboons. There is a baboon restaurant near the Lake Ontilili. Recently we have also started to turn this waste into compost. There is a compost site near the baboon restaurant* (IDI_10, Scout, Female, 24 years).

If rejected produce was from an outgrower, part of the contractual agreement with the horticulture investor was that it was returned to the farmer for disposal as compost manure at the farmer's own cost. The rejects for outgrowers would comprise french / fine green beans often sold at cheaper prices in the local markets hence consumed locally. As further explained in the excerpts, the workers were also not allowed by the as per the horticulture investment policy

requirements to not carry home any produce from the farm except with permission from the management:

> *No produce goes out of the farm either to workers homes or even the local market. This is to discourage cases of stealing or theft of produce if people get used to it. We recently caught a worker who had been stealing and selling fish that are in our dams. He was just given a summary dismissal without a warning. We discourage such behaviour because it will affect our values and targets (*KII_01, Manager, Horticulture investment, Laikipia County).

> *As long as you have been granted a gate pass you can carry some of the produce home. The managers and administrative staff often carry home some broccoli or cassava home with permission because everyone is checked at the gate before exit* (IDI_06, Administrative officer, Male, 38 years).

As observed in the research, the investors limited their target consumers to the export markets to focus on quality and maximize on the profit margins. Since the export horticulture produce is mainly for export with limited policy options for exploring the local markets; and given the high-quality standards and cosmetic specifications for the end-products, over 40 per cent of the food produced in the export horticulture setting ended up as 'food waste / rejects (Care, 2016; Lanari et al., 2016; Henson and Humphrey, 2010).

Notably, the rejects / food wastes were usually food products not meeting the specific consumer preferences for appearance, size, colour, and shape (Colbert and Stuart, 2015; Henson and Humphrey, 2010). These horticulture products were nevertheless fit for human consumption having been produced in very high safety and quality standards (Colbert and Stuart, 2015; McGregor et al., 2014).

From the investor perspective the food waste management was in compliance with company policies and international food safety and quality standards as reported elsewhere (Dolan and Humphrey, 2004; Henson and Humphrey, 2010). The investors in export horticulture as an agro-industrial food system have more capital that enables access to resources required for the

production of food. However, in the arid and semi-arid settings where the sector is moving into, given the increasing demand of the export products, there's potential for massive losses for the investors in varying scenarios as illustrated in the study findings (Lanari, 2014; Ulrich, 2014; Zaehringer et al., 2018).

First, in periods of drought downsizing affected production volumes as well as the livelihoods of wage workers and outgrowers. Secondly, given the erratic nature of work in export horticulture, there's potential for loss of labor even in peak seasons with actors seeking alternative sources of income. Conflict with other food producers in the local area over common pool resources mainly water is also a possible outcome (Kiteme et al., 2008; Lanari et al., 2016). This limits the contribution of the export horticulture sector to the food sustainability discourse in the study setting.

5.3 Perceptions of workers as producers and processors

From the interactions with the workers, the study established that there weren't many labourers from the immediate neighbouring Jua kali area. As in the following excerpts, most of the workers were from the larger Laikipia County with others coming in from as far as Western Kenya in search of casual labour in the region:

> *I come from Chuka and I was referred for work here by my sister who works in another farm (Wangu Embori farm) and knows someone who works here in this farm* (IDI_23, Female worker, 29 years).

> *Here in the farm there are people from many tribes and some even from as far as come Rift valley and Western Kenya. Let's say about 60 per cent of the workers, are people from outside Laikipia County* (IDI_08, supervisor, Male, 33 years).

When asked why there weren't so many people from the local area working at the horticulture investment, as illuminated in the excerpts, the reasons shared included unfavourable working conditions such as extended work hours:

> *Depending on the department, the work can be tough. Like in the pack-house, I work for very long hours. Usually, I report at 8a.m or 9a.m when I am on the day shift and sometimes work is in excess until about 10p.m (*IDI_11, Female worker, 21 years).

> *At pack-house and harvesting especially in the peak season, work goes on until an order is completed and there is no bonus if you are not a grader or picker. You even find that as a supervisor you work long hours and your workers are getting more daily wages than you through their bonuses* (IDI_20, Supervisor, Male, 32 years).

Other narratives as summarised in the excerpts, further cited preference and the availability of other opportunities for locals as reasons why few members of the immediate neighbouring areas were not working in the horticulture investment:

> *You know most of the people in this Jua kali area are Maasai and they are not interested in farming. They are better off herding. If anything, you will find them working in the ranches or burning charcoal* (KII_03, Assistant chief, Male, 57 years).

> *Like the people working in building and construction in the community organization I work for, they are paid Kes 400 per day! Also, we have Tumbili farm nearby that pays Kes 300 as daily wages although there are no buses and so many locals work there and walk back home* (Community FGD_02, Laikipia County).

Workers viewed work at the horticulture investment as an easily accessible opportunity to earn some extra income to sustain their livelihoods though for the short term given the casual short-term nature of their contracts as espoused in the excerpts:

> *Here at horticulture farm it is easy to get work as long as there is water and they are planting and harvesting. Work is only scarce in the dry seasons because they cannot plant anything* (IDI_15, Female worker, 49 years).

> *You just come to the gate in the morning and if you have your national identification card they let you go to the reception for enquiries and possible recruitment* (IDI_04, Male worker, 26 years).

Notably though, as illuminated in the excerpts, the workers were quick to always highlight that the pay in the study site was little even compared to other horticulture investments around the Laikipia region:

> *I have only found very few women who work there. People say that the pay is little and that there are many other opportunities around this area (Juakali) where people can easily get casual work [kibarua]. Like my neighbour is currently working at a farm to cut grass and they pay Kes 200 for half a day's work* (IDI_22, Farm worker, Female, 27 years).
>
> *There is another big farm –Finlays- they have recently completed putting up a pack-house for potato crisps. Since the pack-house is located very close to this farm they will most likely steal labor from here because I hear that their pay is much better* (IDI_11, Female worker, 21 years).
>
> *This farm pays very little. Kes 240 per day and then keep on making provisions to the staff to ensure that they deduct as much as possible from our wages. They deduct money for the lunches / teas offered at subsidized rates and also for living in the staff quarters* (IDI_40, Male worker, 42 years).

The availability of these opportunities was however, erratic with no security of work tenure. As illuminated in the following excerpts, workers also expressed discontent with the unpredictable nature of their jobs and the lack of clear job security as low seasons in production meant no work:

> *We may soon be also released to take a break because there is little to do in the farm and people are being sent home like every other day. I even wish that the company would offer to pay permanent staff like me my services [severance package] so that I can resign if I want. You know normally the farm will never let a worker resign easily they'd rather be the ones dismissing workers* (IDI_15, Female worker, 49 years).
>
> *The general manager would get to a point and say he will fire all the people…Then it even got to a point when it was dry, no water and there was completely no work. The farm did not sell any produce at that time. Even this year [2016] we have tried* (IDI_36, Farm supervisor, Female, 48 years).

As reported in the study workers took up the readily available opportunities to meet their immediate needs for livelihoods as also illustrated elsewhere (Kioko, 2010). Seasonal employees mostly worked for the short term but with alternative plans for their livelihood sustenance.

As illustrated in the excerpts, the workers aimed at gaining skills and knowledge on good agricultural practices or even for attaining a certain capital target to invest in a business venture:

> *When I came to work in this farm two months ago I presented myself as a general labourer, I didn't mention that I was a team leader in the spray department in the other flower farm I was working in. I was interested in coming here to learn about irrigation…I will later apply the experience in my own farm back home in Transzoia (*IDI_33, Male worker, 24 years).
>
> *My home is Karatina but I was told about work in this farm by my aunty who lives here in Muramati. She told me about it because she knew I loved farming. I have decided to work here for about a year and save money to buy a pump for irrigation and do my own farming in my aunt's farm* (IDI_04, Male worker, 26 years).

When engaging with the workers they are aware of their short contracts. As detailed in the following excerpts, they at times took up the work with a goal of raising capital or to working until a certain time after which they wished to move on:

> *A supervisor at pack-house is resigning to go to school. He attained grade B in his Kenya Certificate of Secondary Education and is going to the university (*IDI_28, Farm office assistant, Female, 25 years).
>
> *In about 5 years' time I think I will be through with school. I want to go to school by January. I would have started this year but my mother has financial challenges and so I took a job here to earn some money and support my family as I save for school* (IDI_11, female worker, 21 years).

Perceptions of workers on health, safety, work hazards and Protective Personal Equipment (PPE)

Working in the horticulture setting either at the packhouse, farm's fields or greenhouses also presented health risks. Most of the workers preferred working in the pack-house as graders and in the farm as harvesters because in these sections there were bonuses earned in addition to the daily wage. Interestingly though, in relation to their health and safety, workers perceived working in the pack-house as harmful because of the modified atmosphere to maintain cold temperatures and freshness of the produce. Workers regarded the pack-house atmosphere as a health hazard as is explained in the excerpts as they viewed it as the main cause of pneumonia, commonly referred to as 'cold sickness' (*ugonjwa ya baridi*). Individuals working in the pack-house over time were reported to develop respiratory conditions:

> *The pack-house is always colder than the outdoors environment. Workers at pack-house always put on heavy clothing to keep warm even if the sun is shining and hot outside* (IDI_18, Recorder in Harvesting department, Male, 43 years).

> *If you work for long in the pack-house you will start suffering from cold sickness' (ugonjwa ya baridi) like me. I even had to quit working there but even a few years later I still feel weak from the cold effects* (IDI_15, Female worker, 49 years).

Often times as observed in the research at the intake and dispatch areas when there was a lot of produce being received or prepared for loading, workers overlooked the procedure. There was always a possibility for accidents with the crates falling off and hurting workers or wasting the produce Workers in the pack-house also had to carry out most of their work whilst standing (the grading to labelling processes). Interestingly, this was blamed for pregnancy complications for women. There were incidences where women were reportedly faced with miscarriages during their stint at pack-house. The following excerpts further illuminate these work-related hazards from the worker's perspective:

> *You know last year [2016] six women from pack-house lost their pregnancies before they could deliver. Imagine they were all admitted at around the same time at the Nanyuki referral hospital. It could be because of the long work hours while standing or the moderated climate in the pack-house which makes it colder than the normal environment / room temperature. Even my friend was affected. She came back after the miscarriage and has been working at pack-house but was dismissed yesterday because of absentism from work* (IDI_48, Female worker, 25 years).

> *You know these stacks of crates with produce here at intake can easily cause accidents if one is not careful. At one time in 2013 an accident happened and me and my colleague sustained serious injuries and had to stay in hospital for up-to 3 months* (IDI_03, Team leader, Male, 29 years).

Women in harvesting often complained of developing a skin rash from coming to contact with some reactive agents from chemicals sprayed on the produce or being exposed to an irritating insect as they harvested. Notably also at the farm, for women with respiratory problems or 'cold sickness' they are discouraged from working in harvesting as this could affect their health over time as espoused in the excerpt by a crop manager who had to interrupt our interview to respond

to a case of a worker who had taken ill while on duty. When we later resume the interview, she said:

> *The sick lady who fainted in the farm and was brought to the nurse for first aid has asthma something she never disclosed. I would have found an appropriate department to work in because for someone like her harvesting is not good because there is a lot of water involved and it is likely to affect her health* (IDI_31, crop manager, female, 41 years).

Notably, for most of the workers, as illustrated in the excerpt, there were unsafe work practices in relation to putting on and using of the recommended protective personal equipment (PPE):

> *I was never given any protective clothing / gear while in the spraying department and this something that should be taken seriously. It is only the sprayers that have the full attire for safety. Supervisors and trainees do not always wear PPE unless there are auditors around* (IDI_25, Agronomist on attachment, Female, 22 years).

As in the study findings, workers in the different departments in the packhouse and in the production unit especially fertigation, harvesting and spraying carried out work activities without the full PPE although provided for by the company. The workers were seemingly aware of the importance of PPE for safety but explained that when the temperatures were too high in the farm the PPE were uncomfortable and heavy to wear all through the work day.

They also regarded themselves as having gained enough experience in their work to not always have their personal protective equipment / gear (PPE). For instance, they often worked without PPE even when they were required to have gloves on as they mixed or handled chemicals some of which were reactive to bear human skin. As highlighted in the following excerpt, it is only when there were visitors within the export horticulture investment (owners/ customer representatives / auditors) that the PPE requirements were well adhered to:

> *For PPE in this hot weather (the area has been having high dry temperatures) I cannot maintain the uniform although I have it. I have an apron, mouth sash/net, hand rubber gloves and gumboots. I am aware that I needs to put it on at all times when I am working but even the management understands the challenge of having the full gear all the time in this hot weather. Whenever there is audit I always makes sure I am in my full uniform* (IDI_09, Farm worker, Male, 27 years).

As noted in the study it is in pack-house that PPE was strictly observed due to the continuous checking by supervisors and management. In the farm, however, workers did not always dress up as recommended often because they did not have the proper PPE and for those who had did not always dress up accordingly. Dress-codes were recommended for pack-house and farm workers. This practice of working without proper PPE was a shared norm although it's a hazardous work ethic in the horticulture setting influenced by the attitudes and perceptions of workers.

In Obonyo (2017) assessment of pesticide handlers' knowledge, practices and self-reported toxicity symptoms: a survey of Kisumu County, Kenya, he reported similar findings where workers had poor PPE practices if they had long working hours in a day. Wongwichit et al (2012) also reported that wearing of PPE for long hours especially during hot hours of the day caused discomfort which made handlers ignore them sometimes. The perceptions and attitudes of the workers in relation to PPE were influenced by their limited knowledge and this increased the opportunity of exposure to work hazards like pesticides as in the study findings and reported elsewhere (Obonyo, 2017; Ogolla, 2017).

Perceptions of workers on welfare

In relation to the welfare workers appreciated the efforts the company put in to provide transport, accommodation, subsidized meals as in the excerpt:

> *Meals are provided at a subsidized fee of Kes 10 per plate deducted from one's pay at the end of the month. They have also initiated a computer training course for the workers where they will only pay Kes 500 registration fees* (IDI_05, Female worker, 23 years).

The workforce also appreciated the efforts and concern by the company towards the health and self-development of the workers as elaborated in the excerpts:

> *At such a time when one is sick they may be reassigned to other duties or sent home to recuperate, as assessed by the company nurse* (IDI_49, Female supervisor, 37 years).

> *One of the supervisors was very sick for about two months. She has just resumed work and the farm has re-assigned her to the high care department where the work for recording is much less straining as she recovers* (IDI_36, Female supervisor, 48 years).

Notably, workers often felt that the conditions put around the available welfare opportunities made them challenging for the workforce to fully benefit from health care, arrangements. For health care, workers had the National Health Insurance Fund (NHIF) cover for their duration of work at the company. Monthly NHIF premiums were deducted their worker's pay and remitted by the company. With an active NHIF card one could then access treatment in public health facilities. However, the card was active as long as the monthly premiums were remitted. And with the 3 months contracts without a surety of extension, workers could only enjoy the benefits of NHIF as long as they were working and remitting their health cover premiums.

When a worker or a family member was admitted in hospital they were supported through informal fundraising among fellow workers to meet the hospital costs that NHIF could not cover. From time to time workers would complain if they had to contribute frequently to meet costs of their colleague's ill-health. Workers who were constantly unwell would be re-assigned departments and at times dismissed from their duties until they fully recovered including expectant mothers.

For work-based illnesses and accidents, the company clinic administered first aid before referral to the main hospital in Nanyuki town. The workers however complained that the company wasn't well equipped as it didn't have an ambulance / lacks designated transport as was the case in other export horticulture farms. They had to often depend on the availability of one of the manager's cars to take one to hospital and this would cause delays in accessing health care. Workers further regarded their working conditions variously in relation to their general

wellbeing. In relation to the welfare initiatives by the company, workers expressed that the available provisions weren't always accessible or fully beneficial to their needs as workers as in the excerpt:

> *For the computer lessons workers are encouraged to attend during their free time yet over a 3-month period the enrolment rate has been very low (only 20 students out of a population of about 1000 workers had taken up classes between October and December 2016) with a high drop-out rate (of the 20 only 8 were able to sit for their exams) because of limited time for breaks and the strict work day targets* (IDI_05, Female worker, 23 years).

Particularly for the food, there were constant complains among the workers who felt that the quality and quantity of food was not good enough. They often compared their meals against in the produce they worked on and felt that there needed to be better meal considerations as espoused in the excerpts:

> *The food is cheap but the quality and monotony of meals is discouraging. We only eat because we do not have an alternative option. For example, if someone is living in the farm as well as those not able to carry and eat cold meals from home like me, we just have to eat. But sometimes even that food gets finished before we can all eat* (FGD_4, Farm workers, Laikipia County).

> *Imagine they prepare for us corn maize meal and kales every day, yet there are peas and even french beans that are usually rejects that we can be cooked for or even given to carry home, but they prefer to feed the baboons or even make manure with it* (IDI_17, female worker, 49 years).

Additionally, workers also felt that beyond the food that was cooked for them in the horticulture investment, the owners should also allow them to carry home some of the food remains / rejects from the farm to their homes although this was forbidden. What the workers therefore resorted to doing was to conceal and eat or carry home produce from the farm without permission, as is espoused in the excerpts below. This practise was tolerable as long as one was not caught by the security team:

> *The cassava has been harvested without the farm's permission and it would be a big issue if anyone was caught eating. It is usually harvested on management instruction but the harvester's usually keep some portion of it for themselves. Eating or carrying home farm produce is a common practise here as long as you do not get caught. The cassava and also sometimes butternuts are roasted in the compost combustor* (IDI_01, Female supervisor, 28 years).

> *Sometimes the women working in greenhouses (NPDs) harvest the Amaranthus weed and carry it home as vegetables, though the management doesn't encourage this because they will also hide other products like peas in the vegetables. People steal a lot here but they have clever ways of hiding the produce. Spend more time with the lower cadre then you will understand what goes on in this farm* (IDI_43, Female worker, 26 years).

> *We should even be given this food for free without even having to pay for the ones we are eating in the canteen! We do a lot of good work for this farm, just walk around and see the produce we grow, it is very good and they make a lot of money from it. We at least deserve free food* (FGD_03, Farm workers, Laikipia County).

Workers usually justified their practise of taking away food from the farm with their opinion that it was unfair to them for the farm to make compost or feed baboons instead of using the food rejects / waste to enrich the diet of the workforce.

The workers appreciated the opportunities availed including the provision of subsidized meals at the export horticulture setting. However, according to them the strict measures that the 'food waste management policy' instituted to the limitation of their food varieties. On the one hand, the environmental conservation through feeding of food waste to wildlife was a good measure, however according to the workers they spend all their time producing food they were not allowed to eat (Colbert and Stuart, 2010). The export horticulture institutional setting as expressed in the policies and practices for food standards therefore limits the availability, accessibility, utilization and sustainability of food produced by local actors to address their food needs (GoK, 2011; Ouma, 2010; Colbert and Stuart, 2010).

From the research findings therefore, these seasonal workers in export horticulture subsist in conditions of chronic poverty. Despite Kenya's labour laws being well defined to incorporate worker rights and welfare provisions, market relationships are 'characterized by highly unequal power relationships (Moncrieffe, 2004). Horticulture investments and workers do not interact with each other in a completely open market with equal access to information. Rather, the agro-industrial investments pursue arrangements that allow them to pay as little as possible for the labour they need, and that allow them to displace downwards - or to externalize onto labour contractors and seasonal workers – the risks associated with the uncertainties of agricultural production (DuToit, 2003: 21).

As such workers uphold perceptions of the horticulture investment and express both negative and positive ideologies in their narrative regarding the setting, viewed as weapons of the weak and everyday forms of resistance manifested in the informal insitutions in the export horticulture (Scott, 1990; Ensminger, 1992; Haller et al., 2013). Overall, as in their perceptions workers are regarded as producers and processors in the export horticulture value chain. Nevertheless, their ability to meet their food needs is limited, especially based on the stringent standards and erratic weather in the research area that often left the workers and outgrowers faced with unsecured livelihoods (Ulrich, 2014; HCDA, 2015). The local actors namely, the workers who reside in the regions where the food is produced face challenges in planning for and sustaining household food needs, yet they invest time, resources and labor producing and processing food in the export horticulture setting (Zaehringer et al., 2018).

5.4 Gender dynamics among large-scale export horticulture workers

Workers expressed varying opinions of working at the farm as related to gender dynamics in the horticulture investment. During the peak seasons when demand was high in export horticulture

production, there were distinct preferences for men or women. In regard to gender, as elaborated in the following excerpts, the farming and post-harvest activities were generally perceived as feminine:

> *You know these days there are no jobs for men or women. Although most of us workers are women, I can just say it is because it is the women who come to seek for employment more than the men* (IDI_15, female worker, 49 years).

> *But the most of the work that we have here, we usually require to have more women than men. This is because for some tasks women are better off than men* (IDI_08, Farm supervisor, Male, 33 years).

These perceptions on the gendered division of labor with more women being involved in the horticulture setting were founded on the socio-cultural beliefs that farm work was for women. In the horticulture setting therefore, in as much as there wasn't discrimination in recruitment, often the preference was for women in activities like planting to harvesting. These activities required attention to detail, qualities socio-culturally attributed to women more than men. With the exception of few men working as recorders or supervisors or newly recruited workers, women worked in the tending of crops from planting, weeding, fertilizer application to harvesting of the vegetables and fruits.

Notably though, in sections like the cultural support (which involves fixing poles, shades, tunnels and greenhouses), transport, irrigation, spraying department and chemical stores men were the dominant workforce. Activities in these sections are heavy duty like moving and setting up structures; loading produce into and driving trucks and buses; carrying knapsacks or tagging along the hose and reel for spraying and even working on the pipe and irrigation systems respectively. In spraying for instance, chemicals were regarded as strong and dangerous especially for women. As illustrated in the excerpts, it was felt that women were 'weaker'

physiologically and more prone to side effects of chemicals like possible miscarriages in case of pregnancy compared to men:

> *I tried spraying department but I stopped after a few days because of nose bleeding. It is not a department where women can work without being exposed to harm* (IDI_25, Agronomist on attachment, Female, 22 years).

> *The spraying department is tough and that is why women cannot work here. If you spray Galinger (a strong level 1 pesticide) and there is a pregnant woman nearby she is likely to miscarry. That is the main reason why spraying is mostly done by men* (IDI_34, Farm supervisor, Male, 40 years).

Equally as observed in the study, for post-harvest handling in the pack-house it was the women who formed the majority in the cleaning, grading, weighing, trimming and packing of produce. This is as illustrated in the plate 4.2 (earlier in chapter 4), where the people with green head gears are women and actually the majority in the picture. Men working in the grading at pack-house were mostly the newly recruited workers on training. In the sections where the work required heavy manual labor like at the intake, dispatch and the blast chillers sections men were found to work there as the activities were perceived as masculine. For instance, women were discouraged from frequenting the blast chillers where often the temperatures are below zero degrees celsius as they were regarded as more vulnerable to ill health in such cold conditions than men. Work in large-scale horticulture was target based and long work hours were the norm as workers committed to a day's target to earn their daily wages. In some departments beyond the daily wage, bonuses were also payable for work accomplished above a day's target as in the following excerpt. These were such as planting, harvesting, and the pack-house grading sections dominated by female workers:

> *Sometimes I would consider abandoning work as a recorder and go to harvesting (picking) because when I was in harvesting, I was not doing badly. I would get bonus, and it would assist somewhere in my budget* (IDI_36, Farm supervisor, Female, 48 years).

Consequently, women dedicated long working hours in horticulture production to earn additional incomes through bonuses yet still had to fulfil their domestic and community roles. As summarized in the excerpts, the working hours which were very strictly monitored were also talked about in discontent and associated to the general well-being of especially the female workers:

> *I have never understood the plans here but a department like cultural they don't have a problem because if they start work at 7a.m, by 4 p.m. they are clocking out for the day. However, in the harvesting department women start to work as early as 6.30 am when they arrive at the farm and go on until the target for that day is met and at times even end up leaving at 8pm* (IDI_35, female worker, 43 years).

> *They [harvesters] earn more but sometimes you find that the body wants to get some rest because you find from Thursday, Friday. Those days they work like they are being pushed, you can see they are fatigued. Like in broccoli if someone earns one thousand a day, the wage and bonuses by the time it is Friday, they don't want to leave that money even if they are tired. I don't know if its lack of enough employees because if they had enough people we would be working minimum hours upto 4 / 5pm* (FGD_04, Farm Workers, Laikipia County).

In the morning and evening a worker had to clock-in and out in the biometric system for accountability of hours worked. This was done alongside physical monitoring throughout a working session by supervisors and team leaders. There were tea and lunch breaks in between work which the workers felt were too short given that the working hours often exceeded the 8-hour work day and at times standing throughout given nature of tasks. Some women would be out of their homes at 0530 hours in time to catch the free company transport to the farm and start their day by 0630 hours to harvest before the sun started scorching the produce.

On a busy day as explained in the excerpt, work can go on upto 1900 hours before clocking out and boarding the bus for a trip home though with an additional income on top of their daily wages:

> *You find that sometimes you get here at 8am and stay until 10pm. So, by 10pm you have worked for 14 hours, and when you were starting you were told eight hours. Therefore, they should be sticking to the agreed on 8 hours working shift. Even if you are getting the bonus, they should limit maybe up to 8pm but not to go to 10pm in the grading and packing* (IDI_17, Farm worker, 49 years).

Women living especially with children and with or without their spouses have to juggle between the work at the horticulture farm and their equally tasking domestic responsibilities. As further illuminated in the excerpt, the work at the agro-industrial food system was demanding and time-consuming and so was their domestic work which required them to manage their households including taking care of the younger children:

> *Sometimes for women with younger children not yet enrolled in school there usually is a great challenge in care giving of the little ones. Where a mother can afford the child is left at a day care centre at a fee of between Kes 50 to 100 depending on the age of the child and the services to be offered. The cheaper ones are the ones where the child is brought along with food enough for the day and does not stay for hours beyond 6 p.m. in the evening* (IDI_42, Farm supervisor, 29 years).

Where a mother is not able to raise the daily fee for day care or is not able to find one within the locality, alternative care givers included neighbours, or an older child to look after a young one and this would limit the school going opportunity for the child as a caregiver. While care giving poses the greatest challenge for women working in the horticulture investment, as elaborated in the excerpts, it often was not regarded by the management as a reason good enough for one to absent from work or even continuously report late to work:

> *You have to find a way of managing your children because you cannot be missing work every day because you have to attend to them. And with the money we earn here I cannot pay a house help so I have left my children at home in Chuka with my mother* (IDI_23, Female worker, 27 years).

> *Because I need to continue working and I also have to take care of my sister's child who is still an infant and now an orphan, we had to agree with my mother to come to Nanyuki and although she is aging she can at least look after the child as I come to work instead of paying Kes 50 every day at the daycare* (IDI_36, Farm supervisor, Female, 48 years).

Since the nature of work is demanding in terms of hours worked to meet targets and possibly accrue bonuses, the women have to see how best to handle their individual triple role experiences and still deliver at the work place. As in the following excerpt, the long work hours not only had health implications over the long term, but also greatly affected the women who had to also manage other domestic and community roles beyond working the horticulture investment:

> *You know like for harvesting sometimes they go even 8p.m. so we got used to leaving late even sometimes getting home at 10 p.m. No one seems to care as long as work is done. It is even tougher when you have a small child. It's a very big challenge because by the time you take that child from daycare; your husband wants food and does not want to know where you are coming from… So, you are almost bieng beaten up by the time you start cooking* (FGD_04, farm workers, Laikipia County).

While there are opportunities for earning additional incomes and enjoying work related benefits, women still were limited by the low literacy levels as unskilled laborers. In a setting where women had to meet their triple gender role as a worker yet a mother and caregiver, there were often times conflicting priorities affecting her output in the domestic and productive arenas.

Abseentism and late reporting to work which could result from women attending to their reproductive roles was treated as a vice within the horticulture production set up given the intense work processes which demand discipline and commitment to deliver quality and timely products. Income opportunities are lost to their male counterparts or to lack of opportunity and security of tenure at the large-scale horticulture setting. While women have invested more effort in the work over time for instance harvesting and grading of produce, in seasons of limited worker demand, then they face competition from men traditionally disinterested in the work but advantaged by their availability at the work place.

From farm to market as illustrated in this study, women tend to take on the tasks that need precision and great patience, particularly planting, weeding, harvesting, sorting and grading, packing, as men take on the tasks needing muscle or those that tend to be mechanised

(ploughing, spraying, transport loading, driving). Similar findings are reported in other studies (Dolan, 2001; Nzioki, 2014; Biketti et al., 2016). Women are able to bend the whole day weeding; or to stand the whole day at one place sorting french beans for meagre daily or weekly casual wages (AFCAP, 2013).

As in the study findings, although many women are more engaged in the productive work in the export horticulture sector the traditional gender division of labor in the field of agriculture has prevailed (Dolan, 1995; Dolan, 2001; Dolan et al., 2002; Lastarria-Cornhiel, 2008). Off the farm, large-scale production of or high value agricultural exports such as vegetables and fruits as in this study, offers wage-work opportunities in farming, processing, and packing (Lastarria-Cornhiel, 2008). In contrast to the traditional export-oriented agriculture production of for instance coffee or tea in Kenya, it is women who do most of the work in this production of the high-value agriculture produce for export. These women are generally employed for a short-duration of time as is reported in this study and corroborated in literature (Lastarria-Cornhiel, 2008).

As illustrated in the study, there is a strong gender segregation of tasks in the fields and pack-houses. Women do the labour-intensive tasks and men do those tasks that entail strength or involve machinery. In addition, men predominate in the limited number of permanent positions and in supervision and management as is also reported elsewhere (Dolan et al., 2002; Lastarria-Cornhiel, 2008). Notably, though, as demonstrated in this study, the involvement of women in agriculture has often been with lesser bargaining power to fully benefit from their input in the value chain(Lastarria-Cornhiel, 2008; Njobe & Kaaria, 2015). Sparse evidence from SSA and elsewhere shows that the impact of expanding agricultural products is generally less favorable to

women and varies based on socio-cultural differences in gender division of labor as reported in this study and discussed elsewhere (Joekes, 1995; Dolan, 2001).

Therefore, as reported in this study work conditions in high-value agricultural exports are strongly influence by gender relations. The high levels of women employed in this industry and their segregation into certain tasks and occupations reduces production costs because women's wages are lower than men's and their employment is highly temporary. Similar findings are reported elsewhere (Dolan et al., 2002; Barrientos et al.,2004; c). Women working in the large-scale horticulture as illustrated in this study are therefore faced with a greater work burden. They have to commit longer working hours and more physical effort yet have minimal control of whatever income is generated especially in male headed households (Dolan, 2001; Barrientos et al., 2004).

This study reported over 75 per cent of seasonal workforce in the horticulture investment to comprise women. Comparable findings are reported in other studies where in Kenya just like other Sub-Saharan African Countries like Zambia (65 per cent) and South Africa (52 per cent) most workers in export horticulture are female (Barrientos et al.,2004; Lastarria-Cornhiel, 2008)

Most of the seasonal workforce was on short-term contracts as illustrated in the study. This inequality is justified with discourses of female inferiority, male superiority and patriarchy (Suda, 2002; Du Toit, 2003). As other studies have shown Kabeer (2000) and Pearson (1998) employment in labour intensive sectors may provide women with greater opportunities for long-term security.

From feminist perspectives, women in informal work arrangements such as those in large-scale export horticulture are unlikely to be organized into groups and organizations to challenge rules and regulations (institutional settings) promoting injustice expressed in contract terms, minimal

pay and limited or lack of welfare provisions in their work settings (Kabeer et al., 2013). They are more likely to self-limit their strategies to the traditional ‘weapons of the weak’, hidden subversions and resistance undertaken alone (Scott, 1990) as illustrated in the worker perceptions and discourses of the horticulture setting work opportunities and welfare in relations to security and sustainability of their livelihoods.

CHAPTER SIX: RELATIONSHIP OF ACTORS AND INSTITUTIONS IN EXPORT HORTICULTURE

6.1 Introduction

This chapter presents findings and a discussion aligned to the third study objective that sought to describe the relationship between institutions and actors in export horticulture. Institutions in the context of this study refer to both formal and informal norms, values, regulations, rules and laws also regarded as 'rules of the game' (North, 1990 in Haller, 2013) that define the operations and functioning of the horticulture study setting. These findings were informed by in-depth interviews and supplemented with information from key informants and observations of actors' interactions made during the study.

6.2 Relationship between actors and formal institutions in export horticulture

In this study, the formal institutions were identified as the formal rules, regulations, values and norms documented as policies, standards and briefs that guided the labor engagement and management; Health and safety policy on food handling procedures and processes as well as for community engagement and corporation. The actors that interacted with these formal institutions included the investors, workers and members of the neighbouring communities representing the local food systems.

The export horticulture investment based its company policies and standards on the international to national standards for compliance and competitiveness in the market. Since the markets were buyer driven, compliance to the international food safety and quality standards were mandatory.

6.2.1 Labor engagement and management

The export horticulture company had in place policies tailored to the different contexts across their three farms and three pack-houses to guide the labor engagement and management of workers. For human resource and employment policy, as highlighted in the excerpts, it was in

line with national and international labor welfare requirements as per the certifications and standards for export horticulture producers:

> *These certifications such as the Kenya Good Agricultural Practice (GAP), Global GAP, the Ethical Trading Initiative (ETI), the Linking Environment and Farming (LEAF) and British Retail Consortium (BRC) standards have a social welfare clause which we have taken cognisance of in our human resource policy* (KII_01, Manager, Horticulture investment, Laikipia County).

> *Our human resource policy is in line with the National Employment and Labor Relations Act (2007); the Factories and Other Places of Work Act (2007). It consists of a protocol and standard operating procedures for hire and fire, remuneration, training and capacity building, welfare, retaining and management of its labor force* (IDI_06, Administrative officer, Male, 38 years).

As detailed in the excerpt, to implement the policy, the company had a human resource management function at the horticulture investment level as well as at the head offices in Nairobi:

> *The farm based human resource office is in-charge of the recruitment and management of especially the seasonal labor. The Nairobi office was overall in charge of recruitment and retaining the skilled workers but would also intervene to support this farm office when issues of like downsizing came up* (IDI_13, Farm office assistant, Female, 22 years).

To fully implement the human resource policy that aimed at promoting the hiring and retention of a motivated workforce, the horticulture investment would communicate the policy provisions to the workers from time to time through policy statements pinned on notice boards around the establishment. The policy statements were on issues such as: recruitment, equal opportunity employment, overtime work engagement, forced labor, non-discrimination, sexual harassment, policy on HIV/AIDS as well ethical trading.

Notably though, the policy statements were written in English yet targeted at a workforce that was not fully literate. For formalities workers were engaged on short term contracts that were signed and copies kept in the human resource office for reference. Within the horticulture

investment, as summarized in the excerpt, the work policy provisions the seasonal employees were mostly given 1-3 contracts with provisions and benefits such in line with the labor laws of Kenya:

> *All our seasonals were given contracts that were between 1 to 3 months that stated the department allocated, daily wages as well as the benefits. Each worker has a personal file that contained their copies of contracts and supporting documents that were requested by the employer during recruitment. The files also had copies of warning letters, resignation letters, memos or summary dismissal notes for workers* (IDI_06, Administrative officer, Male, 38 years).

> *The provisions for all the workers include: one rest day after working for six consecutive days; leave days accorded in line with the length of contract and sick leave days accompanied by authorization from the farm clinic or a recognized medical practitioner. Emergency leave was also catered for as long as a worker reported to their supervisor before 9:00 a.m.* (IDI_21, Head supervisor, female, 42 years).

Because the work was based on daily wages and target achievement, the horticulture investment had a daily attendance procedure as well as structures to monitor work performance. The remuneration policy designated that work was based on daily targets paid on a wage. After recruitment, as expounded in the excerpts, workers were registered into the company biometric clocking in and out automated system (*Bonyeza*) (captioned in plate 6.1), given a payroll number and asked to report immediately:

> *For management of workforce the farm has in place a biometric system for clocking in and out. Workers would be registered at recruitment and required to log in and out when they arrived at or left work on a daily basis. Bonyeza reports were used to generate the monthly payroll (*IDI_28, Farm office assistant, Female, 25 years).

> *Using the biometric technology accounting for labor and produce output was made much easier. We are able to tell how many workers were deployed and actually worked in a given period. In this way we can account for input in terms of labor vis-à-vis produce generated at a point in time because at the end of the day we are in business for profitability* (KII_01, Manager, horticulture investment, Laikipia County).

Plate 6.1: The biometric clock- in and out device (*Bonyeza*) for labor management (Photo taken by Author, 2017)

In addition to the automated biometric system, supervisors were also assigned to maintain the masteroll (work register) for worker attendance. The supervisors as such carried out daily labor allocation and follow up on the workers to ensure a day's work is accomplished. The workers were vetted on a daily basis through the supervision structures for punctuality, hours worked and targets met as summarised in the excerpt:

> *I am supervising 6 female workers and each has a target of 80 kg of baby corn a day. The produce harvested above the target is paid as bonus-this applies to all pickers / harvesters for runner beans, tender stem broccoli, snow peas and raspberry though the kilos differed for the different crops* (Farm supervisor, Male, 43 years).

In accordance with the company remuneration policy and espoused in the excerpt, daily targets met accounted for the daily wages and bonuses accrued were recorded on a day to day basis and payment done at the end of the month:

> *The average daily wage for a seasonal worker is Kes 240. Any bonuses for work done say for example in the pack-house or in the harvesting department were calculated at a given rate per kilo depending of the product and tallied for a whole month for each worker* (IDI_13, Farm office assistant, Female, 21 years).

> *At the end of a working month the seasonal workers were paid in arrears for days worked with deductions for days missed from work without written permission. We compile the payroll based on report generated from the biometric machine tallied against masteroll attendance registers and bonus declaration forms. We close our books of accounts on 20th of every month to start processing the payroll* (IDI_06, Administrative officer, Male, 38 years).

The horticulture investment also had a termination of contract policy as explained in the excerpts, for both permanent and seasonal workers that allowed for termination of contract by the employer or employee with adequate notice:

> *They were also appraised by the recruiting office and misconduct or underperformance is dealt with procedurally. In case of irreconcilable differences with the employer, a worker would be formally dismissed after 3 warnings or allowed to resign with notice* (IDI_06, Administrative officer, Male, 38 years).

> *We usually encourage the workers to work an extra five days as termination of contract notice once they decide to resign. This is so that we can be able to account for notice and be able to pay all their dues. Otherwise we will be forced to deduct the notice from the final pay. Additionally, the company withheld any payments for workers who stopped coming to work without proper clearance (*IDI_28, Farm office assistant, Female, 25 years).

Worker welfare policy

Formally, there were welfare provisions where the management and administrative staff enjoyed as benefits; a pension scheme, paid leave, transport and house allowance as elaborated in the excerpt:

> *The permanent staff is entitled to paid annual leave and sick off time stated in their contracts depending on their job grades. They have medical insurance and pension benefits. The pension (given as pay for years of service to the company) is payable at retirement or upon disengagement from the company on agreeable terms* (IDI_06, Administrative officer, Male, 38 years).

> *The management and administrative staff are entitled to company transport with the top managers having a company vehicle / motor cycle and house allowance. Actually, I live*

> *within the farm. We provide meals especially 10 and 4 o'clock teas, and lunch as an added provision for this cadre of staff* (KII_02, Manager, Horticulture investment, Laikipia County).

The following excerpts detail the welfare conditions for the seasonal workers that were in place:

> *We have accommodation for our staff. The housing quarters can accommodate upto 300 individuals within the farm premises. Any worker is welcome to stay as long as they could abide by the terms and conditions of the residence* (IDI_06, Administrative officer, Male, 38 years).

> *Workers that come from far-away and had not settled around here and also those in departments that have night shifts like for pack-house, security and irrigation have benefitted from this arrangement* (KII_01, Manager, horticulture investment, Laikipia County).

The company had designated free transport through buses for different routes along which the labourers were picked / dropped in the morning and dropped off / picked in the evenings depending on their day or night working shift as espoused in the excerpt:

> *The majority of our workers have rented housing units say in Nanyuki, Muramati, Gatheri and even some in Narumoru. A smaller per cent of about 1 per cent have bought or inherited land and settled in this region. For their daily commute to the farm we give them free transport with specific pick up and drop off points* (KII_01, Manager, horticulture investment, Laikipia County).

Within the social welfare policy, as espoused in the following excerpts, the horticulture investment also provided food to the workers from the farm's food canteen, given a few factors such as to reduce possibility of contamination of the farm produce with allergens and to reduce time taken during breaks as workers went to look for food away from their work areas:

> *Workers are generally discouraged from carrying food to the premises to limit contamination of the fresh produce with any allergenic substances. For example, possible contamination of the vegetables with animal proteins yet the consumers of the end-products could be vegetarians* (IDI_42, Supervisor, Female, 29 years).

> *The food we are given is cheap. A meal is offered on credit at a rate of 0.1 dollar (Kes 10) per meal payable as a deduction from the monthly wages. In my case, the food is given for free because I am on attachment* (IDI_25, Agronomist on attachment, Female, 22 years).

> *This farm's location is out of the way to any nearby shopping centre and except the canteen in here there no food kiosks around. Very few of the workers can walk home for lunch and come back to work in the afternoon within the 1-hour lunch breaks (*IDI_10, Scout, Female, 24 years).

In collaboration with stakeholders such as the local government and some of its customers, the company welfare policy provided for on-going projects that positively influenced the wellbeing of its workforce. Some of the projects, as explained in the excerpts, included a worker's Sacco within the company offered optional membership for savings and credit facilities as well as the kitchen hosted in an ultra-modern staff recreation facility:

> *We have a savings and credit cooperative (Sacco) for workers where we can benefit from credit facilities for development, education or even emergencies contributing at least Kes 1000 a month for a period of at least 6 months* (IDI_24, Supervisor, Male, 47 years).

> *The food canteen was hosted in an ultra-modern facility set up in 2013 in collaboration with one of our longstanding customer's non-charitable organization as a way of supporting the welfare of our workers* (IDI_06, Administrative officer, Male, 38 years).

The worker welfare activities were coordinated by committees comprised of general workers, supervisor and an administrative staff to look into the welfare of the workforce. These committees also doubled up as health and safety coordination groups. As illustrated in the study, there were formal policies in the export horticulture setting to guide the operations and functioning of the agro-industrial food system.

6.2.2 Health and safety policy on food handling procedures and processes

The health and safety policy aimed at ensuring that food products and processes adhered to the requirement safety and quality of the food and its producers as espoused in the excerpt:

> *The company policy is formulated in line with international standards for food safety and quality. It has standard operating procedures for handling food products. The policy had also requirements for setting up of facilities and structures for food handling that were in compliance with the food and safety standards* (IDI_02, Quality Control Officer, Male, 33 years).

The horticulture investment therefore had in place hygiene facilities, provision of clean drinking, worker safety measures, first aid teams, and an on-site clinic. Workers were also provided with and encouraged to have their personal protective equipment (PPE). The standards operating procedures were communicated to workers through notices pinned in strategic areas around the farm.

On-the-job briefing sessions and trainings were also used as forums to share health and safety information. These trainings were usually conducted by the health and safety committee in collaboration with the human resource office. Once briefed or trained, the workers were required to sign attendance lists which were kept as record for audits that vetted compliance with the health and safety requirements. For workers' health status, as espoused in the excerpt, a medical assessment test was done at recruitment and after every three to six months in compliance with food safety standards:

> *The medical assessment was to confirm general well-being for the workers at recruitment and subsequent renewal of contracts* (IDI_27, Farm clinician, Female, 25 years).

The medical reports for workers were necessary documents for compliance with safety and quality standards. The reports indicated a clean bill of health for the workforce handling food and excluded them from a possibility of contaminating the food products along the value chain.

Some of the health conditions that the company was keen to monitor was infections that were communicable and hence the risk of contaminating the fresh produce. As detailed in the excerpts these included upper respiratory tract infections such as a persistent flu, or tuberculosis; and waterborne diseases such as amoeba and typhoid:

> *Maybe a worker could be like in the pack-house they could be having an issue with the cold and they want to work there. They will first be given a short contract to see if they can endure the cold environment in the pack-house. If they cannot then one can be transferred and taken to the farm or somewhere where they will not be so exposed to the cold* (IDI_24, Supervisor, Male, 47 years).

> *For example, in this company, we do tests every six months mostly for workers who handle food; in the farm and in the pack-house and maybe drivers and loaders those involved in the process of food production. For example, we carried the tests for typhoid, brucella and amoeba out on 382 people in November 2016* (IDI_27, Farm clinician, Female, 25 years).

> *First you pass by the nurses' place for a check-up just in case you have any issue you are given a month's contract. Maybe you can work for three months, six months, yes or a year so you will be renewing your contract after a year, six months, and three months depending on your physical situation (*IDI_19, Supervisor, Male, 41 years*).*

However, based on the company non-discrimination policy the medical assessment was not used to deny workers found not medically sound a work opportunity, even in instances where a worker had a long-term health condition such as cancer or even HIV/AIDs. The policies ensured that the systems in place linked the different stakeholders involved in the production to along the value chain as detailed in the overview of the horticulture investment.

These formal policies for labour engagement and management, welfare as well as health and safety in food handling were in line with the international to national labour requirements. The international standards adhered to in this export horticulture setting included Global GAP, Ethical Trading Initiative, British Retail Consortium and Linking the Environment to Farming certifications as well as the international labor organization requirement. Nationally, the policies aligned to the national employment act (2007).

This finding is similar in other studies where international standards such as Global GAP compliance is reported to increase welfare and working conditions of workers (Dolan et al., 2002; Ehlert et al., 2011; Kabiru et al., 2017). Notably though, these policies that represent for formal institutions were not functioning independently in the horticulture setting rather alongside informal norms, values and 'laws' that were necessary for the operations on the agro-industrial food system as discussed later in this chapter.

6.2.3 Community engagement and corporation

There were community engagement and corporation policies aligned to the international food standards that required export horticulture investment. These policies incorporated community engagement and outreach for welfare as well as environmental conservation. The policy recognized the need to give back to the locality where the resources such as land, water and labour were utilized for the production of food for export markets. The giving back was in the form of conserving the environment for posterity as well as extending benefits to the inhabitants of the area as espoused in the excerpt:

> *We are working closely with key stakeholders who include the community, county and national government and some of our customers in the United Kingdom to implement our corporate social responsibility policy (*KII_01, Manager, Horticulture investment, Laikipia County).

In partnership with one of its customer's non-charitable foundation, as is espoused in the excerpts, the horticulture investment implemented projects aimed at improving the lives of farm workers and smallholders within the surrounding areas:

> *We have a committee that includes community representative that normally sits down and looks around collecting the views from the community on what they need and what they feel we can do to assist them. For instance, in the last five years since we started this business here we have managed to build two schools* (KII_02, Manager, Horticulture investment, Laikipia County).

> *What I can say being one of the members of 'nyumba kumi' [community governance structure to foster good relations], we have met with the horticulture farms and we discussed what we want as a community (*KII_10, Village elder, 54 years, Laikipia County).

The projects included setting up of hospitals, schools as well as contributing food portions, water and availing free transport to the workers in these facilities located near the farm. In relation to the community as reported in this study, the horticulture investment was in compliance with international food quality and safety standards by ensuring community engagement.

The terms were stated on the corporate social responsibility influenced by Global GAP, Fair trade, Ethical trading initiative and the linking environment to farming initiative (LEAF). Similar findings are reported elsewhere. Formal institutions such as international food standards now play a vital role in the sector as there are mandatory certifications and standards to be adhered to in light of the environment, workforce and food safety (Ouma 2010;MacGregor et al., 2014).

6.3 Relationship between actors and informal institutions in export horticulture

The informal institutions included the unwritten norms, values, regulations, rules and laws also regarded as 'rules of the game' that were expressed in labor engagement and management as well as in the self-organization of the workers as producers and processors in the export horticulture setting.

6.3.1 Labor engagement and management

The human resource policy had provision for recruitment, retaining, promotion and staff development based on availability of opportunity and performance of individual workers. However, in practice as narrated by different cadres of workers and illustrated in the excerpt, getting a promotion or a review of their terms of engagement for a better remuneration wasn't a common happening at the horticulture investment:

> *It takes a lot of time to get a promotion here. Sometimes it is even better if you quit work and resume in the future. You may get a promotion or have your terms of reference reviewed especially if it is the owner who calls you back. This is what I did. I had worked here for three years with so much output in propagation but they were not recognizing my efforts. I quit in March 2016 and you see I am now back as a supervisor and earning much more* (IDI_08, Supervisor, Male, 33 years).

From the conversations, workers felt that sometimes leaving work at horticulture investment was the best move to propel their career advancement since the formal structures did not always address their concerns and expectations. For instance, as illustrated in the excerpt, some the

management staff at different points in their work life had to quit working for the horticulture investment and seek out jobs in other companies:

> *The manager had left. He just came back the other day about 6 months now. He disagreed with the general manager at that time (2015/2016) and he left to work for another company in Naivasha. The owners of the company had to call him to come back, because since he left the farm was performing poorly. He now came back as a manager before he was just a crop manager* (IDI_15, Farm worker, Female, 49 years).

Among the seasonal labor the turn-over was notably high. On an average day during the study, about two workers would leave work because they were either sacked for reasons that included abseentism, stealing or taking home produce from the farm unauthorized and worker conflict as espoused in the excerpt:

> *There are always people resigning. Like these two ladies who have just left had come for a paper to write their resignation letters. One is now resigning after having missed work for some time and when she came the explanation was that she was absent because her husband had suffered a motor accident. Today as she resigns she explains that she has to leave to take care of her husband who is still not well recovered (*IDI_28, Farm office assistant, Female, 25 years).

Additionally, workers resigned or just stopped coming to work without notice in large numbers. For workers that presented their formal resignation, they would give varying reasons that necessitated that they terminate work for an extended period. Usually, as espoused in the excerpt, there was provision for 5 days permission provided for within their contracts to cater for sick offs eventualities and emergencies:

> *Workers will give all sorts of reasons as to why they are leaving. Some will say it is because they are sick and in need of medical care or that they have a sickly family member they need to take care of or even the loss of a loved one* (IDI_13, Farm office assistant, Female, 22 years).

Interestingly though, often times the explanations were not genuine; the explanations as in the following excerpts were usually a way of seeking amicable exit and secure their pay for days worked before resignation:

> *If you check the staff files and read through the resignation letter, there are so many reasons given. But most of the time these workers are just lying so that they can be released and paid their final dues. I have become used to hearing all manner of excuses* (IDI_28, Farm office assistant, Female, 25 years).

> *You know when a worker is resigning they have to state the reason of their leaving in the letter. At times there is usually no good reason so they just lie and say that they are bereaved or someone is sick and they have to be away for an extended period of time* (IDI_21_ Head supervisor, Female, 43 years).

Contracts for the seasonal workers were renewed every one to three months for as long as there is work available. In spite of the short-term contracts it was a common occurrence to interact with individuals with over five years' experience at the horticulture farm. The labor laws expected companies to offer permanent work contracts to casuals who worked with them for over a year but the company no longer employed workers on permanent terms as espoused in the excerpts:

> *I have over 5 years of work experience since I started working here in 2011. But I have left a few times and come back to work. Sometimes I leave because there is no work so the company releases us and later calls us when there is work again* (IDI_12, Farm clerk, Male, 31 years).

> *In the initial years of the establishment (before 2010) casual workers would be employed on permanent contracts. This no longer happens but you will find someone who is a casual and has been working here for almost 6 years. After a 3-month usually a worker is told to proceed on 2 weeks off work and the come back to sign a new contract* (IDI_01, Supervisor, Female, 28 years).

This break given in between short-term contracts was to legally protect the employer. In this way people are like 'permanent' because they are always working at the farm but on short- term contracts without pension or medical insurance as benefits and extra costs to the employer.

For the daily wages, the knowledge given across board concerning the minimum wage but there were no details to the seasonal workers on the pay scales across the different job groups. As such the pay rate wasn't standardized. Even peers could be earning differently yet performing similar tasks and there were no clear policies around this. The discrepancies for the wages were only

clear in the workers contracts which are often under lock and key in the human resource office (The researcher was able to access some of these files as she helped in updating of the individual staff files during her rotational stint at the human resource office).

When labor was in excess in comparison to the production targets then everyone's job was at stake. This scenario was especially common in the dry season when production was at a minimum due to water scarcity. At such a time, it seemingly didn't matter how long an individual may have worked, they would be reassigned to a different department without much negotiation or even worse sent home with a return-to-work promise when the rains started. The researcher observed such a period during the December 2016- February 2017 dry spell during which the seasonal workforce reduced from about 1000 to barely over 200 hundred workers.

In the horticulture investment, abseentism from work without prior permission was regarded as a breach of contract and it meant that one would not be paid for days not worked and the provided off-days. If an individual is absent from work for a day, they are not paid for the day in question as well as and an additional day.

Notably, though this formal regulation was changed informally to the advantage of the farm. For instance, in the dry spell period mentioned earlier, the director gave instructions to dismiss any worker who missed work without prior permission. These new changes were not formally documented or communicated to the workers. This affected a number of workers who traditionally would absent from work especially after pay-day and resume 1 to 2 days later to only miss the few days' pay. With the new 'rule of the game' implemented by the company; to justify the mass release of workers during the dry spell without adequate notice, workers only learnt of this when they became a victim of missed work and faced summary dismissal.

The export horticulture investment nevertheless sought to retain the workforce as much possible as long as production was at its peak. The management avoided the high turnover and repeated instances of having to hire and train new workers. However, the constant exit of workers was on an on-going basis except for periods when the management projected reducing production and consequently lesser labor demands.

6.3.2 Self-organization amongst seasonal workers

As a provision within the social welfare policy, workers were encouraged to join a farm-based worker's Sacco. The membership as detailed in the following excerpts, was however optional and an individual could save for a period of six months after which they could access credit and loan facilities with guarantors and many of the seasonal workers were not members:

> *You know most of us are on short term contracts, and we are earning less than Kes 10,000 and we have families to take care of. So that contribution of Kes 1000 is too much for us and we are better working in chama (self-help groups) where you can even contribute Kes 20 per day and be able to borrow money* (FGD_03, Farm workers, Laikipia County).
> *This Sacco is only beneficial to the managers and the owners. You know Kes 1,000 every month is a lot of money when deducted from my small salary. And I am not even sure for how long I will be working here so I cannot join* (IDI_04, Male worker, 26 years).

In place of the Sacco, to cater for their welfare needs the workers formed their own informal organizations of self-help groups defined either by area of work (farm or pack-house) and at times also by the gender and ethnicity of the members as detailed in the excerpt:

> *Our group has ten women (comprised of workers with over 5 years at the farm). We came together and contribute Kes 100 per month so that we can support each other in family affairs. We are now preparing to attend the graduation [national youth service passing out parade] of a son of one of us in December and later travel back for a home coming party* (IDI_15, Female worker, 49 years).

The farm was aware of the existence of the self-help group but never interfered with their operations. Workers also tried to keep their group activities out of the workplace, so even their meetings took place outside of work in a central location, for example, one of the member's

homes. The groups worked to meet the member's needs but did not have a formal standard operating procedure. Members would contribute small amounts of money over a period of time and use this to meet their savings and lending needs within the group. An interest was usually charged to the members but there needed to be no guarantor to the lending. As illustrated in the excerpt, goodwill and trust were the principles that guided the group activities:

> *Our group comprises both men and women from one ethnic community [Akamba]. Our meeting usually take place in Nanyuki town on Sunday afternoons. As members we contribute and offer each other soft loans repayable within the year at a small interest. At the end of the year we look at our funds basket and share the money including dividends and there after break the group and start afresh in the coming year* (FGD_4, Farm workers, Laikipia County).

Any challenges or conflicts in the groups were usually resolved through dialogue amongst the members. The lifespan of the groups also depended on the commitment and trust of the membership, given that their jobs at the export horticulture investment were erratic and at any time a worker could be rendered jobless. Even when not in groups, as highlighted in the following excerpt, workers came together to support each other whenever there was the need to do so:

> *As workers we support each other when in need. Like when my sister died and left me with an infant to take care of, my workmates came through for me. They contributed towards the funeral and they have been buying me milk for the baby* (IDI_36, Supervisor, female, 48 years).

While workers had informal insitutions for their welfare need especially for supplementing incomes, there wasn't organization for advocacy of improved services or even remuneration. This was in spite of the workers informal expressions of discontent in relation to their working conditions, welfare and employment terms. Though not formally documented in the worker contracts and human resource policies, the company discouraged any form of worker unions, a thing the workforce also acknowledged as unacceptable as espoused in the excerpt:

> *I thank God because Kenya has not really ratified industrial labour institution act 2007. I think you saw what happened to South Africa as a country. We should be very careful when it comes to issues to do with labour management. Actually, here I don't have an active union but today if workers come and demand what we cannot offer, we will just tell them we are very sorry we can't afford you try elsewhere* (IDI_06, Administrative officer, Male, 38 years).

As reported in the study, different actors in the export horticulture setting made use of informal institutions for labour engagement, management as well as the self-organization of workers. These informal institutions would be initiated by a set of actors wanting to have a higher bargaining power position in a situation as demonstrated in this study. Informal institutions / rules of the game in this study context refer to the norms, values, regulations, rules and laws that exist casually. To tackle the imbalance in the bargaining power positions in the export horticulture setting, workers have formulated informal insitutions for labour engagement and management and self-organization for welfare. On the other hand, the horticulture investment has come up with informal arrangements with the neighbouring communities to engage on matters of community outreach and fulfil their corporate social obligation is in the study findings.

Informal institutions within the horticulture setting provide discourses on which the different actors base their roles, perceptions and interactions as in the study findings (Kioko, 2010). According to North (1990) different actors shape institutions as is illustrated in this study where different formal and informal institutions are in place; human mental models invoke choices based on perceptions of costs and benefits and thus institutions are created to reduce uncertainty in human exchanges and limit transaction costs (North, 1990). According to Haller (2002), however, the way institutions change over time and what effect they have on the economic plans of individuals and groups of actors, are subjects of debate by different theoretical approaches in economic history, political science and anthropology.

According to Dolan (2001), the bargaining power of an individual was determined by several factors referred to as informal institutions in this study including cultural norms of resource redistribution. The informal insitutions such as the self-organization of workers highlighted in the study findings often complemented and at times contradicted the formal insitutions as articulated in the activities and on goings around the premises (Haller et al., 2013; North, 1991). They are often not documented but usually inform operations and functioning of the export horticulture investment.

Workers especially women have been able to come together and offer material and social support to each other even within constrained working environments. The power relations within this sector are manifested in the informal and formal insitutions 'rules of the game' where the company puts forward insitutions to maximize on labor for high quality production and profitability (Haller 2013; Mcllouch and Otta, 2002; Dolan, 2001). The self-organization for welfare was an alternative to the formal arrangements such as the savings and credit cooperative (Sacco) to mobilizing of resources to respond to seasonal workers wellbeing. Wilkinson et al (2017) reported self-organization of women into self-help groups in Burkina Faso as contributing into improved household income and in the longer term more resilient household in relation to food security. Similar findings are reported elsewhere (Haller et al., 2013; Ameso et al., 2018) though looking at pastoral communities.

Beyond informal self-organization for welfare, it is important to note the reluctance on the horticulture investment to allow formal organization around worker rights. As illustrated in the findings are no formal organization for workers to lobby for their entitlements through trade unions but they engage in discourses to justify their place in the horticulture production. They are able to engage and disengage from work when they feel they want to, unless in situations of

company downsizing, they create narratives around their working experiences to infuse meaning into their engagements and also boost their bargaining power. This finding mirrors the international labor organization's statistics of there being two billion people in the informal economy with 93 per cent emerging from the developing countries. This category of workers unfortunately works without social protection, rights at work and decent working conditions (ILO, 2018).

CHAPTER SEVEN: INSTITUTIONAL CHANGES AND SETTINGS IN EXPORT HORTICULTURE

7.1 Introduction

This chapter presents findings and a discussion on the existing institutional settings of export horticulture and how these relate to other food systems in Northwest of Mount Kenya.

In the context of this study, institutional settings refer to the social interactions comprising the ideologies, organizations and bargaining power positions of different actors that are structured by formal and informal rules and regulations governing export horticulture.

7.2 Institutional settings and changes in the export horticulture value chain

As reported in the study, the horticulture farm and packhouse was set up in compliance with international food safety and quality standards. The horticulture investment comprised a production unit (open fields and greenhouses) and an onsite pack-house facility for post-harvest management guided by international food and safety standards as summarized in the excerpts from different workers interviewed:

> *The farm started in 2005 and the pack-house was set up shortly afterwards to avoid any disconnect of the processes from the farm to post-harvest management of the highly perishable produce* (IDI_01, Supervisor, Female, 28 years).

> *There were new regulations passed by the European Union on the minimum residue level and some chemicals being banned from the market. At that time the investors were forced to open their own farm and that is why they opted for this one (*IDI_06, Administrative officer, Male, 38 years).

Since establishment in the 1970s, the exporting company had heavily relied on the produce from outgrowers in their networks for processing and export. However, in the 2000s stringent market standards required the exporters to account for their produce in terms of traceability and

minimum residue levels (MRLs); conditions that were difficult to monitor with outgrowers as detailed in the excerpts:

> *Having relied on local smallholder farmers as outgrowers for a long time the company was forced to open their own farm for easier production monitoring and controls, which was not easy to do with so many production units of the outgrowers (*KII_02, Manager, Horticulture investment, Laikipia County).

> *We are guided by international standards that are globally recognized usually set by the markets. The standards cut across all the parameters that constitute the production of safe and legal products* (KII_04, Management officer, 53 years).

There were formal institutions in place to oversee the production, processing, product quality control and assurance and distribution of the horticulture products. The rules and regulations, as per the excerpts, were carried out along the value chain to validate processes and inputs from growing, harvesting, packaging and distribution:

> *Compliance was vetted through market-initiated scheduled audits and spot visits to the producers. Vetting was also carried out on the products at the entry and exit points for exports and imports respectively by the regulating authorities* (IDI_02, Quality control officer, Male, 33 years).

> *The Global Good Agricultural Practices (GAP) formerly EUREGAP is a market driven certification developed by EU retailers to ensure product safety, environmental protection and the health and safety of workers and animals. The horticulture farm also ascribes to Kenya GAP which is also benchmarked in the Global GAP standards* (IDI_31, Crop manager, Female, 41 years).

In addition to the international standards for food safety and quality, there were institutional rules and regulations at the national to county level that defined the operations on the horticulture investment. As reported in this study, the horticulture investment was subject to abiding by the regulations set by the Agriculture sector that was now a devolved governance function as elaborated in the excerpts:

> *In the past we were only subject to the national levy and taxation where we paid once for the market and movement charges. Like in Meru we are paying CESS per every per carton, Nyeri we are also paying but per truck and then we are still paying for the same produce to the Horticulture Crops Directorate. Luckily for Laikipia County, we have*

> *good relations and they recognize our contribution to local development and have given us a waiver. So, we end up pay for the same regulation almost four times* (IDI_06, Administrative officer, Male, 38 years).
>
> *This is because we need to conserve the environment for future and for that we are doing LEAF audit, to make sure we conserve our environment* (KII_06, Management officer, 38 years).

Following the Kenya constitution (2010) enactment, Kenya has a 2-level governance structure (the national government and 47 county governments) effective 2013. Several functions were devolved including those of the agriculture sector. The investors in export horticulture regarded these as additional production costs which affected their outgrowers. The increasing transaction costs were not beneficial to export horticulture for both large and small-scale outgrower producers as detailed in the excerpt representing the investor perspective on the increasing market costs:

> *Since 2013, we have to pay county market charges (CESS) and agricultural produce movement levies for transportation of produce across Laikipia, Meru, Nyeri and Nairobi Counties. We have come together with other horticulture companies through FPEAK to lobby government to look at this. It is killing this business* (KII_01, Manager, Horticulture investment, Laikipia County).

In this particular case the horticulture investment even pulled out of their outgrower arrangements in Meru pending negotiations with the county government as illuminated in the excerpts:

> *For instance, if we are collecting produce from a farmer in Meru County we have to pay market charges of Kes 25 per carton in addition to the Kes 2,500 movement charges a lorry is still charged. Before devolution, we only had to pay levy once to the national government, of course in addition to the export taxes and all (*IDI_06, Administrative officer, Male, 38 years).
>
> *This multiple taxation and levies by the county and national governments has become an expensive venture especially when we have to collect outgrower produce from a different county and we are looking into this issue. Currently, we have withdrawn our contract farming agreements in Meru as we look for a way out of this situation* (KII_01, Manager, Horticulture investment, Laikipia County).

As reported in the study findings, the international food standards (private voluntary standards) are key drivers in the establishment of large scale horticulture production units in Kenya. Until the mid-1990's horticulture production in Kenya was dominated by smallholder farmers and the larger companies were as distributors and processors within the horticulture value chain. Up to 80 per cent of the fresh produce for export was from smallholder farmers contracted by the exporting companies to supply produce for packaging and export (Jaffee, 1995; Dolan and Humphrey, 2004; Henson and Humphrey, 2010; Ouma, 2010).

This is also illustrated in the study findings whereby the mother company was mainly operating since the 1970s as a horticulture exporting company working with over 800 outgrower farmers to produce for the market. As reported in other literature, the rules of the game changed within the global food markets with a series of food safety failures in the UK and the US that were linked with the imported fresh produce (Pay, 2005; Tsimbiri et al., 2015).

This led the global food market (led by the retailers) to re-organize the rules and regulations about food safety and quality (Dolan and Humphrey, 2004; Henson and Humphrey, 2010; Ouma, 2010; Otieno, 2016). The new requirements were more stringent requiring exporters and producers to be more vigilant over the inputs and processes in production of the fresh fruit and vegetables (Pay, 2005; Tsimbiri et al., 2015). Consequently, as in the case of the horticulture farm where the study took place, many Kenyan export companies set up farms to be able to produce a larger percentage of the produce for export, over which they could have a control better than that they could have over the outgrower contract farmers. Some of the key standards to which the horticulture companies have to align to include the Global GAP, LEAF, and BRC for packhouse processes (Dolan and Humphrey, 2004; Weinberger and Lumpkin, 2005; Henson and Humphrey, 2010; Ouma, 2010).

As reported in this study, the global horticulture value chain has specific yet strict quality standards and specifications for which the product is tailored to meet and these influences labor and production dynamics of export horticulture. Within the export horticulture setting there exists therefore, international to company level institutions (policies, rules, structures and regulations that guide the value chain processes and activities to ascertain compliance to food safety and quality procedures. The working arrangement of these institutions are defined and controlled by the horticulture investment in compliance with international standards.Similar findings are reported elsewhere (Ouma, 2010; Ongeri, 2014; CARE, 2016).

Institutions such as international food safety standards now play a vital role in the sector as there are mandatory certifications and standards to be adhered to in light of the environment, workforce and food safety (Ouma, 2010; MacGregor et al., 2014). As in the study findings, horticulture production in Kenya started in 1960s as in the case on the company that owns the horticulture investment in Laikipia County. In those earlier years smallholders were the main producers and exporters buying, packing and exporting, strict regulations changed the game from 2000s onwards. The standards were very strict on the minimum residue levels (MRLs) and declaration of country of origin for traceability in line with the Global good agricultural practices (GAP) standards.

Since the export horticulture investment at that point needed to have more control over the production of fresh fruits and vegetables for export, they established their own agro-industrial production setting. The export horticulture investment was established mainly to respond to increasingly stringent market driven international food standards. This finding is similar to other studies on the formal institutions of the export horticulture value chain (Dolan and Humphrey, 2004; Henson and Humphrey, 2010; Ouma, 2010).

To implement these policies and standards the export horticulture investment also instituted structures and systems through technology and training to ensure traceability of produce and deliver highest quality and safe products (Pay, 2005). The systems that included farming technology software, a pack-house labeling and weighing system and a cold chain tracking system for produce on transit ensured that all processes were in check. This finding is corroborated in literature where the compliance to standards is vetted against infrastructure put in place (Pay, 2005; Ouma, 2010; Ehlert et al., 2011).

The horticulture investment operates therefore in compliance to the institutional setting driven by the stringent market driven food safety standards and regulatory frameworks at the international, national and county level as reported in this study. Similar findings are reported elsewhere (Dolan and Humphrey, 2000; Dolan and Humphrey, 2004; Ouma, 2010; GoK, 2012). Notably though, as alluded in the study, the strict adherence to international food standards is beneficial for consumer satisfaction. However, it is the farmer (large-scale and outgrowers) who has to bear the costs of compliance without any additional profits. Similar findings are reported elsewhere (Ouma, 2010; Ongeri, 2014).

Exporters now typically take up production to reduce on the transaction costs of risk and move away from the more traditional spot markets that were arguably much easier to access for the smallholder outgrower farmers (Cornelia and Guilherme, 2013; MacGregor et al., 2014). Interestingly also, these formal insitutions were at times also challenging especially to the workers and outgrowers with lesser bargaining power positions compared to the horticulture investment (Haller et al., 2013; Ensminger, 1992). For instance, the policy on food waste management while beneficial to the export horticulture investors in the sense of compliance to international standards, seasonal workers were limited by the same policy in accessing their food

needs even when the food was available in the agro-industrial food system. Colbert and Stuart (2015) report similar findings.

In relation to local governance linkages to the agro-industrial food system, the devolved governance structure brings in a new dimension in the horticulture sector governance and operations. Several functions have been devolved including those of the agriculture sector. Presently the national government plays the main role of creating an enabling environment through policy formulation within the agricultural sector (GoK, 2010; GoK, 2012). Earlier before the promulgation of the Constitution of Kenya 2010, the collection of produce cess was anchored in the Agriculture Act (Cap 318) (GoK, 2010). As is provided for in this Act, local authorities could impose cess with the consent of the Minister in charge of local government. In the Act, produces cess was clearly conceptualized as an earmarked levy; 80 per cent of all cess collection was supposed to be ploughed back to maintain roads and improve services (GoK, 2010).

The new constitution ushered in a new era with the establishment of 47 County governments and the abolishment of the former local authorities. The role of taxation is shared between the two levels of government and the types of taxes that each level can charge are clearly defined (GoK, 2010). As illustrated in this research, horticulture companies are now operating under two governance regimes. This dynamic translates into additional costs of transaction including charges for movement of produce as well as produce cess across counties as illustrated in this study.

Governance transition related to political changes due to the devolution of power from national to county-level governance translate into multiple taxations of horticultural produce and products hence increased transaction costs for the horticulture investments (GoK, 2012; KMT, 2016). The issue of produce cess though has been a somewhat grey area. It is not explicitly defined under the

main tax categories that County governments could charge under the new constitution because the Agriculture Act has been repealed by AFFA Act (GoK, 2013). However, majority of Counties have entrenched cess into their legal systems through annual Finance Acts passed by respective County Assembles. Multiple taxation, was highlighted as a challenging dynamic in export horticulture for the investors as well as for the involvement of outgrower farmers as also discussed elsewhere (GoK, 2012; KMT, 2016).

Where the exporting companies find it expensive to manage these additional transaction costs from levies charged while transporting produce from outgrower farm gates, the contracts are discontinued. Changes in market prices and the national and international policies, for instance policies to support export-oriented horticulture with regard to taxes, trade agreements and quality control alter the institutional setting of this agro-industrial food system (Ensminger, 1992; Haller et al., 2013). The changing governance structure with the advent of devolved governance in Kenya poses both a threat and opportunity for the agro-industrial horticulture sector. Further research into the dynamics of devolved governance in the sector is recommended on the taxation regimes in relation to export horticulture and the broader agriculture sector in Kenya.

7.3 Institutional settings and changes of land and water access and use as a common pool resources linked to export horticulture in Laikipia County

The exporting company ventured into establishing the farm in Laikipia County as the first of its production units for three key reasons linked to common pool resource availability, access and use, namely; the cheap land rates, availability of large tracts of underutilized land and the proximity to water sources.

Land use and access for the export horticulture investment

The horticulture investment (farm and onsite pack-house) where the study took place produced fresh vegetables, herbs, and fruits for the United Kingdom (UK). Before the onset of the strict food safety and quality international standards the company relied heavily on outgrower farmers for the bulk of their produce but the regulations had them revise their production. As illustrated in the excerpts, this was so as to enable them produce on their own and monitor the growing to harvesting of produce an aspect that was difficult to follow up from the individual outgrower farms:

> *This and other farms belonging to the company were set up as from 2004/ 5 so that we have more control over production processes and activities to comply with the stringent international food safety standards and remain in the market* (KII_01, Manager, Horticulture investment, Laikipia County).

> *The farm started in 2005 and the pack-house was set up shortly afterwards to avoid any disconnect of the processes from the farm to post-harvest management of the highly perishable produce* (IDI_01, Supervisor, Female, 28 years).

However, beginning the 2000s there was an increased consumer awareness following food safety failures that resulted in stringent food safety and quality standards for exporters and producers in horticulture. In 2004/2005, when the export horticulture investment in the Laikipia County was set up, the exporting company ventured into establishing the farm in that locality as the first of its production units for 3 key reasons as espoused in the excerpt. These reasons included; the cheap land rates, availability of large tracts of underutilized land and the proximity to water sources:

> *Why we started with a farm Nanyuki was mainly because of the availability of the land. We not only found the land here but there were rivers that were flowing that time and this land at that time was cheaper as compared to the other areas* (KII_02, Manager, Horticulture farm, Laikipia County).

At that time land in the region was available as large underutilized and unexploited tracts of land that mostly were left fallow. In 2004/2005 as is elaborated in the excerpts, one acre cost the exporting company of Kes 50,000 (500 USD) and they bought 700 acres within one locality from one owner under the free hold land tenure:

> *If you wanted an acre or two depending on your ability to buy, they sell it to you an acre for about Kes 50,000 to 60,000 back in the year 2008, 2007. Like this horticulture farm where I used to work bought land from one man who owns a lot of land in this area* (KII_08, Village elder, Laikipia County).

> *We acquired an acre for about Kes 50,000. Today the price is almost increase by 100 per cent* (KII_02, Manager, Horticulture investment, Laikipia County).

The horticulture company farm in the study area covers an area of approximately 350 hectares utilized. As further elaborated in the excerpts, the land, on which the export horticulture investment was located, was initially owned by one individual who had amassed large tracts of land and invested heavily in real estate in the region:

> *The whole farm is about 700 acres (350 hectares) but we are only utilizing about half of that and the rest is left as a conservation area* (KII_01, Manager, Horticulture investment, Laikipia County).

> *It belonged to one person and it was very big land. Half of Muramati belongs to him. He bought very many shares from the white man. No, they were a group. [Okay, a group? Then they left the land to the Africans who had shares?] You know, some Africans refused to contribute for the shares. It was not compulsory. If you wanted to get the shares, that was okay. Then when the Europeans were leaving, they would leave the farm to the Africans who had shares in the land. Even if the land was 2000 acres, 1000 acres, they just left the land to them* (KII_08, Village elder, Laikipia County).

Notably, in Laikipia County region land at one point in pre-colonial era was communally owned and belonged to the pastoral communities. In independent Kenya land was mainly secured by the different actors on free hold titles obtained through purchase of the property from private owners. As elaborated in the excerpts below, the new land owners utilized land and related resources for economic activities such as small-holder agriculture; large-scale export-oriented

horticulture as in the case of the farm; real estate development; private ranching and wild life conservancies:

> *Like for us when we started the church, where I am a pastor in 2004 there were no homesteads in this Kariunga area. Then there were very few people. That was when the farm was beginning. There are now more people living in this area especially after the farm was established. Now this is a big village* (Community FGD_02, Laikipia County*).*

> *Other foreigners besides the owners of the horticulture farm also started to buy land here for ranching and other farms and life has gone on. We get construction jobs in those farms* (Community FGD_02, Laikipia County).

The pastoral communities lived more towards the Northern part of the region where they were settled by government in community trust lands and land and pasture use and access is communal. Some pastoralists, as illustrated in the excerpts, had relocated from Naibor and Doldol and bought land and settled around the horticulture investment's surrounding:

> *These pastoralists still had their herds in the group ranches back in Naibor and DolDol. They engaged herders and members of their larger families to look after them and from time to time visit to tend after them* (Community FGD_01, Laikipia County).

> *You can't build in a land that is not yours. So, they have bought the land and they have their own title deeds. Only that family can build on that land* (Community FGD_01, Laikipia County).

There are also a few smallholder farmers in this area as well who mostly team into farmer groups and work as outgrowers for horticulture farms in Laikipia County. The outgrowers as is illustrated in the excerpts, provided diversity by contributing to about 20 per cent of the export product for the company, mostly the crops that required less monitoring like the fine beans and baby corn:

> *We have contracted farmers around who supply different products like the fine beans coming in from the Timau group* (IDI_03, Team leader, Male, 29 years).

> *We work with outgrowers to grow different horticulture produce from what was available at our own farm like fine or french beans (green and yellow) and baby corn and in this way, we increase the variety of produce for the consumers* (IDI_06, Administrative officer, Male, 38 years).

> *Small growers have also come up because we are getting produce from the outgrowers who are around the farm so that some were working here; they went out and started doing their work (*KII_01, Manager, Horticulture investment, Laikipia County).

However, as explained in the excerpt below, over the years the involvement of outgrowers has been greatly affected by the increasing market standards whose compliance costs are to be met by the individuals and as such are dropped off the value chain as they do not meet the threshold:

> *We gave them the new regulations, for those who managed we continued with them and for those who did not manage by the new standards we had to let them go because it was very difficult to have everybody on board* (IDI_06, Administrative officer, Male, 38 years).

Given that the private property land tenure was familiar to the communities linked to the horticulture there was generally a peaceful co-existence in the area. The community rarely invaded the farm due to existing understandings that it was private property and there were legal consequences to trespass. There so far was only one farm- community conflict over land that happened in 2006. The investor initiated a litigation process against a community member and after years of a long and tedious lawsuit the community elders intervened and there was an out of court settlement where they called a truce as detailed in the excerpt:

> *Some time ago there was a court case that lasted for some 6 to 7 years about grazing goats in large-scale farm by one individual, and it was a case taken to court for some time. They even had hired lawyers and it went on for so long. But since then we have not had any more issues. And it almost caused enmity in the community because the head of security that had forwarded the case became the people's enemy* (Community FGD_02, Laikipia County).

Between the horticulture investment and the community, there existed unwritten / informal arrangements and rules regarding sharing of common pool resources, namely: land and water with the community. The investor had also instituted informal arrangements for especially the pastoral communities as is elaborated in the excerpts, to access pasture in the uncultivated section of the farm alongside other community development activities through the company's

corporate social responsibility and in return, the company enjoyed security of its territory and investment:

> *The only areas in the farm we do not allow them to graze are where we have planted. But outside the farm towards Muramati we have quite a big chunk of unfarmed land and we let the pastoralist graze. The farm is now part of the community. They have taken ownership and even before others come from far wanting to invade our farm they are the first ones to stop them* (KII_01, Manager, Horticulture investment, Laikipia County).

> *To be very honest the community has been very supportive. You can see even when we have these cattle rustlers we just hear it from very far but don't come around* (KII_01, Manager, Horticulture investment, Laikipia County).

These institutional settings and changes around land in the study area are founded on historic entitlements and laws on land ownership. While individual owners buy and own land in the formal arrangements, pastoral communities have a historic claim on land. They perceive access rights as passed down as these were their ancestral lands wrongfully taken for them. With the erratic rainfall in the semi-arid lands there is periodic drought where pastures are scarce. In those seasons given, the unequal distribution of gains from land there is potential for conflict especially between large-scale land investors such as the export horticulture investment, and communities linked to it by virtue of location.

As observed in the study, for instance, pastoralists in search of pasture and water could trespass into privately owned properties including large-scale horticulture farms creating potential for resource related conflicts. In the study area there were resource related conflicts in 2017 with herders invading private large-scale ranches to access water and pasture for their livestock. These were however not fully documented in this research as the data collection this study was concluded as this pastoralist – private ranches conflict was developing.

The horticulture farm wasn't directly affected by these conflicts as the herders targeted ranches rearing livestock and conserving wildlife. Detailed studies to explore the contentious issues

around water and land as shared resources in the study area are recommended. The discourse on potential conflicts is further advanced in the following section that presents the institutional settings of access and use of water.

Water use and access as a common pool resource

When the farm was established proximity of the land to a reliable source of water was a key factor considered in choosing its location. Water was an important factor to consider in export horticulture production, given the water-intensity of the crops grown in this sector. Because of the year-round production to meet market demands, the horticulture investment practiced irrigation agriculture. As is highlighted in the excerpts, to the horticulture company investors, the proximity to river water was seen a guarantee to water availability:

> *The fact that there were 2 rivers namely; Timau and Ontilili which pass by its hedges of this land was another factor that was important in selecting the location of this farm. These rivers were to them viewed as a guarantee to water availability because these horticulture crops have high water demands* (KII_01, Manager, Horticulture investment, Laikipia County).

> *We get our water from River Timau. In fact, when we started we were getting water from Ontilili River but somewhere around 2005 to 2007 the river started drying up. It is then that we went to Timau River from around 2010* (IDI_31, Crop manager, Female, 41 years).

However, water availability has over the years since the farm was acquired changed as in the excerpts, with the rivers drying up and becoming seasonal:

> *The main source of water is River Timau which is abstracted to dams within the farm. The Ontilili river has now become seasonal and is not as dependable (*IDI_24, Farm worker, Male, 45 years).

> *This farm generally faces water shortage challenges because Timau which is much closer to the forest where the river waters flow from has many horticulture farms and by the time this water flows downstream to this farm only very little is left* (Farm worker, Male, 27 years).

To manage the water demands, the horticulture farm now invests alternative water sources as detailed in the excerpt, such as rainwater harvesting and underground water from boreholes to manage its water demands:

> *There are three dams and one manmade lake. A fourth dam is under construction. Water for cleaning buildings as well as for use in the sanitary units is also sourced from the dam. However, water for irrigating crops in the green houses (NPDs) as well as for use in the canteen for cooking as well as drinking is strictly sourced from the boreholes or tanks containing rain harvested water. Water from the dams is not fit for human consumption as it is not purified before use. It is mainly filtered to remove particles of dirt that may cause blockages on the drip pipes. If you actually walk around the hydrant posts you find signage indicating 'do not drink hydrant water* (IDI_19, Farm supervisor, Male, 45 years).

The use and regulation of water in the region was by the national government through Water Resources Authority (WRA) which worked through Community led Water Resource Users Associations (WRUAs) to regulate river water users. WRA had structures in place including water meters in farms to record the cubic meters of water utilized for monthly payments. The horticulture investment was in two WRUAs given it location, namely Ontilili and Timau as summarized in the excerpts:

> *But there are people from the water authority who monitor that water even as you pump it. Because like now, the water is not enough, pumping river water is regulated because some people may not get water. Sometimes those people can even carry your generator* **(**Community FGD_01, Laikipia County**).**

> *If your farm goes up to the river, 10ft towards the river belongs to the government. So even if your farm goes all the way to the river, you are not allowed to farm very close to the river. So, what you do is put pipes and pump water from the river using a generator right to your farm (*Community FGD_02, Laikipia County).

At the County, the Nanyuki Water and Sewerage Company (NAWASCO) offered tapped water services payable monthly to supplement water for domestic use mainly from the boreholes and rainwater harvested in the horticulture farms and large-scale ranches in the region.

7.4 Common Pool Resource contestation

As it accessed water, the horticulture investment shared this resource with other users including smallholder farmers, other horticulture establishments and pastoralists (as in figure 3.1-map of the study area) as it was located downstream of the Ewaso Ng'iro River basin. The horticulture farm regarded its downstream location coupled with the erratic rainfall patterns in this leeward side of Mount Kenya with the semi-arid climate as the main challenge in accessing water for irrigation. The increased upstream water usage was also a factor that contributed to the two main rivers now turning seasonal. In spite of the erratic rainfalls, as is illustrated by the excerpt below, downstream users argued that river water would still be available and enough if it was properly regulated and coordinated:

> *So many people, local farmers are getting water up stream and other big growers like Finlays and also other flower growers are getting water are also getting water from the same river. There is no proper control that is why it is drying up. Which we have Timau River user associations where we also belong and there is very little they can do to control these local people because they steal at night* (IDI_06, Administrative officer, Male, 38 years).

Not all river water users were registered and there was therefore the possibility of many users beyond the river's capacity. Downstream users including the horticulture investment targeted for this study blamed on the users upstream the excessive unregulated abstraction of river water. As detailed in the excerpts, the upstream users include other horticulture farms as well as small holder farmers:

> *Because the horticulture farms tamper with the meter and that is not something that is hidden. They use huge meters that abstract most of the water, then they release water that has been contaminated with chemicals* (Smallholder farmer, Laikipia County, IDI_33).

> *Even when it is dry, the river has water. Another horticulture farm [H] has closed this water. They are the ones who have closed it. You know they grow flowers, and the demand for flowers is big because of weddings and all that. H is a very big company. When we complain, we are just locals, those are big people. If they give a bribe of say 3 million, we can't compete with that? Sometimes even when we complain, we are told it*

> *will be opened, when we come back home, there's no water, or they open it for some time then close it again* (Community FGD_03, Laikipia County).

The water authorities especially the water resource user associations (WRUAs) that comprised leadership from the local communities around the water catchment areas were faulted for not regulating fully the use of the river water as elaborated in the excerpt:

> *But you see now these local Water resource officials are not being honest. So, when someone goes to the head office asking for the additional water points, you get one and you can see from their system there aren't many users authorized to access the water. However, in practical there are so many other users and we don't know whether they are allowed or not* (KII_02, Manager, Horticulture investment, Laikipia County).

Large investments dealt with the water scarcity in Laikipia County by investing in alternative water sources such as boreholes and manmade dams within their settings to supplement the diminishing river water as elaborated in the excerpt:

> *When it is raining we harvest a lot of water, we have 5 dams and we are still digging more of the dams. We want to excavate a lot of dams so that we can have a lot of water as much as possible so that it can take us at least for a year even if we don't get rain. If we can store about 2 million cubic meters last us throughout the year if it doesn't rain. But we have less than a million right now and that is why at some point we will have to depend on the rains which are not very predictable (*KII_01, Manager, Horticulture investment, Laikipia County).

The alternative sources were not yet sufficient to sustain the horticulture investments' water needs. As such the investment lost many crops that could not be watered and had to depend on other sources to supplement their market supplies as espoused in the excerpts, for the season between December, 2016 and late March, 2017 when the rains started:

> *In some instances, like what we are now experiencing we have to leave already planted crop dry in the farm because we cannot harvest without water. This will cause massive losses for us and our outgrower farmers who are also affected by this dry season* (IDI_07, Crop manager, Male, 32 years).

> *There's plenty of work but there is no water to do the work. You see the river is drying up already* (Community FGD_02, Laikipia County).

The water scarcity also affected outgrower farmers in the region who mostly depended on river water for irrigation and did not have the capacity to set up alternative water sources as detailed in the excerpt:

> *Water scarcity affects us as we solely depend on the river water. We do not have the resources to put up reservoirs and boreholes to sustain us a bit more in dry seasons. So, in the dry seasons our crops just dry in the sun and we lose our incomes* (KII_04, Outgrower farmer group secretary, Laikipia County).

Additionally, the communities around the river especially those downstream faced the threat of using contaminated water redirected from the large-scale horticulture farms. The farms used large amount of chemicals for pest management and often when not monitored would dispose of the waste inappropriately. The chemical waste would end up mixing with the flowing river water which other food producers accessed for domestic and subsistence. As articulated in the excerpts, water likely contaminated with pesticides and fertilizer residue from horticulture farming was therefore a threat to human and animal health and the environment in the study area:

> *There was a time the local communities were drinking dirty water. The water in the river was contaminated by water from the pack-house. There was a problem and I think they had not realized it. And you know one can't tell dirty water when it's flowing in the river because the soil purifies that water. When the horticulture farm realized the mistake, it seems their pipes were faulty, they constructed that dam you are seeing there* (Community FGD_03, Laikipia County).

> *In addition to water abstraction the communities along the river, and downstream take this water contaminated by chemicals from the big horticulture farms. I remember at some point in there was a huge demonstration by the all the people from Isiolo and Laikipia, the pastoral communities that are there because this Ewaso Ng'iro River is their lifeline as there is no other river* (IDI_27, Smallholder farmer, Laikipia County).

As illustrated in the study, the semi-arid zone with limited arable land, the drying up of the two rivers, the limited options for alternative water for most local users, the possible contamination of water and the unresolved river water issues fuelled by the ideologies of different actors on their ownership and access, posed as a platform for conflicts over water as a common pool

resource. As in Ulrich et al (2012), the study area in regard to natural resources like land and water is disadvantaged by the semi-arid low agricultural potential and perennial water shortages with the exhaustion of already existing ones. When export horticulture is seen as part of an agro-industrial food system, socio-ecological implications are viewed differently. While the food system has provided opportunities beneficial to local actors there are environmental, social and economic limitations associated to export horticulture as highlighted in the study findings and reported elsewhere (Asfaw et al., 2010; Kioko, 2010; Maertens et al., 2012).

Notably, Kenya's export horticulture production driven by rising global demands has expanded beyond the 'traditional' mountainous high yielding areas into arid and semi-arid (ASALs) zones. Despite arid climatic conditions in Laikipia County, the horticulture sector is booming with over 30 horticulture companies in 35 farms competing against other food systems in the region for the already scarce resources. (Lanari, 2014; Lanari et al., 2016; Ulrich, 2014; Zaehringer et al., 2018). The region's different food systems-agro-industrial horticulture, pastoralism and smallholder agriculture compete for land, capital, and water, with access to water being particularly hotly contested (Ulrich et al., 2012; Letai, 2011).

Export horticulture as an agro-industrial food system displays a specific form of interaction with neighbouring communities and with the administration on different levels. In addition, the sector's culture and institutional settings define its operations as well as utilization of common pool resources for the production of food and influences its linkages with other food systems. Understanding these institutions, actors and linkages as presented in this study provides insight into this sector which is also regarded as part of an agro industrial food system. Developments in agro-industrial horticulture in Kenya can be related to the issue of changes in relative prices as in the institutional analysis model of Ensminger (1992). The rise of market prices for horticulture

products triggers investments and changes actors' access to labor, bargaining power and institutional settings as land and other common pool resources are much more devoted to this sector (Ensminger, 1992).

Land is a key resource in export horticulture production (Tyler, 2006). Since land ownership in Kenya is either by private, communal or government ownership, the aspect of land availability in export horticulture brings into context varied actors (English et al., 2004; GoK, 2012; Kibugi and Makathimo, 2012). These actors include initial land owners, foreign investors, local authority and lands ministry officials that authorized the transfer of land ownership and user rights as defined by relevant institutions as illustrated in the study. There is also an on-going debate on the local to national impacts of large scale land acquisitions (LSLAs) for export-oriented horticulture. These LSLAs such as the horticulture setting are international investments especially by powerful economic actors in the global north on 'empty' land in the global south that can serve as sites for large-scale production for instance of export horticulture (Borras et al., 2011; De Schutter, 2011).

There is also possibility of disruption of production in seasons of scarcity as reported in the study findings. These water shortages affected and continue to have an impact on the production levels in the large-scale export horticulture companies, often resulting in massive losses. The large-scale export horticulture farms compete with small-scale farmers, urban centres, and downstream users for seasonally scarce water, increasing the potential for conflict over water use (Ulrich, 2014; Lanari et al., 2016). Notably, the demand for fresh horticulture products in European is at its peak during the winter season which coincides with the dry season in Kenya.

In addition to the already erratic rainfall patterns in Laikipia, the rain water even when harvested and stored doesn't provide adequate water at the most crucial time for horticulture production

(Ulrich, 2014; Lanari et al., 2016). At this point the production is based on irrigation farming which was initially largely dependent on river water-abstraction. Since the irrigation farming was also practiced by smallholder farmers, and pastoralists also used this for their herds, there was significant reduction of discharge rates of local rivers (Kiteme et al., 2008; Lanari, 2014).

Horticulture investments in the region were held responsible for aggravating irrigation water shortages in the dry season (Schuler, 2004; Lanari, 2014). The investments in a bid to resolve the perennial water scarcity and contain the water-related conflicts they increasingly established water reservoirs to retain river water in the wet seasons and ground water pumps (boreholes) as well as supported the formation and operation of local water user associations (Schuler, 2004; Lanari, 2014). These measures reduced the impacts on the river water discharge rates during the dry seasons and to some level mitigated the water-related conflicts.

New institutionalism and political ecology analysis view on the issue of food systems resource sharing within the context of the ongoing global food crisis as not a natural one that is related just to population growth but is the outcome of problems related to access, governance and distribution of resources. Too much land and common pool resources such as water, pasture, forests and fisheries have seen a change from common to state and private property and are therefore not accessible for marginal people who also do not have the means to get adequate wage earnings from employment in order to substitute that loss.

Most New Institutionalism analysis have looked into institutional settings that structure access to land and associated natural resources – often Common Pool Resources (CPR). Ostrom (1990) provides a detailed account on common property rights in general. Ensminger (1992), Lesorogol (2008) and Haller (2013) describe elaborately institutional settings that structure access to CPR, such as pastures or fisheries). However, institutional settings also structure other aspects of food

systems, such as property rights (e.g. inheritance of goods or social status), labour arrangements (e.g. wage-labour or labour arrangements based on kinship) or access to infrastructure and knowledge (e.g. secret knowledge or patents). Even though the content of these different institutions varies, their nature remains similar as illustrated in the study findings.

The study findings illustrated that agro-industrial horticulture as dependent on the market demand and access to water to determine the production. The study site while able to adhere to the production standards and align to the trade regimes to a large extend, the production capacity is often affected by the water shortages resulting from the erratic weather in the region. Production in turn defines the magnitude of labor to be engaged. For the study site the market has remained stable over the years as they have established consumer base for their produce. The challenge however is on the water availability throughout the year to meet the production demands. The fresh fruits and vegetables grown in the farm are water intensive and require irrigation. The farm where the research took place is located within Laikipia County which experiences erratic rainfall because of the semi-arid climate it's located within.

Additionally, given the downstream location of the study site, access to river water is limited since upstream other users abstract a lot of water with only a little remaining for downstream users including the horticulture farm. With the erratic access to water for irrigation the horticulture farm has to therefore evaluate its labor demands from time to time and results in a short-term contract-based workforce of semi or unskilled workers. The company sources the workers from the areas surrounding the farm and work is offered on one to three-month contracts renewable subject to performance and production demands.

These workers are engaged on a minimum daily wage payable monthly. The company borrows from international standards as well as national labor requirements to define their employment

policy. The study demonstrated that these factors affect the production capacities and market access and in turn affect the opportunities for income for the work force engaged mainly on seasonal short-term contracts. The instability of their livelihoods, the meagreness of returns and the pre-occupation with the need for survival, workers have over time had to informally conceptualize their wellbeing.

As reported in the study findings, the export horticulture system dominates the institutional setting and control over resources via private property rights, but it ideologically legitimizes their operation with modernity that the investment brings with the narrative of poverty in the area and the discourse of development that it brings. This acts as an Anti-politics Machine that hides that the government is not willing or cannot provide basic services and that the company will bring betterment with the government handing over land and vital CPRs to them (Ferguson, 1994). Large-scale land investments such as export horticulture often emphasize the rapid increase in yield they can produce and the additional employment they can provide. However, these additional opportunities of agricultural production are not felt locally or only on a short-term basis (Zaehringer et al 2018; Ali and Kapoor, 2008; Anseeuw et al 2011; Asfaw et al 2010).

The large-scale investment institutional settings also altered the bargaining power, ideologies as well as the organization of involved actors as land is now more and more devoted to this sector. The changes internally involved actors with different bargaining power (Ensminger, 1998). These then defined the rules of the game regarding access to common pool resources (Water/Land) working conditions and corporate social responsibilities (CSR). This selection of institutions (private property, best access to water as a common pool resources with high capital for access in the Water Use Associations and rules of the game of shares in the value chain(Haller, 2007; Haller et al., 2013).

With this the distribution of the gains remains clearly unequal and the behavior is that the company follows its gains while local actors try to cope with short term options such as jobs or small-scale farming. The internal changes in turn affected the distributional effects and the socio-economic behavior in this sector. Changes in market prices and the national and international policies, for instance policies to support export-oriented horticulture with regard to taxes, trade agreements and quality control altered the institutional setting of this food system.

This is legitimized by the ideology of modernity/good neighbourhood, narrative of "there was nothing there" and discourses of fair trade development and on gender, and finally the beneficial CSR measures. All these narratives and discourses mostly from management, government representatives and individual outgrowers give the impression that the company is providing modernity and development in the sense of salaries, market entry, knowledge transfer and development of infrastructure. While there seems to be actors profiting from the export horticulture investment's operations one needs to discuss from a political ecology and new institutionalism perspective, who is able to profit on whose expenses and who is able to define institutions governing access to resources and working conditions needed for horticulture production. The narratives of successful development and the discourse of providing salaries and better livelihoods act as the Anti-Politics Machine.

According to Ferguson (1994), these hide the power imbalances and control by the government of local resources which are not sustainable. They hide that salaries are insecure and low by providing food, housing, and education which are not really accessible, by giving food to wildlife instead to the people, to pay for some services while profiting to a large extend from the commons. At the same time, they undermine access to vital common pool resources via loss of common property and often short-term contracts with low wages, through corporate social

responsibility (CSR) measures not adapted to local needs or not accessible. CSR also act as controlling devices and as strong legitimacy of a basically unfair deal.

It hides the vulnerability and the short-term duration of such operations as well as the lack of bargaining power local households and especially poorer segments and women have to secure income from these new operations. It might be that people try to get cash for short term which they invest in other activities. However, this will only be possible on small scale for poorer households as the monetization of life eats up most of the cash earned easily, while later on access to the commons is lost. For outgrowers who might get indebted via their operations there is well the danger to lose their land.

Here the concept of institutions as fit turning to misfit and then to fit again is experienced as the formal and informal rules of the game are influenced to change to meet the different actors bargaining power for taking part in the food system (Haller et al 2013). All these interactions are manifested in the distributional effect and socio-economic behavior of export-oriented horticulture linked actors and in a cyclic effect manifest in the environment, population and technology aspects that influence the relative prices in this global value chain. The emerging issues in institutional settings and changes in export horticulture are crucial to the viability of the sector as an agro-industrial food system in the food security and sustainability discourses in the local context.

The growing demand for food such as the export fruits and vegetables and non-food crops, fuel and other raw materials are seen as the main drivers of these large-scale land investments such as the export horticulture investments (GoK, 2012; Henson and Humphrey, 2010; Borras et al., 2011, De Schutter, 2011). As such the utilization of common pool resources such as land and water by the agro-industrial food system and management of common pool resources such as

water and land pose a threat for conflicts with other food systems competing for the same resource as in the study findings. Similar findings are reported elsewhere (Haller, 2002; Kiteme et al., 2008; Lanari et al., 2016). The resource linked conflict arising from the competition for land and water for food scarcity in the arid and semi-arid region where export horticulture is growing needs further examination to outline sustainable and equitable distribution of the common pool resources.

CHAPTER EIGHT: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

8.1 Introduction

The chapter presents a summary of findings, conclusion and recommendations informed by the study findings and guided by the objectives. The discussion looks into the actors, their perceptions and insitutions; as well as the institutional settings and changes in the agro-industrial food system as illustrated in the study findings and corroborated / contrasted in existing literature. The conclusion summarizes the study findings in the context of existing literature and recommendations aligned to the objectives for policy; programme; knowledge; and scholarship are given.

8.2 Summary of findings

As illustrated in this study, the horticulture investment was the platform within which actors with different bargaining power positions influenced institutions and defined the institutional setting of the agro-industrial food system for production of fresh vegetables and fruits for export markets. Export-oriented horticulture in Kenya is mainly for the export with producers operating under different institutional settings involving different actors along the global value chain (Meme, 2015; Wanjiku, 2015).

Export horticulture has become one of the highlights of African development because it has raised production standards in agriculture; provided good opportunities for increasing rural area incomes; improved nutrition of the people; resulted in diversification of exports; provision of raw materials for agro-based industries and creation of employment, especially for the youth and women (Dolan, 2001; English et al., 2004; Weinberger and Lumpkin, 2008; Ongeri, 2014).

Over time agro-industrial horticulture in Kenya has evolved from export companies relying purely on small-holder farmers to a mix with the larger produce coming from multinational company owned large-scale farming producing mainly for export (HCDA, 2016). From a social anthropological perspective, agro-industrial horticulture producing fresh vegetables fruits and cut-flower for the international market is regarded as having its own culture and institutional settings. These institutional settings and culture are defined by the management and / or by the employed work force and include norms, values, formal and informal rules and laws, regulations as well as power relations among the different actors.

8.2.1 Actors in large-scale export-oriented horticulture

This study identified value chain actors including: producers (investors, workers and outgrowers); distributors and the consumers. State and non-state actors involved in the regulatory framework governing the operations of the agro-industrial food system were identified at the international, national and county level. These actors have also been identified in other studies (CARE, 2016; GoK, 2014; HCDA, 2013; Ongeri, 2014).

The different actors had different roles in the export horticulture value chain with some actors such as the investors and workers having multiple roles. Actors in export horticulture have varying perceptions and bargaining power positions that drive the formal and informal institutional settings and changes in the food system as illustrated in the study findings. The actors' bargaining power positions are founded on their perceptions about the food system and their ability to benefit from it for food security and food sustainability.

The actors' positions were differentiated by their resource base in export horticulture as this defined their bargaining power and ultimately their ability to formulate and shape formal and informal institutions in the food system. This consequently impacted on the actors' capability to

benefit from the food system through income as profits from sales or wages; skills and welfare for development in relation to food production, security and sustainability.

The investors' perceptions of large-scale export horticulture were based on their power position as the owners of the horticulture investment. They had a higher bargaining power position given that they had direct linkages to the markets and also capital to invest in the business compared to their wage workers, outgrowers and local communities. In their opinion as investors they viewed the horticulture investment in terms of its usefulness to the local communities and to the generation of income opportunities.

With the employment, workers benefited from the wage labor incomes; on the job skills and knowledge transfer within their work environments and accessed free transport and meals to mitigate their minimum wages. Wage workers at the horticulture farm ha**d** an opportunity to interact with new farming techniques and technologies while on the job.

Workers also enjoy work benefits arising from corporate social responsibility initiatives of the horticulture companies often driven by the need to comply with the buyer driven international food standards. This though not always to the benefit of the workers who in their narratives expressed the limitations to the provision made in compliance to the food safety and quality standards by the export horticulture investments. The workforce and outgrowers contributed through the production and post-harvest handling of the produce though in spaces that limits their bargaining power positions.

8.2.2 Export horticulture actor perceptions of food security and sustainability

The primary actors in this setting (wage workers and investor) expressed their perceptions of export horticulture production variously. Their perceptions were informed by their ideologies and narratives regarding the food system and its viability in relation to food security and food

sustainability. Their discourses were often based on their experiences as workers in the horticulture investment or in similar settings and were expressed in informal conversations as well as observed in the different actor activities and interactions as in the explanations.

The investors regarded export horticulture as beneficial to them as a business. According to them export horticulture provided income opportunities to workers, outgrowers and benefitted surrounding communities. Arguing that when the farm was established the surrounding area was underdeveloped, the investors attribute infrastructural development to their being located in the study area. They also talk of their corporate social responsibility initiatives as being community driven and necessary for the development of the local area. The investors also regarded themselves as friendly to the neighbouring communities and attributed the co-existence to their initiatives to reach out to the communities around them.

Workers generally appreciated the opportunity to work in the farm but they regarded the income as minimal and the work as having almost no benefits. Workers were also aware of their erratic working engagement and therefore worked with often short term individual goals for livelihood. The company provided welfare through different activities including offering in farm accommodation for workers not able to find accommodation outside of the farm; subsidized meals; savings and credit cooperative; indoor and outdoor recreation facilities and even on the job capacity building in computer skills.

The workers appreciated the opportunities availed but often regard this as instituted mainly for the horticulture farm's overall gain rather than for the worker welfare. Workers often expressed that the conditions put around the available welfare opportunities make them challenging for the workforce to fully benefit. These perceptions of workers were expressed in informal conversations as well as observed in the different actor activities and interactions as in the

explanations. However, some of the policies were not beneficial for food security and food sustainability in the local context. For instance, the policy on 'waste management' where the company disposed food rejects as waste through decomposition for organic manure or feeding of baboons for environmental conservation.

On the one hand, this was a good measure, however according to the workers they spend time producing food they cannot eat. While they earned incomes from their labor, if the 'food rejects' which by safety standards were fit for human consumption would be used to enrich their meals on and off farm, then the food system would contribute to their food security in a more sustainable manner.

8.2.3 Relationship between institutions and actors in export horticulture

Formal 'rules of the game' as reported in this study were largely informed by the national and international level standards and regulations. The informal institutions are often devised by one set of actors and picked by the others for instance a norm can be initiated by the management and borrowed by the workforce or vice versa.

From the findings the formal and the informal 'rules of the game' in the export horticulture setting such as those illustrated in labor management, self-organization for seasonal workers welfare and also community engagement worked to benefit the actor who instituted them. These institutions kept changing based on the situation an actor was facing and the desired outcomes. For instance, in labor management for example, the horticulture investment had in place formal rules of game for human resource management. This often placed the investment at a higher bargaining power position than the seasonal workers.

However, informal rules would place the workers at a higher bargaining power position when applied to withdraw their services when they are much needed and hence create room for re-

negotiation for better terms as in the examples workers wanted to wield power over the company, they would quit without notice, leave work in a peak season and later return to negotiate or even to be taken to a department of their choice. In other instances, the exporter would formulate informal 'rules of the game' to circumvent labor law provisions not provided for in their formal rules to their own benefit but at the expense of the workers.

For community engagement to enable peaceful co-existence, the horticulture farm would rely on the informal institution for shared benefits and hence secure their investment. On other occasions, it is the community through airing their discontent and the export horticulture investment changed some issues as in the case of allowing them access to graze on uncultivated land to avoid trespass and the possible damage to the farm as well as conflict resulting from the community's reaction to litigation.

As such, the export horticulture institutional setting driven by the international to company-level policies and practices for food standards therefore limits the availability, accessibility, utilization and sustainability of food produced by local actors to address their food needs (Dolan and Humphrey, 2004; Ouma, 2010; GOK, 2011; GoK, 2014b). The formal and informal institutions defined the institutional setting for horticulture production. These institutions were often driven by the different actor power positions that were expressed in their varying perceptions and ideologies of export horticulture production in relation to food security and sustainability.

8.2.4 Institutional settings and changes of export horticulture

In summary, there existed institutional settings and changes in export horticulture value chain internationally, nationally, and at the county level. There are also institutional changes in the common pool resource use and access for export horticulture and other food systems in the study area. These dynamics were driving the sector and require further interrogation. There were

multiple regulatory authorities at the international, national, and county levels for the export horticulture. The export horticulture sector is therefore driven by a combination of factors including the formal and informal insitutions, actors and their perceptions expressed in their actions and interactions already illustrated in the study findings. There are multi-level stakeholders in the horticulture sector beginning at the governance level (Weinberger and Lumpkin, 2007; Dolan 2001).

Based on Ensminger's (1992) model of institutional change with input from Haller et al (2013) on institutions the study modified the model to incorporate variables relevant to the export horticulture setting as illustrated in figure 7.1. According to Haller (2002:8) institutions refer to the ways by which a particular community (-ies) resources were and still are governed regulative devices, which define who is allowed to use what kind of resource at what time and under what circumstances. As reported in this study, institutional settings governing mainly land and water as common pool resources had changed over time since the establishment of the horticulture investment.

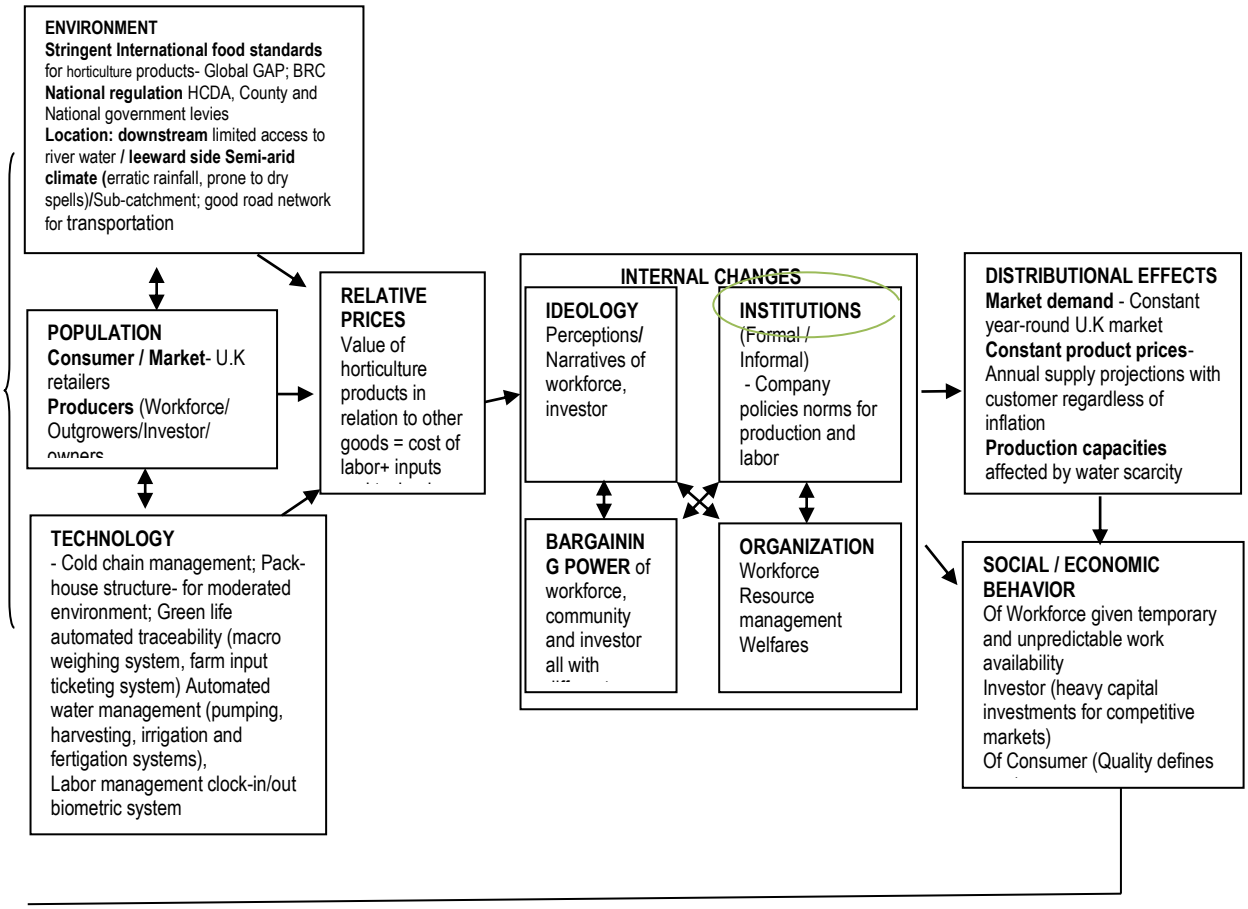

Figure 8.1: Actors and institutions of export-oriented horticulture represented in the model of institutional change borrowed from Ensminger (1992) and modified by author (2018) (Source: Author, 2018)

In the horticulture investment regarded as an agro-industrial food system, the external factors in export-oriented horticulture are the changes in the socio-political structure, the population and technology. The socio-political structure comprised the political, natural and legal-economic environment (international to national laws, regulations and food standards for food safety and quality; international, regional, national trade policies, treaties and regimes). It also included the changes in the natural environment where the agro-industrial food system was operational. In this study it was reported that there was booming export horticulture production from the mid-1990s despite the semi-arid arid climate of the area that meant scarcity of water and arable land

for the production of food. Similar findings are also reported elsewhere (Schuler, 2004; Ulrich 2014; Lanari et al., 2016).

The population in export horticulture represented the demographic changes of the mainly the consumers and the producers (investors, workers and outgrowers). It also included the smallholder farmers and pastoral food system actors that were within the same ecosystem as the agro-industrial food system. Most of the population in the study area had immigrated into the region post-independence. Land ownership was under the private and communal property regimes. Technology as an external factor in export-oriented horticulture was identified to include infrastructure for management and automation of irrigation, cold chain management and transport, E-ticketing farming, traceability, biometric workforce management.

When combined the external factors (environment, population and technology) influence the 'relative prices of the export horticulture products. According to Ensminger (1992), rise of market prices for horticulture products triggers investments and changes actors' access to labor, bargaining power and institutional settings as land and other common pool resources are much more devoted to this sector. The changes in the relative prices then translated into internal changes that influenced the organization, ideologies, institutions and the bargaining power of actors. These internal changes were expressed in the variations of activities and interactions, as well as abilities of involved actors including the investors, workers, outgrowers and local food systems in the same ecological zone to steer, engage in and benefit from this food system.

For instance, the international food safety and quality standards put the consumer and the market at a higher bargaining power position in relation to the producers. In order to gain access to markets, the export-oriented horticulture producers re-aligned internal changes to fit the environment by complying with these international to national standards. These are expressed in

the internal changes that manifest in the formal and informal insitutions; ideologies expressed in their perceptions and incorporate the organization and power positions of the different actors in the horticulture production.

Export-oriented horticulture is subject to the international and national certifications and government (national and county) authorization and regulations. These international to national food standards continued to shape the horticulture investment's formal institutions for production of fresh vegetables and fruits as reported in the study findings. The impacts of the internal changes in export horticulture are further manifested in the socio-economic behavior and distributional effects of export-oriented horticulture and redirected to the external factors Export-oriented horticulture setting is transformed based on the actors and institutions dynamics which are linked by the changes in 'relative prices' as illustrated in the study findings.

At the company level there were formal and informal institutions 'rules of the game' namely norms, values, regulations, rules and laws which included policies for employment and welfare of the workforce; production on and off farm and common pool resource management that guided the operations and functioning of the horticulture farm and exporting company. For instance, the company formulated 'rules of the game' for production and produce handling which also influenced how labor and work force was engaged. This put the workers at a lower bargaining power position that the company and from time to time the workers employ informal 'rules of the game' as discussed by Scott (1985) in weapons of the weak and exhibited everyday forms of resistance like quitting employment at will to try and negotiate for a higher power positions(North, 1991; Scott, 1985).

8.3 Conclusions

Horticulture is seen to contribute to Kenya's economy with potential to attract more income through foreign trade, employment in large-scale farming and processing zones and for smallholders as outgrower farmers. There is also potential to boost domestic production for food security through best practices, knowledge and skills transfer from export horticulture farming (Adeoye et al., 2012; CARE, 2016).

As illustrated in this study, the export-oriented horticulture setting is transformed based on the actors and institutions dynamics which are linked by the changes in 'relative prices' as illustrated in the study findings. At the company level there were formal and informal institutions 'rules of the game' namely norms, values, regulations, rules and laws which included policies for employment and welfare of the workforce; production on and off farm and common pool resource management that guided the operations and functioning of the horticulture investment.

In export horticulture settings, the external factors (social and physical environment, the technology and the population) have a direct impact on the relative prices in export horticulture. The investment of export-oriented horticulture in the environment, population and technology added to the cost of production and was eventually accounted for in the 'relative prices' of the commodity.

The changes in 'relative prices' of export-oriented horticulture produce sparked the process of internal change which itself comprised the dynamic interplay of institutions (formal and informal) organizations, bargaining power and ideology of the different actors in the sector (Ensminger, 1998; Haller et al., 2013).

The product of this process of internal change then in turn influences the social/political behaviour as well eliciting distributional effects in export horticulture. For instance, the company

formulated ‘rules of the game’ for production and produce handling which also influenced how labor and work force was engaged. This put the workers at a lower bargaining power position that the company and from time to time the workers employ informal ‘rules of the game’ as discussed by Scott (1985) in weapons of the weak and exhibited everyday forms of resistance like quitting employment at will to try and negotiate for a higher power positions(North, 1991; Scott, 1985). Institutions and organizations such as worker self-organization are central in influencing the pursuit of livelihood options, as earlier discussed.

The institutional setting of export horticulture therefore had notable emerging issues, namely:

The large-scale investments worked to obtain the certifications for compliance with the multiple requirements. However, in the current setup the follow up was on the individual authorities and with no national level monitoring system for keen follow up on the operational functioning of the certifications. This is illustrated in the study findings on actor perspectives regarding the welfare provisions in the export horticulture setting. The multiple taxation at county and national governments for investors and reduced involvement of horticulture outgrower farmers due to stringent and costly safety and quality standards e.g Global GAP that most farmers could not afford.

The management of common pool resources such as water and land tenure that posed a threat for conflicts as well as production in seasons of scarcity. The resource linked conflict arising from the competition for land and water for food scarcity in the arid and semi-arid region where export horticulture is growing needs further examination to outline sustainable and equitable distribution of the CPRs. The emerging issues in institutional settings and changes in export horticulture are crucial to the viability of the sector as an agro-industrial food system in the food security and sustainability discourses in the local context.

Notably, in relation to sustainable food systems and ecological considerations, export horticulture when practised alongside other local production systems such as subsistence farming and pastoralism in resource limited settings such as semi-arid climatic zones have the potential to result in conflict over common pool resources needed for the production of food; it also threatens the livelihoods of smallholders and workers as illustrated in these study findings. This impedes the viability of the food system when weighted against overall effects to livelihoods and resource utilization. Studies incorporating larger data sets of horticulture companies and actors are needed to further detail the actors and insitutions in large-scale export horticulture as identified in this study.

8.4 Recommendations

The key recommendations are:

1. To better position this global value chain, there's need for larger data sets involving more export-oriented horticulture establishments from across the country to further interrogate the institutional setting. Research studies that include larger samples of export horticulture investments for mapping of actors and insitutions are needed to contribute to social anthropological knowledge on food systems, actors and institutional changes. Such findings will better address issues emerging from the food system analysis and contribute to the on-going food sustainability discourses.
2. Horticulture investments such as the study setting for this research have enabled development and income opportunities in semi-arid areas previously left under developed as in the study findings. However, the value of these large-scale agro-industrial investments should be streamlined in operations and functioning to affect the local population in relation to food security as well as livelihoods as they do to the national economy and the international export horticulture markets.

3. The integration of the knowledge on the existing institutional settings and changes in the export horticulture sector is necessary to enable the continuity and relevance of the agro-industrial food system to the national food security efforts. The Horticulture Crops Directorate (HCD) which is mandated with the implementation of the sector policy (2012) needs to situate the different actors, their roles, perceptions and bargaining power positions in export horticulture. These aspects if factored in the policy implementation will enable better coordination of the global value chain for the benefit of the multiple stakeholders.
4. The multiple taxation regimes for movement and handling of horticultural produce at county and national government levels require a re-evaluation. There's an urgent need to reform, strengthen and harmonize national and county government tax policies to address the multiple taxations imposed on the export horticulture value chain through revenue collection by county governments on agricultural produce including the movement charges, the cess and other market levies. These taxes and levies need to be revised and standardized nationally to promote outgrower engagement and business for the export horticulture investments.
5. The Horticulture Crops Directorate in partnership with national non-state and international actors need to streamline the export horticulture standards, regulations and certifications to allow for more coordinated follow-up, monitoring and accountability of the investments on aspects related to food safety and quality, 'chemical use and waste management, employee welfare and remuneration.
6. Further research on the rules and regulations regarding labor management in export horticulture investments is recommended to detail the dynamics highlighted in this study.

The national labour laws including the employment act (2007) need to be re-examined alongside the international food standards that require social welfare of producers. Where necessary law enforcement is recommended to accommodate the wage workers terms of engagement in export horticulture production and ensure their employment and social security.

7. Given that different food systems including export horticulture, smallholder agriculture and pastoralism co-exist in arid and semi-arid zones competing for resources, there is potential for conflict as in the study findings. The study recommends a re-examination of resource use and sharing among the food producers the Ministry of Agriculture and Irrigation and the Agricultural Sector Development Program (ASDSP). In their mandate to ensure sustainable resource use and allocation for the different food systems, to ensure food security, there's the need to look into the institutional settings and changes governing common and pool resources namely land and water.
8. The inequalities in common pool resources mainly water and land in relation to export horticulture production in arid and semi-arid areas are highlighted in this and other studies. These include the land ownership disparities experienced between the rich and poor, unresolved colonial land legacies and post-colonial dis-integration of big-man, big-land notions have continuously marginalized the local populations who have lesser resources and thus lesser bargaining power over their right to access and use land for the production of food. Accordingly, this study recommends additional research incorporating larger data sets to further detail the institutional setting and changes in export horticulture in relation to the common pool resources required for the production of food by co-existing food systems in a given eco-system.

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APPENDICES

Appendix 1: Statement of consent for the informants

Title: **An Analysis of the Actors, Perceptions and Institutions of Large-Scale Export-Oriented Horticulture in Laikipia County, Kenya**

Introduction

"Hello, my name is Mariah Ngutu a Doctor of Philosophy Degree in Anthropology student of the University of Nairobi. I am carrying out a study on export horticulture in Laikipia County . The aim of my study is to understand the views of actors involved in this operation and provide detailed analysis of horticulture production, as part of the export food system in Laikipia County , by focusing on one horticulture producing company. The study seeks to understand how an international company in the horticulture business works and how its management operates and views its operation. Land and land related resources are scarce and the area suffers from problems of under development so such a company is not only operating in isolation of the economic but so much so in a social and environmental context.

The study is not about an ethnic group and its culture but about the culture namely the norms, values, rules and regulations of a company as well as its relations with the outside world.

I will participate in operations of the company and also conduct interviews such as this one with you. I hope that you will feel free to discuss with me. It is important that you state how you see the issues and that the data will be treated in anonymity and confidentiality maintained.Any questions or concerns will be addressed before your informed verbal and/ written consent is sought.

Objectives of the study

Overall Objective

To explore the actors, perceptions and institutions of large-scale export-oriented horticulture in Laikipia County, Kenya

Specific Objectives

The study sought to: -

1. To establish the actors in large-scale export-oriented horticulture in Laikipia County.
2. To examine the actor perceptions on overall food security and sustainability in Laikipia County.
3. To describe the relationship between institutions (formal and informal) and actors in large-scale export-oriented horticulture in Laikipia County.
4. To determine how the existing institutional settings and changes of large-scale export-oriented horticulture relate to other food systems in Laikipia County.

Benefits

No specific direct benefits will accrue to the horticulture producing company or to you as a study participant. However, the information provided by you and the other study participants will help to better understand the export food system by way of exploring horticulture production in Laikipia County . This information will be used to make recommendations that may help improve the collaboration within and between coexisting food systems and identify emerging issues for further research on food systems aimed at tackling the on-going food crisis in the County as in Kenya.

Voluntarism

Once informed on the details of the study, as a potential study participant, you will be requested to join in the study and if you agree, your verbal and / written consent will be sought. Your participation in this study will be on a voluntary basis. You are also free to withdraw your participation at any given time. Your participation or lack of participation thereof in the study will not in any way affect your involvement in the export horticulture.

Confidentiality

Pseudonyms will be used in all audio and written records of field notes of data to keep the identity of all the informants private. The study will ensure your confidentiality and privacy as a study participant by keeping any information shared between the researcher and you confidential. The information will be taken in great confidence and only used for this research. This interview will be recorded using an audio recorder so as to capture the discussion and later be reviewed for transcription. You and other people who have informed the study will be acknowledged in the study findings.

Dissemination

This study will provide qualitative data that will inform food system analysis also will act as a pointer of issues that will need to be investigated systematically through further research. The researcher will also endeavour to present the study findings at learned forums as well as publish manuscripts in peer reviewed journals as a way of disseminating this work.

Contacts:

In case of any questions you can contact;

Researcher: Mariah Ngutu Peter
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Office Location: Buttsons Complex Building, Off Laikipia Road 2nd Floor.
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Mobile number: +254 725348449
Email: cetrad@cetrad.org
The Institute of Anthropology, Gender and African Studies (IAGAS),
The University of Nairobi (UoN)
IAGAS Museum Hill
Telephone number: 254-20-2082530/31/45 2082531/ 2082545
Email: director-aags@uonbi.ac.ke
The National Council of Science, Technology and Innovation (NACOSTI), Kenya
Mobile number: 0713 788 787 / 0735 404 245**. Fax:** 0202213215
E-mail:customercare@nacosti.go.ke / info@nacosti.go.ke

The study findings will also be used for the purposes of obtaining a Doctor of Philosophy Degree in Anthropology of the University of Nairobi. A copy of the work will be deposited at the University of Nairobi, University of Bern and CETRAD libraries for use by other researchers.

Do you have any questions?

Thank you

DECLARATION:
RESEARCHER
I Mariah Ngutu Peter, declare that I have given full information regarding this study to ……. before seeking verbal and written consent.
Date: ……Signature: ……
STUDY PARTICIPANT
I ……have been fully informed of this study and have agreed to be a study participant out of my own free will. I therefore give my verbal and written consent.
Date: ……Signature: ……
PERMISSION TO AUDIO RECORD THE INTERVIEW
I agree to have the interview audio recorded ☐
I disagree to have the interview audio recorded ☐
I…….. Have been informed of the reason to audio record this interview. Date: ……Signature:

Appendix 2: IDI guide for permanent/ casual workers

Theme 1: Actors involved in export horticulture

Tell me about the company**.**

Possible probes;

How long has this company been in this ? What products has it focused on? Have the products changed over time? When do you produce? Throughout the year or seasonally? Who are the consumers of the products?

What does the company do with the surplus produce after distribution?

Tell me about yourself and also your experience working in this company.

Possible probes;

How long have you worked here? Years? Has it been throughout or seasonal?

How was it that you started working here? What is your role in this company? Has it changed over time? What activities are you involved in on a day to day basis? Is there any other income generating activity that you are involved in? Which one? Do you own land (Bought? Inherited? Leased?)? How much land? What activities are on this piece of land? Who manages these activities? How many are you in your household?

Is there any other member of your household who works in this company or any other export horticulture investment in this area? What is their role? How long have they worked?

Theme 2: Relationship between institutions (formal and informal) and actors in export horticulture

Tell me about more about the staff in this company**.**

Possible probes;

Who are most of the staff? Male or female? Where do most of you come from? What is the process of one getting employment in this company? How many other staff do your perform the same role alongside? How many hours does each of you work per day? What is the labor cost for example in a day?

What other departments are there? Production? Processing? Distribution?

In your opinion, what are some of the benefits or advantages of working in this company?

Possible probes;

Health benefits? Staff welfare arrangements? Wage earnings? Capacity building?

Are there other horticulture companies in this area?

Possible probes;

Which ones? What are some of their products? Do you know anyone who works for any these companies? What are some of their staff arrangements?

How would you compare between working for this company and that other company.

Theme 3: To find out the perceptions of actors on export horticulture in relation to food security and sustainability.

What would you say about the involvement of this company in the neighbouring community**?**

Possible probes;

Are there any initiatives in the community? Can you tell me about them? What does the community say about this company? Are there any benefits they attach to this company? What do they say about the use of resources (land, water, labor)? Is there any arrangement regarding the use of these resources? What do they feel about the products? Do they use some of these products?

Where do you see yourself in the next five years?

Possible probes;

Will you still be working here? What things are you planning to have done by then? What things would you want this company to change during this period?

Is there any recommendation you would like to give in relation to the horticulture sector? Are there any questions or any other general comments? *Thank you for your time and for your participation*

Appendix 3: IDI guide for the Management

Theme 1: Actors involved in the development of export horticulture investment

History of the company

Possible probes;

When was the company established? Who are the owners? Has ownership changed hands at any one point? Could you tell me about your products as a company?

Explain a little bit some of the factors that inform these aspects of production. Could you talk about your labor force? How many workers / staff do you have?

What is your estimated cost of labor? Tell me a little about your role in this company. How long have you worked here? What has been your experience working as a …?

Theme 2: Relationship between institutions (formal and informal) and actors in export horticulture

Work-force arrangements *Possible probes:* What is their term of reference (permanent / wage based / seasonal)? Who are these staff (how many male / female) (what specific roles are they charged with?) (From where do they reside / come from) Within or outside the County?

What are you staff management policies? Incentives/ sanction mechanisms/ benefits/ welfare/ inductions? Are they in any way reflected / regulated by the product standards/ the target market? What are some of these regulations?

Land tenure *Possible probes;*

How big (in hectares is your farm)? Who owns the property on which this company is established? Was it bought? From who? When? Is it on lease? How long is the lease?

Theme 3: To establish how the existing institutional settings of export horticulture relate to other food system.

Tell me about how you get your products to the market. *Possible probes;* How do you process the product? By yourself or you have partnerships with processing companies? Which ones? Who is your target consumer? What is your means of transport? How frequently do you distribute the product and what considerations do you make?

How do you link to the consumer / market? (Directly / through subsidiaries (which ones) which consumer for which product? In what quantities and frequency? How do you determine the cost of the product? What are you target market expectations? Are there other companies producing for the same consumer within your catchment area? Which ones? How do you maintain your share of distribution?

What are the regulations that define the on-going operations of this company?

Possible probes; Do you belong to any umbrella bodies? Which ones? What role do these bodies play in the operation of the company? What standard are you vetted for? By who? How regularly? What are some of the dimensions of the regulations in regard to your work force? Use of resources? Are there any regulations regarding your use of resources in this catchment area? Which ones? By who?

Theme 4: To find out the perceptions of actors on export horticulture in relation to food security and sustainability.

What would you say about your interactions as a company with the workers/ outgrowers/ neighbouring communities? *Possible probes;*

What kind of relationship exists? Are there any activities you are involved in together? Are there any resources you share with the community?

Tell me what your aspirations as a company are in the next five years. *Possible probes;* in expansion; in continuing to operate in this area; in production; variety of products; New markets? Community involvement?

Is there any recommendation you would like to give in relation to the horticulture sector?

Are there any questions or any other general comments?

Thank you for your time and for your participation

Appendix 4: Observation checklist

Instructions

In reference to the study setting which is export horticulture sector in Laikipia County , with focus on the export horticulture investment (-ies) the researcher will make observations on the things listed below on a day to day basis.

Regular field notes of all the occurrences observed in the field will be maintained.

	Observations
Space	
Where is it situated-distance from road / airstrip/ river (water source)	
What are the neighbouring farms?	
Crops grown?	
What are the companies around?	
Types of buildings	
Transport networks (types of roads/ airstrip heavy loaders / trucks)	
Natural resources/ common pool resources (land and water (sources of water)	
Equipment (greenhouses / irrigation systems/ water reservoirs)	
Company regulatory certificates/ strategy documents/ staff induction booklets/ information bulletins	
Activities	
Types of food production activities they involved in the company (-ies).	
Processes involved in the food system in relation to THE export horticulture investment?	
Range of activities in the neighbouring farms.	
Events	
A set of related activities that actors linked to the export horticulture investment carry out**.** For example, meetings for welfare, corporate social responsibility, WRUAs.	
Feelings	
The emotions (anger, disgust, fear, happiness, sadness and surprise) felt and expressed by the different actors linked to the export horticulture investment (-ies) as they go about their activities, events and goals	

Appendix 5: FGD guide for outgrowers

Theme 1: Relationship between institutions (formal and informal) and actors in export horticulture

Tell me about your relationship with the company.

Possible probes;

How long has this company been in this region? How long have you been an outgrower? With the company?

What products has it focused on? Have the products changed over time?

When do you produce?

Throughout the year or seasonally?

Who are the consumers of the products?

What does the company do with the surplus produce after distribution?

In your opinion, what are some of the benefits or advantages of being an outgrower for this company?

Possible probes;

Wage earnings? / Incentives? / Trainings? / Capacity building?

Theme 2: To find out the perceptions of actors on export horticulture in relation to food security and sustainability.

How would you compare between being an outgrower for this company and that other company (ies)?

Possible probes;

Are there other horticulture companies in this area? Which ones?

What are some of their products?

Do you know anyone who grows for any these companies?

What are some of their outgrower arrangements?

What would you say about the involvement of this company in the neighbouring community?

Possible probes;

Any initiatives in the community?

Tell me about these initiatives.

What do they say about the use of land, water, labor? Do they share? Is there any arrangement regarding the use of these resources?

What do they feel about the products? Do they use some of these products?

What would be your take about horticulture companies in this study area?

Possible probes;

What does the community say about this company? Are there any benefits they attach to this company?

Is there any recommendation you would like to give in relation to the horticulture sector? Are there any questions or any other general comments? *Thank you for your time and for your participation*

Appendix 6: KII guide for State Actors

Theme 1: Actors involved in the development of export horticulture investment

Tell me a little about horticulture in this region. *Possible probes;*

- What is the nature of horticulture? What crops are produced?
- What companies are involved? Who are the majority owners of these companies?
- Who is the labor force for this sector?

Tell me what your experience as an organization/ authority/ body have been in working with the horticulture sector in this County. *Possible probes*;

- How long have you worked in the sector? What aspects or issues have you addressed?
- What arrangements on resource use have you put in place?
- What has been the response of the different players in the sector in relation to your regulations and policies?

Theme 2: To establish how the existing institutional settings of export horticulture relate to other food systems

What are some of the resources utilized by this sector? *Possible probes;*

- As a regulating body / service provider what aspects of this sector (horticulture) do you focus on?
- What resources / services are you interested in?
- What portion do these companies utilize?
- What do you expect of the companies in the horticulture sector?

What are some of the rules / norms/ laws or policies they are to adhere to? *Possible probes;*

- How do you ensure their participation and compliance? What is your vetting process?
- Are there any initiatives that work towards attainment of the regulations? Tell me about them.

Are there other bodies / organizations you work with on the same resource (s)? *Possible probes;*

- Could you name them? What are their interventions or interests? How do you collaborate?

Theme 3: To find out the perceptions of actors on export horticulture in relation to food security and sustainability.

Have there been any specific challenges that you have tackled in working with the horticulture sector? *Possible probes;*

- Which are these challenges? How have you addressed the challenges?
- How does the wider community get involved in utilization of this resource alongside the horticulture sector?

Are there any recommendations you would like to share concerning the horticulture sector / the resource (s) your organization champions for?

Are there any questions or any other general comments?

Thank you for your time and for your participation

Appendix 7: KII guide for service providers

Theme 1: Actors involved in export horticulture investment

Tell me about your company. *Possible probes;*

What is your area of specialization in the service industry?

What services do you offer to this export horticulture investment? (Transport / freighting/ supplies and management/ marketing?)

How long have you worked together?

What are your contractual agreements?

Theme 2: To establish how the existing institutional settings of export horticulture relate to other food systems.

Regulations and affiliations *possible probes;*

Do you follow any particular regulations set by the export horticulture sector in your service delivery? Which ones?

Tell me a little more about these regulations?

Have you also ascribed membership to any affiliate body in relation to your service area in this large-scale export horticulture sector? Which ones? Costs?

Tell me a little more about this membership (s)? Benefits of membership?

Theme 3: To find out the perceptions of actors on export horticulture in relation to food security and sustainability.

Are there other companies you also offer similar services? *Possible probes;*

Are they located within this study area? Can you name a few?

How is your contractual engagement with them?

How long have you offered them these services?

In general, what is your take on the export horticulture companies in this area?

What has your working relationship with them been like?

Are there any specific challenges that you have encountered in your service delivery in large-scale export horticulture?

How have you tackled such challenges? Probe for time constraints etc.

Are there any areas of the sector you would want to offer recommendations on?

Is there any recommendation you would like to give in relation to the horticulture sector?

Are there any questions or any other general comments?

Thank you for your time and for your participation

Appendix 8: FGD guide for members of the neighbouring communities

Theme 1: Relationship between institutions (formal and informal) and actors in export horticulture

What economic activities are most of the people in the community involved in?

Is farming being an activity mentioned, what crops are grown? Why those crops?

What is the staple food of the community? Household food security?

Do you feel that people are able to produce enough to meet their household needs?

Tell me about horticulture farming in this community.

How many companies operate farms in this community? Who are the owners of these companies? How much land do they have? How have they acquired this land?

What other resources do they use from this community? Water? Labor force?

What crops do they grow? How frequently do they grow these crops?

Who do they sell the crops to?

Theme 2: To find out the perceptions of actors on export horticulture in relation to food security and sustainability

What is the interaction of horticulture companies and the community like?

What would you say are the benefits of working for an export horticulture investment?

Are there any initiatives they are carrying out or supporting in this community? How?

What do people in this community say about these companies?

Are there any things people in this community have gained / learned from the companies? Education? Health? Infrastructure? Skills transfer?

Do people benefit from the products of this company? Are the products consumed locally?

Theme 3: To establish how the existing institutional settings of export horticulture relate to other food systems

How do the community and the horticulture farms share resources (Water, land, labor)?

What portion of the resource does the community use? How much do the companies use? How is this apportioned? Is there any institution that regulates this? Who set up the norms/ rules to govern this?

Are there any challenges or difficulties the community experiences that are related to the presence of the export horticulture investment?

Use of any the resources (water, land, labor)? Information sharing to or from the company? Relations with the company

What would be your recommendations to the horticulture companies operating in this community? What would be your recommendation to the government regarding horticulture in this community? Is there a general comment or a question you would like to ask me?

Thank you for your time and for your participation

Appendix 9: Research Authorization and Research Permit

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

NACOSTI/P/16/17452/12630

1st August, 2016

Mariah Ngutu Peter
University of Nairobi
P.O. Box 30197-00100
NAIROBI.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on "*An anthropological study of large scale export oriented horticulture in North West Mount Kenya,*" I am pleased to inform you that you have been authorized to undertake research in **Laikipia and Meru Counties** for the period ending **29th July, 2017.**

You are advised to report to **the County Commissioners and the County Directors of Education, Laikipia and Meru Counties** before embarking on the research project.

On completion of the research, you are expected to submit **two hard copies and one soft copy in pdf** of the research report/thesis to our office.

BONIFACE WANYAMA
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The County Commissioner
Laikipia County.

The County Director of Education
Laikipia County.

The County Commissioner
Meru County.

THIS IS TO CERTIFY THAT:
MS. MARIAN NGUTU PETER
of UNIVERSITY OF NAIROBI, 0-300
NAIROBI,has been permitted to conduct research in Laikipia , Meru Counties

on the topic: *AN ANTHROPOLOGICAL STUDY OF LARGE SCALE EXPORT ORIENTED HORTICULTURE IN NORTH WEST MOUNT KENYA*

for the period ending:
29th July,2017

.....
Applicant's Signature

Permit No : NACOSTI/P/16/17452/12630
Date Of Issue : 1st August,2016
Fee Recieved :ksh 2000

Director General
National Commission for Science, Technology & Innovation

CONDITIONS

1. You must report to the County Commissioner and the County Education Officer of the area before commencing ur your research. Failure to do that may lead to the cancellation of your permit
2. Government Officers will not be interviewed without prior appointment.
3. No questionnaire will be used unless it has been approved.
4. Excavation, filming and collection of biological specimens are subject to further permission from the relevant Government Ministries.
5. You are required to submit at least two(2) hard copies and one(1) soft copy of your final report.
6. The Government of Kenya reserves the right to modify the conditions of this permit including its cancellation without notice

REPUBLIC OF KENYA

National Commission for Science, Technology and Innovation

RESEARCH CLEARANCE PERMIT

Serial No. A 10342

CONDITIONS: see back page