The complex food system: A case study of soft vegetables produced in the Philippi Horticultural Area and the soft vegetables purchased at different links in the food system

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1. ABSTRACT

Food systems are complex and have a range of stakeholders that move food from production through to consumption. Value chains are responsible for the activities that move food between the stakeholders and through the system. The food system presented in this project concentrates on the Philippi Horticultural Area (PHA), a local vegetable production area within the City of Cape Town, and the distribution of its produce to traders. In this food system, the informal sector is so entrenched in the system that the two sectors (formal and informal) rely on each other. The informal traders do not produce their own vegetables and are dependant on the formal sector to make the vegetables available and to provide access points. The PHA and the informal sector are important for availability and access of fresh, high quality low cost vegetables to the urban poor. The PHA and the informal sector are important for urban food security in the light of increased urbanisation, poverty, access and availability. Development should consider planning that incorporates urban agriculture for sustainable development and food security policies should acknowledge the informal sector as an important means for the urban poor to access food.

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Acronyms

BSE	Bovine spongiform encephalopathy
CPD	City Planning Department
CoCT	City of Cape Town
CT	Cape Town
CTM	Cape Town Market
DME	Department of Mineral and Energy Affairs
DOA	Department Of Agriculture
DiMP	The Department of Disaster risk and Mitigation Program for Sustainable Livelihoods
GDP	Gross Domestic Product
ILCS	International Conference for Labour Statistics
KVB	Kaapsevlagte Boere Vereenigen
LFS	Labour Force Surveys
PHA	Philippi Horticultural Area
PAYE	Pay As You Earn
SA	South Africa
SADC	Southern African Development Community
SAPS	Structural-Adjustment Programs
SMAB	Municipal Secretariat of Supplies
UCT	University of Cape Town
UDWC	Urban Dynamics Western Cape
VAT	Value Added Tax
WCRSC	Western Cape Regional Services Council Report

2. INTRODUCTION

The Philippi Horticultural Area and the Urban Poor

Some of the poorest areas of Cape Town border the Philippi Horticultural Area (PHA). The PHA is a commercial farming area with 3232 hectares demarcated for horticultural use of which 1500 hectares is cultivated and today produces 20% (83941 tons) of Cape Town's soft vegetables distributed through the formal sector's Cape Town market (CTM) (Laubscher, 2009; UDWC, 2008). The PHA potentially produces and distributes a large quantity of food to the informal sector, however much of the detail is missing as only the basics of the PHA distribution are known. The importance of the PHA in household food security, job creation, income generation, land redistribution and human resource development should not be underestimated (Knight n.d.).

Through a case study of the PHA in Cape Town, this project investigates which vegetables the PHA (formal sector) produce and how informal traders source these vegetables. Vegetables move through the food system gaining value through additional costs (transport, tax and labour) and other value-adding processes (preparation and packaging). Tracing the vegetables through the food system is necessary to establish connections between the formal and informal sector. This project therefore establishes the role of the formal sector PHA to traders in the informal sector through tracing these connections and assessing costs. The case study presents a local urban food system within the City of Cape Town (CoCT). The food system includes a vegetable horticultural area, (the PHA), addressing the dimension of food availability, and includes the local informal market, addressing the dimension of access to food by the urban poor.

The urban poor depend on the informal sector to access food on a daily basis. The linkages between the PHA and the informal vegetable traders are largely unknown in the CoCT. The PHA is threatened by an increasing demand for residential, industrial and commercial areas, the proposed extension of the R300 and the development of a mini-

city for example. Urbanisation of the PHA could potentially compromise the availability of food in the CoCT formal and informal sector and thus the urban poor's access to food.

The aim of this project is:

> To ascertain which distribution channels the PHA distributes food through, specifically what connections exist between the PHA and the local informal sector in the CoCT.

This project has three main objectives:

- To trace the food system of which the PHA is a part to establish if it does indeed supply the informal sector,
- To examine the connections between the informal food trade sector and the formal farming and trade sectors,
- If the two sectors are linked by common system components, what could one potentially expect the vegetable trading in the informal trading sector to experience if the PHA was no longer involved, as a result of urbanisation.

Food Security and Food Systems

Food is the most basic of human needs. Food security exists when all people, at all times, have physical, social, and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life (FAO, 2001). There are four dimensions to food security, namely the availability, accessibility, utilisation and stability of food supplies (Erikson, 2008; Schimdhuber & Tubiello, 2007). These four dimensions involve the production, acquisition and consumption of food and the stability of each of these (Erikson, 2008). This specific case study addresses two dimensions of food security: availability and accessibility within this food system. A food system refers to the interactions between and within the biogeophysical and human environments encompassing social, economic, political, and environmental processes and dimensions. A number of stakeholders are responsible for the movement of food

from production through to consumption (food chain) with added inputs and outputs (value chain) in the urban systems management (Erikson, 2008).

Tracing food from production to consumption allows for the availability of food, and its accessibility, to be viewed as a complex system that is affected by biological, economic and social aspects of life. A food system links these three aspects of life from the production of food (biological), the power and control which different groups exert over different parts of the system (economic and political) and the personal relations, community values and cultural traditions which affect people's use of food (social and cultural) (Tonsey & Worsley, 1995).

The Economics of Food Security and the urban poor

Urban food security is a growing challenge in the context of rapid urbanization and rising poverty throughout the world. Southern Africa has the highest urbanization rate in the world, and at current growth rates, more than two-thirds of the region's population will be urban by 2030 (Crush & Frayne, 2010). South Africa is the most urbanized country in the SADC region with more than half its population in urban areas (52%) and almost a third of its urban population (31%) living in slums (Ibid). Urbanisation poses a considerable challenge to urban food security that has largely gone unaddressed because of food securities previous and current rural focus (Ibid). Urbanisation coupled with limited economic growth increases poverty (Ibid). In the CoCT these development challenges, and the unsustainable spatial form of the city, have restricted access to the formal economy and reduced food security for the urban poor (Ibid).

The African Food Security Urban Network (AFSUN) undertook a baseline study to develop a knowledge base of urban food security in eleven cities in nine countries in Southern Africa. The AFSUN study was done to enable development practitioners and policy makers to plan proactively to lessen the food gap in urban areas. The city of Cape

Town is one such city; the survey sampled three sites to capture the diversity of the urban poor living in Cape Town. Battersby-Lennard (2009) discusses that the majority of the urban poor in the Cape Town earn less than R2500 a month and spend an estimated 40-50% of their income on food. The inflation on food cost, coupled with local challenges, paints a grim picture for the urban poor.

Food security has many local challenges that influence the access of food. Household poverty is not the only cause of food insecurity, there are multiple determinates. These include housing type, housing structure, livelihood strategies, number of household members, schooling, travel costs, illness, loss of employment, and migration (Battersby-Lennard, 2009). Food security is affected by these because they affect the household's ability to gain food. The type of household does not always mirror income; one can be food insecure but stay in a rich household. Female headed households are known to earn less than nuclear household's, thus housing structure is important when considering access to food. In turn earning less can be attributed to lack of access to education, employment, the triple role of a woman, discriminatory laws and practices. Females tend to spend more on food, purchase more nutritious food, cook and allocate food more effectively. Loss of employment due illness, death or accident decreases the net income of a house. Individuals migrate into urban areas to support members of the household and family living elsewhere. Migration is often from rural to urban and children remain in the rural areas while parents send and possibly receive remittances.

Alarmingly, 80% of individuals living in the sampled informal settlements in the city are either severely or moderately food insecure (Ibid). The majority have limited livelihood strategies, making access the main food security concern. A livelihood strategy implies that individuals and households are able to draw on a range of entitlements in order to guarantee access to food. Employment loss for example would not have such a great impact if more than one livelihood strategy was employed. Livelihood strategies include growing crops, receiving grants, self employment, gaining credit, receiving money from

begging, casual labour and renting of space to lodgers. All ensure household resilience against external shock.

Through industries such as urban agriculture and informal trade stands the informal sector offers both employment and access to food. For example, AFSUN found that 65.6 % of household's access food daily (and weekly) at informal markets or street food sellers. The same study states that Cape Town's informal sector experienced an increase of 6.01% in employment in 2001 (SACN 2006, 3-18 in Battersby-Lennard 2009). The decision to shop locally within the informal sector has important consequences for food security. Costly low quality products stored and prepared in unsanitary conditions are characteristics depicted as indicative of the informal sector. The majority of foods eaten by the urban poor on a daily basis are cereals, tea and coffee, sugar or honey, fats, roots or tubers and vegetables. Vegetables are the most nutritious component of those sampled individuals' diets therefore it is vital that their access to safe, high-quality foods is maximised (Battersby-Lennard, 2009).

Land is a valuable commodity for both living on and living off. Both housing and access to food are constitutional rights and developmental needs. The South African Constitution Bill of Rights states that "everyone has the right to adequate housing and sufficient food and the state must take reasonable legislative and other measures, within its available resources, to achieve the progressive realisation of both these rights" (Act 108 of 1996 26:1,3;27:1a,3).

Food insecurity interventions have previously been criticized for focusing on food production and globalization, ignoring the fact that vulnerability can occur at any point of the food system (Erikson, 2008; Hinrichs, 2003). Food systems, however, have been examined extensively for the conventional commodity food chain at both the global and local level (Hinrichs, 2003); but few local studies account for the informal food market.

There is a call for studies to address the conceptual differences of component functioning and related vulnerability within a system.

Food fuels and builds cities

Cities were established and grew as a result of our ability to domesticate food. In the growing of food and livestock- hunters and gatherers settled. With a steady food supply the population began to grow and with it came development. Food produce and development can be seen as directly proportional (Keegan & Diamond, 1987). The establishment of the city of Cape Town can be attributed to food. The city was born when Jan Van Riebeeck landed at the Cape of Good Hope (1652) and began the production of fresh foods to prevent the early settlers from contracting sea prone diseases, such as scurvy, while en route to East Asia (SAhistory, 2010). Cape Town exists because the Company Gardens behind parliament once acted as a refreshment station.

The food system is an integral part of a functional city, but it is one that has largely been neglected by planners. The food system is broad and incorporates many actors of which a town planner is not one. Planners have been employed to improve the quality of air, water and shelter yet the fourth essential life component, food, has largely been ignored. If planners continue this trend the impact will be negative on most people living in the urban environment, not just the poor (Roberts, 2001). If development of the city were viewed through the lens of food, food would flow through the shortest route possible. Both development and food production have important social, economic and biological consequences, but without the knowledge of how urban food systems operate, it could be difficult to predict the repercussive events that could occur if we had to choose between development and the production of food. Haysom (2010) suggests conceptualising food as the core component when dealing with city issues. If this study finds that the PHA is central to the local informal sector food system then development within the CoCT should consider development proposals that consider food systems. Proponents of urban agriculture argue that open portions of land

available for development may be better used for the use of urban agriculture. For example, the 400 hectares of land owned by the military base near Century City in Cape Town might be better suited to the use of agriculture than the development of property (Haysom, 2010). This land is vacant and within the urban border offering a large area of potential urban agriculture that would ultimately increase local production and distribution.

This project engages with a number of components in the local Cape Town urban food system that the PHA is part of, and its distribution of vegetables through various formal and informal linkages. Various stakeholders of the food system were approached and interviewed, many with the help of a translator. Those interviewed included farmers from the PHA, farm stall owners in the PHA, the Cape Town Market (CTM), CTM agents and traders, traders purchasing from these points and those traders located in trading halls, outside shopping centers and in the Philippi informal settlement. This project is primarily concerned with the commercial production of vegetables but representatives of other small-scale farming initiatives were also interviewed.

In order to gain insight into the above stated issues, this thesis paper will go on to discuss current literature on local food systems, urban food systems (formal and informal economy) and will use Complexity Theory as a conceptual tool with which to view food systems. Debates regarding the PHA, informal markets and urban food systems currently at work in the CoCT will also be addressed.

3. LITERATURE REVIEW

3.1. Food security

The availability of food is one of humankind's primary concerns and dates back to antiquity. The debate introduced by Thomas Malthus in 1798 stated that there would not be enough resources for man to sustain the continuingly increasing population (Mortimore & Tiffen, 1995; Malthus, 1798). However, it does not allow or has not accounted for humankind's ability to adapt. Sen (1999) argued that the reason for hunger is not a shortage of food, but the uneven distribution of access to food. Individuals draw on a range of 'entitlements' to access food. Some are self-sufficient through subsistence agriculture, while others depend on trading of agricultural/non-agricultural commodities and paid services (labour) in return for food/money or relying on government and social networks to receive food (Tagg, 2001).

Intensification of farming practices (to increase output) has increased in part as a result of Malthusian pessimism, yet food insecurity has not decreased because it has neglected the acquirement of food (Sen, 1999). Although India produces enough food to feed its population, many of its citizens are not food secure whereas Hong Kong does not produce any food yet is food secure (Schmidhuber & Tubiello, 2007). Self-sufficiency in no way indicates food security. It is not only whether food is available but also if the population has resources (monetary/ non-monetary) at their disposal to allow access to adequate quantities of food (Schimdhuber & Tubiello, 2007). Famines are a prime example, they occur not only from a lack of food, but from a number of social and economic factors, such as declining wages, unemployment, rising food prices, and poor food-distribution systems. During the Bengal famine of 1943, in which three million people perished, there was an adequate food supply in Bengal at the time but because particular groups of people did not have the monetary means to acquire food, certain groups in society suffered starvation (Sen, 1999). In a similar example the drought

related famine in Ethiopia led to the majority of the population starving, yet the country was still exporting food. This illustrates the importance of trading markets that make food available locally and the issue of access and availability.

Previous and current food security policies have had a rural setting and because of this and other more pressing urban issues [namely: unemployment, the growing of the informal sector, urbanisation, infrastructure and services upgrades] urban food security has largely gone unnoticed. Past research on food security has been hinged on the fact that food security meant rural food security and poverty meant rural poverty. The majority of food security programmes, plans and policies to date have yet to acknowledge this difference (Crush & Frayne, 2010). Poverty is not solely found in a rural setting but also occurs in large sections of urban population affecting primarily those urban dwellers that reside in slums and informal settlements that might be less fortunate than rural relatives (Crush & Frayne, 2010; Maxwell, 1999). The challenges between rural and urban centres vary, thus the potential solutions required also vary (Crush & Frayne, 2010). Urban food insecurity has received no political or policy attention because it is usually dealt with at the household or individual level. The diversity of class, gender, ethnic, and demographic characteristics, corresponding needs and access problems and the globalization of agri-food systems creates a complex challenge to all who seek regulatory mechanisms that would work in the interests of the urban poor (Ibid).

Access to food through cash remains the primary source of food security in South Africa, and self-production of food on the household level is not a primary food source in the urban context. Five percent of South Africans use agriculture as their primary food source and 20 percent use agriculture to supplement household food supplies (Crush & Frayne, 2010). Access driven by affordability is a key issue in this project since if the poor may lack resources to buy/grow food; they may go hungry even if food is available (Tagg, 2001). While absolute availability of food is vital, it is not the only dimension of

food security. The agricultural system needs to meet the demand of food while under pressure from a range of socio-economic and cultural factors that determine where and how farmers perform in response to markets. The dimension of access includes entitlements to a nutritious diet. Access is influenced by a number of factors including urban poverty, income vulnerability, accessibility of urban markets, and individual consumers' access to transportation and refrigeration (Abrahams, 2009; Schmidhuber & Tubiello, 2007).

Poverty and food insecurity are intrinsically linked (Raven *et al*., 2008). The most vulnerable populations are increasingly in urban areas. "Contrary to the assumptions of policy makers and the elite, urban commercial marketing systems are beyond the reach of the vast majority of the poor" (Leybourne & Grant, 1999: 110). The urban poor spend a very large portion of their total income on food (60% to 80%) thus linking urban poverty and food insecurity (Crush & Frayne, 2010; Maxwell, 1999). Improvement of food security is an important component of any poverty alleviation strategy, and in today's current cash-based economy, urban food systems are linked to poverty and vulnerability primarily by issues of access (Smith, 1998). Employment (informal/ formal) and an individual's food security affect each other (Maxwell, 1999). Tagg (2001) suggests that livelihoods, informal markets and competition with formal markets need to be considered in order to fully understand the relationship between the poor and their food security. The combination of rising unemployment, retrenchment, escalated costs of living, and inadequate salaries, usually in countries with Structural-Adjustment Programs (SAPS), forces an ever-greater number of people to seek alternative sources of food (Crush & Frayne, 2010; Leybourne & Grant, 1999). Although urban consumers appear to have many choices of where to buy food, the urban poor tend to depend on informal markets. Food is accessed from various retail outlets from supermarkets to informal road-side stores (Smith, 1998). The informal market offers close and convenient access to low value-added goods available in residential areas (Abrahams, 2009).

Many of those living in informal settlements in SA, the majority of whom are living under the poverty line, are not eating sufficient amounts of the right kinds of food. It is believed that the informal trading of fruits and vegetables, which contain much needed vitamins and minerals, are sold expensively for the quality of produce, but it is often the only accessible source of these goods for the urban poor. "Over 1.3 billion people in developing countries have incomes equivalent to less than $1 dollar a day and are so poor that they cannot afford to buy food or enough of the right food" (Raven *et al*., 2008:431). Food security is expected to decrease with the increasing food prices from the economic crisis. Supermarkets are largely inaccessible to low income groups because of the transport costs to their locations (which are usually outside of informal settlements), the lack of credit and inappropriately large unit sizes (Battersby-Lennard, 2009). This coupled with rising food costs and unstable income increase vulnerability. The informal sector acts as a mitigating agent to the increase in urban poverty and food insecurity (Maxwell, 1999). According to Smith (1998) the informal sector is a fall back option rather than a primary one. Later it will be discussed that this may not be the case: even though transport is an issue and supermarkets have been brought to the people, they still support traders, so there may be a greater social influence than previously acknowledged. Smith (1998) also suggests that even if the urban poor's purchasing power increases significantly it is unlikely that they would stop supporting traders and start-purchasing high priced packaged produce.

Supermarkets are rapidly increasing due to urbanisation and increased income; supermarkets distribute 55% of food retailed in South Africa (Abrahams, 2009; Weatherspoon & Reardon, 2003). Supermarkets are viewed to grow at the expense of the informal economy often causing its demise. Abrahams (2009) found that there has been a gradual decline in informal trading in areas where supermarkets have been introduced but; she acknowledges that although supermarkets may inhibit smaller enterprises they do not demolish them. This research found that many traders were located outside of large shopping centres and sell different things from the supermarket. Battersby-Lennard (2009) found that although the urban poor do frequent

supermarkets they find they are inaccessible places of low safety and do so irregularly and not for the purchase of what traders sell but rather high bulk products such as maize meal, *inter alia*. It was generally accepted that the introduction of supermarkets would alter and affect the food economy of the informal markets (Abrahams, 2009; Madevu, 2009; Potts, 2008; Weatherspoon and Reardon, 2003). Nevertheless, Abrahams' (2009) study in Zambia has shown that supermarkets are not the only players in the economy and neither are they the most dominant. She found that in urban Africa informal food markets made up of complex interactions still persist and leave food economies largely untransformed. They may in fact have local resistances if there is any change in the local economy.

As explained earlier, access to food is the urban poor's primary predicament (Maxwell, 1999). Some households do access food by growing it themselves for personal consumption or sale of produce; farming is a favourable livelihood strategy as it helps hard-pressed families survive by lowering the food bill. It is advocated because it insulates individuals from higher consumer prices, provides employment, generates income and creates productive areas out of unused land (Swanepoel, 2006; Rogerson, 2002; Smith, 1998). However, urbanisation is decreasing the already limited available land space in informal settlements, on which individuals grow vegetables for personal consumption; these areas are largely not owned by those living on them (Raven *et al*., 2008). The Cape Town survey found less than five percent of the sampled population grew food for personal consumption (Battersby-Lennard, 2009). In addition informal settlements are normally densely populated with little access to infrastructure.

Food security challenges facing the urban poor include the factors that enable or constrain urban food supply, access, distribution and consumption (Crush & Frayne, 2010). Urbanisation affects food production and distribution in both direct and indirect ways. It has the ability to compromise food security. Previous urbanization and food system studies have discussed food in terms of its links to household economy, health and nutrition (Crush & Frayne, 2010). A shift to local food production and consumption

is suggested as a solution to food problems in developing countries (Raven *et al*., 20084). We thus move on to consider food systems and more specifically local food systems.

3.2. Local food systems

Historically an individual would have been multi-functional. We would have grown or caught our own food, prepared, processed, cooked and eaten it ourselves. Now we simply buy it prepared, processed and even cooked merely having to consume it. Each of the actions that were once allocated to each individual are now separated amongst many people and professions in a food supply chain. (Roberts, 2001; Tonsey & Worsley, 1995) The chain is comprised of food companies, wholesalers/distribution firms, brokers, restaurants and grocers (King & Phumpiu, 1996; Steinhart & Steinhart, 1974). Production to consumption of food is now part of complex system with many components, role players and interactions. Food systems are defined as comprising

> *"a set of activities and outcomes ranging from production through to consumption, which involve both human and environmental dimensions…Food systems encompass a range of social, institutional, and ecological components (activities, actors, and outcomes), all of which may be vulnerable to environmental change in different ways"* (Erikson, 2008: 3).

> *"Food system links three aspects of life: Biological, economic and social. Biological: the living process used to produce food and their ecology sustainability. Economic and political: the power and control which different groups exert over different parts of the system. Social and Cultural: the personal relations, community values and cultural traditions which affect people's use of food."* (Tonsey & Worsley, 1995:2)

Hinrichs (2003) identifies the food system as having subsystems including, *inter alia*, a producer subsystem and a consumer subsystem each with their own inputs, transformations and outputs. Production, processing, distribution and acquisition, preparation and consumption are the inputs, transformations and outputs for producer and consumer subsystems respectively. The purpose and value of food may change at each differing point in the food system.

There are a large number of role players in any food system, even a local food system. Every step in the system has the ability to provide jobs and thus add to the price of food. Food systems and components of food systems are significant to living and world trade (Roberts, 2001; Tonsey & Worsley, 1995). Agricultural trade alone constitutes 10% of world trade. In terms of how many people make a living from food in one form or

another; statistics from Britain show that one seventh of their population work in a number of industries namely: agriculture, fishing, food and drink distribution, hotels and catering. In Australia (1980) 1 127 000 (tot. pop. 17 million) people worked in the food and associated industries. Made up as follows: agriculture and services to agriculture (208 000), food and beverage manufacturing industry (172 000), food service industry operations and catering establishments (317 000) and food retailers (grocers and confectioners, 430 000) (Tonsey & Worsley, 1995). These figures may not be mirrored in the South African context but perhaps given that 385 185 are employed as informal food traders in SA suggests the food sector is a significant source of employment (Davies & Thurlow, 2009).

An integral part of a food system is the value chains that hold the system together and allow for its functioning. The majority of food and agricultural systems are measured in economic terms and the value chains often overlooked (Steinhart & Steinhart, 1974). Value chains fall within food systems and may be a simple value chain or an extended value chain. Food systems may even have more than one value chain or fall under one or more labels (Kaplinsky & Morris, n.d.). Essentially a value chain *"describes the full range of activities which are required to bring a product or service from conception, through the different phases of production (involving a combination of physical transformation and the input of various producer services), delivery to final consumers, and final disposal after use*" (Kaplinsky & Morris, n.d:4). A value chain analysis would thus focus on the dynamics of inter-linkages within the sector. The type of governance in place influences value chains as chains could be either buyer-driven or producer-driven commodity chains i.e. supply and demand (Kaplinsky & Morris, n.d.). If a chain is buyer-driven, producers will produce to meet the demand but if chains are supply driven a system is constructed to ensure the sale of that product. Transformation on any supply chain will directly influence procurement, processing and retail, and the various actors along the value chain (Abrahams, 2009). In the global market, value chains have become increasingly specialized, capital-intensive, and consolidated. Increasing costs

between the links of large-scale commercial farming, value-added processing, and high-value marketing (Abrahams, 2009).

Efforts to localise food systems have successfully increased food security. In the case of Belo Horizonte, Brazil, the Municipal Secretariat of Supplies (SMAB) was developed to combat food insecurity and has successfully increased food security. It does this through three departments, one of which is the Department for Incentives to Basic Food Production, that aim to increase income to small scale farmers while still maintaining quality and decreasing prices to consumers. It does this by linking small-scale producers (both rural and urban agriculture) directly to consumers allowing for lower prices by eliminating private intermediaries. Fixed fairs, school and community vegetable gardens, planting schemes and agro economic centres (NGO based) are also in place to promote and support small scale agriculture, in essence, making local production and sale viable (Rocha, 2001).

Local implies a shorter food chain, a smaller spatial scale and lower food miles (Hinrichs, 2003). One must note that a short supply route does not always imply a local supply route. Communication plays a large role in the distribution of food, food is often advertised as local but then these local products follow a 'short food supply chain' i.e. through few stakeholders over large distances. Thus, 'local' may not necessarily infer close-by (Hinrichs, 2003). This project is concerned with local supply routes that are close in proximity to one another.

The industrialised food system has made products increasingly accessible to wider markets and the demand for these goods has strengthened the system making it increasingly powerful (Steinhart & Steinhart, 1974). Consumers are becoming increasingly distanced from the supply of food and individuals are less aware of the source and by what means and distance it has travelled (Erikson, 2008; Steinhart & Steinhart, 1974). The concept of 'food miles' is becoming increasingly publicised with regimes such as 'local is lekker' in South Africa and in restaurants such as that of Google

called Cafe 150 where everything sold in the restaurant is sourced within 150 miles of the restaurants location (Food Management, 2006). Food system localization has been viewed as good and desirable when considering the environment and the 'food miles' food acquired while moving through the conventional food production and distribution system from 'ground to fork'. It is considered, in today's society that shifting from commercial/industrial food system to a local food system would be highly progressive (Tonsey & Worsley, 1995).

Local food systems have great advantages reduced distance needed to transport goods resulting in lower fossil-fuel usage, creates and maintains jobs locally in agriculture and food processing; will suite the cultural food preferences and ecology of the area. Locally based networks are fundamental to any local economy (Perkins, 1999). Negative impacts of this decentralized food system are more manageable because a problem would affect fewer people and problems easily traced to its source and contained. When food is distributed across the country for, *inter alia*, packaging and processing it is difficult to trace and fix any problem that may occur in these long and complicated food chains, despite their efficiency (Pollan, 2006). Local farmers markets are often more reliable because you know its source and freshness. Costs of moving low value vegetables (i.e. broccoli) from outside of the city (rural areas) are so high that it does not warrant the transport cost and ultimately does not reach the city. Von Thünen's Theory of Land Use (1966) is an economic theory that seeks to describe and predict the location of services around an urban centre (Encarta, 2009). Von Thünen's theory explains agricultural patterns near urban areas based on transport costs to the market. According to the theory agricultural land use should decrease in intensity with distance from the city however, in reality, most industrialized cities are experiencing urban expansion which is forcing agricultural land use to increase in intensity with distance from the city (Lambin, Rounsevell and Geist; 2000).

3.3. The urban food systems informal economy

The food system coincides with both the informal and formal sector economy. In this section I will attempt to give an overview of the informal sector economy as a whole, why it is important, why it is under threat and the difference between the formal and informal sectors economy, if any, drawing on specific examples from Africa.

3.3.1. Informal economy

The informal economy/sector is loosely defined as enterprises/ workers in unregistered or untaxed businesses (Davies & Thurlow, 2009; Rogerson, 2002; Leybourne & Grant, 1999). It is important to note that the informal is referred to in many ways: second economy, informal sector, informal market, informal work, informal employment and traditional system. They are often referred to as equivalent and used interchangeably. Since Keith Hart coined the term in 1973 definitions and parts of definitions have been accepted and rejected, rejection was based on the lack of acknowledgement between overlaps in wage and activity type as well as the linkages between the formal and informal (Palmer, 2004). According to the 15th International Conference for Labour Statistics (ICLS) the international definition for the informal economy should have the following criteria (Devey *et al*., 2006: 305):

"Non-registration of the enterprise in terms of national legislation such as taxation or other commercial legislation; Non-registration of employees of the enterprise in terms of labour legislation; small size of the enterprise in terms of the number of people employed."

This is the accepted definition by statistics South Africa and used when conducting the Labour Force Surveys (LFS) and October Household Surveys (OHS). This is important because there is no appropriate demarcation of employment characteristics in the South African economy. Castells and Portes (1989:12) said that it is "common sense that the informal sector are unregulated by institutions of society, in legal and social environment in which similar activities are regulated- registration, tax, social security, health and safety rules."

3.3.2. Major characteristics of traders in the informal economy

The urban informal economy includes urban agriculture, sidewalk street traders, taxi drivers, hairdressers, small-scale manufacturers and illicit informal activities (theft) (Madevu *et al.*, 2009; Smith, 1998; Palmer, 1994). Traders sell everything from produce to spices to prepared food to clothing to accessories to crafts (Huss, 2009). This project focuses on the informal street traders (hawkers) of vegetables. Vegetables are not normally the trader's sole merchandise; vegetables are normally sold in conjunction with fruit. Informal trading is largely home based in informal settlements and trading halls in city centres (Rogerson, 2002). The informal traders have low to no overheads, a varied fruit and vegetable supply from differing sources and mobile/ fixed or semi fixed stands averaging five square meters in size (Madevu *et al.*, 2009). It is important to note that the informal sector does not only supply income for the 'jobless' but also supplies a supplementary income to low wages earners in the formal sector (Palmer, 2004). Literature tends to focus on the informal sector as a source of employment/income and not so much as a source of goods for the urban poor (Davies and Thurlow, 2009; Devey *et al*., 2006; Smith, 1998).

There are two categories of enterprise in the informal economy: the survivalist informal enterprise and the micro/growth enterprise (Chen, 2007; Devey *et al*., 2006). Survivalists do not have regular employment or are unemployed, the business requires little capital and skill investment and has a low possibility of expansion, and often the profit generated from their trading business is below minimum income standard (Rogerson, 2000). Micro/growth enterprises are very small businesses with a limited capital base and are run by the owner, family members and paid employees with rudimentary business skills. They are normally unregistered, have no business licenses, formal premises, operating permits and accounting procedures (Rogerson, 2000).

Smith (1998) found that the informal sector is expensive per unit costs of foodstuffs. Informal traders exist, despite charging a higher price, because they sell formal sector goods in smaller volumes at prices the urban poor can afford in closer proximity to final consumers (Smith, 1998). Studies have noted that the informal traders purchase formal sector goods, which they sell on to consumers with a fixed mark-up at a higher price than those that are formally traded (Palmer, 2004; Castells & Portes, 1989). The quality of food in the informal sector is assumed lower than that found in formal markets due to unhygienic food storage and preparation conditions (Battersby-Lennard, 2009). Hygiene standards however, are often no worse than in most poor people's homes (Smith, 1998).

For greater insight into the life of traders in the informal economy, see Valodia (2008) research report on *The Informal economy in South Africa: Issues, Debates and Policies* as he follows the daily lives of informal traders and their vast interaction with the formal economy on a daily even hourly basis. Traders are singled out and a real life account is given so the reader that has never interacted with or seen the informal sector at work has an informative and emotional account of its internal workings.

3.3.3. Informal economy South Africa

Davies and Thurlow (2009) states that South Africa has a small informal sector compared to other countries at similar income levels but recognises that informal employment has accounted for most of the job creation. Conversely Devey *et al.* (2006) recognises that the size of the informal economy in South Africa is significant and Rogerson (2000) explains that it is still rapidly expanding. A survey from 1979 showed a mere 200 to 250 street traders based in central Johannesburg increased to 15 000 street traders in 1999 (20 years). It accounted for 34% of total employment in 2000 and contributes 7.1% to South Africa's total Gross Domestic Product (GDP). About 805 000 workers are engaged in informal trade, thus forming a large part of South Africa's overall informal sector (Davies & Thurlow, 2009; Williams, 2007). Informal employment

has been found to increases concurrently with the decrease in formal employment (Crush & Frayne, 2010; Davies & Thurlow, 2009; Potts, 2008; Valodia, 2008 and Palmer, 2004). Rogerson (2002) argues that "low labour absorption in the formal economy and dire crises of survival are the primary factors underpinning the massive expansion in South Africa's informal economy over the last decade" (Rogerson, 2002: 1). It is expected, then, that the unemployed will turn to the informal sector for work due to barriers-of-entry in to formal sector jobs (Davies & Thurlow, 2009; Palmer, 2004). The demand for formal work increases with levels of urbanisation however; formal employment opportunities do not. Urban poverty can thus be viewed as a consequence of urbanisation (Smith, 1998).

The informal economy can be divided up into a variety of sector professions that authors have assigned different percentage distributions to. Williams (2007) states that 30% are in the construction and trade sectors, 27% in the agricultural sector and 25 percent in domestic services; Davies and Thurlow (2009) state that the largest informal sectors are retail trade (41.5%), transport (18.5%), construction (10.0%), and subsistence agriculture (9.3%) and Rogerson's (2002) findings show that South Africa sectoral distribution data suggest an informal economy is composed of retail (46%), services (31%) and manufacturing (23 %).

South Africa's informal economy is historically tied to apartheid's racist policies through reduced formal sector opportunities (Potts, 2008). The Group Areas Act separated race groups into different areas marginalising non-white races and restricting entrepreneurship. Rogerson's (2002) study found that the majority of informal traders in Gauteng to be black but acknowledges that there are white and Indian entrepreneurs though minimal. A large majority of Cape Town's informal traders are coloured, also marginalised in the Group Areas Act. The population of Cape Town at the time of the Group Areas Act was comprised of 55% coloured, 30% white and 15% black the large coloured community is distinct from other large urban areas (Western, 2002). The racial

breakdown of the City of Cape Town in 2007 comprised of 44% coloured, 34.9% black, 19.3% white and 1.8% Asian (Small, 2008). Since 1990 an influx in foreign migration has occurred with people from all over the world (primarily Central, Southern and West Africa and Asia) entering the informal economy (Meth, 2007).

The national trend and general rule with regard to gender divisions in the informal economy, is that more women than male entrepreneurs occupy the bottom layers of the urban informal economy of South Africa. Women are at the survivalist end of the spectrum and male at the other with the most profitable small-scale businesses (Devey *et al*., 2006; Rogerson, 2002). Small traders' stands are generally operated by women and/or more recent arrivals while shop/retail outlets that require more initial capital investment are male-dominated (Valodia, 2008; Smith, 1998).

In South Africa the informally employed could mean that they are self-employed and form part of the informal economy by running their own non-registered business, or that they are employed without a contract (Chen, 2007). Other views of the informal market include a system that starts with a small-scale farm and low quality processing with informal/traditional modes of retail (not including any formal market interaction). Formal retail in supermarkets has high value, high quality modes of sourcing and procurement that supermarkets demand (Abrahams, 2009). Informal employment statistics have a number of discrepancies because the data collect is based on unclear definitions. Despite the 200-300 studies that have been conducted over the past 40 years on South Africa's informal economy since there is no formal delineation between the formal and informal, the definition specific data is unreliable, patchy and unavailable (Davies & Thurlow, 2009; Meth, 2007, Devey *et al*., 2006; Rogerson, 2000). Devey *et al.* (2006) question whether one could actually state that the informal economy employment is rising in South Africa. Those represented in statistics are those that are officially working and receiving wages but there are those that have always been working and have merely escaped official recognition (Palmer, 2004).

3.3.4. Formal economy vs. informal economy

The current debates in literature are focused around the definition of the informal economy and its distinction from the formal economy. Two arguments exist, firstly that the two sectors are distinct, operating separately and parallel from one another. Secondly that the two sectors are not as distinct as previously thought, that they are intrinsically linked and are ultimately inseparable (Devey *et al*., 2006). "Implied in the notion of informal is that there is a formal, a norm, against which these activities can be compared… in terms of the absence of characteristics that belong to formal activities" "formality and informality are really the opposite poles of the continuum with many intermediate and mixed cases" (Devey *et al*., 2006: 310). Thus the autonomy of the two sectors is not discrete.

The interactions between the two sectors are more evident when one considers the flow of goods and services between the formal and informal sectors (Battersby-Lennard, paper under review). Employment for example illustrates that "some informal workers do have characteristics of formal workers and vice versa… there is informal type work in the formal economy" (Devey *et al*., 2006: 314, 317). However, those in the informal economy do not benefit from most legal employment policies of the governments (Chen, 2007; Guha-Khasnobis, 2006). Further examples regard large enterprises social upliftment or outreach programmes that enabled emerging micro enterprises or entrepreneurs (Rogerson, 2002).

The formal economy facilitates efficient, transparent, and increasingly quality-based food networks (Abrahams, 2009). The most accepted understandings of informal markets are that they are a precursor to formal markets. The informal is viewed as an unproductive, underprivileged way of doing business (Palmer, 2004) however, it should be viewed as a legitimate way of life, an entrepreneurial livelihood strategy, a dynamic sector able to create jobs and actively contribute to economy-wide growth. Informal

markets are adopting formalized characteristics at various levels of the supply and management chain without becoming formal markets themselves. Thus the delineation between the informal and formal sectors is becoming increasingly blurry. The ILO Kenya report presented the informal sector as an important provider for employment and income as opposed to the capitalistic outlook of marginal or unproductive (Palmer, 2004). There are conflicting views on the role of the informal activities in stimulating broader economic development as few believe that they may eventually generate tax revenues through a gradual process of formalisation (Davies & Thurlow, 2009). Aspects of the formal can be found in informal markets such as in the case of Mitchell's Plain Town Centre. The Mitchell's Plain traders are organised and have formed an organisation called the Concerned Hawkers and Traders Association (CHATA) after the city attempted to formalise components of the trading operation through legal action in 1999. Upon consultation with the traders Huss (2009) found that traders recognise the need for infrastructure upgrading but not formal regulation regarding their businesses.

Although interactions between the two sectors do occur and sectors possibly share similar characteristics, formal systems may bypass informal systems and informal systems may bypass formal systems, the latter being more unlikely. In other words formal system components could function without ever encountering the informal and the informal production and selling of goods could potentially not include formal interaction. In effect, these two economies could operate in parallel (dual) to one another in certain circumstances. Reasons for formal economy not intersecting with the informal is because the "the latter remain inefficient in meeting the quality and safety specifications, and the logic is that systems of exchange gravitate towards greater efficiency" (Abrahams, 2009). For the most part however, these economies interlink/intersect at various points in the systems. The informal sectors purchase from the formal economy's local production and retailing operations and resell the vegetables, because the informal production and selling is not as efficient as that of the formal (Chen, 2007; Smith, 1998).

Davies and Thurlow (2009) paper presents a conceptual framework of formal-informal sector linkages (see Davies & Thurlow, 2009:12). They construct a model that identifies two regions, representing the formal and informal economies. Each region produces and consumes commodities. The formal region is self-sufficient, produces products, partakes in world trade, pays taxes and invests in formal institutions. The informal region is not self-sufficient, produces few products, and does not partake in world trade products, they do not produce but do purchase from the formal. This is not the only requirement the informal region needs from the formal to survive. According to their model, finance is acquired from the formal region via the formal purchase of informal goods, informal wage income from formal work, borrowing and social transfer from the government. This model recognises that although the informal depends on the formal there is also a reverse reaction, where the formal partly depends on the income that the informal supplies through trade. Trade is thus bi-directional.

3.3.5. Policy intervention suggestions

The informal market is an important component of the food system yet is the least visible of actors between farm and mouth (Tonsey & Worsley, 1995). The question begs why the informal trade is not embraced as an accepted form of food distribution. Could it be that if the informal market were to prosper it would threaten formal sector profitability? (Smith, 1998). Palmer (2004) argues that structural adjustment programmes and current legislation favours modern market economy (formal economy) and despite paying lip service to the role of the informal sector, discriminates against it. Abrahams (2009) expresses that the introduction of supermarkets may be an attempt to squash the informal economy through placement of large formal sector stores aimed at the poor consumer segment. Policy control is limited because the nature of the problem will vary with each locality (Davies & Thurlow, 2009; Smith, 1998; Tonsey & Worsley, 1995). Smith (1998) suggests a dialogue between parties concerned with food needs (i.e. the poor consumer and the informal producer/retailer, and the relevant urban and

national planners) is required. “Urban policy should be encouraged to improve upon, not suppress, informal economic activities” (Maxwell, 1999:1950). The informal market and the traders want better services and facilities but the Mitchell’s Plain traders have experienced that the government’s way of supplying these does not suite the inner working and social aspect of trading (Huss, 2009). Policy shifts are needed at the micro, regulatory and local government level to improve the general environment for South African informal entrepreneurs (Devey *et al*., 2006). Chen (2007) identifies supporting informal enterprises and improving informal jobs, as key pathways to promoting growth and decreasing poverty.

Management policies should address the food system as a whole, acknowledging the nature of the problem is an integrative one and merely managing the fragments would be insufficient (Smith, 1998). Policy makers and political leaders must understand the way in which the urban poor organise themselves to gain access to basic requirements of which food is by far the most demanding in order to understand and intervene in urban poverty for sustained economic improvement (Maxwell, 1999). “The city therefore needs to develop a food security strategy that goes beyond a focus on production and absolute supply. This strategy must consider supply chains, procurement, nutrition support programmes, public health, environmental sustainability, water and waste, the support of local enterprise amongst others” (Battersby-Lennard, 2010: 30). Poverty alleviation mechanisms need to combine the coping mechanisms of those living in poverty and changes in domestic/local policies (food market deregulation and structural adjustment) if lives of the urban poor are to improve because informed policy lacks a food supply systems approach at the ground level (Smith, 1998). Existing policy framework plays an important role in determining food production and consumption but past efforts have failed because of the national scale focus on the production side of food security and neglecting acquirement (Crush & Frayne, 2010; Tagg, 2001; Sen, 1999).

Very little is actually known about urban food security because its rural orientation has resulted in fragmentary and inadequate evidence that will only lead to misguided or ill-considered interventions (Crush & Frayne, 2010). Urban food security is a critical issue requiring recognition at the international, regional, national and sub-national level. Urban food security is a complex and challenging issue, assuming no difference between the rural and urban experiences would miss the particular dynamics and cross-scale linkages that need to be considered (Crush & Frayne, 2010; Padayachee, 2006). A holistic strategy that is comprehensive and multi-sectoral in approach of all spheres of government is needed to address food security as urban populations grow inexorably (Crush & Frayne, 2010).

A food system is a socio-ecological system (Erikson, 2008; Holling, 2004). The socio-ecological system comprises of social mechanisms behind ecosystem management. "Food systems… depend upon ecological variables for their most basic function, yet they are largely driven by social processes and policies" (Erikson, 2008:6). Assessing vulnerability of modern food systems is not a straightforward task but understanding how vulnerability is expressed in the food system, where the potential for vulnerability lies and how it might be mitigated by adaptive capacity could be very useful. Researchers suggest taking an approach that protects the interactions within the system rather than trying to control the outcomes of the system.

3.4. Complexity theory

In light of the material presented above, a food system illustrates the characteristics of a complex system. Complexity allows for a broad and realistic outlook of environmental, economic and social systems (Cillers, 2008). A system is composed of components. Complex systems account for these components and the *interactions* between them. Systems do not have clearly demarcated categories and are often composed of more than one system, for example the food production and supply systems are systems in themselves but form part of the urban food system (Hinrichs, 2003).

Complexity is "the results of a rich interaction of simple elements that only respond to the limited information each of them are presented with" (Cilliers 1998, p 5). In a system, one can identify key drivers or at least components that have small functions but produce large results. Automatically we assume that influencing certain components will yield certain results and manipulating components in such a way to gain advantage from an outcome. However, complexity cautions not to be close-minded as other components within the system could interact and change the degree of the outcome or the outcome all together. The scale at which one approaches the problem is thus important. Smith (1998), recognises that at any given moment there are three "parallel processes affecting the nature of urban food systems through the enforced structural adjustment, the persistence of urban poverty and the globalization of food cultures and supply systems" (p:208).

Components are ignorant of the system as a whole, though connected to each other they do not all influence each other to the same degree. Components are independent, each interacting with their neighbouring component while forming a whole system of independent parts working together. Characteristics of complexity state that for a system to be complex knowing a part/ component does not necessarily mean we understand it as a whole or that the interactions between these components are the same (Cillers, 1998). Subcomponents of the system cannot have access to all the

information in the system; they can only react to local information (Cillers, 1998). The food system has feedback loops that keep the components interacting with each other in the system. The interaction of components can be physical or as a result of the exchange of information. Their interaction can influence other components directly and indirectly - but these influences are non-linear, meaning that although the interactions may occur over short ranges, their influence can cascade to bigger influences by mediating components (Cilliers 1998). This is seen by small immediate interactions having greater effects at other distant points with the system.

Cascading effects have the ability to be compounded. "The knock-on effects of persistent problems of urban food security are not confined to malnutrition: they affect a complex range of factors, such as fitness for work, health-care needs and political stability, all of which threaten urban sustainability (and sustained growth, for that matter)" (Smith, 1998: 216). However, components act on local information and are ignorant to the behaviour of the system as a whole (Cillers, 1998). Malnutrition, health care and even crime are discussed throughout literature as potential spin offs from food insecurity issues. If a child below the age of nine is inadequately fed during the most vital stages of development the ramifications of this would be the impeding of their academic development that could later lead to negative social issues located at the farthest end of the negative social scale (e.g. joblessness, gang association, alcoholism, etc.). In SA one in every five children under the age of nine are malnourished (Walters, 2011).

Complex systems are open systems. Thus discussing a system in isolation is difficult as there are no hard and fast boundaries. Systems are discussed from a specific point of view in order to frame a system for working purposes. For example, a farmer will interact with a packing company, while the packing company will interact with the retail stores. The farmer will interact with wholesalers and the wholesalers will interact with traders. There are other points of interaction including various inputs and outputs thus it is important to frame the system under consideration. Cilliers (1998) emphasises the

importance of analyzing all time dimensions of a system in order to gain a better understanding of its complexity. Without doing so, the analysis becomes a 'snapshot of a diachronic process' (p 4). Complex systems have characteristics that are pinned to it but the boundaries remain unclear and malleable. This property enables a system to change and enables us to gain a greater understanding. These systems however operate far from equilibrium. Systems can be viewed as evolutionary artefacts that have evolved together (Cillers, 1998). There are a variety of reasons why food systems develop as they do but many of these reasons are not understood. History gives us some insight as to how they form and are developed but this does not account for the whole system (Steinhart & Steinhart, 1974).

The linkages in the system are important for policy development that previously concentrated on the individual components as opposed to their interactions (Devey *et al*., 2006). "Conceptualizing and understanding this food system is an extremely important component of managing for sustainable urbanization" (Smith, 1998: 212). The food systems approach supplies the right kind of knowledge when solving complex problems that before would have gone unsolved. An example of how this has helped is in the global food system in the combating of Bovine spongiform encephalopathy (BSE). By tracing the vertical flow of information the attainment of this knowledge led to appropriate management and comparative international strategies (Bailey, Jones & Dickinson, 2002). Researchers suggest taking an approach that protects the interactions rather than trying to control the outcomes of the system (Erikson, 2008). Since the primary outcome of a food system is food security (Erikson, 2008) incorporating value chains is one way that may offer some important insight. Complexity allows for the development of a framework with appropriate strategies for dealing with such a system. Without approaching from a complexity outlook, we are making decisions that could have catastrophic consequences based on incomplete information (Cillers, 2008). The interaction between the food system and urban systems is so intertwined that they

cannot be considered separate. Although there is no one answers, the knowledge that there are many factors involved gives us greater insight into systems.

Summary of main points

The urban poor have problems accessing food, despite supermarkets having increased access opportunities by operating in areas that the urban poor reside (Leybourne & Grant, 1999). Very few urban poor grow their own food (Crush & Frayne, 2010; Battersby-Lennard, 2009). Employment and cash are thus the predominant means of acquiring food. Increased rates of urbanization add to poverty by increasing competition amongst the urban poor to gain employment and cash. Due to the lack of formal sector entry informal trade has become an important means of accessing food and employment for the urban poor (Davies & Thurlow, 2009; Battersby-Lennard, 2009; Smith, 1998). Recent literature has questioned informal and formal sector distinction as mutually exclusive and recognises that the interactions are rich and in both directions (Davies & Thurlow, 2009; Meth, 2007, Devey *et al*., 2006; Rogerson, 2000). Local food systems are deemed to increase food security (Rocha, 2001). One would assume then that the PHA located in Cape Town has a local distribution supplying food directly to the city. This research was initiated to understand existing perceptions pertaining to food traded in the informal sector- the perceptions of low quality vegetables sold expensively and their source (Abrahams, 2009; Smith, 1998). By adopting the food system outlook and tracing formal and informal sector linkages this research examines the extent of these interactions, if they exist, are they local and the implications for price and quality of food entering the formal and informal sectors from the PHA.

4. CASE STUDY

4.1. Case study site specifics

The Philippi Horticultural Area (PHA) is an open track of land with the majority of properties unfenced. It is located just outside Philippi and is directly above the Cape Flats Aquifer. It once acted as a rural break in the urban fringe between white affluent areas, black and coloured areas separated under the Group Areas Act (Act 41 of 1950) (Western, 2002). It is in close proximity to major transport routes (N2, M3, R300) and the airport and is bordered by Strandfontein Road, Lansdowne Road and Vanguard Drive. The farming land is surrounded by Guguletu, Mitchells Plain, Ottery and Grassy park suburbs.

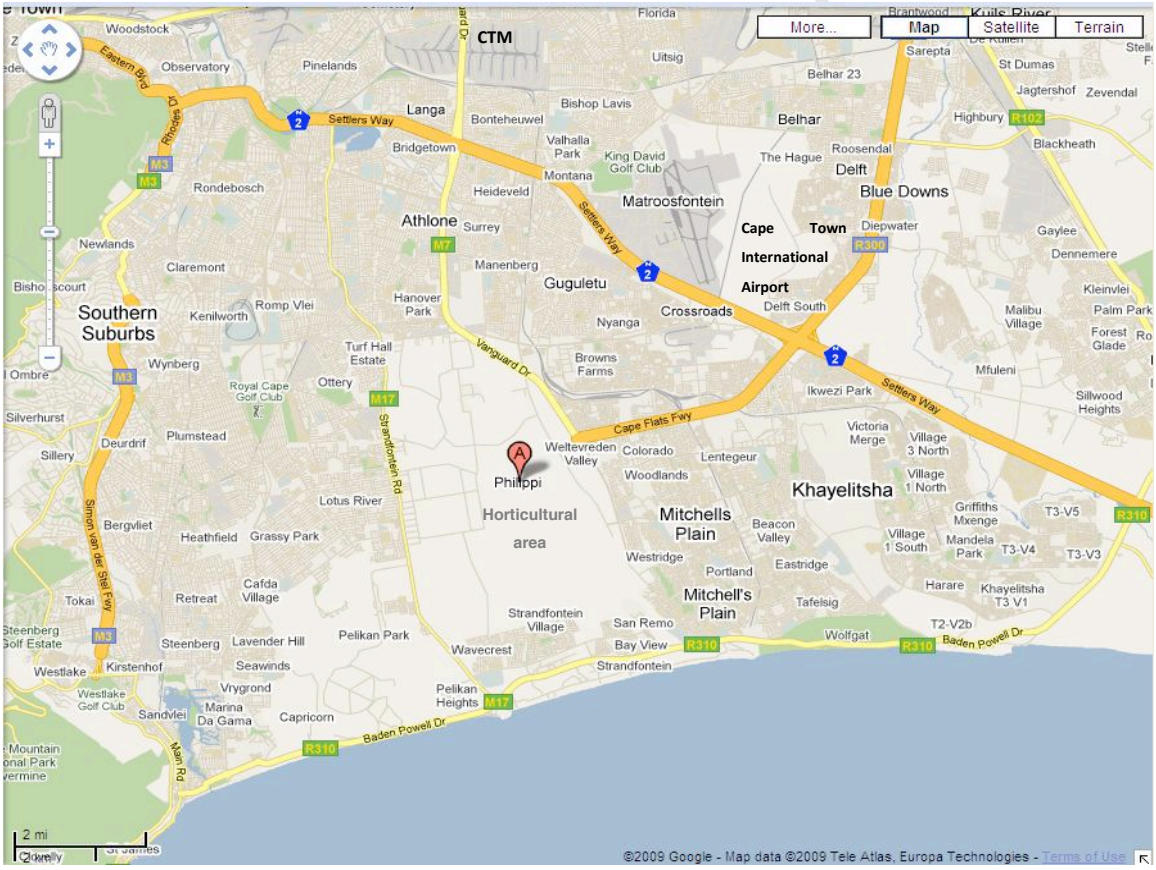

Figure 1: Map of the study site Philippi and the surrounding areas (Google maps)

The PHA has a number of non-urban land uses that include horticulture, horse paddocks, pig and poultry farming, cut flowers and scrap metal yards (WCRSC, 1990). The PHA was reserved for agricultural purposes and exploitation and refining of silica and removal of dune sand in terms of Section 4 of the Physical Planning Act, (Act 88 of 1967). The Act's purpose was to protect the area for growing vegetables and to control land use, so as to not jeopardize the high grade glass sand deposits (UDWC, 2008; WCRSC, 1990). In 1990, about 28% of the total high-grade glass production in South Africa was mined in the Philippi area (WCRSC, 1990).

Government and businesses view the PHA as ideal for business related development because of its location. A number of urban development plans have been proposed for the PHA including the extension of the R300, development south of Lansdowne Road (WCRSC, 1990) and the mini-city development in the South-East section of the PHA (UDWC, 2008). The development agenda is being pushed in the PHA and there are a number of conflicting opinions- those for the development and those against, based on economic incentives, environmental consequences and agricultural opportunities. There are even conflicting views within the City of Cape Town departments, Housing Department being for development and the City Planning against development due to contradictory development plans.

The extension of the R300 was proposed thirty years ago (Fig.2). The R300 has recently been upgraded and is built up to Vanguard Drive and space has been left open on the other side of PHA to extend it into Grassy Park and surrounding areas. Western Cape Regional Services Council Report (WCRSC, 1990) is another plan that aimed to create a hard urban edge around the PHA in the hopes of prohibiting any further urban encroachment. The PHA has high appeal because it is situated at a point of high accessibility and is well serviced by roads of metropolitan significance (shaded area Fig. 3). WCRSC motivation was that only 26% of the land was used for horticulture, 24% for non-urban land use and a remaining 50% lay vacant.

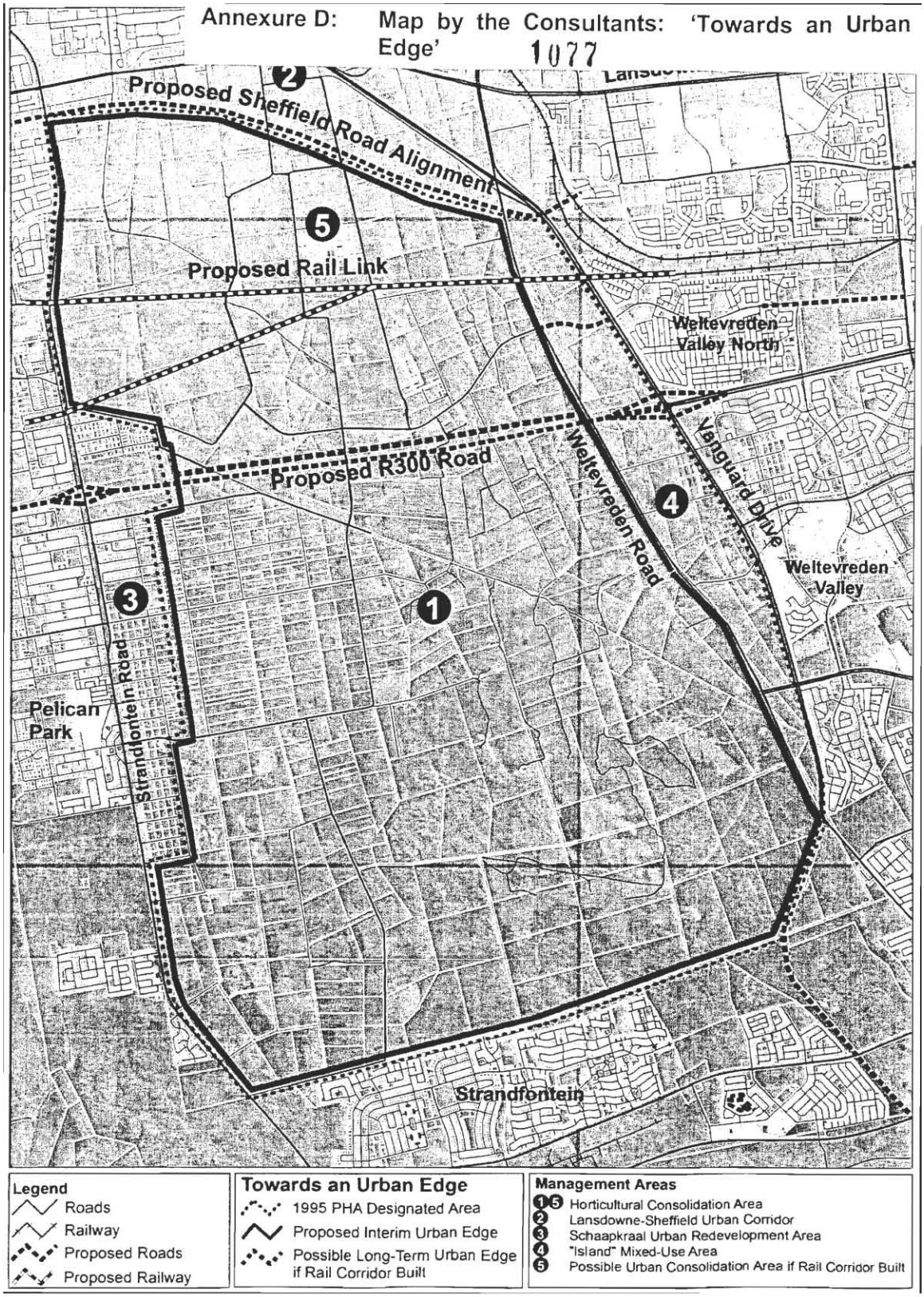

Figure 2: Map illustrating plans for the extension of the R300 (PEPCO, 2009)

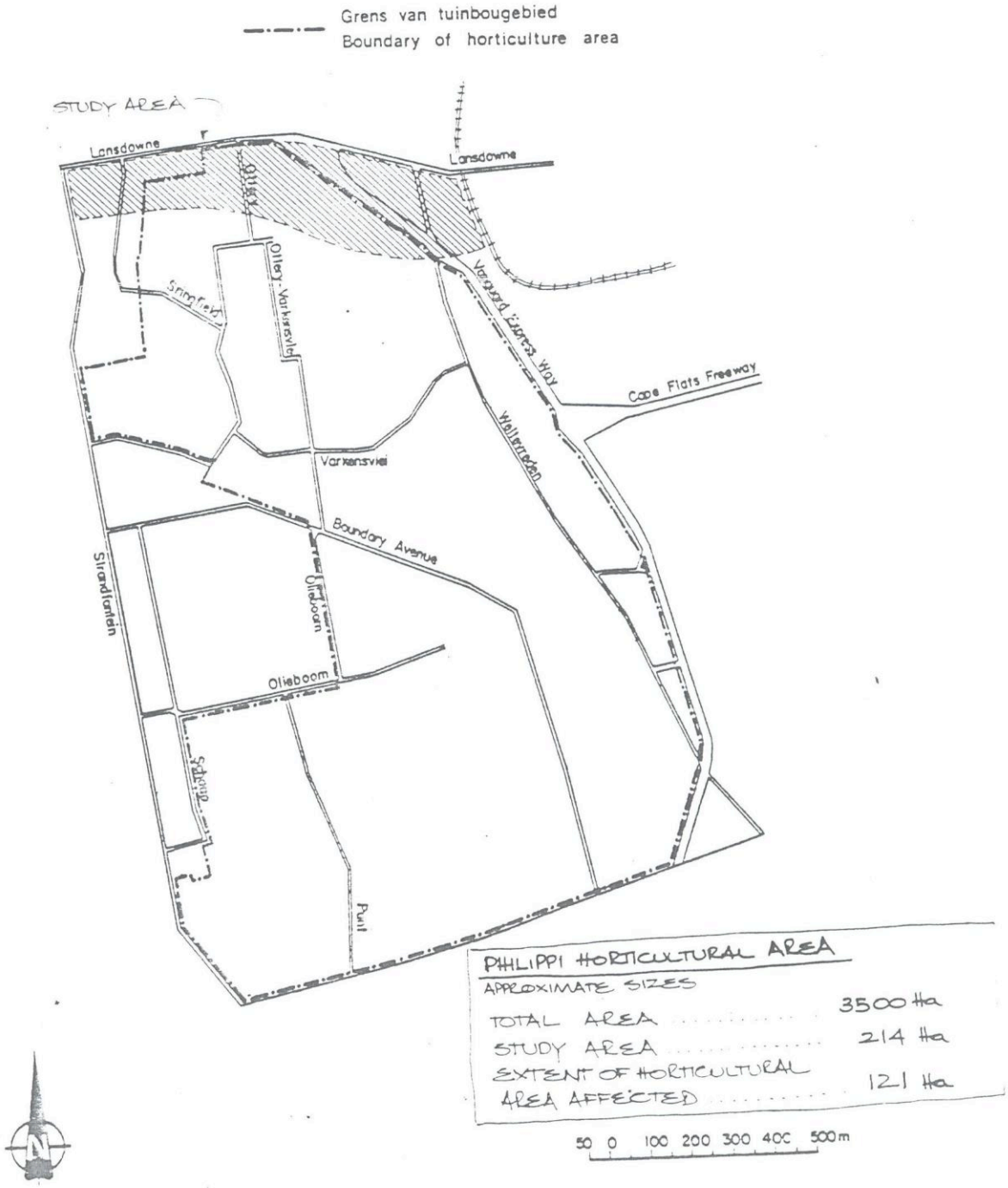

Figure 3: Schematic map of Philippi horticultural area and approximate sizes (ha) (WCRSC, 1990)

The latest proposal is for a vacant non-cultivated portion of PHA to be rezoned (UDWC, 2008). The rezoning application is intend to rezone 22 cadastral units in Skaapkraal (Philippi) from *Rural* to an integrated human settlement zone for the development of a 472hectare mini city on the eastern border (Fig. 4) bordering Mitchell's Plain and Strandfontein (Powell, 2009; UDWC, 2008). The rural zoning is in terms of the applicable CMC Zoning Scheme regulations that were promulgated in terms of the Townships Ordinance No. 33 of 1934. The Urban Structure Plan (1988, Volume 1) uses designation, in terms of section 4 (7) of the Land Use Planning Ordinance, 1985 (No 15 of 1985), to change land portions within the study area which have a "Horticultural Use" designation, to an "Urban Development" designation (UDWC, 2008).

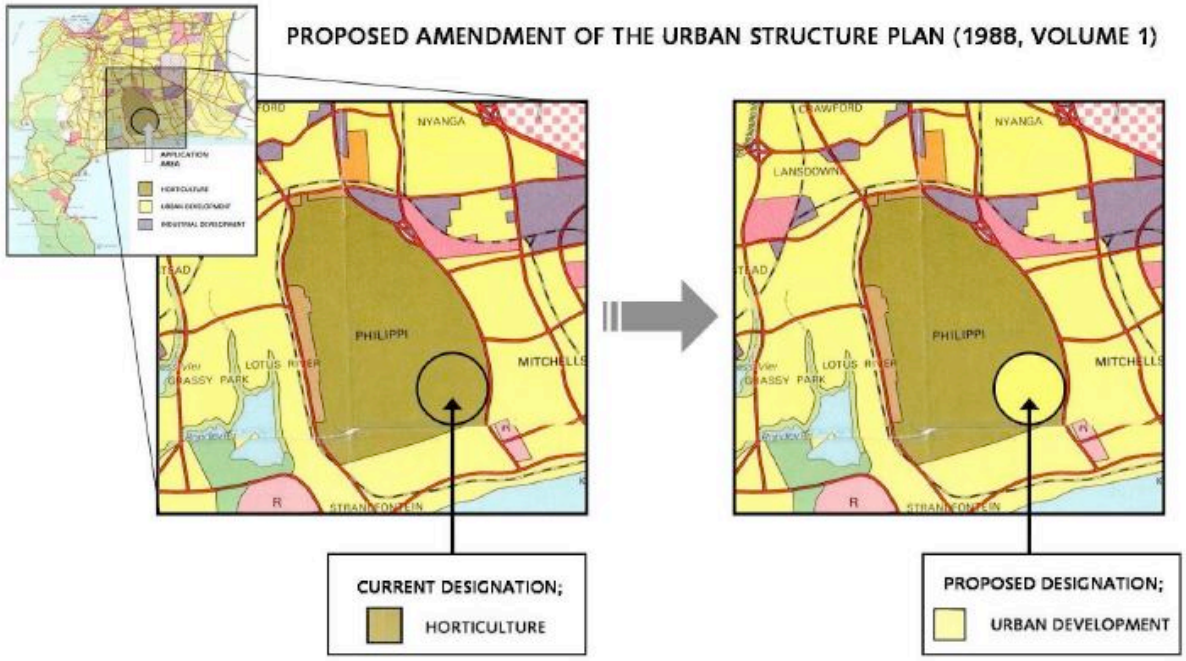

Figure 4: Proposed location for mini city development (UDWC, 2008)

All land parcels proposed for development are owned by Rapicorp 122 (Pty) Ltd as a Trust for 450 000 COSATU, NACTU and FEDUSA retirement fund members with Rockland Targeted Development Investment ("TDI") (UDWC, 2008). Urban Dynamics Western Cape incorporated (2008) state that their proposed site currently has no horticultural practice, no silica extraction and vacant and underutilized, for the most part. The only

major land use operations in this area are sand mining activities under permits issued by the Department of Mineral and Energy Affairs (DME) (UDWC, 2008).

Each application for rezoning has to consist of an investigation of the area and motivation for the project to go ahead. The main motivators for development are job creation, fixing the injustices of the past (through social, spatial and economic integration), appropriateness of site and its contribution to completing the city (UDWC, 2008; CoCT, 2001). There seem to be a number of pros and cons for this large-scale development. It is near major transport routes and the airport, it would connect the southern suburbs by completing the urban fringe, supply major infrastructure to the area and create over 30 000 jobs during the development period (Powell, 2009). The development is said to comply with sustainable development, as it would leave open spaces for wetlands and sensitive vegetation (Powell, 2009). The development will provide 225 hectares of mixed income residential units, at lower than usual cost, and community facilities. The remainder would be set aside for commercial and industrial developments. Further plans exist to develop a large (regional) fresh produce and open-market facility near the R300 highway (SouthAfrica.info, 2009).

There is the potential to extend horticultural activities onto unused land in the PHA. Philippi residents believe the currently underused and vacant degraded land could be farmed as planned for in legislation. The area under production has increased by almost 200 hectares since 1973 and as of 2008; approximately 70% of the land was still not involved in horticulture (Knight, n.d.). Expanding agriculture over the years has occurred in the northern section of the PHA (Powell, 2009). Each land portion averages 6.05 hectare and approximately 250 land parcels are involved in production (Knight, n.d.). The farmers own or lease multiple land portions.

The value for crops grown in the area translates into a direct value of R50 million with an indirect value estimated at R125 million per annum when different stages of the

value chain are incorporated (iCE Group, n.d.). Other indirect income "comprises of the transport of the vegetables to warehouses, hospitals, prisons, conference/ convention centres, restaurants and other retail outlets, packaging, servicing and maintenance of equipment, processing activities, and, lastly, the number of employees in each of these stages of the value chain." (iCE Group, n.d.:4). If the area were to be farmed there is the potential for the creation of 230 jobs, excluding the indirect jobs generated from trading (hawking) which is not known at this stage (hence this study) (iCE Group, n.d.). However, the iCE Group found that even if mining and agriculture were to be used fully, they would create 70 times fewer jobs than commercial and light industrial land use. Although job creation, skills development and poverty alleviation is possible with agriculture and mining they found commercial and light industrial land use to have a greater effect. This is significant when one considers that 30% of Cape Town's 2 893 251 people living here are unemployed (Cape Town, 2001).

The aquifer is of vital importance to the PHA- without it the area would not have developed. Approximately 15-20 million cubic meters is abstracted each year for irrigation from boreholes and shallow open pits and this water is not linked to any water supply system in the CoCT. Residents believe development would have negative environmental impacts, threatening the Cape Flats aquifer, but developers argue that agriculture would do the same (Powell, 2009). Water is accessed by the PHA farmers' from the aquifer. Aquifers are recharged from storm water runoff that filters through well-draining sandy soils, keeping the runoff at very low levels and slowly releasing the water into the aquifer and wetlands (iCE Group, n.d.). Concerns regarding reduced recharge or excessive extraction of this aquifer and pollution of the aquifer by both agriculture and development were expressed. Those in favour of the development argue that pollution because of the development would be no worse than the pollution caused by increasing farming practices as the increased use of fertilizers could cause eutrophication from excessive leaching (UDWC, 2008).

Upon comparison of the various development plans, Parson (2009) found much of the information regarding the Cape Flats aquifer was often neglected, and when included was inaccurate, misinformed and unsubstantiated. No geohydrological studies of the area have been done to support the claims that farmers are over-extracting from the aquifer and polluting it through fertilizer leaching, which have been the report's primary reasons for not expanding horticultural activities. These reasons have been based on the pollution of potentially potable water, but the city has not shown interest in utilising it because the water is naturally bracken due to surrounding physical features. There is a chance that leaching does not affect the aquifers use in farming practices. The aquifer is recharged by the whole of the Cape Flats area not just where the development is proposed. Furthermore, the study did not consider the lack of runoff and infiltration should the surface be hardened by development. Little or no water would infiltrate to lower areas. The low-lying area is also prone to flooding and should be a developmental concern in terms of construction and maintenance (Parsons, 2009).

The reports by Urban Dynamics Western Cape (2008) and Agri Informatics reports, that informed PEPCO (Feb 2009 Plan 26/04/09), from a groundwater perspective, are thought to lack scientific credibility and objectivity. Much of their information was misinterpreted from Cave and Weaver (2000) who called for further research, and Parson agrees that the aquifer needs to be quantified, monitored and managed (cited by Parson, 2009). Parson expresses that the availability of water for irrigation in the PHA is a strong motivation for the continuation of the current land use and that treated sewage effluent and artificial recharge by storm water runoff be recognized. Another reason given for not extending horticulture onto the area proposed for development is that the poor soils would need an increase in inputs to be productive; however, this is the scheme already in place on productive land. Mitigating measures suggested the relocation of the PHA farmers to horticultural areas within the metro region.

4.2. History of the Philippi Horticultural Area

Given the limited published material on the history of the area, much of the information for this section was obtained from an interview with Willie Schultz, a retired PHA farmer. His family has had a farm in the PHA since 1925 and he himself is a second generation German, born in the PHA. In 1979 he took over farming his father's farm, which his children still run today. Schultz has received many offers for his land as it has a prime situation on a main road near a shopping centre and he says 1000 houses could be built on his land. He says it is a matter of time before all the land between the N7 and Weltevreden Road is developed. The Schultz family would like to stay in the area- if not on their current land then elsewhere in the PHA, but there is no land available close to the main road. From the once 3232 hectares PHA, the only vacant land now available requires high capital investment as it's populated by Eucalyptus trees, sand dunes, stables and dwellings.

The Philippi Horticultural Area (PHA) is a commercial vegetable farming area that dates back to the 1800s. The PHA was formally established 110 years ago and is home to one of the oldest farmers' associations in South Africa, the Kaapsevlagte Boere Vereenigen (110 years old). The PHA is referred to as 'Little Germany' ('Klein Duetzland') as the farmers are direct descendants of the German settlers in 1883 (Schultz, 2010; Rabe, 1992).

The Cape Flats were once a very sandy area spanning from Heathfield, Southfield and Retreat to Observatory (Schultz, 2010). In 1820 the British colonial powers decided to transform the sandy infertile area into farmland (Schultz, 2010). The colonial powers previously had had very good experience with settling German farmers on barren land in the Eastern Cape and found them to be accomplished hard workers (Schultz, 2010). They then went to Germany and recruited those who wanted to work. The British hoped that the Germans could turn the unstable area, with its massive dynamic mobile sand dunes in summer and the low-lying wet and under-water areas in winter, into stable

productive land that could supply the growing city of Cape Town with vegetables (Schultz, 2010).

In 1883 the Germans arrived in Cape Town. The then government supplied the new settlers with tents, seed and enough food for two to three weeks. Each family settled on small land parcels that they had to buy at 10 shillings an acre (1 hectare for a British pound). The beginnings were characterized by extreme hardship. Women initially started farming chickens and a few vegetables in the area while the men went to town to work as laborers and builders. The growing of vegetables started with difficulty because of water logging, the trampling of vegetables by hunters and difficultly in transporting produce for retailing. Slowly but surely the area began to change. Piece by piece the settlers began to build their houses while they lived in tents until they could afford bricks to build better houses. Windbreakers were planted using Australian Port Jackson plants and transport was improved. Horse and cart were used to transport vegetables and flowers on the market for money to purchase other food products and building materials. Produce was sold on the black market during the Second World War because the government had priority on vegetables to send to feed the army troops. Once the houses were built the men then took over the farming. The PHA is divided into two areas: the 'Duine' (dunes) and the 'Vlagte' (lower area), the 'Duine' are cultivated in winter and both are cultivated in summer. Sand dunes have since decreased through farmers' efforts to lift low lying areas and sale of sand. "The farmers managed to turn the sandy soils of the Cape Flats into the vegetable garden of Cape Town" (Rabe, 1992:1) so efficiently that in 1999 the PHA supplied Cape Town with approximately 80 % of all its vegetables (Abbot Grobicki, 1999).

The area surrounding the PHA has changed significantly over the years. The land opposite the PHA across Lansdowne Road and either side of the N7 was once farming land which has subsequently been developed for residential and industrial purposes. Not all the surrounding development was negative. Farm stalls in the area profited, as

the only access road to Mitchell's Plain was through the PHA. Farms and farm stalls grew to the point where they began buying in vegetables from other farmers.

4.3. Social, Environmental and Economic role of the PHA

The Philippi Horticultural Area plays an important social, environmental and economic role in the city. The availability of highly nutritious food has a number of associated effects that could have health benefits. Individuals could be protected from suffering from malnutrition, which would increase their ability to work and to cope with HIV both socially and physically (iCE Group, n.d.). These issues could have further repercussions that influence the job market and health care. The current status quo of Philippi suggests high levels of illiteracy and a poor distribution of skills that act as major impediments to economic development by decreasing access to job opportunities in the formal economy, which are already few and far between (iCE Group, n.d.). The United Nations Human Development Report showed that those without income, education and skills experience difficultly in accessing food (UNDP, 2009). In turn the difficulty in accessing food results in malnutrition which further limits ability to work and gain skills (Battersby-Lennard, 2010). Under such conditions, crime and corruption become an easy option to survive for some. In 2001, a monthly income of R1600 was the then poverty line. Philippi falls into Ward 80, which has the largest proportion of households (81%), earning less than R1600 per month. The disparity of income between the City of Cape Town (CoCT) and Ward 80 income gap is evident, as 42% more households survive on less than R1600 a month in Ward 80 than in the CoCT, suggesting high levels of poverty and destitution (Battersby-Lennard, 2010). The development in the area shows little investment (CoCT, 2001).

4.3.1. Additional food system components

Other actors in the food system in Philippi are that of Abalimi Bezekhaya and the Muslim Judicial Society (MJC). Both partake in agriculture, distributing into both the formal and informal sectors. On the 7 October 2002, the Poverty Eradication Project targeted, inter alia, religious organizations that would have a positive impact on alleviating poverty. Housing, production and agriculture were identified as areas to which they could contribute. The PHA was identified as the “bread basket” of Cape

Town with 50% hectares of land available at the time. The 2005 CoCT Management Plan has set aside the PHA for agricultural purposes. Consequently, urban agriculture was adopted as a plausible livelihood strategy to alleviate poverty and food shortages in the City of Cape Town and is backed by the Urban Agricultural Policy. The Department of Agriculture has set aside help desks to enable 2500 emerging farmers' access to information and skills training (Obose, 2010). The Department of Trade and Industry also assist farming co-operatives (PFFFF, 2010). The CoCT has an urban spatial plan that has been setting aside areas specifically for urban agriculture that are 5 hectares or larger (Kabeni, 2010).

The Philippi Farming for the Future Forum is a pilot demonstration project, of which the MJC and Abalimi[1] are a part, aims to develop a database which emerging farmers can use to access service providers for resources (PFFFF, 2010). However, the primary caveat of urban agriculture and the greatest challenge for these groups is that many of those living in poor urban areas are a product of urbanisation, have migrated out of the rural areas, and are unlikely to want to start farming as it is viewed as a digression (PFFFF, 2010).

[1] Abalimi is a community-based environmental development NGO that resources, capacitates and collaborates with communities for organic gardening and micro-farming projects (Abalimi, 2010). It aims to build democracy, renew and conserve the indigenous urban environment and generate permanent jobs. The projects are designed so that future initiatives can be modelled on them (Abalimi, 2010). These model projects influence broader policy formulation in open space development and catalyze the emerging environmental and ecological urban agriculture movement in the grassroots communities of the Cape Flats (Abalimi, 2010).

5. PROJECT DESIGN

This project is part of the African Food Security Urban Network (AFSUN). AFSUN was established to assess urban food security in Southern African countries aiming, *inter alia*, to increase the knowledge base about urban food systems and vulnerable populations to facilitate local solutions to improving food security for vulnerable urban groups. The study that sampled poor communities in the City of Cape Town (*see* Battersby-Lennard, 2010) found a range of stakeholders playing a role in the urban food system and identified the informal sector to be a vitally important means for people to access food. Further knowledge of food systems that encompass the informal sector led to the cognate project of this thesis's focus.

5.1. Sampling design

This project traced the linkages between the PHA and the informal traders within the food system that the PHA is a part. The linkages may be direct and indirect thus the food system concept is useful as it incorporates complex systems thinking and allows for the inclusion of social, economic and biological factors that may influence the components and the interactions between these components. The project begins by framing the system to include the PHA. The system has no beginning and no end and is an open system thus the framing was done to confine my findings specifically to linkages involving the PHA. The complex interactions cause produce from other sources to mix with produce from the PHA increasing the complexity of the system.

The project was conducted in two phases. Phase 1 was a pilot project to gain basic information as to how the PHA and the informal sector are connected. Basic questions were asked in informal interviews regarding how the PHA was constructed and what known direct and indirect links the area had with the informal market. The pilot project took on the form of a peer referencing system (PRS), a snowball sampling technique that allowed moving from one component in the system to another via personal referencing (Walonick, 2004). All participants were initially contacted telephonically or approached

at their place of business. The second phase administered formal questionnaires to the relevant components identified in the pilot study. The formal questionnaire aimed to quantify the volume and cost of produce moving through the system at various points. These will be elaborated on below. The project used stratified and convenience sampling methods through administering informal and formal questionnaires, generating both qualitative data and quantitative data (Walonick, 2004).

5.1.1. Pilot study

The pilot study was conducted to develop baseline information from which an extensive questionnaire was composed and formally administered in the second phase. The pilot study allowed for the selection of specific sample sites by making connections with key role players in the PHA food chain. The pilot study took place from the 10 February 2010 to 31 March 2010.

A city wide perspective was needed regarding the PHA and two main individuals contributed to this. Firstly Gareth Haysom to establish the overall picture of issues surrounding PHA and food security in Cape Town as he had been conducting work in the area and had relevant information. He is the programme Coordinator of the Sustainable Agriculture Programme at the Sustainability Institute South Africa. He works on the Sustainable Communities Project, initiated by the Development Bank of Southern Africa.

Secondly, Stanley Visser, the head of Economic and Development Department for the City of Cape Town (the City's Urban Agriculture director) was interviewed to establish how the city engages with Philippi, the current workings of the area, how the different departments viewed the PHA and what future plans the city had for the area. This meeting offered useful insight into how one would proceed with such a project and who to contact. Visser explained what he knew of the system and the current development issues. A number of local, provincial and national departments have a say regarding the PHA including the National Department of Agriculture, Provincial Agriculture-Bellville for

Metropolitan Area, Spatial Development, Land Use and Planning (SDLP) and the Water Department. Spatial Development Department currently has eight district plans, Philippi falls under one of these. The Spatial Planning Urban Design Plan for District F that guides land use stated that currently the future should be horticulture with a few pieces potentially changing- north of Sheffield road, right of Weltevreden Road and some of Skaapkraal. The proposal of the southeast section requires that the urban edge be moved and the area rezoned for mixed use still has to be approved by the city. Currently the city has not approved the development despite the incentive for a portion of land to be donated for RDP housing. The PHA in recent plans remains zoned for Horticulture until the plans renewal in 2020. Non horticultural activities' (mining) does occur on the horticulture zoned land as per permits issued by DME.

Contacts gained from Visser include two PHA farmers, the PHA farmers association, maps of the area, other non-commercial PHA farmers namely the Muslim Judicial Society and the Philippi Farming for the Future Forum (PFFF) backed by the CoCT, Department of Agriculture, Department of Land Affairs and Resource Centre on Urban Agriculture and Food Security (RUAF). Information sources given include South African urban agricultural association, PHA revised management plan October 2000 CoCT, SA statistics agricultural census 2002, Agricultural economics websites and National Agriculture Market Council (NAMC).

These two initial interviews aided in the framing of the system. Leon Rix, the head of the Farmers Union (Kaapsevlagte Boere Vereenigen), further informed me of the basic food supply systems in PHA and that the best introduction to the members of the PHA is at the monthly KVB Farmers Union meetings. It is through this meeting that I was introduced to individual PHA farmers that sell directly to traders via their own farm stalls. The farmers in the area also supply the Cape Town Market (CTM) from which traders have direct access to produce. Subsequently five farm stall owners on the western and eastern borders of the PHA were approached and informed of the project. Formal interviews were scheduled

thanks to the Farmers union meeting and Stanley Visser's contact JP van Blerk, a PHA farmer.

The Cape Town Market was contacted and Julian Meyer, the market and maintenance manager provided a guided tour of the market grounds and explained market procedures. Through him I was introduced to Peter Matthews, the chief trading officer of the Cape Town Market and an agent, who's cliental are primarily traders. Both of whom were subsequently formally interviewed. The discovery of a different type of trader was made at this point- a trader that purchases in bulk and sells on to other traders (primary trader).

The Philippi Farming for the Future initiative meeting was attended to scope what additional farming operations were in the Philippi area over and above those of the KVB Farmers Union. A number of stakeholders were present at the meeting including the Department of Agriculture, Abalimi Bezekhaya and the Muslim Judicial Society (MJC). Abalimi and the MJC operate social upliftment farming projects in the PHA under the names Abalimi and AGRIC (the Agricultural Resource and Information Centre). The administrator of the Philippi Fresh Produce Market (PFPM) also attended. Follow up informal interviews were held with the MJC, Abalimi and PFPM. These interviews highlighted that although there are not major role players in the food system of the PHA they are none the less present and are active in the PHA food system.

Key findings from the pilot study that shaped the main survey

The pilot study allowed for a broad outlook on the PHA and various informal trader access points. Its object was to establish the points of access between the informal and formal nodes. Questionnaires were structured to identify the formal and informal sector links associated with the PHA. The informal interviews rendered important insights and observations regarding social and gender discrepancies amongst traders, resentment of

system components and further 'to look out for' observations while conducting the study. Amongst other observations, the farm stall owners noted that the informal traders' race affects the type of vegetable bought. Acknowledgement that informal trading is a business like any other, apart from the formal constructs, is an important one. Traders are hard working and proud of their business.

A core set of questions pertaining to the aim and objectives of this project were in each questionnaire. Examples of the common questions for each stakeholder groups are: from where they source materials, where and to whom they sell it onto, their per unit cost, where the contacts for their market came from, what value adding processes they use, how much of the produce is sold and how much is given away, quality of food (when was it purchased and what grade), does the quality of food determine where produce is sent and if they experience any theft, *inter alia*.

5.1.2. Questionnaire

54 interviews were conducted using formalised questionnaires (Appendix A) during the period from the 13 April 2010 to 17 May 2010. Four questionnaires were developed aimed at each of the key stakeholder groups identified in the pilot study: PHA farmer, CTM, CTM agent and traders.

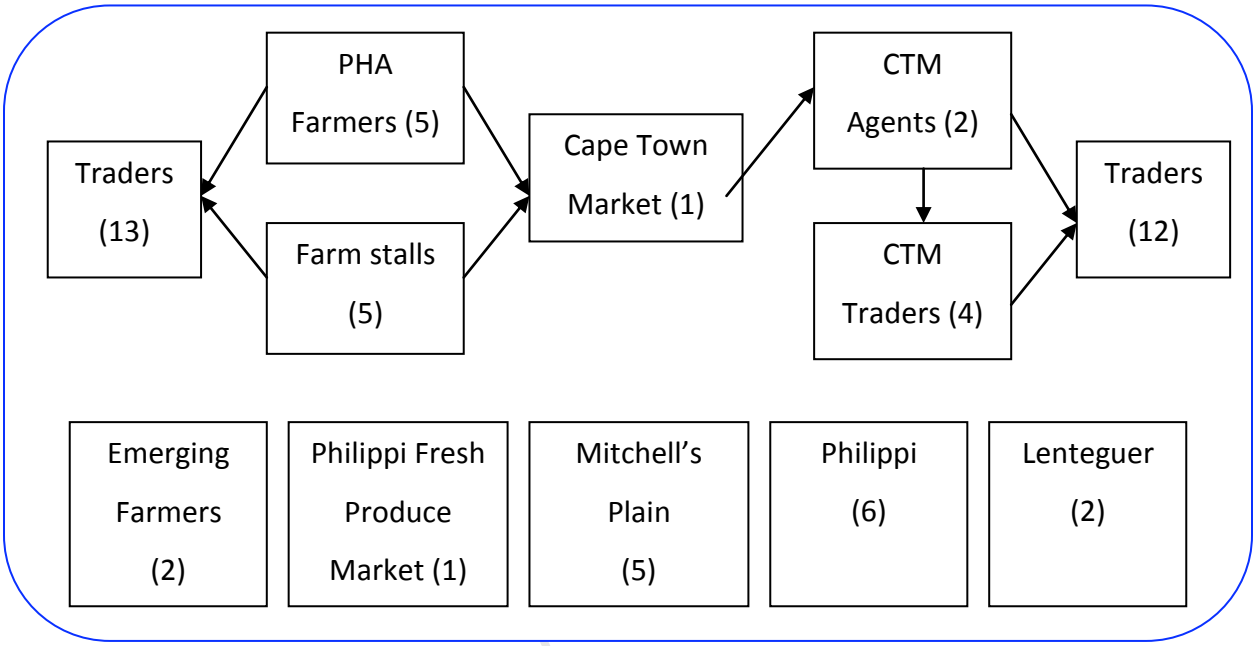

Figure 5: Summary of sample design Visual representation of formal interviews with key components of the food system.

In total 54 one-on-one interviews were conducted in person (Fig 5). The 54 interviews can be split up as follows : PHA farmers (n:5), four of which own a farm stall and one other farm stall in the PHA not connected to a farm (n:1) (Fig. 6), two are emerging farmer groups (Abalimi and AGRIC), the Cape Town Market, two of their Agents that are supplied by the PHA, four of the largest traders that purchase from these agents, the Philippi Fresh Produce Market and 38 traders found purchasing from the five farm stalls (n:13), CTM Agents and CTM traders (n:12), traders located outside the Cape Town Market (n:1) and surrounding the PHA [Philippi (n:6), Lenteguer (n:2) and Mitchell's plain (n:5).

The interviews averaged an hour with the farmers, half an hour with the CTM, the CTM Agents and CTM traders to 15-30 minutes with traders. Interviews were hand written unless permission was given to record interviews. Interviews with traders where done with the assistance of a translator, Bonisile Mgesi. He was recommended by Department of Disaster risk and Mitigation Program (DiMP) having worked as a community fieldworker on previous projects. Bonisile is a resident in the Philippi area and can translate 11 languages excluding Afrikaans. Many of the traders interviewed where Xhosa speaking but there were a few Tswana and Zulu speaking traders. The majority of the coloured traders spoke Afrikaans and English. The use of a translator was important for the capturing of correct information as many of the traders were more comfortable and found it easier to express themselves in their mother tongue.

All interviewees where chosen on the basis that they were buying from individuals who had produce from the PHA. It was quickly established that the CTM agents did not solely stock PHA produce, that the CTM traders did not solely buy from one of these agents and the traders bought from whomever had the best price. Except for the traders, purchasing directly from the farm stall it would be difficult to account for all the stock following out of the PHA. The traders questioned at purchasing points were in a hurry to buy the stock and take it back to their stands. A number of traders answered half the questionnaire and left after 10 minutes. Because there was no direct way of tracing the produce the project decided to locate traders at their stands where they were not so hurried. A trader could not answer questions at the farm stall and requested that the questionnaire be administered at his trader stand later in Lenteguer. Traders in Philippi, Lenteguer and Mitchell's plain were chosen as it was speculated to be some of the closest informal trading to the PHA. Traders in these adjacent areas were interviewed to establish whether the PHA contributes directly to the informal sector locally. These traders were interviewed to get a sense of how informal trading is situated in an urban context. Traders were chosen at random and approached with the questionnaire. Although Bonisile was not required to interpret in many of the coloured communities he

aided in finding the location and approaching individuals. Although traders had more time to answer the questionnaire at their stands a number of traders refused to be interviewed. This is possibly due to previous dealings with municipal and government representatives that subsequently resulted in adverse consequences regarding trading bays, licences and confiscation of stock.

Through way of the established informal and formal links, the questionnaire allows us to establish the reliance of the informal on the formal by asking where they buy from, how frequently, what they buy and how much they spend. By interviewing traders' economic and social interactions with suppliers, customers, fellow traders, workers and the public, the questionnaire aims to establish a working knowledge of traders. This is enhanced by personal interaction, talking to traders and seeing them operate at their location. I wanted to know if traders solely rely on local networks to make their money or if they used other means to attract customers and how alike to formal businesses the traders operate. By tracing the links in the local urban food system one could establish how much is being sold where, what part the PHA plays in the system and how far the repercussions would reach should the PHA cease to exist.

5.2. Capturing and analysing of findings

All interviews were collated and quantitative findings entered into an excel spreadsheet for comparison and analysis. The qualitative findings are discussed with reference to quantitative data and observations found during conduction of sampling.

5.3. Ethical consideration

The ethical considerations in this research are in accordance with the Guide to Research Ethics published by the Faculty of Humanities at the University of Cape Town. Transcripts will be kept in a safe place. Anonymity and confidentially of those partaking in the research is guaranteed. Should the subject not want to be linked to the results only the researcher will have access to the subject's personal information unless informed consent was given. Informed consent was obtained prior to the interview. Participation was voluntary and no interviews were carried out without prior informed consent of respondents. The subjects were informed of any beneficiation and any unlikely harmful side effects because of this project. The results of this study will be made accessible to participants of this study. The results of this study will be kept for an estimated two years should it be required for future use. Permission for access to information will be obtained prior to use (unless cited) such as capital figures e.g. sales, profits and mark-up. Those involved in the research were informed that the information may be made available to the public via publication, conference presentation or other means.

A number of ethical issues were faced on the project level. Traces of apartheid racism and hardship are still very prevalent in a number of the system components and thus had to be treated sensitively. Traders were reluctant to answer questions based on the misconception that the questionnaire was for government or municipal purposes. This stems from management plans implemented based on information obtained from previous researchers that adversely affected those involved. No promises were made to better anyone's livelihood as a result of the information gathered. Respondents were

not forced to answer questions they considered too personal to answer. The majority of those interviewed were friendly and more than willing to partake in the project, however some required more convincing than others but not beyond the point of nuisance. Reluctance can be attributed to elements in the food system not being legal. Having an interpreter present made many traders more willing to share information over and above that of the questionnaire. Even those that were reluctant to being questioned found it is easier to grasp what was being asked of them once explained in their spoken language. Most traders spoke to the interpreter to start and by the end of the interview spoke in English and directly to me as they become comfortable with the process and the questions asked.

Due to the controversial nature of some information gathered in the study it could not be incorporated in the write up so as to not compromise individual livelihoods. The information was either irrelevant to the aim of this particular study or proved to be very negative and speculative about certain components within the food system. Some sources are bound by contract and may not have answered truthfully. Much of the information pertaining to unethical business conduct is speculative and without proof cannot be brought to light for the safety of those involved in this project.

5.4. Limitations

When recording interviews by hand much of the flow is lost from the conversation as it is broken by the time needed to hand write answers. Individuals not recorded often had more to say than those recorded and the interviews that were recorded tended to have said more when the recorder was turned off. One limitation with using an interpreter is that they may not use the words of the interviewee when interpreting the answer back. Interpreters may ask questions in a leading manner preventing new answers from being found, this unfortunately is difficult to assess. Many of the traders interviewed from points of purchase were in a rush to get the produce back to the stands, start selling thus time was often limited, questions were rushed, and answers were short as a result. Weather conditions limited interactions with traders, the rain decreased the amount of time traders were willing to spend answering questions especially if traders lacked a structure that provided coverage.

There may be bias as to who was chosen for this study. Those interviewed were not purely objective choices as many interviewed were through referrals. Those interviewed at each site were approached at random. Bias is difficult to account for in sections of this project as much of the information obtained and followed up has been based on subjective information obtained while tracing the food system.

Food prices are highly supply and demand dependant and thus tend to be unstable and date specific. During the course of my fieldwork, *inter alia*, carrots and tomatoes had increased and decreased in price and cauliflower was unavailable and in high demand. Information obtained regarding pricing was limited because most answers were 'ball park' figures and often specific to that period in time. It should be noted that supply and demand are an important finding on the functioning of the food system. The units in which different sections of this food system operate vary causing understanding of pricing per unit inconsistencies. A number of traders could not say how much they sell their vegetables for as prices changed daily in conjunction with the market. Many

traders stated that they were on their way to determine prices and could not supply answers to pricing questions. I suspect that many of these responses where excuses because traders were short of time or did not care to answer.

5.6. Site location details and visual representation

5.6.1. PHA Farm stalls

The five stores identified in the PHA are located along Weltevreden Road (Kaapse Spens, Botha's Fruit and Veg, Schultz Varsprodukte Mark) and Standfontein Road (Affie Plaas, Dew Fresh). Farm stalls are almost solely stocked by their respective farm excepting Botha's Fruit and Veg that brings in all their products. The PHA only farm soft vegetables thus the farms stalls buy in fruits and other vegetables.

Figure 6: Five farm stalls sampled in the PHA

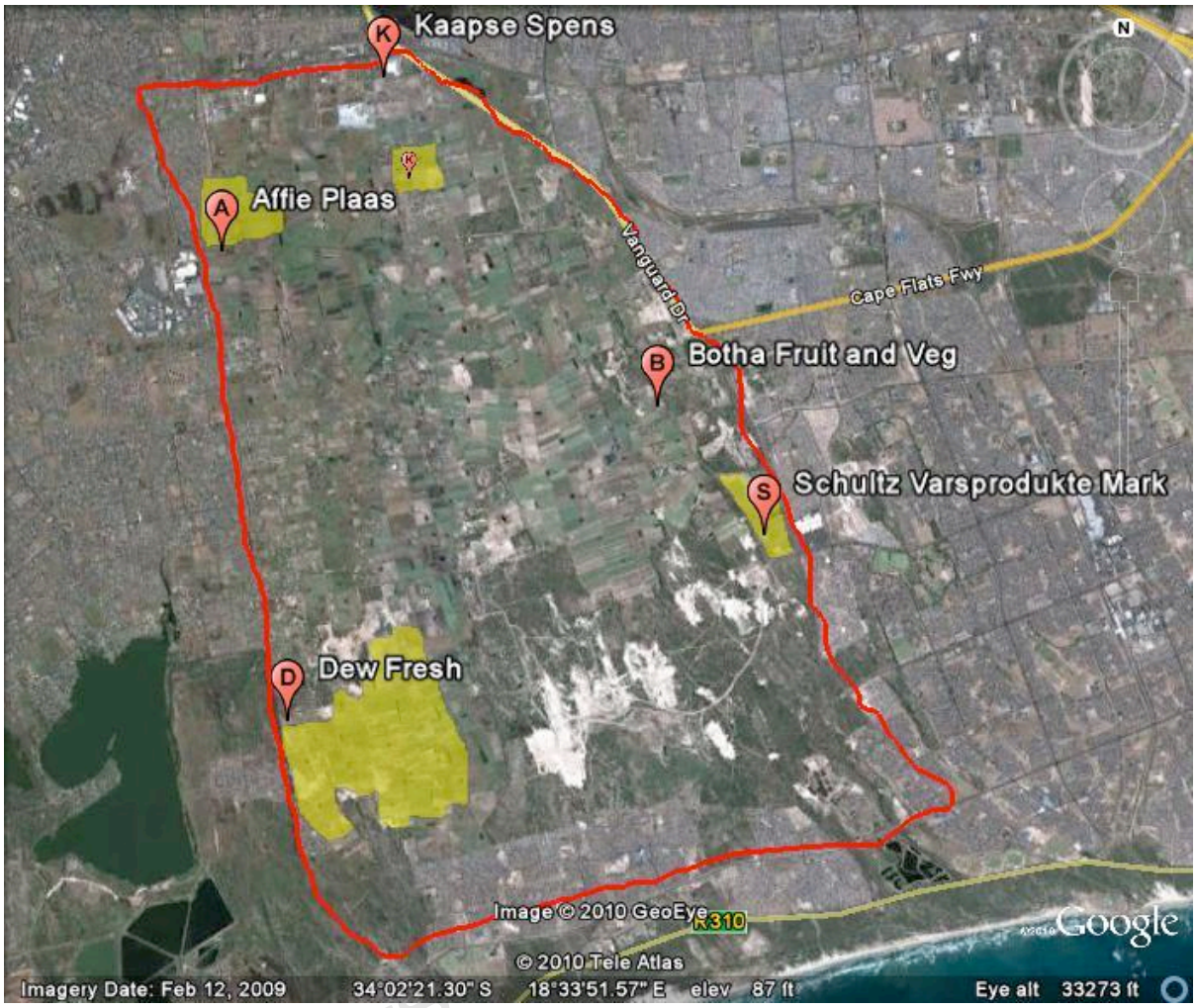

Figure 7: Map of farm stalls and respective farms (shaded in yellow-note shade area does not accurately represent farm size)

5.6.2. Cape Town Market

The Cape Town Market (CTM), originally known as Epping Market is one of the big four fresh produce markets in South Africa. The market was privatized by the City of Cape Town in March 2004 and the new owners in conjunction with all stakeholders, are committed to the transformation of a business that was in decline into something that is vibrant and successful (Finebros, n.d.) The CTM is 37 hectares in size and encompasses of the market itself (trading floor), the administration building, cold storage and ripening unit and trader section. The market takes 12.5% commission on everything sold-the

Cape Town market takes 5% and the other 7.5% goes to the agent. The market is open 24 hrs for a day for deliveries however; market trading hours are from 5 am to 10 am Monday through Friday, 8 am to 10am Saturday and closed on Sundays. The busiest days for trader purchasing at the CTM is on Tuesday and Thursday. The market works on a buyer's card system for small and large businesses. Large businesses order from the agents and the orders are placed onto the buyer's card. Once the orders have been paid the buyer can collected the produce. This is often done so the buyer can order and pay leaving his/her staff collects and transport the produce. Smaller businesses are required to use the card as a debit card by loading money onto the card. This allows smaller businesses to order, receive and pay for the produce until there limit is reached.

5.6.2.1. Agencies of the Cape Town Market

All vegetables sold in the market are through agents. Agents are not permitted to have other businesses or alternate premises because the market has been privatized. Agents do not trade with each other. There are nine agencies on the trading floor: Boere Markagentskap, Boland Markagentskap, Cape Market Agency, Dangrow, Fine Bros, Fox and Brink CC, Rhoda's, Subtropico Spes Bona and Western Province Market Agency. An agency comprises of four sections for the trading of different products 1) fruit section split into sub tropical and tropical, 2) tomatoes section, 3) potatoes, onion, garlic and sweet potatoes section and 4) a vegetables and pocket vegetables. Each section has its own agents thus agents specialise in certain products.

5.6.2.2. Traders of the Cape Town Market

The traders rent the covered lockable stores from the market and are located outside of the trading hall along the perimeter wall near the entrance. CTM traders are not allowed to source stock from outside of the CTM. Their main function is to buy in bulk from the agents on the floor and resell in smaller quantities to the public and other traders. If traders do source directly from farms themselves, they are charged market dues (similar to paying corkage fees at a restaurant). The traders are part of the

establishment by way of holding contracts and location but operate over and above market trading hours. These traders are open all day six days a week, closed Sundays. The CTM traders have signed contracts that state the traders can only trade on the premises and must pay market dues if outsourcing produce. Outsourcing is not viable for the CTM traders because of profit losses.

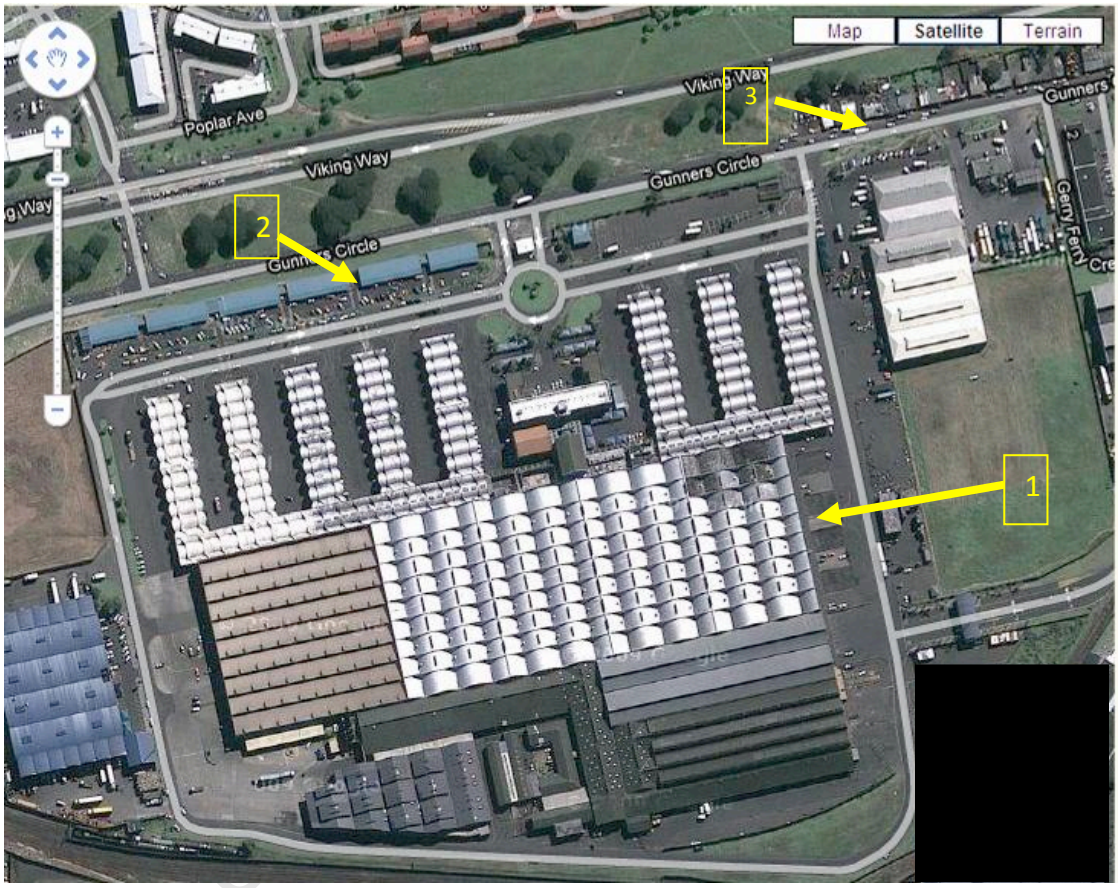

Figure 8: Map of Epping Market 1. CTM trading floor, 2. CTM traders, 3. Informal traders. (http://www.maplandia.com/south-africa/western-cape/goodwood/epping/ accessed on 10 June 2010 accessed on 10 June 2010.)

Figure 9: Cape Town Market trading floor. A and B is a 'loose' fresh vegetable section, C is a truck transporting cauliflower for the same section and D is a bulk fresh vegetable section of another agency.

Figure 10: Cape Town Market Trader aisle

Figure 11: Informal traders located outside the CTM

5.6.3. Philippi, Mitchell's Plain and Lentegeur

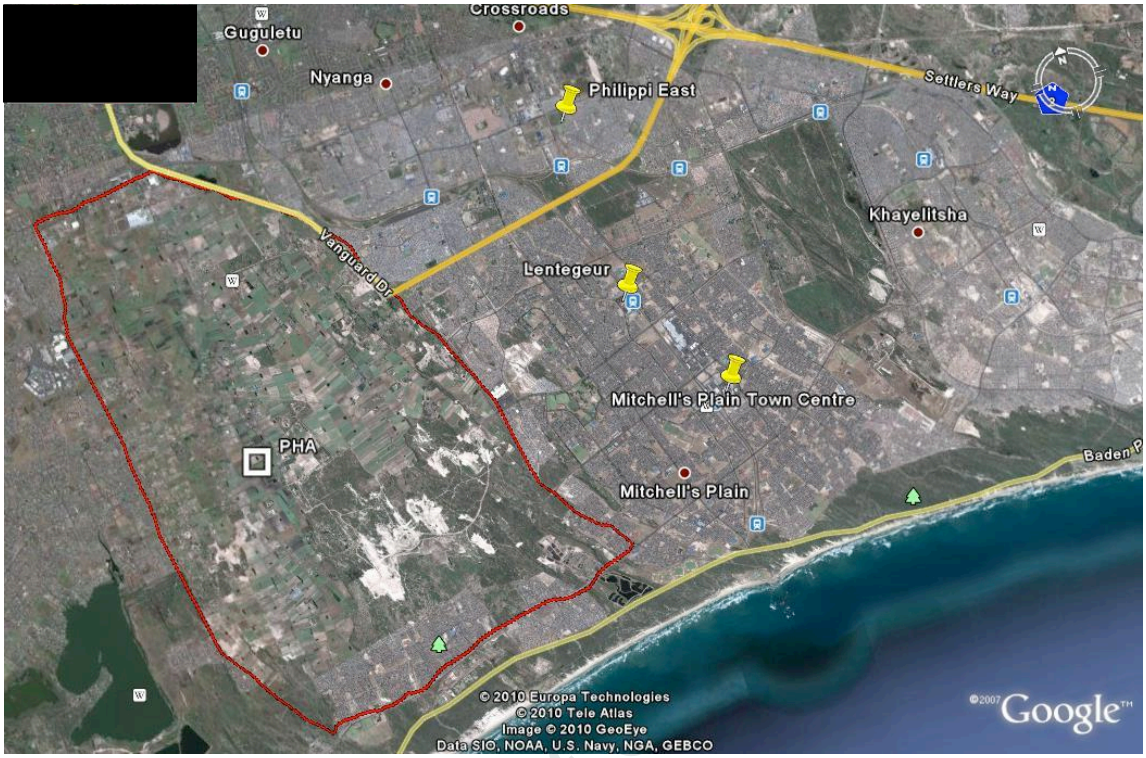

Figure 12: Three informal trader sample sights (Philippi, Mitchell's Plain and Lentegeur)

In addition to sampling traders at their points of purchase, (PHA and CTM) traders were sampled in three areas where they were known to occur. Mitchell's Plain, Lenteguer and Philippi informal settlement, located near to the Philippi Horticultural Area. There sites were selected to contribute to the debate on the potential role of urban agriculture as a source of food for the urban poor. Philippi borders the PHA and Khayelitsha and has a predominantly black population. Mitchell's Plain is predominantly a coloured community. The Mitchell's Plain town centre trading hall used to be a hub for traders. The traders used to be concentrated under the large roof (Fig. 14) but bay allocations spread them around the centre in clearings between stores. The city centre is still a place of trading but a more subdued form. A shopping centre is in close proximity to the train station. The site has a concentration of traders in one place and is in close proximity to the PHA. Lentegeur is another coloured community with similar characteristics to Mitchell's Plain excepting in a smaller centre. Lentegeur traders' trade

opposite the Lentegeur train station outside the Shoprite centre. Lenteguer was initially chosen because a trader requested that he be interviewed at his stand when he had more time to answer the questionnaire and be sheltered from the rain. Lenteguer, Mitchell's Plain and Philippi was questioned to access the localness of produce in the area and gain an equal sample number of coloured and black traders.

Figure 13: Four separate trader stands in Ingulube road, Philippi

Figure 14: Mitchell's plain town centre.

6. RESULTS

The local urban food system in Cape Town has both formal and informal sectors; these sectors interact on numerous levels. The results presented illustrate the vegetables produced in the Philippi Horticultural Area (PHA) and distribution to various formal and informal sectors. The results also illustrate the demand for the PHA produce in these sectors. The circulation, supply and demand of the PHA vegetables is influenced by a number of factors. Packaging and grading of vegetables in each component of the food system, pricing, season, transport and cultural preferences all influence and are influenced by supply and demand, furthermore affecting the production and distribution. The production, distribution (supply), purchasing (demand) and their influential factors will be presented separately. Distribution is presented according to distribution proportion size and link to the informal sector from the greatest distribution proportion to the lowest. In addition, a number of social issues influence how traders' businesses operate and thus affect their demand. The operating of stands, personnel, marketing and loyalty are such issues. The informal trading sector will be presented followed by a summation of the local urban food system in a flow chart that illustrates the complexity of this system. The formal sector represented in the results comprises of four groups: the PHA farmers, PHA farm stalls, the Cape Town Market (CTM) Agencies and the CTM Traders and the informal sector represented purchase from these points: Traders (hawkers) (Table 1).

Table 1: Group results (*pseudonyms)

PHA Farmers	PHA Farm stalls	CTM Agents	CTM Traders	Traders
Meyer	Affie Plaas	Boynes*	Ahmed	1-38
Norton*	Botha's Fruit and Veg	Kamp*	Sing	
Schultz	Dew Fresh		Whenman*	
Terreblanche	Kaapse Spens		Whiting	
Willam	Schultz Varsprudukte Mark			

6.1. Vegetables

Vegetables produced in the Philippi Horticultural Area (PHA) include (*most prevalent):

Baby Marrows*	Celery*	Gem Squash	Patty Pans*	Spring onion
Beetroot	Carrots*	Green beans	Peppers	Turnip
Bringal	Cauliflower*	Lettuces*	Potatoes	Rape
Broccoli	Chilli	Leeks*	Pumpkin	Covo
Butternut	Danya*	Onions	Rocket	Broccoli leaves
Cabbage*	Fennel	Parsley	Spinach*	Mustard Leaves

Farmers have main crop lines, which are vegetables they produce the most of and ultimately ensure they have stock. (Terreblanche has carrots, Schultz has danya and cabbage, Willam has lettuce). The five commercial farmers interviewed collectively farm 375 hectares and produce approximately 1614 tons of vegetables a month. The land farmed is part owned by these farmers and part rented from neighbouring plots.

It is important to note that farming practices measure vegetables differently from the everyday consumer. The average consumer does not measure vegetables per a hectare or the amount planted and harvested in a day. The variation in measurement between different farmers and different vegetables makes the comparison and estimation of production and distribution complicated for those unacquainted with professional jargon. The crop type does not always prescribe the measurement, although consumers measure carrots in bunches or pre-pack bags farmers, agents and traders may measure them in pallets (Fig. 15F) and units (a bag of 10 pre-pack bags). Thus farmers are growing and yielding vegetables by the hectare and selling them by the pallet (A2, B1, D), Bin (A1) or grate (B2) to agents, retailers and bulk traders. The agents, retailers and

bulk traders then divide these large quantities into smaller unit sizes allocating a price to each unit inclusive of any value adding that may have been utilised. Each step in the system varies in the number of vegetables sold per a unit and the price increases as profits are included. Although a bunch of carrots on a pallet might be sold by the farmer at two rand it is bought by the customer at seven rand. For price evaluation to be accurate units sizes were equated.

Figure 15: Visual representation of vegetables, quantities and packaging.

6.2. Distribution (supply)

6.2.1. PHA distribution

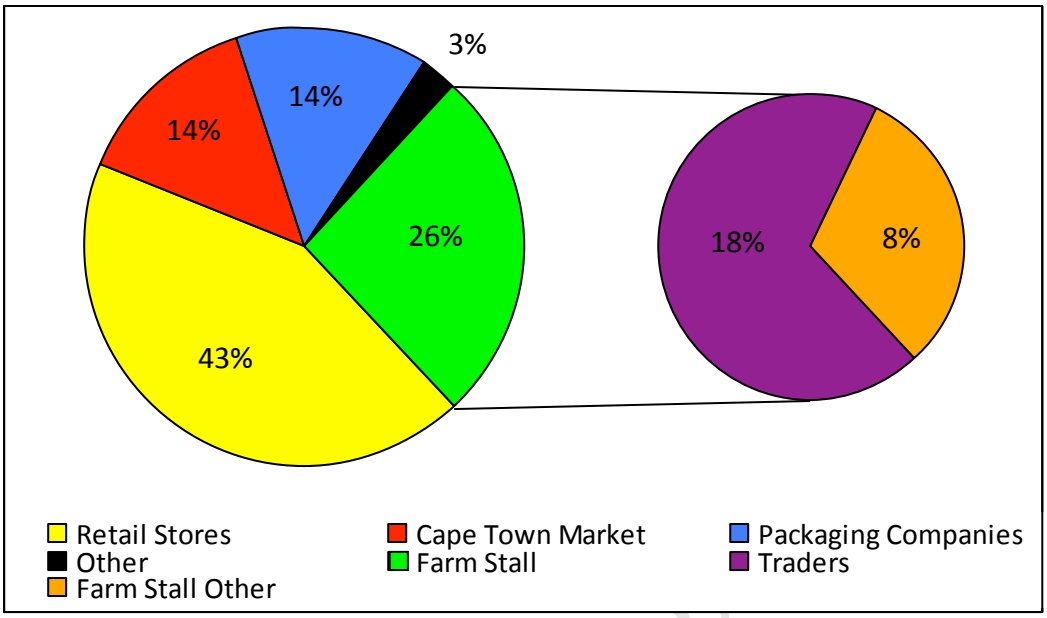

Figure 16: PHA sample groups (farms and farm stalls) declared proportions supplied to customers

The PHA supplies on average 43% of product to large retail stores (Fig. 16) namely Pick 'n Pay, Freshmark (Shoprite), Fruit & Veg and Spar and indirectly supply the same retailers with the inclusion of Woolworths as well as caterers, restaurants, hotels and other food companies such as I&J and King Pie via packaging companies [2]. 'Other' refers to smaller retailers such as green grocers, other wholesalers and traders supplied to via farm gate sales (<1 %). Farm stalls[3] have the second highest supply at (26 %). The Cape Town Market (CTM) receives 14% of the sampled farmers stock. The stock sent to the CTM is often surplus produce. The surplus produce is the extra produce beyond that needed to fulfil their retailers' orders, other farmers' orders and stocking of their farm

[2] Note that it is beyond the scope of this study to trace the vegetables into the formal retail market

[3] The produce sold in farm stalls is farmed directly next door as opposed to produce that is bought in and resold i.e. own farmers point of sale. It also differs from 'farm stall' like Peregrin and Elgin in that they are not attached to a butchery and bakery.

stall. Norton is the only farmer in the sample group that sells directly to traders from the farm. Over the last four to five months, Norton has started to cater specifically for Zimbabwean and Malawian traders as an extra source of income by farming and selling rape, covo, mustard leaves and broccoli leaves. Sale generally occurs to retailers straight from the farm and to the public from the farm stall.

The farmer's priority is to supply those with whom they have contracts or growing programmes. Farmers have contracts with retail stores. When farmers cannot personally fulfil the contract from their own farm they will fill an order, at an additional cost, with stock from surrounding farmers before going to purchase from the market. It is more important to take this additional cost in the short term than losing the contract in the longer term. Those of top priority will get first choice on stock and quality. Norton's farm sends its best produce to Freshmark and Quick Spar. If a product is scarce and the price is high, loyal customers will have preference and the stock available will be divided amongst them.

6.2.2. Farm stalls

Table 2: Stocking of farm stalls from own farm and bought in

Farm stall	**Produce sale %**	
	Own farm	Resale
Kaapse Spens	5	85
Botha's Fruit and Veg	0	100
Schultz Varsprudukte Mark	15	85
Dew Fresh	70	30
Affie Plaas	90	10

There is an average of 6% mark-up between the farm and the farm stall. Dew Fresh and Affie Plaas primarily stock their farm stall with vegetables produced by their respective farms (90% of Dew Fresh and 70% of Affie Plaas stock is from their respective farms) (Table 2). Although farmers provide for their own farm stalls, they are not the sole providers. Schultz Varsprudukte Mark is sent 70% of its respective farms produce to

stock the stall yet this is insufficient and only makes up 15% of what the farm stall sells meaning that a further 85% in bought in and resold. Kaapse Spens has 95 % resale and Botha's Fruit and Veg is 100% resale - this is the only farm stall not owned by a PHA farmer. This is likely due to the fact that Botha's Fruit and Veg (Fig. 17) is only one component of the business, the main business is in poultry despite the fact that employees spend their time evenly between the two (80% of the business is poultry and 20% fruit and vegetables). Farm stalls acquire their stock from a number of sources and sell on to a number of sources. Farm stalls sell to traders (Fig. 16) and some contribute significantly to farm stall sales (Table 3).

Figure 17: Signs for Farm stall B fruit, vegetable and chicken sale

Table 3: Percentage of farm stall sales to traders

Farm stall	% sales to traders
Kaapse Spens	60
Botha's Fruit and Veg	100
Schultz Varsprudukte Mark	50
Dew Fresh	30
Affie Plaas	10

6.2.3. CTM distribution

CTM as a whole received **5961 tons** of vegetables from the PHA between January – June 2010 (993.5tons/month). The PHA farmers supply agencies[4] in the CTM depending on the farmer's preference and agency orders. As an example of the connection between the farms and the CTM, Schults supplies: Boere Markagentskap (BoereMark), Subtropico Spes Bona, Fine Bros and Rhoda's (four of nine). The two agents spoken to from two of the CTM Agencies wish to remain anonymous for confidentiality reasons and will

[4] An Agency is a commission based consignment business located in the Cape Town Market premises.

henceforth are referred to as Boynes and Kamp. Boynes sources a large portion of his of loose vegetable section sales (specifically lettuce, cauliflower, cabbage, carrots and spinach) from the PHA (70%) and small portion is sourced from Kraaifontein, Kuils River, Ceres, Malmesbury, Ottery and other farms in the Western Cape (30%). Boynes supplies other farmers and farm stall owners in the PHA, agents for Pick 'n Pay, Shoprite and Spar, directly to Fruit and Veg, grocers, traders and Golden Harvest at the Philippi Fresh Produce Market (PFPM). Kamp supplies 60% of his sales to Pick 'n Pay and Fruit & Veg, 15% to traders and approximately 25% stays on the trading floor. Traders[5] comprise of 45% of sales at the CTM (Matthews, 2010). The fresh produce market is a fast moving market. Some fruit and vegetables never reach the trading floor and are sold before they reach the market thus the market acts as merely a collection point. The fruit and vegetables not sold during the day remain on the trading floor, stored separately in the cold storage facilities, sent back to the farmer or declared condemned.

6.2.4. Traders

Traders do not only sell to the public but also to each other. There are various levels of traders and trader-to-trader sales. It should be noted that there is a distinction between 'traders' and 'CTM traders'. The CTM traders buy in bulk (pallet, crates and bins) and resell in smaller quantities. Although the CTM traders sell in smaller quantities than bought, they are still selling in bulk. I.e. they sell in bags, boxes and units, one unit being 10 individual heads/ bunch (Fig 15). 32% of the sampled traders (12 of the 38 traders) sell to other traders. Trader 2 sells to other traders when he has bought excess and said there are a few traders but they buy and sell small quantities (traders purchase what they need but if sales are slow for the day they have bought in excess for that day). Trader 34 goes buying for other traders but in very small quantities a packet of carrots and box of avocados for example. Trader 36 mainly sells to those that have house shops and those without transport (T8, T31). Trader 33 said she sells to pirate traders, which she says are smaller traders selling in illegal locations. Those traders that sell in bulk do

[5] Traders are contracted hawkers with the CTM and operate stands located within the CTM premises

not only sell to the public and neighbouring traders but also small businesses shop owners, fisheries, tuck shops and even the Ocean Basket (T33).

6.3. Distribution (Demand)

Buyers buy for a specific purpose. Depending the buyers' capacity, facilities and what the end user requires will determine what they purchase.

"Unlike you and I, we go into the shop and buy an avo [avocado] but the trader will go onto the market and look for fruit and vegetables according to quantity, quality, size and price. A trader will know that he's looking for Capitan avo's [avocados] that were ripened with Frueta. So he'll source Capitan frueta avos [avocados]. The trader might be asked to source potatoes but because it's for a curry shop he'll source soft potatoes that cook faster. Traders will source avos [avocados] that ripen slower and go black slower cause they have to travel with the fruit and vegetables for a period of time before selling it." (Matthews, 2010)

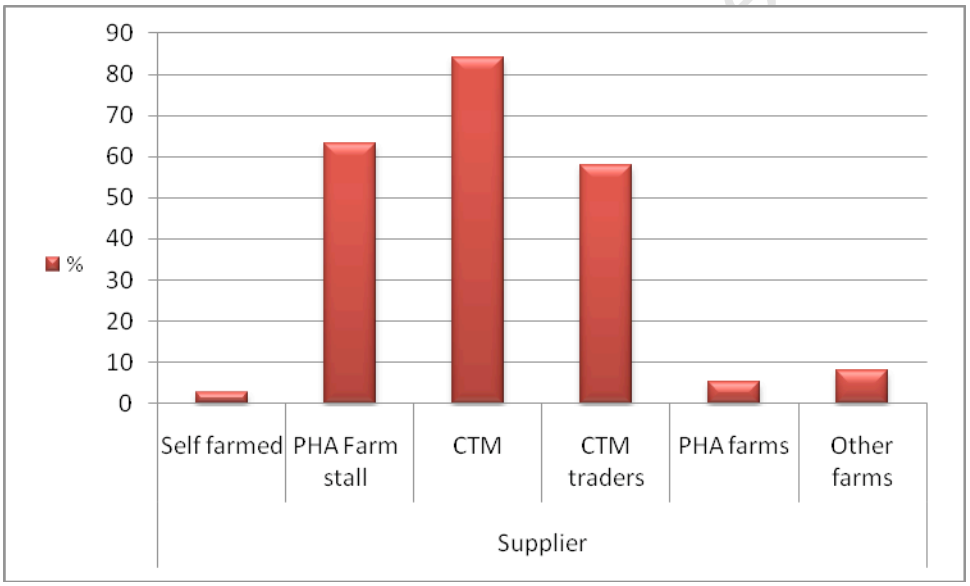

Figure 18: Proportion of sampled traders that purchased from various suppliers

The Cape Town Market (CTM) is considered the most important supplier of vegetables by traders with 32 of the 38 sampled traders purchasing from the market and 22 of the 38 sampled traders purchasing from the traders inside the CTM. This is a logical finding since the traders sampled were purchasing from the CTM however only 12 were sampled here, 13 were sample purchasing from the Farm stalls and 13 at their place of

business. Throughout the interviews, there was little distinction between purchasing from agents and traders and tended to group CTM as a whole. Supplier choice is based on their purchasing power (if they can afford to buy in bulk), preference and ability to transport and access a buyer's card. Smaller traders tend to buy from the CTM traders in smaller quantities and those that purchase from both is because "sometimes the CTM traders are cheaper than the market itself" (T5). Few traders said that stock is cheaper because the CTM Traders receive discounts from the CTM, however, whether it is because the CTM is shifting excess stock or that the CTM sell in smaller quantise is uncertain. The type of produce required also affects the choice of supplier; many traders said they source vegetables from the CTM and fruit from the CTM traders. Only 3 of the 38 traders interviewed solely sourced from the PHA, one commenting that the CTM is "too far" due to the cost of petrol (T21). Of the 38 interviewed only one answered yes to whether they grow the food they sell. Her husband grows the chillies and green peppers near Mfuleni (T13) but the bulk produce is bought from the CTM. A few mentioned that they would like to start growing their own. However, this trader would be considered a survivalist trader and spends the majority of his time trading what little stock he has and although growing his own vegetables is possible, he would need to grow a sufficient amount to sell which would require a significant portion of land and time investment. Traders also source vegetables from farms within the PHA (i.e. not at the sampled farm stalls); elsewhere in the Western Cape (Ceres, Franshoek, Villiersdorp, Citrusdal, Kraaifontein, Witsand, Paarl and Stellenbosch); other private markets (in Epping 1 near the CTM) and whole sale stores (Makro).

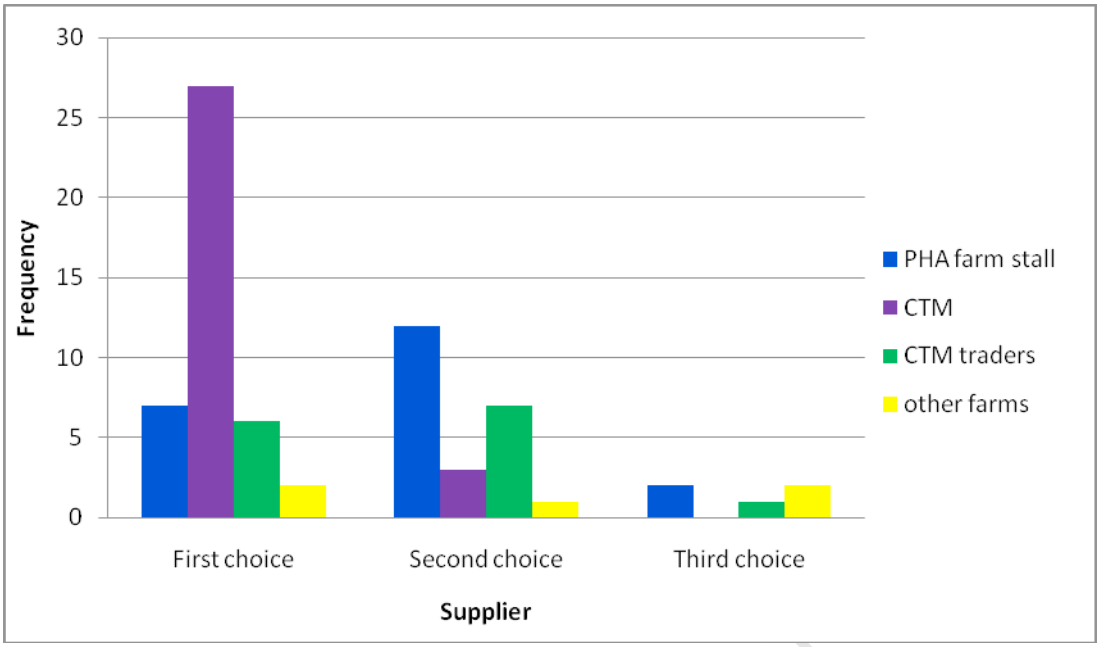

Figure 19: Traders view on supplier priority

The market was often viewed as superior to the farm stalls (Fig. 19) because the "farm stalls don't have enough" (T26). The market provides most products in mass throughout the year while farm stalls supply limited fruit and only provide potatoes and tomatoes in season. Although the majority of traders interviewed felt CTM was the most important, 63% of those traders sourced supplies from the PHA farm stalls. The farm stalls were said to have good quality of specific vegetables that the trader required. Cabbage, spinach, carrots, cauliflower, celery, leeks and soup mix were the primary items bought from farm stalls.

Table 4: Comparison of vegetables present in each known stage in this local food system (1- present, 0-absent)

Vegetables produced and sold	PHA	PHA Farm stall	CTM	CTM Traders	Traders
Baby marrows	1	1	1	0	0
Beetroot	1	1	1	1	1
Bringal	1	0	1	0	1
Broccoli	1	1	1	0	1
Broccoli leaves	1	0	0	0	1
Butternut	1	1	1	1	1
Cabbage	1	1	1	1	1
Carrots	1	1	1	1	1
Cauliflower	1	1	1	1	1
Celery soup	1	1	1	0	1
Chilli	1	1	1	1	1
Covo	1	0	0	0	1
Cucumber	1	1	1	1	1
Danja	1	1	1	0	1
Fennel	1	0	1	0	0
Garlic	0	1	0	0	1
Gem Squash	1	1	1	1	1
Green beans	1	1	1	1	1
Green peppers	1	1	1	1	1
Hubbard Squash	0	1	1	0	1
Leeks	1	1	1	0	1
Lettuces	1	1	1	0	1
Mustard (curly and broad leaf)	1	0	0	0	1
Onions	1	1	0	1	1
Parsley	1	1	1	0	1
Patty Pans	1	1	1	0	0
Peas	0	0	1	0	1
Potatoes	1	1	1	1	1
Pumpkin	1	1	1	1	1
Radish	0	0	1	0	1
Rape	1	0	0	0	1
Rocket	1	0	0	0	0
Spinach	1	1	1	1	1
Spring onion	1	0	1	0	1
Sweet corn	1	1	1	0	1
Sweet potatoes	0	0	0	1	1
Tomatoes	0	1	1	1	1
Turnip	1	1	1	0	1
Other	0	0	0	1	0
Total range of vegetables/sector	32	27	30	17	34

The PHA produces the majority of vegetables present in the system. Of the 39 vegetables identified in the system, 32 are produced in the PHA. There are few

vegetables that the PHA produces that are not filtered down to the traders (Baby marrows, fennel, patty pans and rocket). The lack of filtering maybe due to cultural preferences and will be presented later. Likewise, there are vegetables that traders sell that are not produced in the PHA (garlic, Hubbard squash, radish, peas, sweet potatoes and tomatoes) (table 4). These traders are then not sourcing those vegetables from the PHA farms and may source it elsewhere. However, the PHA farm stalls buy in these vegetables and sell them at the farm stalls, thus traders could potentially access vegetables not produced in the PHA through the farm stalls in the PHA.

Table 5: Top 5 vegetables demanded by traders according to each component

Vegetable	PHA Farm stall	CTM	CTM Agents	CTM Traders	Traders
Butternut			√		
Cabbage	√	√	√	√	√
Carrots	√		√	√	
Cauliflower	√	√	√		
Lettuce	√		√		
Onions		√		√	√
Potatoes		√		√	√
Spinach	√				√
Tomatoes		√		√	√

After consultation with farm stall owners and traders they noted that there is a difference in vegetable consumpsion between black and coloured communities and is presented later under cultural preferences

6.4. Indirect Distribution: Donations and Theft

6.4.1. Donation

6.4.1.1. PHA farms and farm stalls

Donation of vegetables occurs at every component questioned in this food system. The PHA area donates large quantities of vegetables to charities, workers and the public. Donations are given to the Salvation Army, soup kitchens, school projects, orphanages, old age homes, homes for the disabled, churches, church bazaars and those individuals that ask for food. Donated vegetables are normally damaged vegetables or pieces of vegetables that would normally be discarded or vegetables that do not meet the acquired standards of retail stores in terms of size and shape. Farmer F is the largest farmer and donates the most. He donates to at least one charity every week. During the period between October and December he donates 20 -50 individual units of each vegetable type to 80 organisations amounting to R300 000-400 000 in donations a year.

Farmers plough vegetables waste and vegetables unsuitable for harvest back into the soil. After the harvesting of vegetables the unsuitable ones remain behind in the ground, farmers were unable to give an estimate of how much this is. Farmers do not allow 'farm runs' which refers to the harvesting of these remaining vegetables for personal use because the farmers use the harvested vegetables to fertilise the soil and if these were unsuitable for harvesting they would be unsuitable to sell and consume. In observations staff would harvest vegetables unsuitable for the farmer to sell if they considered them edible. Thus the vegetables remaining really are unsuitable to sell and consume.

6.4.1.2. CTM

Produce that is left over by the end of daily sales is inspected and produce with decaying components are declared condemned and sorted. From the market as a whole over the three-month period April to June an average of **216 tons** of vegetables was declared condemned. . Much of this produce is still edible but would not have a long enough

shelf life by the time it reached the stores. . The edible food is given to a social responsibility programme: 'Food on the Table' a community based organisation that feeds **45 000 mouths** a month. The inedible food that is considered waste is left to decay and is disposed as general waste in the garbage. The market is currently looking into a composting plan for its waste. Donations are also made to community churches and schools on a monthly basis.

6.4.1.3. Traders

All traders donate food in one manner or another. Many traders that came from disadvantaged backgrounds relied heavily on their religion to get them through the dire times. The majority of the traders felt compassion and compelled to help others showing a sense of community:

"When starts to get rotten must give to poor, not throw in bin or decrease price, I was also born in a banana box" (T35).

"Don't know where your going, people call it rotten cause its bruised, know where they come from and wont give somebody something I wont eat myself- I'll scrub it clean just takes effort and common sense. Believe in god so must help" (T36).

"Giving is part of our culture" (T.B)

When the vegetables become soft they are sold cheaper or given as incentives to those that buy frequently as 'bonsella' (meaning free). Trader 38 says that vegetables do not have a chance to get rotten as they are donated before they do. Traders donated to their workers, the poor, children, customers, soup kitchens, churches, the disabled, pensioners, schools (crèche), neighbours, NGO's and various volunteer organisations. A few traders even buy extra low-grade vegetables each week for the sole purpose of

donating. Rotten vegetables are discarded as waste, used as animal feed or cleaned by the traders and donated. Only 9 of the 38 discard rotten vegetables as waste and only 2 of the 38 use it to feed their live stock.

6.4.1.4. Personnel

Farm labourers are given vegetables. Farmers generally give employees enough vegetables for personal consumption. If more was given they feel their employees would either sell it or swap it in exchange for alcohol. Staff are entitled to first priority on damaged stock. An example of enough for personal consumption would be one cabbage, one cauliflower, two bunches of beetroot and two bunches of carrots a week. When farmers were asked if their employees sold these vegetables their response was that because they work with vegetables they do not feel like eating it as well and may sell it. The CTM and Agents do not supply their staff with food because it does not belong to them. Traders state that their workers are free to take for themselves.

The 472ha mini city development will create 230 permanent jobs plus 3000 temporary jobs in its construction. The six farmers interviewed employ 522 permanent and 120 casual staff between the farms (375ha), farm stalls and packing sheds. Of the 642 employees 80 % are female, 20% male, two thirds black and one third coloured. Permanent employees (most of who are coloured) reside on the farm. Summer requires a greater number of farm labourers-up to double that required in winter. Packing plants have a fixed number of employees throughout the year. The CTM employ 75 permanent staff, 120 agents and these agents further employ approximately 1000 people. There are 58 traders on the Cape Town Market premises. Between the four sampled CTM traders, they employ nine males and one female full time as well as the occasionally temporary worker.

6.4.2. Theft

6.4.2.1. Farmers

Farmers tend not to farm what people steal and do not farm it near the periphery of the farm. Meyer does not plant cabbage, cauliflower or potatoes anymore. As they are high priority to steal, he plants baby marrows and patty pans, as there is little demand for these on the informal market. Still this is not the sole reason for the shift. Meyer mentions that they are in high demand by retailers thus it is possible that the rationale for the shift is profit based. The greatest cost due to theft is not that of vegetables but rather the theft of fixed infrastructure. Copper parts of sprinklers, water meters, metal sprinkler uprights and pump house computer cables are examples of fixed infrastructure stolen or broken on the farms. All of which come at a high cost to fix and replace. Theft also occurs at the farm stalls. Buyers are said to bribe the loaders of vegetables to load extra vegetables onto the cart and into their cars. The stolen vegetables translate into pure profit for traders.

6.4.2.2. CTM

Theft does occur at the CTM but has reduced since the placement of cameras and implementation of the payment system. Theft that does occur is infrequent, varies in vegetables type and quantities stolen. This inconsistency in supply would not be enough for a trader to sustain a vegetable selling business. Traders at the CTM said that theft does occur by buyers taking produce and saying they have paid for it but there is no proof to say otherwise. They were unable to quantify or even estimate theft, which demonstrates that theft is not considered to be a large problem within the CTM

6.4.2.3. Traders

20% of the traders interviewed experience theft. Most were nonchalant about theft and did not see it as a problem. One trader (T6) said that no one steals from him because he knows most of the people in his area. Traders said those that stole were mainly children stealing fruit (T7). Another said that the people that watch over his stock sometime take

or do not notice others taking while they are sleeping. A trader located outside the shopping centre in Lenteguer said that he has “security 24 hours, don’t allow theft if they do steal we [the neighbouring traders] shout and it carries and the other traders around catch them… beside gives a lot away so there’s no need to steal” (T36). Only one trader said that those that steal from him steal to sell (T20).

6.5. Location

Produce appears to only be sourced within the Western Cape, as far as farmers and traders are concerned. Yet the CTM itself accommodates over 4000 farmers across South Africa (SA) increasing sources far beyond local supply. Farmers and traders predominantly distribute produce locally in Cape Town. Produce was found to travel out of Cape Town as far as Franshoek, Gansbaai, Hermanus, Kakamas and George with the furthest being Upington and Namibia (Table 6).

There are a large unknown number of locations distributed to. Farmers, Farm stalls and the CTM distributed to packaging plants and retailers. Retailers have distribution where their various chain stores place orders and are distributed, depending on the chain store will determine how many distribution centres it has in the country. If there is only one distribution centre in South Africa it is highly likely that produce is bought in one city, accounted for in another and sent back to the city of purchase. Packaging plants have their own distribution too, they also supply retailers and because packaged goods last longer they potentially travel further (Table 6).

Table 6: Distribution locations (refer to Appendix C for mapped locations)**Supplier locations other than the PHA (Supply)**	
	Ceres, Citrusdal, Franshoek, Joostenberg Vlakte, Kraaifontein, Kuils River, Lambertsbaai. Malmesbury. Mfuleni, Ottery, Paarl, Sandveld, Stellenbosch. Uitrivier, Villiersdorp and Witsand.
PHA, CTM and CTM distribution locations (Demand)	
Within Cape Town	Athlone (Belgravia Road), Atlantis Barcelona (CT), Bellville, Cape Town CBD, Capricorn, Delft, Crossroads, Epping 2, Goal Mall, Grassy Park, Heathfield, Khayelitsha (Nonkqubela station, Harare and a mobile stand), Heinz Park, Lentegeur, Mfuleni (Old Faure Road), Milnerton, Mitchell's Plain, Muizenberg, Noordhoek, Philippi East, Philippi west (Lower Crossroads), Philippi Fresh Produce Market, Philippi (Oliver Tambo), Philippi, Pelikan Park, Ocean View, Strand, Strandfontien Road, Zeekoei Vlei, retail stores distribution centre and Kakamas (in the Northern Cape).
Outside Cape Town	Ceres, Darling, Franschhoek, Gansbaai, George, Hermanus, Namibia (Swakopmund and Okaanga), Upington and Stellenbosch.

6.6. Price Determination

6.6.1. Pricing

The market price is dependent on supply and demand: what is available, quality and quantity available and how much is in demand i.e. the lower the availability the higher the asking price and the profits. The Cape Town Market is the place of price determination in that it provides a way of establishing prices by-way of the trading system. Upon which trading, both through the market and outside the market system, can be based. Ultimately the CTM agents determine prices. The agents must negotiate between the farmer's asking price and the buyers offering price accommodating both where possible.

According to Ms Schultz of Schultz Varsprodukte Mark "farming is not a lucrative business". The price of vegetables should be determined by farmers to ensure they cover their cost of production and continue farming. However, the farmer does not determine price. But rather price is determined by supply and demand and what retailers are willing to offer. Farmers aim to get the highest price possible for the produce and the buyer aim to get the best value for the lowest price possible. Because the fresh produce involves perishables, farmers often accept 'take it or leave it' price offers made by retailers merely to move stock. Retailers' offers are low because they still need to sell the produce to the consumer at an affordable price while still turning a profit. Having said this there are exceptions. Market prices do not influence all farmers produce price. There are farmers that determine their own prices based on production and packaging when selling to private companies on a contract basis. All farmers interviewed sell to both the CTM and private contracts.

6.6.2. Price evaluation

Evaluation of price is done by word of mouth, browsing and comparing prices. The CTM Traders employ people to vocally advertise their produce as cheap. Those that only buy from farm stalls visit the immediate neighbouring farm stall for price evaluation. Traders

that buy from *both* the CTM and farm stalls go to the CTM first because they believe the farm stalls price their produce according to market price. They buy the majority of their produce in large quantities at the CTM and then go to the farm stalls for the missing components. A number of traders said their purchase was not influenced by price but rather on quality, availability and freshness. Nevertheless, traders recognise that the price of produce is dependent on quality (see Appendix B for average vegetable price at each stage).

6.6.3. Expenditure

6.6.3.1. Traders

Traders aim to source the highest quality they can find for the cheapest price possible. The quantity traders buy is dependent on the size, capital investment and growth of the business. Larger traders buy in bulk and receive discounts so can sell for less. Smaller traders have to recover money before they are able to buy more. "There are two types of traders, one struggling and trying to survive and the other has capacity, the real guy, running a real business" … "small businesses you buy 10 someone else buys 1000- depends on capital" (T5).

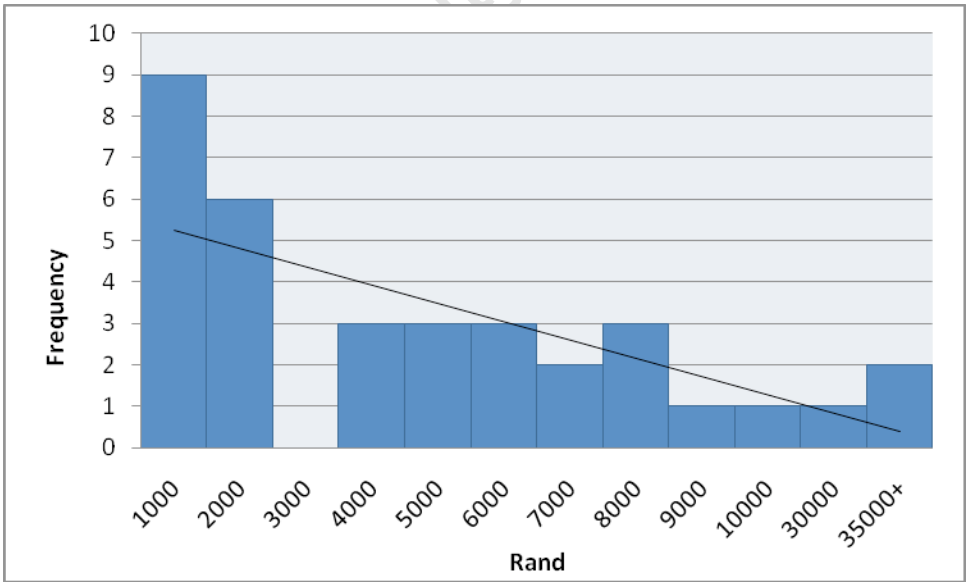

Figure 20: Average expenditure by traders per a week (Median 3500, Mode 1000, Minimum 300, and Maximum 45000)

6.6.3.2. The CTM Traders

The CTM Traders spend a considerable amount on purchasing vegetables a week (Table 7). Trader D is the newest and smallest of all the traders in the CTM, Trader A has the largest store and spends the most of the CTM traders interviewed.

Table 7: CTM Trader purchasing per week

CTM Trader	Rand
A	50 000-60 000
B	+ 22 000
C	40 000
D	2000

The amount the CTM trader A, B and C spend a week is considerably higher than that of CTM trader D and other traders whose average expenditure is R1500 a week (Fig. 20). One would assume that there would be a correlation between the number of stands a trader owned and his/her weekly expenditure, however no such correlation was found. The only explanation to a traders expenditure is whether they buy and sell in bulk. The minimum weekly expenditure of R300 was by foreign traders who sell vegetables indigenous to other African countries (rape, covo, mustard and broccoli leaves). Although these traders have a niche market their customer base it not very broad and these traders more than likely rely on an additional livelihood strategy. Any trader investing R4000 a week and above are considered bulk traders. The largest trader with the maximum expenditure of R45000 is a trader that acts as an unregistered wholesaler because this trader sells onto grocers, other traders and fish and chips shops (Fig. 20).

6.6.3.3. Vegetable pricing

The difference in pricing between various stages is presented in the tables below for the nine vegetables identified as the most important to the informal sector (table 5, table

8). Each stage has different prices based on quantity and quality sold. Traders buy in bulk and sell in smaller quantities which makes a comparison in pricing is difficult.

Comparing the prices of vegetables in each sector can offer some insight to the possible movement of vegetables based on what the farmers, farm stall and CTM are selling for and what price the traders are buying at. This method of tracing the system is not a conclusive one as prices fluctuated during the study and it is assumed that price is the sole determinant of vegetable flow through the system. However, other factors need to be considered such as convenience, time and cost to travel into the PHA. Availability, quality, competition and season presented later.

It is easier to compare produce that is sold as individual heads and bunches (cauliflower, lettuce, spinach, cabbage and carrots). The results suggest that cabbage is predominantly bought from the farm stalls because the price traders pay is closer to that of what the farm stalls sell for compared to what the CTM sells for. Table 8 illustrates that lettuce is most likely purchased from the CTM, because it has already been establish that traders do not buy straight off the farm. It is difficult to presume where traders purchase the cauliflower they sell because the prices between sectors do not match because of price fluctuations during the study. There was a shortage of cauliflower and the price was high. Spinach could have been bought from both the CTM and farm stalls and is the most profitable of the four vegetables if purchased here. Less so if bought from traders. Carrots are sold in three forms, bunches, pre-packs and bulk bags. Bulk bags are low-grade carrots based on appearance and firmness; these are bought for donation purposes (soup kitchens) and not for resale. Pre-packed carrots appeared to be the most popular choice because they are said to last longer and could be purchased from any sector.

Butternut, onions, potatoes and tomatoes are more difficult to presume point of purchase by traders because traders sell these vegetables in smaller quantities than

they purchase. Butternut is bought in a 10Kg bag and sold individually according to size; small sized butternuts are grouped and sold per packet. Similarly, with potatoes, tomatoes and onions are sold individually or repackaged into smaller quantities. The average price for a packet of potatoes, tomatoes or onions would be R5 for three to five individuals per a packet. Onions and potatoes are sold in a range of packet sizes in increments of R5 (R10, R15 and R20 packets). Onions and potatoes are the only vegetables bought and resold in bulk amongst traders. The purchase of tomatoes, onions and potatoes is predominantly from the CTM. The CTM traders primarily trade in bulk.

Table 8: Average price of the nine most demanded vegetables by traders sold from each location

Vegetables	Rand					
	PHA	PHA Farm stall	CTM	CTM Trader	Traders (ave. cost price)	Traders (ave. selling price)
Butternut 10kg Bag	18.80	20.00	18.00	20.00	28.37	
Butternut s						3.68
Butternut m						5.43
Butternut l size/pkt of small						9.33
Cabbage	4.46	5.40	5.00	6.00	5.53	7.03
Carrots bunch	2.37	2.60	4.00		4.97	6
Carrots pre-pack	1.65	3.50	4.50	4.75	4.56	6.05
Carrots Bulk bag					15.00	
Cauliflower	4.34	5.67	5.50	8.00	4.72	5.04
Lettuces (crisp)	2.92	4.67	2.50			4.55
Lettuces (fancy)	6.58	7.00				
onions 10kg (1st grade)	25.00	35.00	30	33.50	30.46	34.00
onions 10kg (2nd grade)		28.00				
onions (s)	26.32	33.00				
onions (m)	31.02	34.00				
onions (l)	31.96					
Onions individual						1.00
Onions m						4.73
Onions l						11.00
Potatoes 10kg	32.10	39.00	28.73	38.50	36.00	40.90
Potatoes 10kg (1st grade)			60.00			
Potatoes 7kg	18.00					
Potatoes s						4.90
Potatoes m						10.57
Potatoes l (+/- 20 individuals)						17.57
Spinach	2.41	2.83	2.75	4.00	3.02	4.98
Tomatoes Box 10kg				52.50	53.08	
Tomatoes Box 5kg		25.00		32.50	25.00	30.00
Tomatoes individual						4.55
Tomatoes packet						4.28

6.7. Factors that affect Distribution (supply and demand) and Price: Grading and Packaging, Season, Transport, Cultural preference and time of week/year.

6.7.1. Grading

To those that work with vegetables the grade is determined by 'eye'. The product should be clean, of an appropriate size, should not have any cracks and when working with cauliflower it should be white, cabbages should be insect free, have no bite marks, and be between two to four kilograms in weight. Carrots must have no fungus as this causes them to go soft. The size of a cabbage will determine to whom it is sold. Traders require large cabbages (four kilograms) however not all cabbages grow to be this desired size thus the smaller cabbages are sent to retail stores for the 'housewife'(Farmer E). Presentation of vegetables is also important since the better-presented vegetables will be trusted more. Shoprite requires first grade vegetables kept at a specific temperature when accepted. If not the product is returned. Potatoes and tomatoes are the only produce inspected and formally graded in the CTM. Potatoes are graded by Procrop and Grade 1 is the highest grade vegetable. A number of traders indicate the importance of quality. Interestingly, although vegetables can be graded there are no inspectors for other vegetables in the market and Agent A said, "If you're in the business, your product is the best". Meaning that you can assign a grade to a product but when you are selling, you need to believe your product is the best and sell it as such. When asked what grade Agent B sold he said he only sold first grade.

6.7.2. Packaging

Although the majority of farmers have their own packing plant, they do distribute supply to other packaging plants. These packing stores make their money through value adding. There are two different types of packaging: low-risk and high-risk. Low-risk packaging involves washing, cleaning, weighing, dating and packaging. High-risk packaging includes the steps in low risk with the added preparation of slicing, dicing and chopping of vegetables. Packaging is normally in 400-gram packets and packets are

packed into punnets and sold as prepack punnets (Fig. 15 A3, E). Of the five farms, three partake in low risk packaging, one in high risk and one only washes. Some retailers have their own packing house for quality control and private labelling purposes. The farms pack house may use both the retailers and the companies label in the same packing plant. Packaging plants are expensive to set up because of the strict quality measures that need to be met and approved. The price retailers sell vegetables for infuriates farmers because although pre-packing is value adding it also adds to the price turning a bunch of carrots sold at R2 to a 400 gram packet sold at plus R4 (Norton*, 2010). Farmers are prevented from charging more for their produce for fear that the consumer would not be able to purchase it.

No packaging or value adding occurs in the CTM. The farmers send the stock to the CTM and it is sold 'as is'. Initial packaging is done on the farm and from the market; packaging is the buyers' responsibility. Since produce is sold in bulk, the produce does not need to be repacked.

Traders buy vegetables in bulk and resell them loose or repackage them into smaller quantities for customers. Plastic packets can be purchased at R20 and mesh bags that can be cut and tied into bags of varying sizes at R40 (T17) (Fig. 21). Tomatoes, potatoes and onions are re-packed into a variety of sizes small, medium and large.

Figure 21: Repackaging a pocket of potatoes into mesh bags

6.7.2. Season

For farmers there is no preferable season. Vegetable farmers plant different vegetables in different seasons and this effects supply and demand. Winter vegetables are

described as soup mix: celery, leek, turnip, and parsley and are packed as such. Summer vegetables are baby marrow, cabbage, chilli, bringal, fennel, green pepper, patty pan and sweet corn. Vegetables available year round are carrot, danya, spinach and spring onion. Winter months are slower for business at the CTM. Contrary to CTM as a whole, the agents feel that although seasons affect availability of products there is always produce to sell and that the worst time for business is December when many of the traders go home.

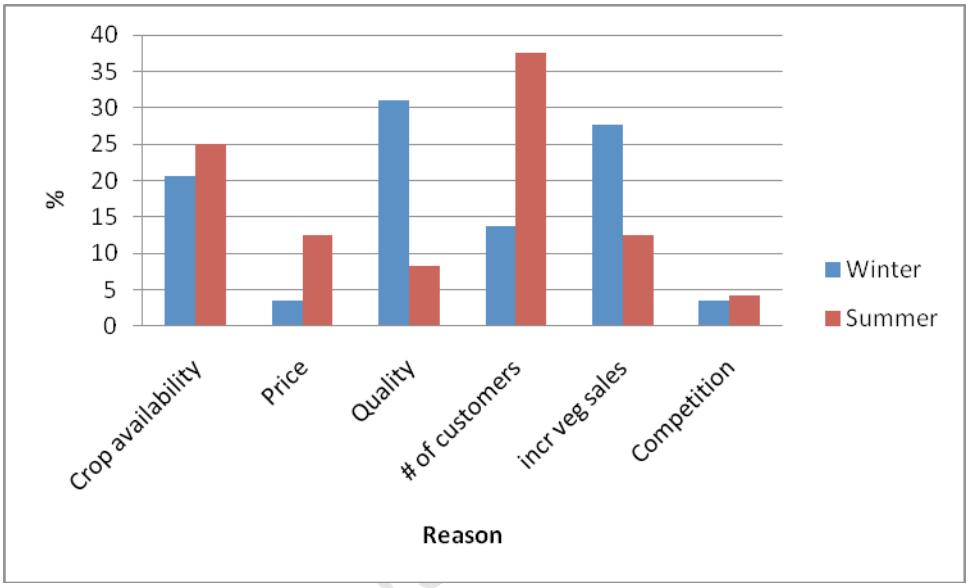

Figure 22: Season preference according to factor influencing trader business

Traders where asked in which season vegetable sales where better and for what reason. Vegetables were found to sell better in winter (to make soup) and fruit sells better in summer (crop availability Fig. 22). In winter the majority of traders experience an increase in sales of vegetables to customers that buy more in larger quantities more frequently (Veg sales, # of customers, Fig. 22). Because traders do not have formal storage facilities seasons influence the quality of produce (Quality, Fig. 22). In summer, more is available but the produce spoils quickly in the hot sun and winter allows it to keep longer, it is cooler and spoils slower with more time to sell it. Customers may have similar storage issues, thus they buy in smaller quantities more frequently. Carrots can

be found sold as both bunches and pre-packs. The selling of pre-packs can be attributed to the fact that they last longer and sell faster. Trader 36 buys apples when they are half green because he gets a better price when the apples are green and prefers dealing with stuff that keeps and believes he should "let Shoprite do that stuff that needs to be refrigerated" (T36). Although apples are fruit the same principles apply.

Cape Town's rainy winters affect the number of customers because people tend to stay indoors whereas in summer people are 'out and about' (# of customers, Fig. 22). Traders without water proof structures are unable to trade in the rain because they themselves, their stock and customers have no shelter. Competition is higher in winter, to attract customers traders offer the best price and where possible produce that is not readily available (competition, Fig. 22). Different crops are available at different times of the year and availability effects price. Although rain affected unsheltered traders selling ability and consumers buying ability it also affected the quantity and frequency with which customers purchased. However, there are those that felt no difference in business between the seasons by selling the most available crop and increasing shelter by moving to sheltered public venues such as the train station.

Business is also influenced by the time of the week and year and influences the produce a trader stocks. During the week smaller traders sell stock that lasts longer and will specially stock different kinds of vegetables for 'big days'. Big days are when traders are the busiest and ranges from payday, to weekends, to days such as Easter, Christmas and New Years Eve. Customers are said to have more time to cook over the weekend thus buy different things. Trader 2 also sells spring onion over weekends and trader 36 said, "People like butternut for the braai on Saturday and Sunday, the kids like squash, pumpkin and butternut".

6.7.3. Transport

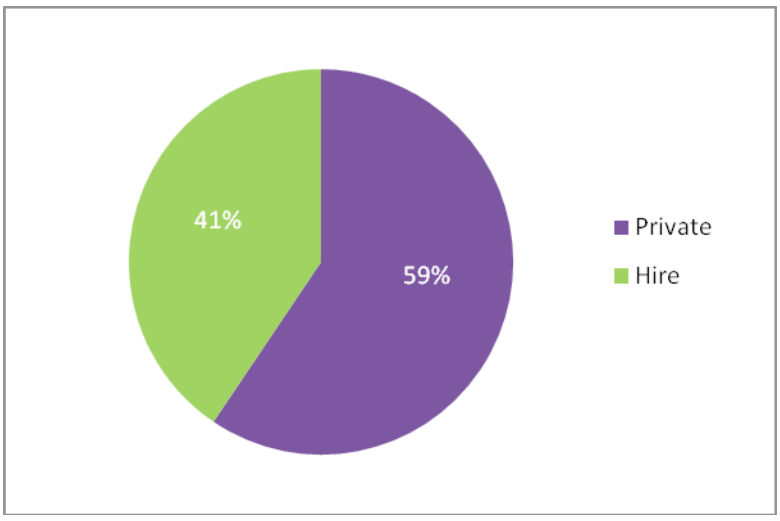

Figure 23: Traders with access to private transport and those that hire transport

Traders use various means to transport their produce. Trader's either hire transport or have their own. Of the traders interviewed 41% of traders hire transport and 59% have access to their own transport. Of the traders that have their own means of transport 13% have access to more than one vehicle and/or additional storage space by means of a trailer (Fig. 23). Traders hire each other's private cars, trucks, trailers and their drivers, alone or with other traders. Alternatively, traders send orders with other traders or people that buy for a number of traders at a time. Transport hiring costs can range from R40-R180 a load, with the most accepted cost of R100 a load. A load depends on the number of people, quantity purchased and distance travelled. Many of the traders have their own means of transport from cars, mini buses, pick-up trucks, trucks and trailers and horse and cart. Traders with their own means of transport often hire out their transport to fellow traders if space provides. If those traders with their own transport (59%) are hiring out transport services to the other 41% of those interviewed, this would fulfil a vital service to the system however further research is needed to establish this.

6.7.4. Cultural preferences

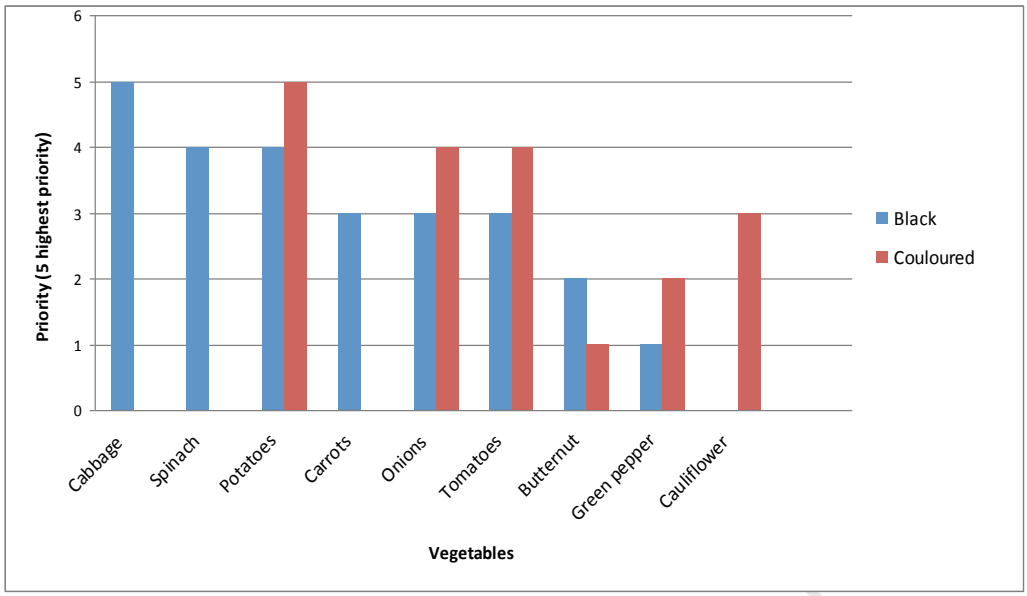

Figure 24: Black and coloured traders vegetable stocking priority

What traders sell is determine by their market. Traders had four essential stocking vegetables in common potatoes, tomatoes, onions and green pepper. Traders serving predominantly black South African areas stock cabbage, spinach, carrots and the coloured community, cauliflower. Trader 2 attempted to sell gem squash and cauliflower in the black community but found that it did not sell well, thus no longer stocks them. Trader 5 said the "most basic vegetables are potatoes, tomatoes and onion [and] without potatoes no business but too much competition on potatoes". In other words potatoes are considered to be an essential vegetable to the customer and customers would rather support a trader that they could buy all their vegetables from at once. But because potatoes are an essential every trader sells them and competition to attract customers with the best price offer is high. A coloured trader (T36) agreed that potatoes have the highest competition but includes onion as the most competitive sellers. When asked if he sells brussel sprouts trader 36's response was "people in Mitchell's Plain not into that". A few traders interviewed at Farm E were from elsewhere in southern Africa (Zimbabwean and Malawian) and purchased the vegetables: rape, covo, mustard leaves and broccoli leaves to sell to their fellow southern Africans.

6. 8. Informal trading

Traders operate their stands like businesses. This section presents stand operations answering questions of stand ownership and operation, personnel, if marketing is used to attract customers or if social issues come into play i.e. if sales are based on social networks. All these contribute to viability of a trader stand as a business in the informal sector.

6.8.1. Stand operation

The majority of stands are open seven days a week (92%). The 38 traders interviewed owned their own stands and an additional 14 stands (with one trader owning four stands in different locations and a possible 10 owning more than one). People are employed to operate additional stands, make deliveries and purchase goods. Cumulatively the 52 stands employ 20 people (15 men and 5 women) to operated their stands when owners are not there and a further 42 people as personnel (cleaners, packers, watchers and sellers), 25 of which are related to the primary owner. The 38 traders questioned employ 62 people. Immediate family members are often not included as employees or primary stand operators; thus any one stand may benefit more than three of people.

6.8.2. Marketing

Traders attract customers via location, positioning, verbal and written sales techniques, price, produce display, and quality of produce. Location is important when attracting customers because fixed location allows for regular cliental to patronise stands. Trader 9 said his positioning was very important because the majority of his cliental are from the community and he knows most of them. Others attract customers by positioning themselves near major transport routes and shops that sell other consumable items. Traders that are positioned in trading halls experience high competition with many of the traders selling the same products. These traders use verbal selling skills and quality

of produce to attract customers and keep them returning. One trader and her family even learnt to speak Somalian to converse with their customers better and because they share the same religion traders believe they have something in common. Other means of attracting customers includes written pricing on boards, although this was not common. Consumers are always looking for the best value at the cheapest price thus those that buy in bulk and are able to give discounts. Customers are attracted by how the traders display their produce. Trader 5 believes that the "customers don't have time for people that are playing" and said that the bigger the stall the more people you attract because they have everything and it looks appealing. Traders expressed that quality is the most important means of attracting and maintaining customers. Although many traders believe the quality of their produce is important to attract customers T5 said that "sometimes customers don't mind quality, whether its 1st class, 2nd class or 3rd class doesn't matter, they don't care -to someone else it's just a tomato." Customers demand quality but the quality they demand may not be according to the formal grading system.

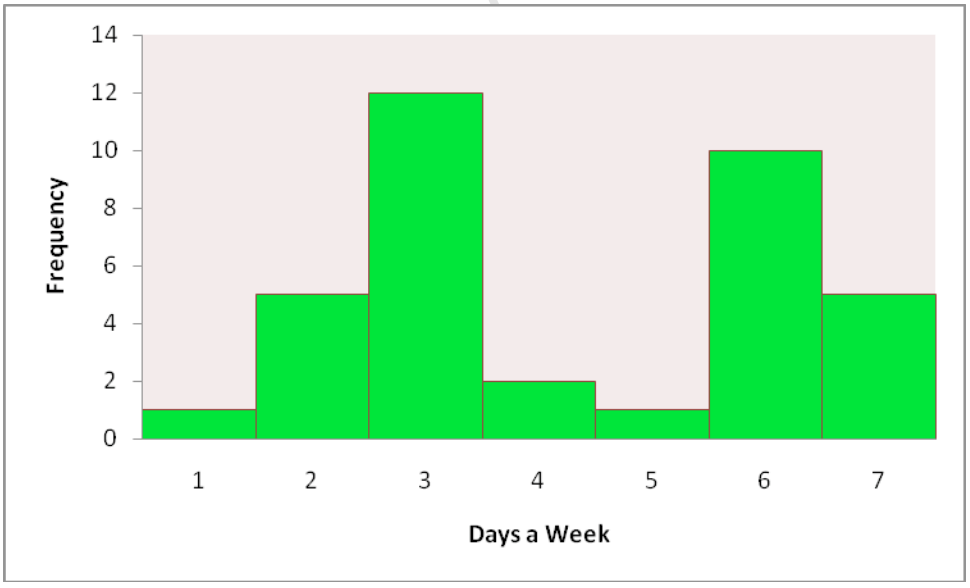

Figure 25: Number of days traders purchase stock

The majority of traders purchase stock either three days a week (Monday, Wednesday and Friday) or six days a week (Fig. 25). The choice of how often they purchase stock could be for the purpose of maintaining quality, retaining customers, transport costs or merely that the traders capital investment in very low and they have to turn a profit before buying again. However, observations show that small trader businesses are those that purchase three times a week.

6.8.3. Social networks

To establish if there are significant social networks in the system, component groups were asked if they accept orders, priority and how many loyal customers they have.

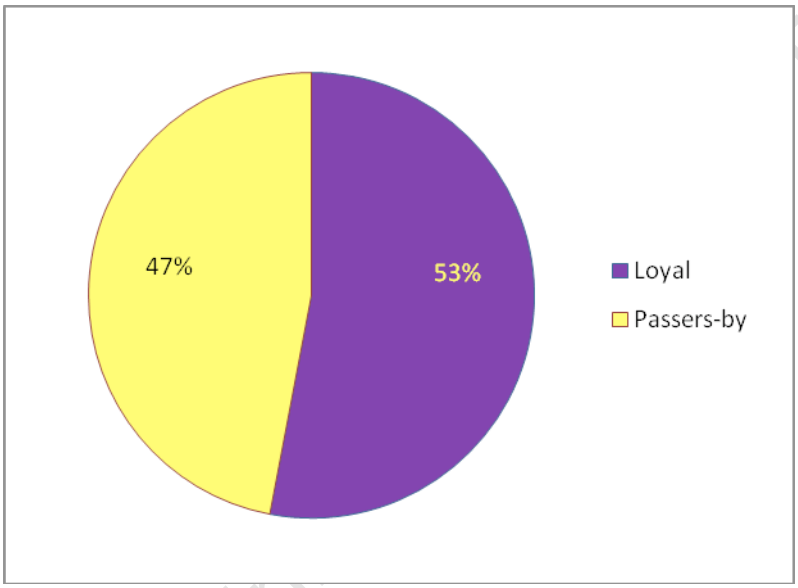

Figure 26: Percentage of traders vegetables sales bought by loyal customers

When asked what percentage of sales goes to loyal customers the majority of sampled traders said half their sales go to loyal customers. Traders with no loyal customers rely solely on passers-by and traders with 100% loyal customers are considered to be entrenched in their community. Regular customers are the first priority to farmers, agents and traders alike, however there are a few that operate on a first come first serve basis. Those that operated on a first come first serve basis do so because they

believe that customers are not loyal and will buy from whomever they can find the lowest price.

6.9. Summary section (Fig. 27)

The PHA distributes produce amongst the farmers in the PHA, to the farm stall in the PHA, to the CTM and to retailers, wholesalers, packaging plants, grocers and restaurants. The PHA produce is distributed to traders through five possible pathways. Directly off the farm (1) and from the PHA farm stalls (2) and indirectly from the CTM loose vegetable selling agencies (3), the CTM Traders (4) and through other traders that purchase from these four sectors and sell onto other traders (5). Traders distribute the produce primarily to the public but few traders distribute the produce to small business. The CTM and the PHA farms and farm stalls all receive produce from sources other than the PHA. The PHA farms and farm stalls also receive produce from the CTM. The PHA produce is thus mixed with produce from sources outside the PHA, directly from those sources and indirectly via the CTM. Produce is also distributed by donations, waste and theft, which occurs at every sector. Produce clearly flows from the formal sector into the informal sector in exchange for cash. The informal sector in this way supports the formal sector. The informal sector also distributes produce into the formal sector.

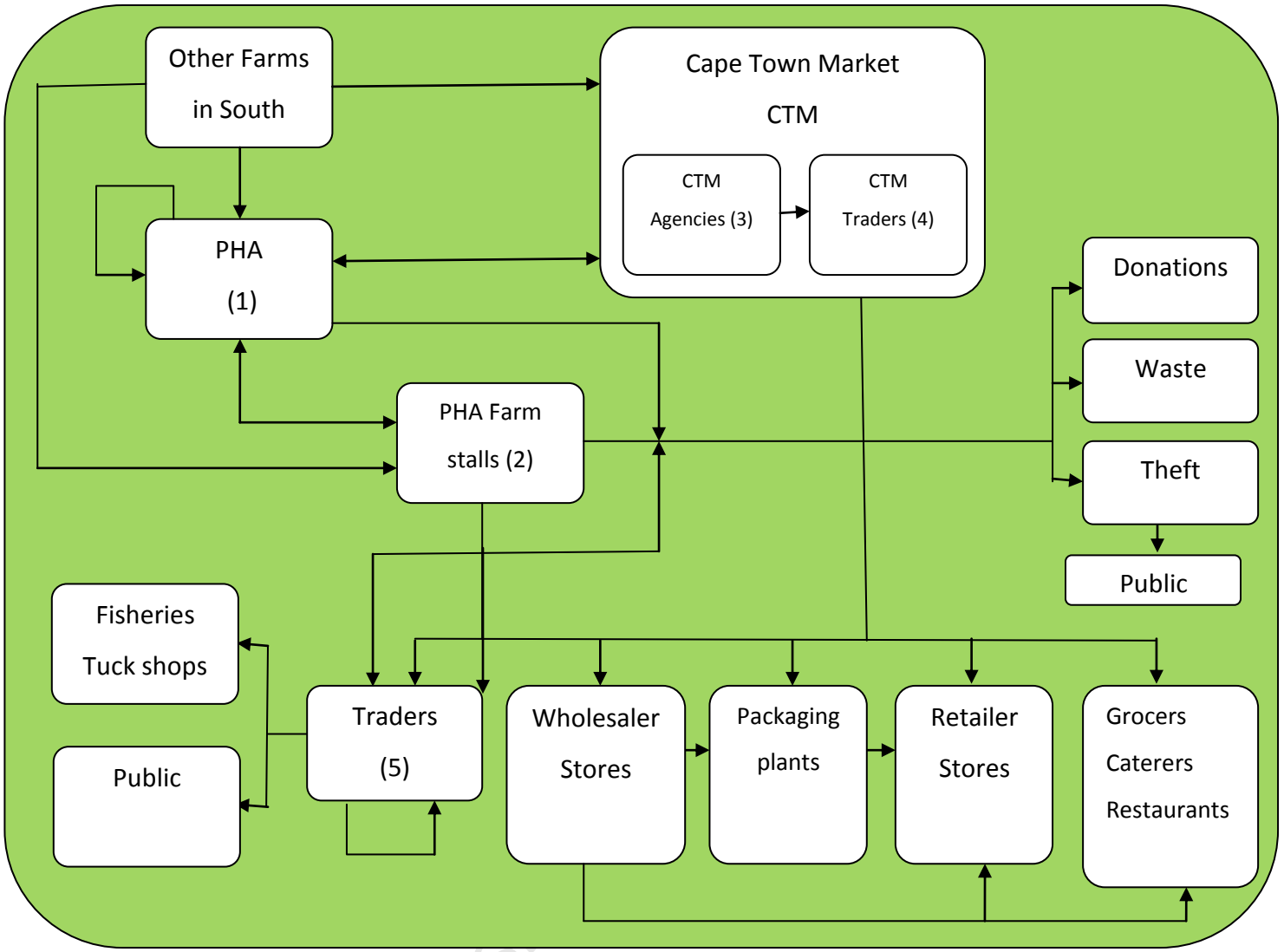

Figure 27: Local urban food system (Appendix D) (1-5 represents the distribution of produce into the informal sector)

7. DISCUSSION

7.1. Local urban food systems: Formal and informal linkages

Literature on these two sectors has previously been naïvely simple illustrating the formal and informal sectors as dual economies operating separately and in parallel to one another (Abrahams, 2009; Chen, 2007; Devey *et al*., 2006; Smith, 1998). The Philippi food system exhibits numerous interactions between the two sectors (Fig. 27).

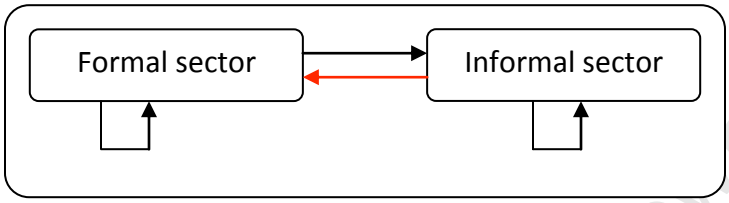

Figure 28: The formal and informal sector is a part of the same system and intrinsically linked in South Africa's economy, bi-directional interactions exist.

The flow of goods and services between sectors is evidence of these formal and informal sector linkages (Battersby-Lennard, 2009). The formal sector supplies itself and literature suggests it could function independently without interacting with the informal sector (Fig. 27) (Abrahams, 2009; Smith 1998).

- The PHA supplies the CTM and vice versa,
- The PHA and the CTM supply registered retailers, farmstalls, wholesalers and packing plants who in turn supply each other.

The informal sector accesses the PHA supplies from

- The PHA farm stalls, the CTM and the CTM-traders.
- The informal sector not only supports the formal sector through purchases but also supplies the formal (Davies & Thurlow, 2009); bulk traders were found to supply grocers and restaurants.

The informal sector is capable of supplying itself however virtually no traders were found to sell produce they grew themselves (Fig 18). Traders sell to other traders on two levels:

- large bulk traders sell to medium size traders

- Who then sell onto the mobile trader that walks busy areas such as train stations and traffic lights.

During any one day almost every component in this food system can be found in one place, the CTM. Farmers are there first delivering stock and following market prices for the day, followed by the traders who are there checking market prices and making purchases. Because the formal sector profits from sales to the informal sector it caters specifically for it. The PHA farm stalls profit from sales to traders, and the CTM has an alternate buying system specifically catering to traders. The formal thus rely on the informal for income.

7.1.1. Extent of formal and informal linkages: vegetables sources

This food system does not only carry PHA produce but includes produce from all over South Africa. The source of any one vegetable in the system largely is indistinguishable. The PHA sample group could potentially be distributing up to 32% of their produce into the informal sector through farm stall sales to traders (18%) and the CTM (14%) (Fig. 16). The PHA has a direct link to the informal sector through farm stalls. It is here that the vegetable content is first mixed with produce from outside of the PHA. The PHA brings produce in from outside sources, namely from the CTM and areas in the greater Western Cape (Table 4). The PHA has an indirect link to the informal sector through the CTM since the PHA sends produce to the CTM and traders make the majority of their purchases there. Traders comprise 45% of CTM sales (Matthews, 2010). The CTM acts like a funnel concentrating produce from 4000 farmers around the country on one premise. In addition the CTM traders purchase from more than one CTM agent who outsource vegetables themselves. It is at these two points (PHA and CTM) that traders could be purchasing produce essentially from all over the country but mixing to a lesser extent at the PHA farm stall. This makes it difficult to establish exactly how much of the PHA produce is moving into the informal sector. The figures presented in this paper do not give an exact indication of the produce entering the system because farmers send a

percentage of their produce to the farm stall (Fig. 16), buy in produce from other sources (Table 2) and traders make a specific percentage of farm stall sales (Table 3). It was possible to estimate the tons of vegetables entering the informal sector but not the tons of PHA vegetables entering the informal sector. Essentially, the trader trading vegetables in Philippi on the boarder of the PHA could be selling produce sourced anywhere from the PHA to Mpumalanga.

The mixing of vegetables from sources other than the PHA cannot be avoided since the PHA only produces soft vegetables and other vegetables are in demand from the PHA farm stalls. Furthermore, what makes the system difficult to trace is the buyer, by purchasing from many sources, further mixing produce and selling it on to packaging plants and retailers. It is highly unlikely that traders would access vegetables from retailers because of the difference in price. However, one trader did make purchases form Makro, a wholesale store. From working with traders, the items bought at Makro are most likely to be cartons of cigarettes, which are then sold as singles at the stands and not vegetables.

7.1.2. Vegetables distribution: donation, theft and waste

Conventional food systems often overlook donation, theft and waste as forms of distribution (Madevu *et al*., 2009; Erikson, 2008; Bailey *et al*., 2002; Hinrichs, 2000; King & Phumpiu 1996). According to literature strong social networks are present amongst the urban poor and food sharing is customary (Devereux, 2002). However, it does not discuss donations by informal trading as a contributor to food security. Every component in this system donates vegetables. Even more interesting is that every person interviewed donated produce to others and employees were given stock as a supplementary payment. Food is an essential part of life and unfortunately a luxury for some those interviewed that work with food felt duty bound to donate. It seems appropriate that donations are prevalent in the fresh produce food system because the

alternative would be to allow it to spoil. The PHA farmers expressed that they farm to feed people thus how could they not donate.

Theft is recognised in literature as an illegitimate occupation in the informal sector but nowhere does it state that vegetables are stolen to sell (Smith, 1998; Palmer, 1994). Theft of food, although acknowledged as a problem by the farmers, was secondary to the theft of infrastructure. When sprinkler parts are stolen to exchange the steal and copper for money the farmers cannot water their crops until these parts are replaced, often with ineffective plastic substitutes. A common feeling in this food system is that any theft that does occur would be insufficient to sustainably supply a trading business with stock. Theft from the formal sector is in the form of taking more stock than paid for, this type of theft ads to a trader's profit margin. Because the stolen produce was not paid for the value it is sold becomes pure profit.

Waste is an important by product of any food system. Consumers throw away more than a third of the food they have paid for and taken home (Lundqvist *et al*., 2008) There is food wastage in all sectors of the formal food chain not only at the consumer end. In this system however, very little stock is thrown away. Waste goes into the garbage, is composted, or given to the pig farm. Most is given away by either selling two for the price of one, given to the poor, those that beg, donated to churches, schools, soup kitchens and farm labourers etc. The most wasteful point in this food system was the CTM. The CTM intends on composting the waste and ideally should send the compost to the PHA or send the vegetables to the PHA to be composted.

7.2. Food System: Informal Sector

7.2.1. Vegetables in the informal sector

Traders cater for specific cultures thus certain vegetables will end up in different segments of the urban poor. The coloured and black community diets comprises of those vegetables needed to make traditional dishes. The vegetables include potatoes, tomatoes and onions for the making of curries by the coloured community and spinach and cabbage in the black community to accompany maize based meals. There is no or little demand for certain vegetables such as baby marrows, fennel, rocket and patty pans as these are the only produce that the PHA produces, that was not found in the informal sector (Table 4). The demands of the formal and informal market shape what is being produced in the PHA.

7.2.2. Informal trading as a business

An initial assumption was that traders are not wealthy, and that trading is not a lucrative business, despite literature referring to the existence of two types of traders (Devey et al., 2006; Rogerson, 2000). This was confirmed as the majority of traders would not be considered wealthy, but rather survivalists, spending R120-R1000 a week (Fig. 19), purchasing large quantities and less of a variety of vegetables as opposed to a large variety in smaller quantities. It is assumed that most traders fall into this category because they cannot access the formal market (Battersby-Lennard, 2009; Devey *et al*., 2006; Palmer, 2004; Smith, 1998). There are however those traders whose business is lucrative. These traders often have high capital investment in their business; buy and sell in bulk, have few overhead costs, and have their own transport, which they hire out further reducing running expenses by getting other traders to pay for petrol costs. The results of this project illustrate that it is possible for traders to be relatively lucrative in the trade of vegetables, with the bigger stockists attracting more business and distributing to formal sector enterprises.

7.2.3. Quality and price of vegetables in the informal sector

The initial assumptions at the start of this project were that the vegetables sold in the informal market are low-grade vegetables sold at retail store prices, and that the waste of vegetables is considerable (Battersby-Lennard, 2009; Smith, 1998). Subsequently this project found these assumptions only partly accurate. Although the vegetables have no formal grading system, customers that are paying for food, be it in the formal or informal sector, and it is the author's belief that they are particular about the food they purchase and consume. The vegetables found in the informal sector should be of good quality considering that their primary sources have quality standards themselves. If vegetables were purchased from the PHA, it is highly likely that they were harvested that day and if purchased from the CTM, the quality control measures ensure that the vegetables being purchased are of good quality to begin with. Many of the traders attract their customers and keep them, by ensuring they have the freshest stock they can find. Traders also need to purchase the freshest produce possible because of the lack of formal storage; the fresher the produce the longer it lasts. Although vegetables are not refrigerated it does not mean that they are not fresh, many formal households store their fruits and vegetables un-refrigerated in vegetable draws and fruit bowls and no worse than the storage in the urban poor's homes (Smith, 1998).

7.2.4. How much would you pay?

Considering that the fresh produce market relies on a high turnover rate to make a profit, it is in their interests to stock fresh vegetables. There is no exact way to measure quality since grading is subjective. A 10-kilogram box of 1st grade tomatoes with one rotten tomato in the box will be sold at half its original price. Traders are then purchasing high quality at lower prices merely having to remove the spoilt produce. Traders expressed that the maintenance of quality is more difficult in summer than in winter, and survivalist traders are the most likely to extend the selling time (shelf life) of a vegetable to its maximum before donating it, for the reason that they need to recover money before being able to hire transport to purchase again. Almost all stands are open

seven days a week and buy according to how fast they sell their goods, which in turn is affected by the weather; stochastic events are often difficult to account for in research.

Vegetables are generally cheaper from traders than retail stores[6] because the supply chain is generally shorter and there is very little value adding between the farm and informal trader. The fresh produce industry relies on a high turnover rate thus mark-up is minimal (Table 8). Traders profit between 10-30% on buying price dependant on the vegetable (individual heads and bunches have a 30% mark-up whereas vegetables bought in bulk and separated have a 10% mark-up). Traders expressed that prices do not fluctuate much in the informal sector, because traders do not purchase products' when they are expensive, as the urban poor will not pay for them. Smith (1998) stated that the informal sector increased the per unit cost of food stuffs and that their existence is merely because they sell goods in close proximity to the consumer in smaller volumes at prices the urban poor can afford. This project cannot refute the claim that the 'per unit' cost of vegetables is higher in the informal sector than the formal sector since retail costs were not compared. However, it is the opinion of the author that produce is significantly cheaper and larger portion size, is just as fresh and has less packaging to contribute to waste when bought form traders compared to retailers. Each component in the system indicated that vegetables are divided into smaller and smaller quantities as vegetables travel from producer to consumer (Table 8). When considering this food system as a whole it is possible to argue that consumers purchasing food from the formal sector may be buying lower quality, less nutritious food for higher prices than those purchasing similar foods from the informal sector. This is based on the fact that the urban poor are potentially buying produce that was harvested the same day, has not been exposed to ripening chemicals or drastic temperature variations, that may change the nutritional value and taste of the vegetable.

[6] A study of retail store prices was beyond the scope of this thesis, but the comparison is made from personal experience

7.3. Complex systems

The local urban food system presented in this project is a complex system with a number of components. This is an open system with a large number of dynamic interaction rich components. Vegetables from the PHA are supplied to components which supply other components. It is here that vegetables from sources other than the PHA enter the system, thus although the project focused on the PHA and Cape Town's local informal market, the system is open to other role players. The trader purchasing from a food stall will have little influence on the farmer supplying the retailer, although they may influence each other within the system by way of an intermediary. A retailer may influence an agent which may in turn influence the produce available affecting the choice of produce available to the trader. If there is a shortage in a vegetable, the retailer often has priority over the traders and thus decreasing the supply and increasing the demand and ultimately elevating prices. The components do not have all the information of the system and can only react to local information meaning that although both components are affected, they are for the large part ignorant of each other and only interact with their supplier. Although a retailer may buy out a specific vegetable type, it may have a disproportionate effect on the trader. If retailer were to buy out potatoes it would compromise the traders entire business, whereas if it were to happen in reverse the retailer would still turn a profit because potatoes are not as significant to the functioning retail store given they sell many other products thus, interactions are non-linear.

In this system, the informal sector is encouraged and embraced by the formal sector (PHA and CTM). The informal sector increases access of produce to the urban poor. Aspects of the system are local. The localisation of food systems is considered to decrease poverty. This system has local production; vegetables are produced in the PHA in close proximity to many urban poor areas. In this system, local production is not the

issue but rather distribution. The informal sector has access to local produce and there is a high probability that the produce sold is locally produced. However, there is also a possibility that the produce is from elsewhere in South Africa. Produce farmed just outside of Cape Town is surely better than that farmed in Mpumalanga with respect to food miles and localising the food system (Mansvelt, 2008; Rocha, 2001; Tonsey & Worsley, 1995). One issue in this project is how the land that is proposed for development would influence this food system, and should it be developed or farmed? In light of localising food systems this land offers a prime opportunity to increase the local production of food.

7.4. Access to vegetables in the informal sector

Traders access produce from five known points in the system, the PHA, PHA farmstalls, CTM, CTM traders and from fellow traders (Fig. 27). The urban poor have greater access to produce as trader stands are scattered throughout the CoCT (Table 6). There is often more than one stand in close proximity to each other. Ingulube road (Philippi) is a road occupied by many different types of traders, those trading in hardware, furniture, building materials, plastics, hairdressing, cooked foods and fruit and vegetable stands. Along Ingulube Road 12 vegetable and fruit traders can be found. It is a busy street as it leads to the train station. Not only is the food accessible but a number of choices are available and customers can select the best. The concentration of traders can also be found outside shopping centres and in trading halls with many traders selling the same produce. Access to produce is thus made easy due to the informal sector.

Informal social networks are an important means of accessing food (Chen, 2007; Devereux, 2002). Formal social safety nets have been found to play a minimal role in household food security amongst the urban poor of Cape Town (Battersby-Lennard, 2009). Informal traders may in fact contribute to these informal safety nets through donation and allowance of credit in social networks since the informal sector is the primary means of food access to the urban poor. Increasing food security then requires that we assist current safety nets, without creating dependency, through policy that supports the informal market as a means of food supply. There is room to incorporate urban agriculture to further localize the system. However, the time taken until first harvest is significant and would need considerable backing. The MJC and Abalimi Bezekhaya have programmes that enable emerging farmers to sustain themselves and thus far are expanding and making progress. The Cape Town study, like this project, found that very few of the urban poor partake in urban agriculture (Battersby-Lennard, 2009). All traders purchase produce and resell on to consumers; only one trader farmed two of the products that he sold himself. No reverse remittance of vegetables was

found. There is room for new farming co-operatives and those current to expand in the PHA. Urbanisation has led to fewer farmers feeding greater numbers of people living in urban areas. The country should be proactive and enterprising in efforts to promote agriculture in both the urban and rural context.

A strength of this food system is the access of the urban poor to safe and nutritious foods, at prices they can afford, in close proximity to where they reside. Traders have more than one access point from which they can purchase products and these points specifically cater for informal traders as well as retail stores. Multiple access points increase sustainability of the system. Should the PHA be urbanised the CTM and the CTM-traders would more than likely experience an influx in traders purchasing from them. Because the majority of traders already source vegetables from both points it would be easier for traders to adjust to having fewer sources however the price variation on certain products such as spinach and cabbage would affect traders and consumers purchasing power. Those that solely purchase from the farm stalls would experience a difficult shift as transport costs probably would increase. More likely traders would purchase from the CTM traders who sell in smaller quantities but at slightly higher prices rather than register for buyers' cards to purchases from the CTM.

In the event of a severe shortage in vegetables, this project cannot definitively state which sector in the food system would be affected adversely. Given that contracts are the first priority of the PHA farmers, and traders access stock primarily from the CTM they may not experience severe shortage fluctuations (Fig. 18). However, the farm stalls depend on traders and would be able to access produce here.

7.5. Informal sector role in urban food security

If the city is to increase food security, it should enable the informal sector rather than restrict it since it is intrinsic to the system. If the city aims to right the injustices of the past, poverty alleviation and social upliftment supporting the informal sector would be the path of least resistance. If the informal sector were to be accepted as part of the current economy it might flourish. Informal trading offers a viable and profitable livelihood for those that cannot access employment in the formal sector and self-employment is a credible option. Diversified livelihood strategies make households more resilient and can improve food security (Maxwell 1996).The informal sector has taken much of the food insecurity burden into its own hands. The informal market increases access to adequate quantity and quality of food and meets dietary preferences of social/ cultural norms. The findings demonstrate that there are many traders that sell quality produce at low prices that is culturally specific. Traders sell specific vegetables according to their customers' culture and their own culture. In this way vegetable traders in the informal sector are a contributor to broader food security aims.

7.6. Informal sector evaluation

There are three views of how to approach the informal sector: dualism, structuralism and legalism (Chen, 2007). Dualists believe that the informal and the formal are two separate sectors with no or very few linkages; the structuralists would like to formalise and regulate the informal while legalists call for deregulation, increase of economic freedom and entrepreneurship. There is a distinction between the formal economy and the formal regulatory environment (Chen, 2007). The formal economy refers to regulated economic units and protected workers, whereas the formal regulatory environment refers to government policies, laws and regulations. Excessive regulation and complete lack of regulation can be costly to informal traders (Chen, 2007). Without a coherent policy or any set of regulations in place the cities either wish to eliminate it or turn a blind eye to the informal sector. Both stances lead to retaliatory effects such as eviction, harassment and bribes. As a result the handling of traders has been assigned to police that deal with law and order (Chen, 2007).

South Africa has one of the youngest informal economies in Africa and is currently supported less and less in South African legislation (Davies & Thurlow, 2009; Potts, 2008; Devey *et al.*, 2006). In the face of development the government has given assistance to the formal sector in efforts to combat urban poverty (ILO, 1991). The country aims to increase its GDP through development that is modernised, technologically sophisticated with greater capital-intensive types of production and employment (Potts, 2008). Rendering the image of the informal sector as unproductive, inefficient, dirty, dangerous, criminal and ultimately undesirable (Potts, 2008; Smith, 1998).

7.6.1. Criminal image of the informal sector

The unregistered and unrecorded nature of employment and production in the informal sector by law implies it as illegal (Potts, 2008). Although parts of the informal sector are

illegal this is not the whole story "while production or employment arrangements in the informal economy are often semi-legal or illegal, most informal workers and enterprises produce and/ or distribute legal goods and services. Admittedly one part of the informal economy- the criminal economy- operates illegally and deals in illegal goods and services. But it is a small part of a larger whole that is, for the most part, not illegal or criminal." (Chen, 2007: 4).

7.6.2. Informal sector: employment

The informal sector also refers to those that are employed (formally/contracted or informally/ without contract) in the formal sector. This classification of employment in the formal sector has lead to many debates as to whether the formal sector is supporting the informal sector by employing non-contracted casual labour which then support the informal sector (Davies & Thurlow, 2009; Devey *et al*., 2006). Whether employment is classified as formal or informal is not the concern of this project, rather it is that paid labour in the formal sector is likely to be spent in the informal sector and is a social and economic link between the formal and informal sector of this system. The access of the urban poor to other income generating livelihoods allows them to support the informal traders. In addition the demand for formal work increases with levels of urbanisation however, formal employment opportunities do not. Urban poverty can thus be viewed as a consequence of urbanisation (Smith, 1998).

7.6.3. Taxes and Benefits

Debates with regard to the acceptance of the informal sector are largely centred on privatisation of industry and failure of the informal sector to contribute to governmental resources (Potts, 2008). The resource split between the two sectors is difficult to estimate since the formal sector significantly contributes to building up these recourses yet the informal is the one most in need of assistance. The informal sector is not viewed favourably by many as the informal sector is thought to not contribute to Pay As You Earn (PAYE) tax. These results suggest that the informal sector do contribute tax in the

form of Value Added Tax (VAT) on goods because they purchase goods from the formal sector. The majority of informal sector businesses are unlikely to fall within the monthly income bracket for taxation and would remain untaxed even if registered (Chen, 2007).

7.6.4. Current Regulation

The informal sector has characteristics of the formal without being formal themselves. Traders have committees and organisations. They have a business, a place to trade from, staff and capital. The CoCT claims that it recognises the informal sector but traders should pay a nominal fee and be in the possession of trading licences to receive services and assistance (CoCT, 2003). Traders are also registered at the CTM by way of buyers' cards. Developments of formal structures to support the informal sector have been provided yet remain unused due to local disadvantages, unaffordable fees and misconceptions (Isaac, 2010; Potts, 2008). Chen (2007) states that most operators would be willing to pay registration fees and taxes if they were to receive the benefits of formality. After interaction with the informal traders observations of the author suggest that the formality that the city provides is not the formality that the informal traders require. Traders in Mitchell's Plain were allocated bays and built structures in Lentuguer to protect traders from the rain yet both these solutions were ineffective (see Huss, 2009).

The formal sector supplies money to the informal sector in the form of social outreach programmes that enable micro enterprises or entrepreneurs (Rogerson, 2002). The government can be seen to support the informal sector by way of social grants/transfers and Devereux (2002) states that "income transfers will impact on productive investment only if they are large enough also to cover immediate consumption needs" (Devereux, 2002: 673). Thus if grants are large enough those receiving them will invest in income generating livelihood activities as long as their consumption needs, human and social capital expenditure has been met. Governmental support to the informal economy cannot only be in the form of social transfers; Chen (2007) suggests implementing

appropriate regulation that addresses the informal economy enterprises, employment, urban space and informal trade independently.

7.7. Philippi Horticultural Area Status

Should the PHA cease to exist, this project only offers insight into a few ripple effects that would occur in the system. In 1992, the PHA was supplying 80% of the "soft" vegetables marketed annually through the CTM (Knight, n.d.). Why should this have changed over the past decade when horticulture in the area has expanded? The CoCT has grown since 1992 therefore there is more food in the system thus the PHA has less of a percentage of the soft vegetables marketed annually through the CTM. Current development assessments illustrate the economic potential of the PHA for vegetable production (Laubsher, 2010; Pepco, 2009). The PHA sends the CTM approximately 1000 tons of vegetables a month (Matthews, 2010). However, this is only a small portion (14%) of vegetables produced in the PHA (Laubsher, 2010). The PHA also provides retailers, farm stall traders, farm labourers and charity cases.

Currently the land in the PHA proposed for development that is zoned for horticulture is not owned by farmers and currently not being utilised. UDWC (2008) found that the application area does not have any significant historic, present or future contribution to make to the overall horticultural productivity of the PHA. A number of farmers in the PHA would like to develop their businesses but won't for fear of losing their investment to development plan in 10 years time (2020). The City Planning Department (CPD) were originally working with the previous spatial planning urban design from 1981 help a public participation process of what people want to see in the city (Kabeni, 2010). The plans were finalised in August 2010 state that District G's PHA will remain zoned horticulture and will be reviewed in 2020 (Kabeni, 2010). The CPD should protect the area past the 10 year period as well to allow farmers to invest in their land without fear of losing their investment. Farmers are negative about the future of PHA pending development applications and the increase in crime. The PHA as a whole is part of their history and their home which is partly why they want to remain on contested land. Other farmers would need a worthy offer on their current land to reinvest in new land and begin again.

The PHA has a high competitive advantage as it is placed directly in the 'house wife's kitchen' with local access to buyers and to water. A PHA farmer said, "it's a fact that if vegetables on the Cape Flats are scarce, then the vegetable prices are sky high". High prices and low availability would affect both the traders and the urban poor's ability to access food. Parson (2009) expresses that the availability of water for irrigation in the PHA is a strong motivation for the continuation of the current land use and that treated sewage effluent and artificial recharge by storm water runoff be recognized. The majority of farmers do not want to be relocated to other areas, as it would be more costly and further in proximity from buyers. If relocation occurs, the farmers fear being removed before receiving the land and few feel that they are unlikely to be adequately compensated because the surrounding informal settlements create a negative impression of the area. However, the lack of infrastructure in the PHA is a major issue. High volumes of traffic on already deteriorating road surfaces negatively influence the ability of farmers to transport crops without damage. Ground water is not a deciding environmental factor because over abstraction and pollution is possible from both agriculture and housing developments. Development however could further influence the aquifer by reducing surface run off and decreasing the replenishment of the aquifer, disrupting current farming practices (SPUDD, 2009).

There is no need to choose between people and the environment. Yet there is a common belief that we need to address poverty first, before we can think about the environment. This project does not debate whether development trumps agriculture in terms of land use but does offer insights into how development could affect agriculture. By moving the urban edge ever closer to the point where future development will inevitably lead to having to make the choice between agricultural and development. This would compromise what little historical significance the area may have. A defined urban edge surrounding the PHA is needed, pushing farming boundaries back and not allowing piecemeal encroachments of urban edges onto the PHA for longer than a the

ten year period that the Urban Planning Department has allowed for (2010-2020). Willie Schultz said that past planning has led to the unfavourable situation in the PHA and if decisions were better made the PHA could have been a 'second Constantia'.

In conclusion the author believes that the CoCT should enable the informal sector both financially and structurally with the least amount of regulatory interference. Allowing the informal sector to develop in its own way. Since the informal sector did not "wither away and die with modern and industrial growth" it merely transformed and "expanded with modern and industrial growth" (Chen, 2007: 5). The PHA is a valuable piece of land for both agriculture and development. Natural economic forces dictate that the rich developers would buy out the PHA farmers who would then relocate to new land just outside the CoCT to farm again on uncontested land. For the PHA to remain and prosper as a horticultural area it would need to remain zoned horticultural for a far greater period than ten years. This would allow for farmers to invest in their current land without the threat of development, maintaining local food production in the CoCT.

8. CONCLUSION

The food system presented in this project concentrates on the Philippi Horticultural Area (PHA), a local vegetable production area within the City of Cape Town, and the distribution of its produce to traders. In meeting the aim and objectives of this project, the findings challenge some findings and assumptions presented in literature while confirming others. A number of recommendations are suggested in the light of the findings and literature presented in this thesis.

The first objective of this project was to trace the food system of which the PHA is a part to establish if the PHA does indeed supply the informal sector. The informal sector was found to access the PHA stock at five points in the system. In this food system, the PHA supplies farm stalls and the Cape Town Market. These were found to be the two main points of access from which traders purchased the PHA produce. The PHA distributes to and purchases from the CTM. The CTM supplies the CTM traders and traders purchase from the CTM, CTM traders and supplement their purchase with vegetables sold at the farm stalls. The informal sector is complex in itself. Traders supply each other and there are a number of social factors that shape the interactions in the system. There are alternative forms of vegetable distribution through donation, and to a much lesser extent, theft. Donation was evident at every level of the food system and waste was lower than anticipated.

The second objective was to examine the connections between the informal food trade sector and the formal farming and trade sectors. The connections between the two sectors were found to be dependent on a number of biological, social and economic factors.

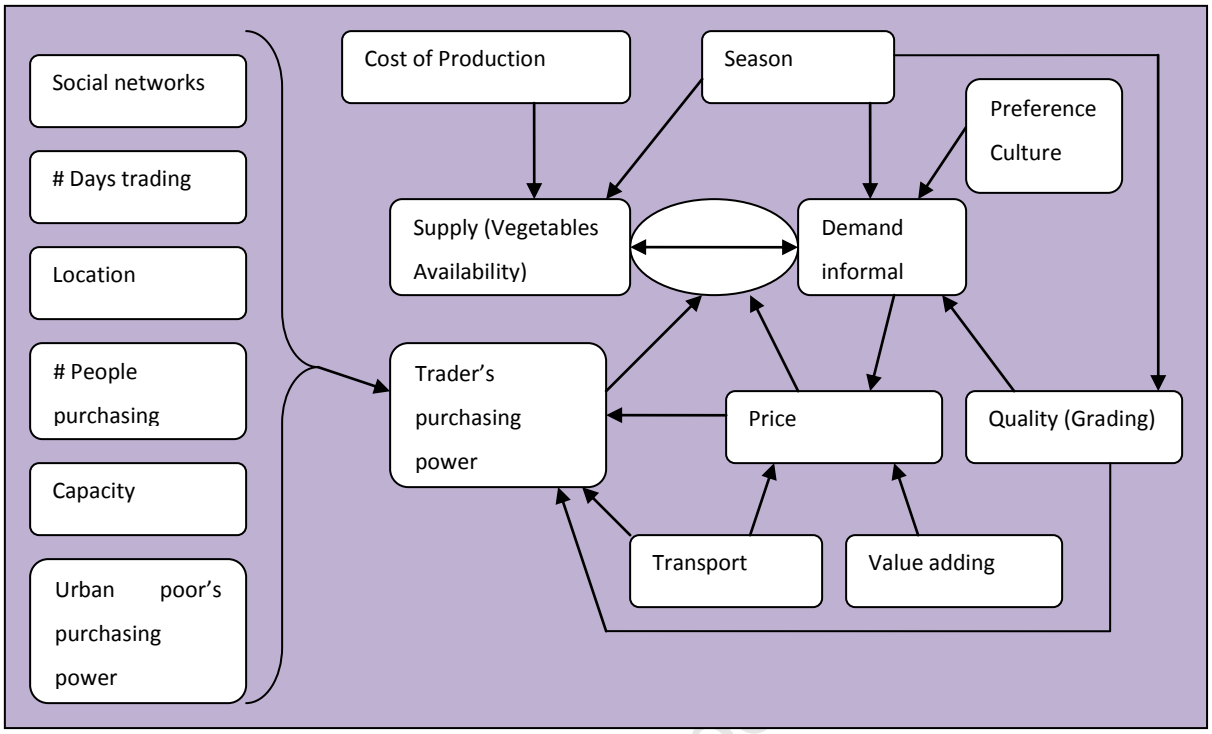

Figure 29: Influential factors in the food system

The supply of vegetables is dependent on season, cost of production and demand. Vegetables are distributed to where they are most in demand, which is dependent on price, preference, quality (grading), season, availability and purchasing power. Supply and demand is the ultimate price decider- the higher the demand and the lower the availability, the higher the price. Pricing of vegetables was affected by type, quantity (supply and demand), value adding, quality, season and transport. Seasons greatly affect availability of vegetables, most of which are seasonal. Season affects the food system as a whole, what vegetables are moving through the system. And the consequential price and quality. The amount of vegetables in the informal sector depends on the buying capacity of the trader which in turn is influenced by the urban poor's purchasing power. Traders' purchasing power is further influenced by their business profits. Profits are affected by capacity, location, number of days a week trading, quality of vegetables and social networks. Vegetables are graded and packaged according to their distribution. Transport adds to the expense of vegetables. The type of vegetables in the informal

sector is culture dependent with the black community prioritising cabbage and spinach and the coloured community prioritising cauliflower.

The nine vegetables most commonly sold by traders were cabbage, spinach, cauliflower, carrots, potatoes, onions, tomatoes, lettuce and butternut. This project limits the scope of the food system to vegetables- it is acknowledged that vegetables are sold amongst other produce, predominantly fruit. Farmers seem to be shifting to vegetables that are not prevalent in the informal sector, like baby marrows and patty pans. These can demand higher prices in the formal market than cabbages, spinach, etc, but are not popular in the informal market. A large proportion of farm stall sales are to the informal sector. Thus farming produce aimed at the formal market will increase sales to retailers and decrease sales to the informal market. Should this trend persist the majority of informal traders are likely to turn to the Cape Town Market (CTM) as their sole source of produce.

The third objective was to assess the connections above and establish what one could potentially expect the vegetable trading in the informal trading sector to experience if the PHA was no longer involved as a result of the urbanisation. The majority of informal traders purchase stock from both the PHA and the CTM. Should the PHA be urbanised the CTM and the CTM-traders would more than likely experience an influx in traders purchasing from them. Because the majority of traders already source vegetables from both points it would be easier for traders to adjust to having fewer sources however the price variation would affect traders and consumers purchasing power. Those that solely purchase from the farm stalls would experience the greatest change, incurring greater transport costs to get to the CTM. More likely traders would purchase from the CTM traders who sell in smaller quantities but at slightly higher prices rather than register for buyers' cards to purchases from the CTM.

The decrease in the production of vegetables in the PHA would decrease the supply of vegetables in the PHA. Vegetable supplies at the CTM would also decrease; the PHA supplied an average of 1000 tons of vegetables to the CTM annually. The CTM has over 4000 suppliers from across the country and thus may not be affected if the PHA was developed. However, a PHA farmer stated that if there is a shortage of stock in the PHA the CTM feels the repercussions and prices are high. If the informal traders could not locate stock at the CTM they would have to find a secondary source. The secondary source would be located outside of the CoCT or from retailers both of which would be more costly than sourcing from the PHA. It is possible that the informal traders would stop stocking certain vegetables because the urban poor can no longer afford the extra cost on basic vegetables.

Literature Debates

This thesis contributes to the literature in a number of ways: namely, the connection between the formal and informal sectors, the limited understanding of the quality and pricing of food stuffs in the informal sector and the nature of the livelihoods supported by the informal trade sector. Previously dualist literature depicted the formal sector as independent of the informal and capable of non-interaction but recent literature acknowledges the interaction between the two and possible dependence (Davies & Thurlow, 2009; Potts, 2008; Valodia, 2008; Meth, 2007; Devey *et al*., 2006; Guha-Khasnobis, 2006; Palmer, 2004; Rogerson, 2002; Leybourne & Grant, 1999; Castells & Portes, 1989). This food system is a local urban food system that encompasses both the formal and informal sector which operate under different characteristics but have the same underlying economic forces. If the system is viewed as a whole, the delineation between the formal and informal sector is virtually indistinguishable and interactions in each sector and between sectors is plentiful on many levels with bidirectional trade occurring between the two. Thabo Mbeki expressed the notion of the "second economy"/ informal economy and many commented that this was just one economy

operating at different scales but mutually supportive. In this food system the informal sector is so entrenched that the two sectors rely on each other. The informal traders do not produce their own vegetables and are dependent on the formal sector to make the vegetables available and to provide access points. The informal sector does contribute to value added tax on the vegetables and petrol they purchase.

Traders were found to have many advantageous characteristics when considering price, quality and volume sold by the informal sector. If traders were appropriately enabled they could potentially have positive repercussions for food security of the urban poor from the informal sector. The quality of these food sources through the informal sector is likely to be higher than depicted in literature (Battersby-Lennard, 2009; Devey *et al*., 2006; Rogerson, 2000; Smith, 1998). Vegetables sold by traders are fresh, of high quality and often cheaper and sold in larger volumes (size of portion) than processed and packaged vegetables in retail stores. The sources from which traders purchase vegetables have quality control measures of their own. Traders need the freshest produce possible because of the lack of formal storage: for this reason and for attracting and maintaining customers, stock is of a high quality. Stock is cheaper because there is minimal or no processing cost added to the produce and the demand for vegetables, by those that purchase from traders, is for low costs. This, coupled with high competition amongst traders, maintains low prices.

Literature identifies that traders operate at two different scales but fails to depict these in monetary terms (Devey *et al*., 2006; Rogerson, 2000). The findings suggest that although there are survivalist traders in the informal sector there are also traders that are lucrative and trading by choice. This challenges much of the literature that states that the informal sector employment exists as default employment, due to lack of formal sector entry, and not as chosen career paths (Crush & Frayne, 2010; Davies & Thurlow, 2009; Potts, 2008; Valodia, 2008 and Palmer, 2004). These traders are potentially earning a significantly larger amount than that which formal employment

would offer. Formalising the informal sector is thus a futile concept because they are part of the same economy, although operating on different scales. The urban poor lack access to cash and employment and are the most vulnerable of the population (Smith, 1998). The informal sector offers a valid means of employment to a large number of people, primarily classified as urban poor, which cannot access employment or stable employment in the formal sector.

In the light of the findings presented, this thesis makes the following tentative recommendations:

Local food systems have been advocated in the literature on environmental, social and economic grounds. The levels of food insecurity in the city make local food systems even more important. It is recommended therefore that both production and distribution of local food systems be valorised by recognising the role of PHA and the role of informal food sector to food security and livelihoods.

Policies, plans, programmes and specialist assessments, which inform development and government, cannot assume that the PHA importance is solely based on its contribution to the formal sector. The informal sector exists and interacts with the PHA on a number of complex levels and the system supports a far greater number than just the formal retail of vegetables. The informal sector is a vitally important means for people to access food; therefore there is a need to support the informal market as a means of food supply. Government should avoid formalising informal trading and recognise its importance in urban food security because it increases assess of affordable vegetables throughout the City of Cape Town. Urban food security in the context of urbanisation needs to be addressed before it reaches a tipping point and the informal sector may be the only means of doing so (Holling, 2004). The city needs to support the informal sector both financially and structurally. A process that gives the traders what they need without disrupting their functioning merely aiding them to receive returns on their

investments. If the CoCT engaged with traders they would find that providing appropriate structures to keep them dry in winter and storage spaces for sanitary storage and protection of their stock is what traders require, with the least interference in their functioning.

There are multiple causes of food insecurity that the state and private sector will need to work together to address, specifically, weaknesses in the current food distribution and sales systems. This thesis argues that given the complexity of the urban food system, which is not yet fully understood, it would be of value for the city to develop a food security strategy that learns from experiences of examples like that of Belo Horizonte, Brazil and focuses on the food system as a whole. And should consider the most vulnerable point in the system from the perspective of the stakeholders, and acknowledge that the challenges of urban food security are different from that of rural food security.

The Belo Horizonte, Brazil, facilitated 'fixed fairs' through a market put in place to promote and support small scale agriculture (Rocha, 2001). They connect small producers directly to consumers increasing the income to small farmers while still selling quality at low prices. Roberts (2001) argues that urban agriculture is key to cities becoming self reliant in food sourcing and reducing imports, supporting the local economy allows for "the same dollar goes further simply because it didn't go further away" (Roberts, 2001: 28).

Food security needs to be addressed on a number of levels to address emergency food insecurities, address market failures in price control, quality and distribution. The urban poor are made more vulnerable by escalating food costs, food shortages and inadequate diets and constrained by ill-informed and insensitive urban policies (Crush & Frayne, 2010). What is required is the development of a food security policy that considers urban food security and accepts a comprehensive, integrated approach involving all

aspects of the food system and value chain, from consummation, distribution and production of food, use of market, market failures, and partnerships. Food security has an important economic, developmental and health consequence thus food security strategies should learn from experiences of elsewhere.

Concluding remarks

The overall aim of this project was to ascertain the PHA food distribution channels, specifically what connections exist between the PHA and the local informal sector in the City of Cape Town. Vegetables in the PHA were found to be distributed to a number of sources (formal and informal) mixing with vegetables from other sources while moving through the food system. Traders access vegetables grown in the PHA through direct and indirect distribution channels: directly through the PHA farm stalls and indirectly through the CTM.

Food insecurity is depicted as very prevalent amongst the urban poor and has increased with urbanisation pressures and growing numbers of urban poor. The urban poor spend a large portion of their income on food and access vegetables primarily from the informal sector. The existence of informal traders supports this view but neglects the fact that some formal sector small businesses also access vegetables from the informal traders. Debates around access to and availability of food and how these in part contribute to food security illustrate that no one dimension alone will solve food insecurity (availability, accessibility, stability, utilization). In this case study increasing availability of produce in the system may actually increase access of produce by traders, and in so doing increase access of produce by the urban poor, because the higher the supply the lower the cost and resulting sale price. This however is not a favourable stance for farmers that need to profit to continue farming vegetables and making them available. This food system functions as it is providing vegetables to the urban poor. Traders need appropriate financial and structural assistance to further increase access of vegetables by the urban poor.

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11. APPENDICES

Appendix A

The Philippi Horticultural Areas food chain: Uncovering the Food System from Ground to Fork

Questionnaire for the Farmers of PHA

The information gathered from this questionnaire is for the use of an MPhil project being completed at UCT in the EGS department. The contents disclosed will not be used for profitable gain and your anonymity is guaranteed. Informed consent is given to be linked to the results? You will be informed of any beneficiation and any unlikely harmful side affects as a result of this project. The results of this study will be made accessible to you. The results of this study will be kept for an estimated two years should it be required for future use. This information maybe made available to the public via publication, conference presentation or other means.

Name: ……..

Address: ……..

Telephone number: ……..

Male□ Female □ Black□ Coloured□ White □ Christian □ Muslim □

1. Commercial/ semi commercial agriculture
2. How large is your farm?
   ……Ha
3. How many people do you employ? (B/W/C.M/F)
   a. Farming
      i. Full time……..
      ii. Part time…….
      iii. Seasonally…….
      iv. Permanently……
   b. Processing
      i. Full time……..
      ii. Part time…….
      iii. Seasonally…….
      iv. Permanently……

4. What crops do you produce:
   a. Avo
   b. Baby marrows
   c. Beetroot
   d. Broccoli
   e. Brussel sprouts
   f. Butternut
   g. Celery
   h. Cabbage
   i. Carrots
   j. Cauliflower
   k. chilli
   l. Cucumber
   m. Dunja
   n. Egg plant
   o. Fennel
   p. Garlic
   q. Gem Squash
   r. Green peppers
   s. Green beans
   t. Lettuces
   u. Leeks
   v. Patty Pans
   w. Peas
   x. Potatoes
   y. Pumpkin
   z. Radish
   aa. Spinach
   bb. Rhubarb
   cc. Sweet corn
   dd. Sweet potatoes
   ee. Spring onion
   ff. Sugar snaps
   gg. Tomatoes
   hh. Turnip
   ii. Parsley
   jj. Other
   kk. ……
   ll. ……
5. A. What would you estimate the total quantity of vegetables produced on your farm for the average year to be? B. And the total of each crop? (refer to 4)
   a. ….. Tons/year
   b. ……
6. Narrative: comparative prices per a unit from each sector
   a. Retail chains

   ……

   b. Farm sales to restaurants, shops, hawkers and fresh produce markets

   ……
7. Who does your **farm** supply (a-j):
8. How much would you estimate you sell each customer (R/ units/time)
   a. Corporate
      i. Pick ‘n Pay
      ii. Woolworths
      iii. Fruit and Veg
      iv. Shoprite
      v. Other
   b. Other farmers
   c. Farm stalls
      i. Own
      ii. Other
   d. Grocers
   e. Epping
   f. Public
   g. Traders
   h. Other
   i. Parrow market
   j. Philippi market

9. Do you own a farm stall?
   ……

   If yes, name: ……..

10. Is the farm stall food solely provided for by your farm?
    ……

    If no, who are your providers

    a) Other farmers from PHA ……
    b) Other farmers from outside PHA ……
    c) Epping
    d) Other……

11. What percentage of food sold at you farm stall is
    a. Generated on site ……..
    b. Resale ……..
12. What would you estimate the average amount of vegetables sold to traders from your farm stall to be?
    a. R/ units/time …….
13. What are the top 5 products you sell to traders/ traders buy?
    a. Cabbage
    b. Spinach
    c. Carrots
    d. Cauliflower
    e. Turnips
    f. Beet fruit
    g. Other…….
14. In a bad season who do you choose as your priority customer?
    ……

15. How do you determine the grade of vegetables?
    ……

16. How do you determine which grade of vegetables goes where?
    ……

17. Do you package your own vegetables?
    Yes/No

    a. Where?……

18. How do you determine the price of products?
    a. Market prices
    b. Other

Where do you distribute your products from

    c. Farm
    d. Farm stall

e. Distribution centre
f. Packaging centre
g. other

19. Would farm runs/ theft/ donation of vegetables from your farm be enough to sell on a traders stand?
Yes/ No

20. How much do you donated to the farm workers and how often?

……

21. Additional questions and answer section
    a. Have you ever been asked these questions by another survey before?

……

Questionnaire for the Epping Market

1. What is the size of Epping?

……Ha

2. How many days a week is Epping open?

……

3. How many people do you employ? (B/W/C.M/F)

a. Farming
   i. Full time……..
   ii. Part time…….
   iii. Seasonally…….
   iv. Permanently……

b. Processing
   i. Full time……..
   ii. Part time…….
   iii. Seasonally…….
   iv. Permanently……

Input

4. What crops does Epping procure from PHA:

Avo	n. Egg plant	aa. Spinach
b. Baby marrows	o. Fennel	bb. Rhubarb
c. Beetroot	p. Garlic	cc. Sweet corn
d. Broccoli	q. Gem Squash	dd. Sweet potatoes
e. Brussel sprouts	r. Green peppers	ee. Spring onion
f. Butternut	s. Green beans	ff. Sugar snaps
g. Celery	t. Lettuces	gg. Tomatoes
h. Cabbage	u. Leeks	hh. Turnip
i. Carrots	v. Patty Pans	ii. Parsley
j. Cauliflower	w. Peas	jj. Other
k. chilli	x. Potatoes	kk. ……
l. Cucumber	y. Pumpkin	ll. ……
m. Dunja	z. Radish	

5. Who other the PHA are the main suppliers of vegetables to the Epping Market?
6. Which would you consider the most important source?

a. (Rank in order of importance)

……

7. What is the best time of year to buy? Do the summer and winter crops vary drastically?

……

8. What would you estimate the total quantity of vegetables produced by PHA coming into Epping for year to be? B. And the total of each crop?

a. ….. Tons/year

b. ……

Output

9. Narrative: comparative prices per a unit from each sector

a. Retail chains

……

b. Farm sales to restaurants, shops, hawkers and fresh produce markets

……

10. Who does Epping supply (a-j):
11. How much would you estimate you sell each customer (R/ units/time)

a. Corporate
    i. Pick 'n Pay
    ii. Woolworths
    iii. Fruit and Veg
    iv. Shoprite
    v. Spar
    vi. Other
b. Other farmers
c. Farm stalls
d. Grocers
e. Public
f. Traders
g. Other
h. Parrow market
i. Philippi market

12. What is the turn over rate of vegetables on the trading floor? What is the PHA % of it?

a. R/ units/time …….

Traders

13. What would you estimate the average amount of vegetables sold to traders from Epping to be?

a. R/ units/time …….

14. What are the top 5 products you sell to traders/ traders buy?

a. Cabbage
b. Spinach
c. Carrots
d. Cauliflower
e. Turnips
f. Beet fruit
g. Other……..

15. Are the traders that buy the same traders every week/day
……

16. Do you have agreements as to how much will be bought in advance?
……

17. In a bad season who are your priority customers?
……

Value chain

18. How do you determine the grade of vegetables?
……

19. How do you determine which grade of vegetables goes where?
……

20. Do you package vegetables?
Yes/No

a. Where?.....

21. Does Epping have any other value adding mechanisms?
Yes/No

a. What are they?
    i. Slicing, dicing, packaging, transport etc.

.....

22. How do you determine the price of products?
a. Market prices
b. Other
23. Are all vegetables sold through agents? Y/N Are all vegetable products distributed from the trading floor or do the agents have alternate primacies?
24. Would theft/ donation of vegetables from Epping be enough to sell on a traders stand?
Yes/ No

25. How much do you donated to…. and how often?
a. Workers
b. Food on the table
c. other
26. What happens to the condemned vegetables that cannot be donated?
……

27. Additional questions and answer section
a. Have you ever been asked these questions by another survey before?

……

……

Questionnaire for the Agents linked to the PHA

1. How large is your agency
   ……Ha
2. How many people do you employ? (B/W/C.M/F)
   i. Full time……..
   ii. Part time…….

Does it change depending on seasonality…….

3. How many days a week is your agency open?

4. Which vegetables do you sell?

a	Avo	n	Egg plant	aa	Spinach
b	Baby marrows	o	Fennel	bb	Rhubarb
c	Beetroot	p	Garlic	cc	Sweet corn
d	Broccoli	q	Gem Squash	dd	Sweet potatoes
e	Brussel sprouts	r	Green peppers	ee	Spring onion
f	Butternut	s	Green beans	ff	Sugar snaps
g	Celery	t	Lettuces	gg	Tomatoes
h	Cabbage	u	Leeks	hh	Turnip
i	Carrots	v	Patty Pans	ii	Parsley
j	Cauliflower	w	Peas	jj	Other
k	chilli	x	Potatoes	kk	……
l	Cucumber	y	Pumpkin	ll	……
m	Dunja	z	Radish		

5. What are the top 5 products you sell? (rank, refer to Q4)
6. What percentage of vegetables that you sell comes from the PHA?
   ……

7. Where else do you source your vegetables from?
   a. Farm stalls in PHA
   b. PHA Farmers
   c. Other farmers.....
   d. Other…….
8. I f the vegetables are given to you on consignment, do you pre-ordered them or do you sell what you're given?

……

9. What happens to what you don't sell?

……

10. How do you determine the market price?

……

11. What is the average price you sell them for? (R) (refer Q5)

……

12. What are the top 5 products traders buy? (rank)
    a. broccoli
    b. Butternut
    c. Beet fruit
    d. Cabbage
    e. Carrots
    f. Cauliflower
    g. Onions
    h. Potatoes
    i. Spinach

j. Tomatoes
k. Turnips
l. Other

13. How many units does the average trader purchase a week?

……

14. What is the average amount a trader spends a week?

a. 0-R100
b. R100-500
c. R500-1000
d. 1000-2000
e. 2000+
f. 10 000+

15. How many loyal customers do you have?

Yes/No

If yes, How many? ……. Gender?.....

16. Do you have agreements as to how much will be bought in advance? I.e. do they order through you?

……

17. What is the best time of year to sell?

……

18. Do you have your own trader stands?

Yes/No

Location.....

19. Do you employ other traders?

Yes/No

a. If yes, how many? (M/F,B/C/W)

..... ……..…

b. Where are they located?

……

c. Do you give them vegetables to take home?

……

20. Do you sell goods that you receive from the PHA to other farmers in the PHA?

.....

21. Do you sell to other Agents?

Yes/No

22. What percentage would you estimate you sell each customer (R/ units/time)

a. Corporate
    i. Pick 'n Pay
    ii. Woolworths
    iii. Fruit and Veg
    iv. Shoprite

v. Other

b. Other farmers
c. Farm stalls
d. Grocers
e. Public
f. Traders
g. Whole salers
h. Philippi market
i. other

23. In a bad season who do you choose as your priority customer?

……

24. How do you determine the grade of vegetables?

……

25. How do you determine which grade of vegetables goes where?

……

26. Do you package vegetables?

Yes/No

a. Where?.....

27. Would theft/ donation of vegetables from your agency be enough to sell on a traders stand?

Yes/ No

28. How much do you donated to and how often?

……

29. Additional questions and answer section

a. Have you ever been asked these questions by another survey before?

……

……

……

……

……

……

……

……

……

……

Questionnaire for the Traders linked to the PHA

1. Do you grow your own foods?

……

   a. Do you sell the foods you grow?

……

2. Where do you source your vegetables from?
   a. Self farmed
   b. Farm stalls in PHA
   c. Epping
   d. Epping Traders
   e. Philippi
   f. Farms
   g. Other……..
3. Which would you consider the most important source?
   (Rank in order of importance 1-7, 1 being the most and 7 the least importance)

   a. Self farmed ……..
   b. Farm stalls ……..
   c. Epping ……..
   d. Epping Traders ……..
   e. Philippi ……..
   f. Farms ……..
   g. Other ……..
4. Do you pre-order?
   Yes/No

   How often?.....

5. How do you determine who has the cheapest vegetables?

……

6. What are the top 5 vegetable products you buy? (rank)(main source?)
   a. broccoli
   b. Butternut
   c. Beet fruit
   d. Cabbage
   e. Carrots
   f. Cauliflower
   g. Onions
   h. Potatoes
   i. Spinach
   j. Tomatoes
   k. Turnips
   l. Other

7. How many **units** of each vegetables do you purchase a week from which **source**? (ref #6)

   ……

8. What is the average price you pay for each type of vegetable ? (R)

   ……

9. What is the average amount you spend on vegetables a week?
   a. 0-R100
   b. R100-500
   c. R500-1000
   d. 1000-2000
   e. 2000-5000
   f. 5000-10 000
   g. 10 000+
10. How do you transport the vegetables you sell?
    a. Own Car/ Bakkie
    b. Public transport Bus/ Minibus
    c. Bicycle
    d. Horse and cart
    e. Other …….
11. What is the best time of the year to buy?
    Summer/Winter

    Why? ……

    What is the difference?

    a. Crops type
    b. Amount (units available)
    c. Quality
    d. Other ……
12. Do you have your own trader stand? (if not located at trader stand)
    Yes/No

    Location……

    ..

13. Do you employ other traders?
    Yes/No

    a. If yes, how many?
       ..... ……
    b. Who runs them? (M/F,B/C/W)
       ……
    c. Where are they located?

……

d. Do you give them vegetables to take home?

……

14. Do you sell to other traders?
    Yes/No If yes, How many? ……. Gender?..... Race?.....
15. Do you have loyal customers?
    Yes/No

    If yes, what **percentage of your sales** goes to them?

    How many? ……. Gender?.....
16. How do you attract your customers?
    a. Location
    b. Through networks?
        i. People you know
    c. Pricing
17. Do you have agreements as to how much will be bought in advance? I.e. do they order through you?

    ……
18. How often do you go buying?

    ……
19. How many days a week are your trader stalls open?

    …… days a week
20. What vegetables do you sell and what is the average price you sell your vegetables for? (R)
21. What crops do you produce:

a. Avo
b. Baby marrows
c. Beetroot
d. Broccoli
e. Brussel sprouts
f. Butternut
g. Celery
h. Cabbage
i. Carrots
j. Cauliflower
k. chilli
l. Cucumber
m. Dunja
n. Egg plant
o. Fennel
p. Garlic
q. Gem Squash
r. Green peppers
s. Green beans
t. Lettuces
u. Leeks
v. Patty Pans
w. Peas
x. Potatoes
y. Pumpkin
z. Radish
aa. Spinach
bb. Rhubarb
cc. Sweet corn
dd. Sweet potatoes
ee. Spring onion
ff. Sugar snaps
gg. Tomatoes
hh. Turnip
ii. Parsley
jj. Other
kk. ……
ll. ……

22. How many people do you employ? (B/W/C.M/F)
    a. Farming
        i. Full time……..
        ii. Part time…….
        iii. Seasonally…….
        iv. Permanently……
    b. Processing
        i. Full time……..
        ii. Part time…….
        iii. Seasonally…….
        iv. Permanently……

23. Do experience any theft donation of vegetables from your stand and would it be enough to sell on a traders stand?
    Yes/ No

24. How much do you donated to workers or charities and how often and who are they?

……

25. Additional question and answer section

    ……

Appendix B

Average expenditure by traders per vegetable

Vegetable	Quantity	Price (Rand)		
		Average	Minimum	Maximum
Beetroot	Bunch	6.00	6.00	6.00
Butternut	10kg Bag	28.37	0.00	58.00
Cabbage	Individual	5.53	4.25	9.00
Carrots	Bunch	6.00	6.00	6.00
	Prepack (10/bag)	45.58	40.00	60.00
	Bulk bag	15.00	15.00	15.00
Cauliflower	Individual	4.72	4.00	5.00
Chillies	Box	30.00	30.00	30.00
Gem squash	10kg Bag	15.00	15.00	15.00
Green pepper	Box	35.25	27.00	60.00
	Bag	28.33	25.00	30.00
Onions	10kg Bag	30.46	22.00	40.00
Potatoes	10kg Bag	40.90	30.00	73.00
Spinach	Bunch	3.02	1.25	4.00
Spring onion	Bunch	2.50	2.50	2.50
Sweet potatoes	Bag (40 indiv)	75.00	75.00	75.00
Tomatoes	5kg Box	53.08	35.00	62.00
	10kg Box	25.00	25.00	25.00
Other				
Broccoli leaves	Bunch	4.00	4.00	4.00
Covo	Bunch	4.00	4.00	4.00
Mustard	Bunch	4.00	4.00	4.00
Rape	Bunch	4.00	4.00	4.00

Average selling price of vegetables by traders

Vegetables	Quantity	Price (Rand)		
		average	min	max
Beetroot		6.00	6.00	6.00
Broccoli		10.00	10.00	10.00
Butternut	s	3.68	1.50	6.00
	m	5.43	5.00	8.00
	l size/pkt	9.33	8.00	10.00
Celery soup		4.53	2.00	6.67
Cabbage		7.03	4.00	10.00
Carrots	prepack	6.05	5.00	8.00
	bunch	4.97	4.00	7.00
	20kg	50.00	50.00	50.00
Cauliflower		5.04	2.50	7.00
chilli		2.92	1.00	5.00
Cucumber		4.29	3.00	6.50
Danya		4.37	3.00	6.00
Bringal		2.50	2.50	2.50
Garlic		2.83	1.00	5.00
Gem Squash		4.45	1.50	5.00
Green peppers	s pkt/ single	2.73	1.00	4.00
	l pkt	5.00	5.00	5.00
	bag	25.00	25.00	25.00
Green beans	pkt	5.20	4.00	7.00
Lettuces		4.55	2.50	5.00
Leeks		5.42	5.00	6.00
onions	indiv	1.00	1.00	1.00
	m	4.73	3.00	6.00
	l	11.00	7.00	20.00
	10kg	34.00	32.00	35.00
Parsley		5.04	2.00	6.67
Peas		6.00	5.00	7.00
Potatoes	s	4.90	3.00	7.00
	m	10.57	9.00	15.00
	l (+/- 20)	17.57	12.00	25.00
	10kg	36.00	30.00	40.00

Pumpkin	s/ half	6.00	5.00	10.00
	l	12.00	10.00	15.00
Radish		3.33	3.33	3.33
Spinach		4.98	3.00	7.00
Spring onion		4.17	3.33	5.00
Sweet corn		6.67	5.00	10.00
Sweet potatoes		5.50	2.00	10.00
Tomatoes	indiv	4.55	1.00	6.00
	pkt	4.28	3.00	5.00
	5kg	30.00	25.00	35.00
Turnip	bunch	5.27	4.00	6.67
Other				
Covo		7.00	7.00	7.00
Rape		6.00	5.00	7.00
Broccoli leaves		6.00	5.00	7.00
Curly mustard		5.00	5.00	5.00
Broad leaf mustard		5.00	5.00	5.00

Average price of vegetables sold from each location (*price unknown)

Vegetables	Rand					
	PHA	PHA Farm stall	CTM	CTM Trader	Traders (ave. cost price)	Traders (ave. selling price)
Baby marrows (kg)	5.82					
Baby marrows		6.00				
Beetroot (10kg)			35.00			
Beetroot bunch	2.94	3.00			6.00	6.00
Beetroot prepack	3.76	4.00	4.00			
Broccoli		7.50	7.00			10.00
Broccoli kg	8.03		8.75			
Broccoli prepack	16.00					
Bringal	*		*		2.50	
Butternut 10kg Bag	18.80	20.00	18.00	20.00	28.37	
Butternut s						3.68
Butternut m						5.43
Butternut l size/pkt of small						9.33
Celery	3.86	7.00	4.00			4.53
Cabbage	4.46	5.40	5.00	6.00	5.53	7.03
Carrots bunch	2.37	2.60	4.00		4.97	6.00
Carrots prepack	1.65	3.50	4.50	4.75	4.56	6.05
Carrots Bulk bag					15.00	
Cauliflower	4.34	5.67	5.50	8.00	4.72	5.04
chilli (box)	32.90	35.00		30.00	30.00	
Chilli pkt						2.92
Cucumber	5.64	6.00		2.81		4.29
Dunja bunch	1.94		1.25			4.37
Dunja crate	37.60	21.00				
Fennel bulb	3.00					
Garlic		30.00				2.83
Garlic (100g)		4.50				
Garlic (500g)		9.50				
Gem squash						4.45
Gem Squash (10kg)	18.80	20.00	28.50		15.00	
Gem Squash (bag)	12.00		22.50			
Green peppers	5.64	6.00				

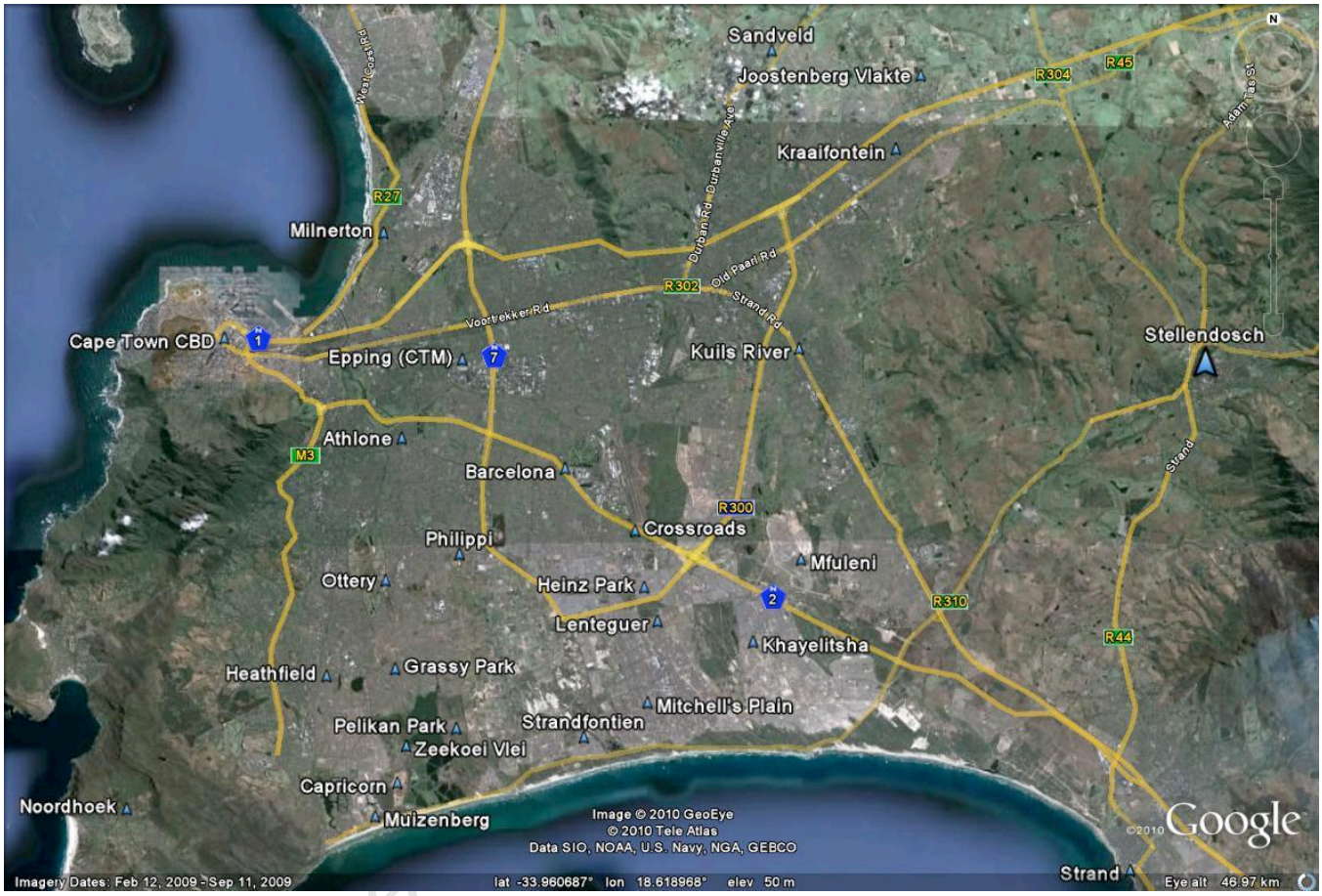
Green peppers bag	23.50	22.50	18.00	40.00	28.33	25.00
Green peppers box		35.00	45.00	50.00	35.25	
Green pepper s pkt/ single						2.73
Green pepper l pkt						5.00
Green beans (5kg box)	28.20	30.00	25.00	25.00		
Green beans pkt						5.20
Hubbard Squash		60.00				
Lettuces	2.92	4.67	2.50			4.55
Lettuces fancy	6.58	7.00				
Leeks	4.12	4.50	3.00			5.42
onions 10kg (1st grade)	25.00	35.00		33.50	30.46	34.00
onions 10kg (2nd grade)		28.00				
onions (s)	26.32	33.00				
onions (m)	31.02	34.00				
onions (l)	31.96					
Onions indiv						1.00
Onions m						4.73
Onions l						11.00
parsley	2.07					5.04
Peas						6.00
Patty Pans	4.70	5.00				
peppers mix	9.40	10.00				
Potatoes 10kg	32.10	39.00	28.73	38.50	36.00	40.90
Potatoes 10kg (1st grade)			60.00			
Potatoes 7kg	18.00					
Potatoes s						4.90
Potatoes m						10.57
Potatoes l (+/- 20)						17.57
Pumpkin	32.90	35.00	37.50	47.00		
Pumpkin s/ half						6.00
Pumpkin l						12.00
Radish box			25.00			
Radish						3.33
Spinach	2.41	2.83	2.75	4.00	3.02	4.98
Sweet corn	7.52	8.00				6.67
Sweet potatoes Bag (40 indiv/bag)				50.00	75.00	

Sweet potatoes						5.50
Tomatoes Box 10kg				52.50	53.08	
Tomatoes Box 5kg		25.00		32.50	25.00	30.00
Tomatoes indiv						4.55
Tomatoes pkt						4.28
Turnip	2.92	4.00	3.00			5.27
Parsley	2.20	3.00	2.75			
Spring onion	2.50		2.25		2.50	4.17
Rape	4.00				4.00	6.00
Covo	4.00				4.00	7.00
Brocolli leaves	4.00				4.00	6.00
Mustard	4.00				4.00	5.00

Appendix C

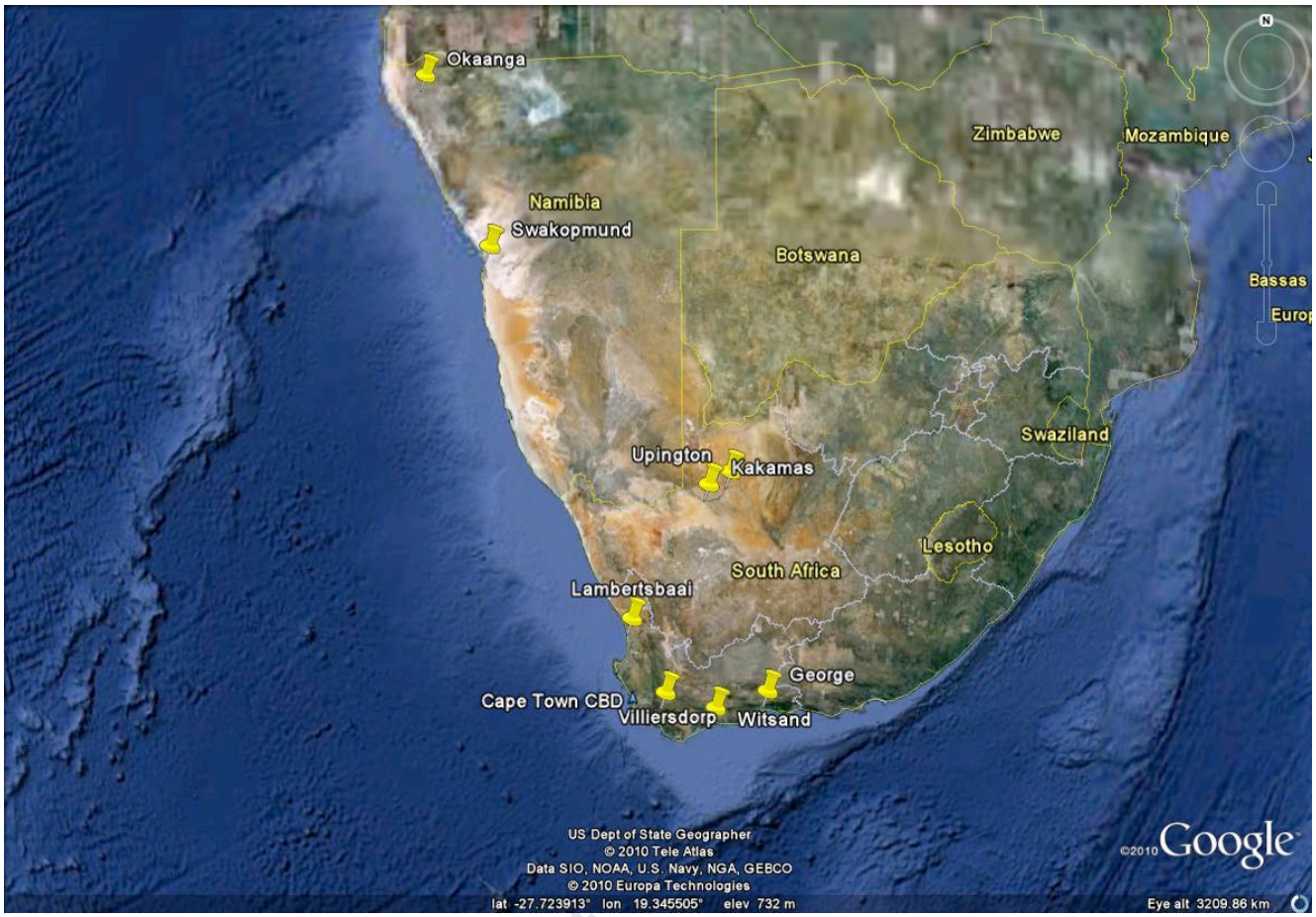
MAPS

The place markers (Blue arrows and yellow tacks) represent locations that the food ends up in.



Map of known supply and distribution locations in Cape Town (Google Earth)

Map of known supply and distribution locations in the Western Cape (Google Earth)



Map of known supply and distribution locations in South Africa and Namibia (Google Earth)

Appendix D

- Other farmers from South Africa include the 4000 farmers supplying the CTM and those found in: (from Table 6).

Ceres	Ottery
Citrusdal	Paarl
Franshoek	Sandveld
Joostenberg Vlakte	Stellenbosch
Kraaifontein	Uitrivier
Kuils River	Villiersdorp
Lambertsbaai	Witsand
Malmesbury	Other farms within the Western Cape

- CTM Agencies include Boere Markagentskap, Boland Markagentskap, Cape Market Agency, Dangrow, Fine Bros, Fox and Brink CC, Rhoda's, Subtropico Spes Bona and Western Province Market Agency. An agency comprises of four sections for the trading of different products 1) fruit section split into sub tropical and tropical, 2) tomatoes section, 3) potatoes, onion, garlic and sweet potatoes section and 4) a vegetables and pocket vegetables. Each section has its own agents thus agents specialise in certain products.
- CTM Traders: Whiting, Sing, Ahmed and Norton* (* Psuedonym)
- PHA farmers: Meyer, Schultz, Willam, Norton* and Terreblanche
- PHA farm stalls: Kaapse Spens, Botha's Fruit and Veg, Schultz Varsprudukte Mark, Dew Fresh and Affie Plaas
- Donations to: Salvation Army, soup kitchens, school projects, orphanage, old age homes, homes for the disabled, churches, church bazaars and those individuals that asking for food
- Waste: Compost, animal feed and general waste (garbage)
- Theft: traders, public, children and personnel
- Traders: distinguish between black and coloured
- Wholesalers: M&R and FreshMark. M&R then supply spar, 7 eleven and restaurants and FreshMark- Shoprite
- Retailers: Shoprite, Pick 'n Pay, Fruit and Veg, or privately.