STRATEGY FOR VIABLE, SUSTAINABLE URBAN AGRICULTURE IN A DYNAMIC, URBANISING SOCIETY

by

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DECLARATION

I, Michael Graham Leech (ID 4098305094088) declare that this thesis entitled ***Strategy for viable, sustainable urban agriculture in a dynamic, urbanising society*** is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references. Before commencing the research project, both the UNISA Library and I conducted a literature review and ascertained that no other similar research had been conducted in South Africa prior to the registration of this project.

Signature: …… Date: ……

ABSTRACT

At Constitutional level, legislation in South Africa entrenches the provision of food and water for all its citizens. In instances where citizens are unable to provide in these basic requirements for themselves, social assistance should be provided to ensure a healthy life for all. In this regard, legislation and Town Planning ordinances and regulations are in place to ensure that built-up environments in which we live and work are healthy and safe for all. However, this study revealed that food provisioning by community gardeners is peripheral in legislation, ordinances and regulations and the practice of urban agriculture is, in many instances, in conflict with the principle of safe and healthy food for all.

Community gardeners/urban agriculturists are food farmers within the city who produce food for themselves and others without the checks and balances that are otherwise applicable to food brought into the city from outside. While food production on any piece of available land is vital for these community gardeners for their sustenance and survival, it could become a potential health hazard if no checks or testing measures are in place to ensure that the food being produced is safe for human consumption.

The study sought the views and perceptions of community gardeners, residents, Environmental Health Practitioners and Town Planners in the eThekwini Metro region with regards to community gardening/urban agriculture and its impact on food provisioning to citizens. For data collection, a one-on-one interviewing survey method was used with all four groups and results were calculated and converted to average percentages and analysed.

The results revealed that there was conflict between legislation, ordinances and regulations regarding the production of food in the built-up environment of the EThekwini Municipality. It was also revealed that there was no cohesive policy to control the production of food produced and sold by community gardeners in the study area.

The need for control measures and regulations regarding food production and sale by community gardeners was highlighted. Moreover, where ineffective or none such measures or controls exist, a transparent and consultative process involving all stakeholders must take place in order to establish up viable and sustainable control

measures. The people who will be most affected by these rules, namely the community gardeners, should be pivotal role players in the establishment of a sustainable urban agriculture policy.

Recommendations to address the problems illuminated by the study are presented.

Keywords: community gardens, food, food security, land use zones, local authority, peri-urban, policy formulation, rural agricultural activities, urban agriculture, water.

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ACRONYMS

ANC- African National Congress (Political Party).

DoA –Department of Agriculture

EHPs-Environmental Health Practitioners.

IDP Integrated Development Plan.

LUMS – Land Use Management System of KwaZulu Natal.

NDP-National Development Plan.

NGO – Non Government Organization.

PPDC – Provincial Planning and Development Commission

UDF – Urban Development Framework

UPA – Urban and Peri-Urban Agriculture

WHO – World Health Organization

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CHAPTER ONE

THE PROBLEM AND ITS SETTING

1.1 INTRODUCTION

On 30 June 1999 the Social and Economic Development Committee of the erstwhile Inner West Council (now part of eThekwini Council) resolved in resolution EF312A to accept the development and promotion of Community Gardens as part of its local economic policy. The Council accepted the following vision to guide such development:

> *"The Inner West Council recognizes the value of Community Gardens and the voluntary effort by community members to develop and maintain these facilities which assist residents in improving the quality of city life by revitalizing and cleaning neighbourhoods, stimulating social interaction, conserving and recycling resources, reducing family food budgets and creating opportunity for recreation, therapy and exercise."* (Inner West Council, 1999) (Appendix 1).

This vision also reflects the Agricultural Policy of the African National Congress (ANC, 1994) which voices the need to attain national and household food security.

The Parks and Recreation Department of the Inner West Council, assisted by the Department of Health, and the Department of Planning and Development, was made responsible for this function (Inner West Council, 1999). This implies that horticulturists from the Parks and Recreation Department should, *inter alia,* spearhead the implementation of the vision on the ground. Capital funding for the Community Gardens development is supposed to come from savings generated by cleaning Council-owned vacant land which has to be cleared in terms of health regulations (KZN, 1981). However, such funds were only forthcoming during the 1998/99 financial year and never since, due to budget constraints. In Resolution EF312A of 1999 (Inner West Council, 1999) (Appendix 1) the Council granted free use of available land to people residing in close proximity to such areas, subject to Council not requiring that land for other purposes. In situations where Council

required the land, the community gardener was given six months' notice to harvest and vacate the land. Resolution EF312A also specifies that Council should facilitate, where possible, the relocation of such gardens to another suitable site in close proximity of the developed plot. Council also resolved that research should be undertaken to ensure that community gardens become sustainable, and remain sustainable (Inner West Council, 1999).

In tandem with the Council resolution EF312A of 1999 on Community Gardens and following the 1994 national elections, a fast tracked, low cost housing program for the eThekwini Municipality commenced on Council owned land. Although the sites that were laid out were between 200 to 300 square metres in size, 60% of the sites were allocated for building purposes, as was reported by Poulsen and Sulverman (2005). This implies that residents who settled on these sites had to utilise the maximum space for building a house; consequently only about 80 to 150 square metres of land around the dwellings is available for other uses, for example gardening or future expansion of the residence. The areas of land allocated by the eThekwini Council are presented in Figure 1. Observations have revealed that the sites on which houses were built in these areas clearly do not provide enough space for homeowners to grow their own food. This fact is especially devastating in light of the traditional agricultural focus of Zulu people. Moreover, as these sites are located in peri-urban and rural areas where poverty prevails, there is an urgent need for alternative space/sites in close proximity to the dwellings where homeowners could ensure that food is grown for their and their dependants' consumption.

Town planning doctrine requires that each township must not only have sites for socio-economic developments such as gardens, but sites must also be set aside for community development such as schools and open spaces for recreation (KZN. Provincial Planning and Development Commission, 2001; 2004). For sustainable development of such facilities, a constant flow of funds is required. However, although some housing development has taken place, the majority of the sites Council zoned for public use have not been developed due to the lack of funds. As a consequence, Council has been placed under tremendous pressure because the undeveloped public open spaces earmarked for schools, parks, sports fields as well as riverside areas, road reserves and green belts became sites for non-official

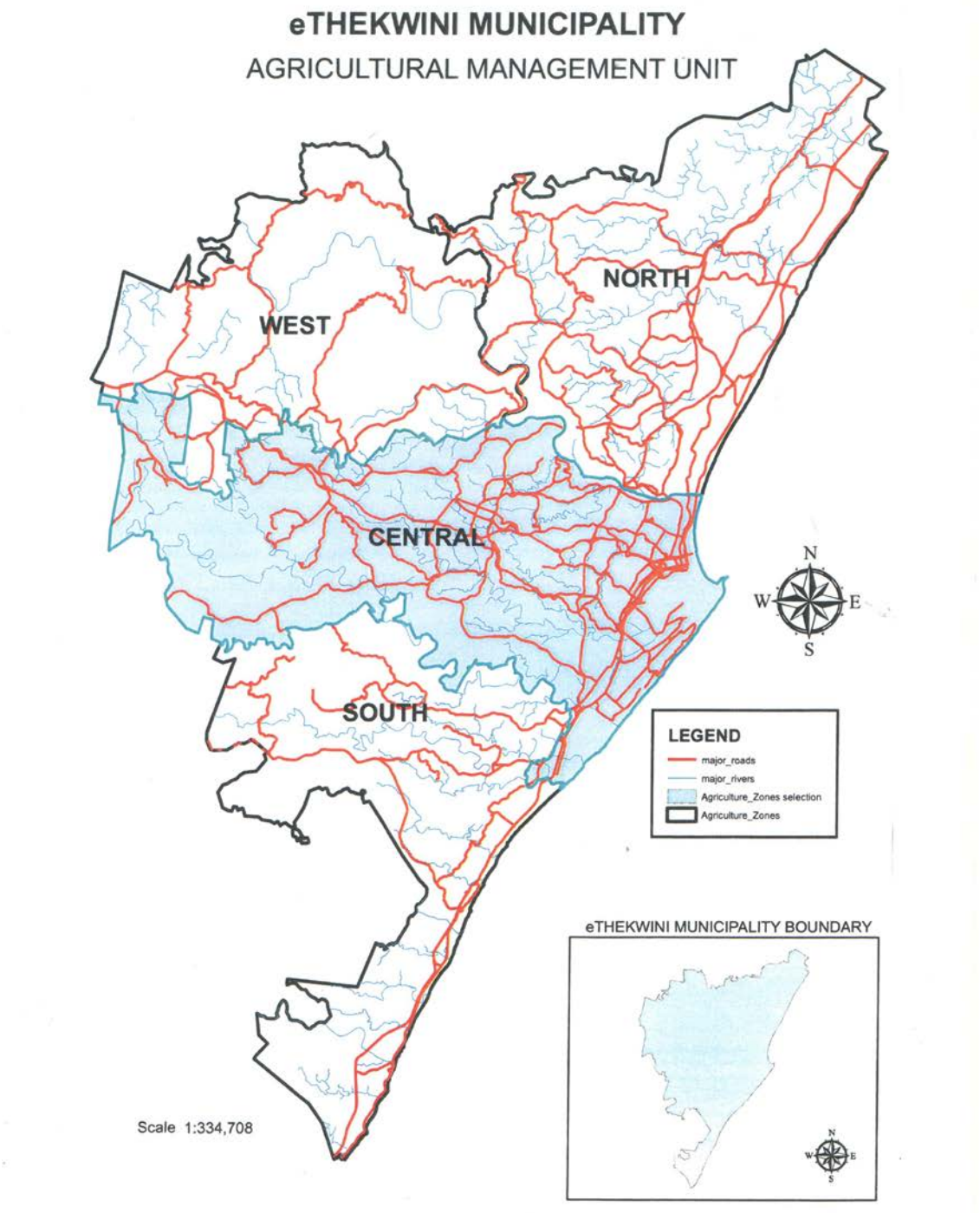

Figure 1: The eThekwini Agricultural Zones and sites that have been established within the Ward boundaries. The blue shaded area represents the area of the investigation which includes the urban agricultural areas and the concervancies. *Source: eThekwini Engineers, 2012*

community gardening (personal observation). In retrospect, such a development should have been foreseen since the population in the peri-urban township settings has rural origins and traditionally grew their own food before migrating to the eThekwini region. In an environment where unemployment is rampant, residents will seek alternative options for survival such as using vacant land to cultivate crops. It was noted that many of the new homeowners who settled in these areas are unemployed and have families to support (Statistics SA, 2012a p.6).

From 1998 to 2011 the unemployment rate in SA remained virtually unchanged at above 26%, then dropped slightly in 2012 to 24.9% (Statistics SA, 2012a p.6). However, in 2013 it rose to 25.2% (Unemployment rate rises to 25.2%, 2013) and it rose further to 25.6% in the second quarter of 2013 (Jobless tally jumps to new high, 2013). Women who are predominantly homemakers comprise the largest proportion of the peri-urban population (Statistics SA, 2005). Persistent urban and peri-urban expansion trends relate to the need for gardening space by a population bent on basic agricultural practices for survival. Policies are therefore needed to guide the gardening processes of these urban and peri-urban communities. Moreover, the role of horticulturists already in the employ of Council needs to be evaluated.

The issue of uncontrolled community agricultural practices on public space in municipal areas is a matter of concern. No documentation on environmental impact studies could be found, nor was any site information available on municipal records despite the fact that consultants had identified 600 (active and non-active) sites and their respective GPS references. An active site would imply that the contact phone number given was functional and the gardens productive. A mobile survey (i.e., travelling through the area by vehicle and making observations) of these areas revealed that valuable trees, shrubs and other plants around river courses had been removed and burned. In many instances only a single crop had been planted and tended and later harvested, after which the land was left fallow. In the following season an adjacent area would be cleared and cleaned in much the same way and the whole process would be repeated. These practices leave these areas denude of vegetation, resulting in a lack of nutrients and micro-organisms in the soil. Due to the poor type of soil, the hilly topography and weather erosion, the loss of arable soil is a consequence. The soil ends up in the rivers and streams causing major

downstream engineering and water pollution problems. If these practices continue, the costs of developing a particular site or area for public recreation and/or other endeavour will, in the long run, be higher than the norm. At the end of the day the registration of a plot in the eThekwini municipality office implied access to compost, seeds and a spade. It did not reflect the situation on the ground as far as it concerned the locality of the site and the individual who was cultivating the crops at any particular time.

Gardening in the developed Greater Metropolitan area of Durban is considered by a more affluent society as a recreational pursuit (Leech, 2005). This is in contrast with the majority of residents of house plot sites in the sub-economic regions who wish to grow vegetables for their own consumption but who do not have enough space around their houses to plant a range of vegetables in a sustainable manner in pursuit of survival. Ideally, provision has to be made outside the residence setting to cater for both the recreational and gardening needs of the community. In theory this can only be done in public open spaces, riverside areas, on Council vacant land, on suitable road reserves or within school sites. The Municipality is the custodian of most of these properties and if they support gardening practices for food production, they should ensure that gardening is practised in a controlled, orderly fashion and in compliance with legislation. In addition, the Municipality should ensure that valuable vegetation is protected and that appropriate agricultural practices are used; for example, the use of proper contour ploughing/planting methods and terraces in a manner appropriate to retaining valuable soil on embankments and riverside areas. A visit to the Central eThekwini Agricultural Region showed that gardening was taking place in an haphazard manner. An urban agriculture policy is therefore needed to guide and finance the process so that it can be conducted in an orderly and sustainable manner. Because horticulturists work in close contact with the local population, the contribution of horticulturists in structuring the process should not be underestimated.

1.2 PROBLEM STATEMENT

The purpose of this investigation was to analyse those factors influencing policy development for urban agriculture in the Durban/eThekwini Metro environment with reference to:

- community gardeners' experiences of regulations regarding regional planning, conservation, security and water provision;
- the perceptions and attitudes of ratepayers (residents) regarding urban agriculture;
- National standards for town planning and health regulation development;
- National legislation affecting urban agricultural practices

for the purpose of identifying the key elements required for the formulation of a policy for viable, sustainable urban agricultural practices in a dynamic urbanizing society.

1.3 SUB-PROBLEMS

1.3.1. SUB-PROBLEM ONE

The first sub-problem was to evaluate the urban agricultural practices of community gardeners in the Central eThekwini agricultural area with reference to the regulations affecting regional planning, conservation, security and water provision, in order to determine the extent of the gap between survival practices among communities and regulatory operations.

1.3.2 SUB-PROBLEM TWO

The second sub-problem was to establish the attitudes and perceptions of Metro residents/ratepayers regarding the phenomenon of urban agriculture close to their residential settings in order to determine how residents/ratepayers view the impact of urban agriculture on their standard of living and the value of their properties.

1.3.3 SUB-PROBLEM THREE

The third sub-problem was to evaluate eThekwini urban agriculture strategies in terms of the requirements of the national town planning standards and health regulations in order to determine the scope for establishing urban agriculture as an integral component of a Metro development programme.

1.2.1.4 SUB-PROBLEM FOUR

The fourth sub-problem was to integrate the facts regarding the gap between survival practices of communities and regulatory operations with the views of

ratepayers regarding urban agriculture and the scope for establishing urban agriculture as an integral component of Metro development for the purpose of identifying the key elements required for the formulation of a policy for viable, sustainable urban agricultural practices in a dynamic, urbanising society.

1.4 WORKING HYPOTHESIS

It was hypothesised that if the impact of existing national standards for town planning, business development, conservation, security, water, marketing and health regulations on the urban agricultural practices in the Central eThekwini Agricultural Region could be shown, then the key elements needed for establishing an urban agriculture policy for the eThekwini Municipality would become visible and clear.

1.5 ASSUMPTIONS

1.5.1 ASSUMPTION ONE

It is a known fact that South Africa has one of the most progressive constitutions in the world, as is entrenched in its preamble and Bill of Rights (SA, 1996). According to Section 27 1(b) of the Bill of Rights in the Constitution, every South African citizen has the right to sufficient food and water; and “if they are unable to support themselves and their dependants, appropriate social assistance [and] sufficient food and water” must be supplied by the state through “reasonable legislative and other measures, within its available resources” (SA, 1996).

However, my personal experience as a horticulturist in the employ of the eThekwini Metro has revealed that not only able residents, but also many community gardeners have become dependent on social support programmes for survival. My observations of the many soup kitchens, school feeding programmes and destitute people who knock on the doors of churches and social welfare offices testify to this fact. I was therefore led to assume that there are certain forces at play that prevent community gardeners and, by implication Local Government, from achieving the above national objective of food provisioning for all its citizens. Moreover, at the conception of this study I argued that it was these yet unidentified factors that contributed to the plight of many destitute residents and, more specifically, of community gardeners.

1.5.2 ASSUMPTION TWO

It was assumed that the existing regulations of health and planning would be similar throughout the country and that, if they were impacting negatively on the eThekwini Metro region, they would also be impacting negatively on health and planning issues throughout the country, thereby preventing the development of a sustainable food industry nationally.

1.5.3 ASSUMPTION THREE

It was assumed that the population of the eThekwini Metro region, with their diverse views and experiences under the history of separate development, would embrace the urban agriculture phenomenon by taking part in the surveys and completing the questionnaires candidly and timeously.

1.6 DELIMITATIONS

This research project focused on the users and use of vacant public open spaces, riversides and other sites/areas in the central agricultural region of the eThekwini Metro region, commonly referred to as the Durban area. The study concentrated on aspects and issues that affected the practice of urban, peri-urban and rural agricultural activities within the built-up area from the perspectives of municipal officials, residents and the community gardening population. The study involved the population living in the central agricultural eThekwini region which comprised some 709 km^2 (Figure 1). In conjunction with the views and practices of community gardeners, the study also investigated the views of Environmental Health Practitioners (EHPs) and town planners and the impact of these officials' decisions that affected community gardeners was explored.

The delimitations of the study therefore were as follows:

1.6.1 No attention was given to the nutritional value of the food crops being produced and the presence and uptake of pollutants such as heavy metals or pathogens in the crops or environment were not investigated. These delimitations highlight the need for and the importance of testing the residents in this area to determine their health status and to employ remedial strategies to ensure their health.

1.6.2 The specific views of horticulturists employed in the area were not investigated through a survey. The decision not to do this was premised on the assumption that on the basis of their training and work experience, horticulturists would be familiar with legislation and municipal regulations applicable to community agriculture. As I function as the horticulturist in the study area tasked with urban agriculture, it was important not to bring my own and my close colleagues' views to the study at the risk of bias that might impact the validity of the research.

1.7 CONCEPTUAL CLARIFICATION AND DEFINITIONS

1.7.1 Community gardening / urban agriculture: For the purpose of this study, community gardening and urban agriculture are considered interchangeably as agricultural practices that take place on land set aside for public open spaces, schools, road reserves and other open spaces which are used for subsistence farming practices.

1.7.2 The Department of Agriculture (SA, Department of Agriculture, 1995) defines the following terms:

Agriculture is the sustainable and productive utilisation of natural sources and other inputs by people for plant and/or animal production purposes, either for own consumption or for marketing.

Farmers, irrespective of their race, gender or scale of production, are land users who engage productively in agriculture on either a full-time or part-time basis, regardless of whether agriculture forms the principal source of their income.

Sustainable Agriculture refers to farming systems which are productive, economically viable and environmentally sound over time.

Urban Agriculture: *For the purpose of this investigation, the above definition of agriculture will apply to all gardening/farming activities within an urban/city and peri-urban environment.*

1.7.3 The KwaZulu-Natal Land Use Management System (KZN, Provincial Planning and Development Commission, 2001; 2004) defines the following terms:

Agricultural Land Use Zones are zones that are intended to provide land for buildings and uses associated with farming practices. These zones are established with the following specific activities in mind:

- e production of food and fibre;
- the cultivation of crops;
- the farming of livestock, poultry and bees;
- horticulture and market gardening;
- urban agriculture and settlements; and
- the use of buildings for associated activities, including education."

Health Regulations entail the provision and maintenance of satisfactory health care services for residents. Such regulations include regulations on cleanliness, refuse removal and disposal, satisfactory housing, prevention of food adulteration, prevention of nuisance and the maintenance of human health. These requirements are covered in the following Acts:

- Agricultural Pest Act, Act 36 of 1983
- Agricultural Product Standards Act, Act 119 of 1990
- Environmental Act, Act 107 of 1998
- Foodstuffs, Cosmetics and Disinfectants Act and amendments, Act 54 of 1972; Act 32 of 1981
- Municipal Systems Act, Act 32 of 2000
- National Health Act, Act 61 of 2003
- Water Act, Act 36 of 1998.

For the purpose of this study, these acts and other legislation are in place to control certain areas of our lives; for instance, to protect the health of citizens and the environment in which they live within an urban area.

Environmental Health Practitioners (EHPs) are persons responsible for carrying out legal and municipal inspection functions to minimize health and safety hazards in a government/local government environment.

Public Open Space Land Use Zones are zones that are set aside for recreational activities. Such zones include parks of different sizes, green areas for bowling, ball sports and cycling, and green belts for walking and hiking.

1.7.4 The *Collins Concise Dictionary* (1996) defines the following:

Legislation: “law which has been promulgated by the legislature.”

Sustainable: “to provide for or give support to, especially by supplying the necessities.”

Viable: “capable of becoming / capable of normal growth and development; having reached a stage of development at which further development can occur independently of the mother.”

For the purpose of this study, the above two definitions describe the two most important interdependent factors that will determine the success or failure of community gardening, or urban agriculture, and the city’s ability to provide services.

1.7.5 Demarcated area of the study:

eThekwini Municipality: This is the changed name of the previous Durban Corporation/Municipality incorporating all the smaller municipalities that surround it.

eThekwini Metro: Category A municipality, one of the bigger cities with more than 500,000 voters.

For the purpose of this study, eThekwini Municipality, Metro and Council are used interchangeably.

1.8 OUTLINE OF CHAPTERS

CHAPTER TWO: Review of the Related Literature

The focus in Chapter Two is on the two components that impact on a horticulturist’s perspective of the urban agriculture experience. The first component scrutinises statutory documents that pertain to food security and the right of all citizens to food and services. The second part of this chapter analyses the urban agriculture phenomenon as it is practised globally and locally and evaluates the lessons that could be learnt from national and international experiences.

CHAPTER THREE: The Data and Treatment of the Data

Chapter Three describes the locality of the data, the questionnaires that were used to collect the data, the data processing methods and the reporting method for each of the four sub-problems. The chapter also discusses the criteria regarding the admissibility of the data.

CHAPTER FOUR: Results

Chapter Four presents a discussion of the results that were obtained after the responses to the questionnaires had been scrutinised and processed. The discussion focuses on the areas of concern that were illuminated and highlights those aspects within the municipal system that are in place to support an urban agriculture operation.

The statistical processing of the results is also presented. These data highlight significant relationships between the variables from which relevant conclusions could be drawn.

CHAPTER FIVE: Discussion

The focus in Chapter Five is on integrating the findings related to the sub-problems and on drawing conclusions based on valid and reliable facts. From the integrated data, guidelines for the way forward are provided and criteria for the formulation of an urban agriculture policy are presented. In this process cognizance is taken of the best practices for urban agriculture based on practices used throughout the world as described in the literature.

CHAPTER TWO

REVIEW OF THE RELATED LITERATURE

2.1 INTRODUCTION

Urban agriculture is defined by Mougeot (2003, p.11) as “an industry located within (intra-urban) or on the fringe (peri-urban) of a town, a city or a metropolis, which grows or raises, processes and distributes a diversity of food and non-food products, (re-using) largely human and material resources, products and services found in and around that urban area, and in turn supplying human and material resources, products and services largely to that urban area”. The practice of urban agriculture is exactly what the words imply ─ agriculture that is practised by the citizenry within or on the fringe of a city like the eThekwini Metro in order to survive. In such a setting vegetables are planted and animals are raised for food. Other plant products like herbs, tree saplings, ornamental plants and flowers are also cultivated in such settings (United Nations, 1996). Upstream production and delivery of inputs such as compost production also take place. Downstream value adding operations like the processing and marketing of agricultural products are also components of an urban agriculture setting (De Zeeuw, Guendel & Waibel, 1999). The scope for development and initiating entrepreneurial initiatives in an urban agriculture setting is therefore enormous. While urban agriculture is considered as a strategy to survive, it is also considered a recreational pursuit (Leech, 2005).

The literature reports that during periods of economic or political crisis, the practice of urban agriculture tends to rapidly increase and in many instances it is the only survival option the poor and destitute can exploit (Rees, 1997; Forester, 1997; Purnomohadi, 2000; Jacobi, Drescher & Amend, 2000; Cofie, van Veenhuizen & Dreschel, 2003; Tambwe, 2010; Subsistence farming: a way of overcoming poverty, 2011). In the process, food is also produced and jobs are created on a very small scale (Rees, 1997). In 1996 the United Nations Development Program estimated that 800 million people were engaged in urban agriculture worldwide, with the majority of these operations occurring in Asian cities (Forester, 1997; RUAF/IWMI,

2005). Of these 800 million people, 200 million were considered to be market producers employing 150 million other people.

Urban agriculture contributes to food security by improving the quality of the food intake of the poor and middle income households and thus raising the nutritional status of the community (Hassan, 1995; Cofie et al., 2003; Kourous, 2005; Onyango, 2010; Mkwambisi, Fraser & Dougill, 2011). In regions where urban agriculture has become an established practice, it has also become a source of income (Cofie et al., 2003; Kourous, 2005; Mkwambisi et al., 2011). However, the role-playerss and stakeholders involved in the dynamics of urban agriculture are many. These are the suppliers of resources, companies that provide inputs and services to schools, community centre managers and property owners. Intertwined in all the agricultural activities are political relationships which not only create synergies that complement agricultural initiatives, but can also be antagonistic and can jeopardise the embryonic development in a stressed community The entire urban agriculture experience is about a triangular relationship among:

- urban agriculture communities and their associated suppliers and clients;
- local authorities who are responsible for the management of land ownership, community welfare and agricultural practices taking place in their areas of responsibility; and
- legislators and policy makers at both national and provincial levels.

The practice of urban agriculture is not embraced by all members of the eThekwini community as opposition to the concept of urban agriculture tends to come from environmental custodians, public health practitioners and urban planning professionals (KZN Provincial Planning and Development Commission, 2001; 2004). To some extent this resistance is a dichotomy because from a Local Government perspective, and the perspective of the eThekwini Municipality in particular, the Parks and Recreation Department has been allocated the responsibility of taking custodianship of urban agriculture in the region (Inner West Council, 1999) (Appendix 1). This implies that officials, particularly horticulturists employed by the eThekwini Municipality, must drive the urban agriculture operation within a range of

statutory requirements and constraints in order to sustain and promote services, care, welfare and environmental development in the urban agriculture setting.

A recent development regarding urban agriculture is very significant. The National Development Plan 2030 (SA, National Development and Planning Commission, 2013) lists two important national targets that relate significantly with the objectives of this research project. The first target is "realising a food trade surplus with one third produced by small scale farmers or households", while the emphasis of the second target is on "ensuring household food and nutrition security" (SA, National Development and Planning Commission, 2013 p.34). This means that although urban agriculture was frowned upon in the past, the concept is gaining ground and is becoming more acceptable by communities within built-up environments as well as by the government of the day.

2.2 PROVISION OF SERVICES

The standard of the provision of services to communities in an urban agriculture setting is not only dependent on current legislation, but also on a global appreciation of the challenges regarding the dynamics of urban agricultural processes. A summary of the legislation related to urban agriculture (Appendix 3) is presented below. These legal stipulations are presently in place to control the working and living environments of people. An important stipulation that, in my view, should be included in the statutes is that urban agriculture must co-exist with other activities in the urban environment. With reference to the provision of services by the eThekwini Municipality and by the horticulturists in its employ in particular, the most relevant legislation and international developments that impact on urban agriculture are listed and then briefly discussed below:

1. The Constitution of the Republic of South Africa, Act 108 of 1996 (SA, 1996)
2. The Municipal Systems Act, Act 32 of 2000 (SA, 2000)
3. The Municipal Structures Act, Act 117 of 1998 (SA, 1998b)
4. Development Facilitation Act, Act 67 of 1995 (SA, 1995)

5. KZN: Urban Development Framework (KZN, Department of Cooperative Governance and Traditional Affairs, 2011)
6. KZN: Land Use Management System (LUMS), (KZN, Provincial Planning and Development Commission, 2001; 2004)
7. United Nations Millennium Goals (UN, 2000)
8. The Rome Declaration of Food Security (UN, 1996)
9. The National Development Plan 2013 (SA, 2013).

2.2.1 THE NATIONAL CONSTITUTION OF THE REPUBLIC OF SOUTH AFRICA, ACT108 OF 1996

The South African Constitution and Bill of Rights (SA, 1996) Sections 24 and 152 (1)(c) consecrate the rights of all South African citizens to housing and an environment that is safe and healthy. South African citizens, in terms of Section 27 1(b), have the right to sufficient food and water. Section 28 (1)(c) of the Bill of Rights refers to the right of every child to basic nutrition. This Constitutional stipulation implies that if citizens are unable to provide for themselves, they must receive social and nutritional assistance from the government of the day. In terms of Section 195(1) of the Bill of Rights, all South African citizens should receive the same services impartially, fairly, equitably and without bias. In well-established and regulated central business district (CBD) environments, such services can be provided and regulated given appropriate legislative stipulations. However, for various reasons it can be expected that the further communities reside from the CBD, the higher the number of unemployed people will be. In this context, subsistence gardening becomes a method for survival (Subsistence farming: a way of overcoming poverty, 2011). In such settings it is unavoidable that the standards of the services provided will be compromised and that the legislative stipulations regarding land usage, refuse removal and provision of health services will become blurred (South Africa: Municipal Service Delivery, 1997). However, the legal instruments that were formulated for a more sophisticated society and infrastructure have failed to harmonise the welfare and protection services within a society where the level of technological development is poor and the infrastructure underprovided. The Constitutional ideal of equal opportunities for all citizens will not come to fruition

unless a better appreciation can be formulated on the dynamics of peri-urban settings with regard to the following:

- provision of services
- care and welfare of the people
- environmental care and protection (SA: Municipal Service Delivery, 1997.)

From an international perspective, this concept of a right to social security and the right to association is also captured in the Rome Declaration on World Food Security (United Nations,1996) which suggests that South Africa is in line with the global trend. The real challenge for the South African government in terms of Section 195 (1) of the Constitution (SA, 1996) is its commitment to provide these services equally for all its citizens, especially for those peripheral communities trapped by the urbanisation process where a balance between the provision of housing and services must be found.

One of the priorities related to sustainable food provision is the development and implementation of a plan of action at all levels of government (national, provincial and local) to address the food security of the nation, especially the food security of the destitute (Cooperatives as social enterprises in food security, 2011). Section 152 of the Constitution, sub-section 1(a)(b)(c)(d) (SA, 1996) indicates that Local Government is responsible for providing those sustainable services that promote social and economic development and a safe and healthy environment. This is understood to mean that local councils/municipalities must provide the necessary impetus for the development of plans to uplift the people by creating work and also by providing sustainable projects to produce food for the poor and destitute. It can only be speculated whether the authors of the Constitution had any appreciation of the magnitude of such a task.

2.2.2 THE MUNICIPAL STRUCTURES ACT, ACT 117 OF 1998

The focus of the Local Government Municipal Structures Act, Act 117 of 1998 (SA, 1998b) is on the establishment of municipalities to function in areas that have a legacy of massive poverty, gross inequalities in the services provided by the municipalities, and disrupted spatial, social and economic environments.

Furthermore, it is expected that municipalities must fulfil their constitutional obligations by ensuring that sustainable and efficient municipal services are in place and that social and economic development promotions are taking place. These are expected to occur by encouraging the establishment of a safe and healthy environment. In terms of Section 19 (2)(a)(b)(c) of the Act, Municipalities must review the needs of the community annually by involving the community [possibly by means of surveys] and prioritizing their needs. The Act further instructs Metro Councils under Section 73 (3) to make rules and determine procedure for the formation of ward committees and the election of members of the diverse communities so that the needs of the communities can be determined. In such a system it is envisaged that the identified needs, in terms of Section 74 (a), can also be referred to Council via the Ward Committee and the Councillor.

With reference to these stipulations of the Act, it was observed that for the five budget cycles prior to this study, those important aspects of the legislation had not been adhered to nor had they been implemented. This could have been partially due to the fact that the Local Government Amendment Act (SA, 2008a), wherein it is stipulated how ward committees must be established, first had to be promulgated. Moreover, this Act only came into effect in 2009. By implication, the severe disregard for this Act and its careless treatment by Local Government means that the subsistence farming community and others of their ilk have no voice in Council and are thus a neglected sector of the greater municipal population. This observation is important because five years later the National Development Plan 2030 also explores the question whether the people on the ground have the capacity to translate their needs into an Integrated Development Plan (IDP) and whether the government of the day has the ability to place these needs on record (SA, Development and Planning Commission, 2013 p.275).

2.2.3 THE MUNICIPAL SYSTEMS ACT, ACT 32 OF 2000

Section 26 of the Municipal Systems Act (SA, 2000) refers to the core components of an Integrated Development Plan (IDP) for municipalities. It is important to note that Section 26 (e) refers to the importance of a spatial development framework which must provide basic guidelines for a land use management system (LUMS) in the area of responsibility of the Municipality. In Section 27, provision is made for the

process of planning, drafting, adopting and reviewing the IDPs which should include information on the LUMSs. However, this development cannot take place in isolation. Section 29 (1)(b)(i)(ii) clearly instructs the municipality to:

- consult with the community on their development needs and priorities; and
- ensure that the same community must participate in drafting the IDP.

Unfortunately, little progress in this regard has taken place. In an article entitled *South African Local Government: 10 years later",* the immediate pre-election implementation priority for IDPs was to overcome the "one size fits all" approach by differentiating responsibilities and simplifying IDPs (SA Local Government: 10 years later, 2011). This stated objective of abolishing a "one size fits all" approach implies that little was achieved between 2000 and 2011 with regards to establishing the development needs and priorities of peripheral communities. Given all the legal safeguards as promulgated in the Municipal Act, it could have been expected that the urban agriculture community within the eThekwini Municipality boundaries would be enjoying all the consultative privileges as stipulated in the Act. However, no evidence of this type of consultation could be found. As a researcher, I must therefore conclude that the importance of baseline information with regards to the needs of community gardeners has not yet been defined as well as the operational and statutory constraints officials such as horticulturists must negotiate in order to provide the services under their jurisdiction. This concern is corroborated by the National Development Plan 2030 (SA, National Development and Planning Commission, 2013) where it is reported that the drafting of an IDP of a city such as eThekwini would be problematic.

2.2.4 TOWN PLANNING AND SPATIAL DEVELOPMENT

Prior to the democratic elections of 1994, the country's town planning systems were "fragmented, unequal and incoherent' (SA, National Development and Planning Commission, 1999). This led to the development and promulgation of the Development Facilitation Act, Act 67of 1995 (SA, 1995). This Act provides for a coherent framework for land development and the overhaul of the existing planning framework. It also promulgates the decentralisation of decision making to Local

Government to ensure improvements to spatial planning, land use management and land development so that the Government's objectives of poverty relief, employment creation and economic development are addressed.

The Development Facilitation Act (SA, 1995) further makes provision in Chapter One under the general principles for the promotion of:

- close proximity of residential and employment opportunities;
- the optimum use of existing resources for agriculture and the promotion of diverse combinations of land uses; and
- the establishment of viable communities through consultation.

Unfortunately, in my experience and from my observations as a horticulturist, what has been happening on the ground is totally different from what is proposed in the legislation. The development of the Spatial Development Framework has to correspond with the IDP of the local authority concerned. However, a case study of the eThekwini IDP illustrates the lack of coherence and cooperation. High levels of poverty have been identified as a development challenge; this factor is of the highest priority among residents in rural settings. However, this priority is only mentioned as "Phase Two" of the IDP under the heading, "Economic Development and Job Creation" (eThekwini Municipality, 2011 p.79). Moreover, rural agriculture comprises only a small section of Phase Two of the Rural Agriculture Development Plan of the eThekwini Municipality. The plan does not illuminate urban agriculture as a priority despite the fact that it is a reality among a large population group who also requires support. The scope of the IDP ranges from long-term strategies on the one hand to *ad hoc* projects on the other. Furthermore, the IDP does not embrace a broad spectrum program to address the needs of the people on the ground (refer to a summary of the relevant legislation in Appendix 3). These *ad hoc* projects are unlikely to produce results as no cohesive plan to integrate the whole region could be found. For example, no attention has been given to the marketing/manufacturing/storage needs of a potentially developing market although it is mentioned that provision should be made for air freight of perishables from the

new King Shaka Airport (eThekwini, 2011 p.52). One of the biggest challenges regarding urban agriculture in the eThekwini Metro is the fact that the eThekwini Agricultural Section and the Department of Agriculture are in conflict with regard to the approach that should be followed in order to implement an urban agriculture strategy. eThekwini Council supports an organic, sustainable approach towards urban agriculture (Ecological Action, n.d.) while the Department of Agriculture advocates an agro-chemical approach within defined Municipal boundaries (personal observation). The community gardeners on the ground are aware of the conflicting strategies (personal observation) and the impact of this conflict is a continuous expectation of hand-outs since programmes overlap while different criteria and rules are applied. There have been no attempts or plans to create synergy between the plans of the eThekwini Council and the Department of Agriculture as specified in their departmental strategic plans (SA, Department of Agriculture, Forestry and Fisheries, 2010).

It must further be noted that a Spatial Planning and Land Use Bill (SA, 2012) was signed into law by the President of South Africa in 2013. The Spatial Planning and Land Use Management Act (SA, 2013) proposes that the system of spatial planning and land use management in South Africa should promote social and economic inclusion and that provision must be made for the sustainable and efficient use of land. One of the principles in this Act is that past spatial and other development imbalances must be redressed through improved access to and use of land. It also contains a principle of efficiency where decision making procedures are designed to minimize negative financial, social, economic or envornmental impact (SA, 2013).

This approach to spatial development and town planning is not new. Quon Soonya (1999) from the International Development Research Centre in Canada published a report entitled *Cities Feeding People*. His results demonstrated that in 16 out of 45 cities around the world, including Durban, urban agriculture constraints could be linked directly and indirectly to planning and management interventions by urban planners and managers (Soonya, 1999 p.17). The survey respondents mostly agreed that urban agriculture was appropriate in cities and all agreed that there were no impediments to urban agriculture (Soonya, 1999 pp.24 & 31). Unfortunately, this

is not the case for urban agriculture in particularly the central eThekwini area which was the area under study. The results of the Soonya (1999) survey highlight the critical responses that are needed to overcome the constraints that planning policy places on establishing urban agricultural practices. To implement an urban agriculture strategy, the Toronto Public Health Department (1991) states that it is necessary to:

- have a coherent and non-conflicting policy that clarifies responsibilities for urban agriculture;
- remove restrictive policies and replace them with a policy which recognizes and permits urban agriculture (i.e., allow for urban agriculture in zoning controls);
- provide the necessary services that are required by the needy such as financial, technical and material support;
- use education, demonstration and participation to address the negative perceptions about urban agriculture held by various players.

However, Soonya (1999 p.45) addresses the needs of the community and not the traditional idea of what the city should be.

Research that was done in several cities in the Far East showed that the concept of sustainable urban development was chanelling urban planners to include urban agriculture in their palnning strategies (de Zeeuw & Dubbeling, 2009). Urban agricultural practices were being promoted within cities and for good reason, which was the fact that waste re-use practices, especially the use of organic waste, had become urgent due to the rapid development of those cities. Waste material was being used in food production instead of being sent to expensive landfill sites (Furedy & Whitney, 1997 p.20) without being processed.

Drescher (n.d.) from the University of Freiburg in Germany believes that developing countries should have a structural planning approach. From his perspective, land zoning should be encouraged and owners should be given advice on how to position their houses in such a manner that the balance of the land can be used for agricultural practices. In South Africa such an approach would allow for land sharing

where owners of the new Reconstruction and Development Programme (RDP) homes known for the limited space around the buildings could use private or government property for a period of time for the growing of food and flowers. Such an arrangement would at least introduce some security with the knowledge that whatever is grown will not be destroyed as owners might fence their properties. In addition, road verges, railway servitudes as well as electricity servitudes could also be used for the growing of food.

2.2.5 LAND USE MANAGEMENT SYSTEMS (LUMS) 2001 AND 2004

The establishment of urban agricultural practices within the municipal boundaries is further complicated once cognizance is taken of the KwaZulu-Natal Provincial Land Use Management System (LUMS**)** as expounded by its Town and Regional Planning (KZN, Provincial Planning and Development Commission, 2001; 2004) policy. The purpose of land use management as described in LUMS could be dichotomous. Under the heading 'Healthy Living Environment', specific reference is made to users of land whose activities cause nuisance and pollution, with the suggestion that those operations need to be in the right locations. In practice that would mean that the range of agricultural activities subsistence farmer communities can engage with to be able to survive, for example compost making or chicken farming, would effectively be eliminated if the stipulations of LUMS are applied. Section 1.6 page 10 of the LUMS effectively eliminates any agricultural activity within the built-up environment of any municipality (KZN, Provincial Planning and Development Commission, 2001; 2004). There are two options for dealing with this obstacle. The first is to apply for consent and the second is to obtain a multi-functional use authority for land before such farming activities can take place. From subsistence farmers' point of view however, any application for authority will have high cost implications, especially for the unemployed who are living a hand-to-mouth existence. A second option is to apply for the deletion of these restrictions as provided for in the KZN Planning and Development Act (KZN, 1998). Considering that these people already have to survive in a hostile environment, they will experience the impact of the LUMS requirements negatively and their need for protection will be real.

The concept of protecting community gardeners or community gardening through governmental intervention is possible. An American NGO formulated a policy for

health (NPLAN, 2009). This policy contains a “Land Use Protection for Community Gardens” strategy which was formulated through the NGO National Policy and Legal Analysis Network. This policy proposes that town planners should consider the introduction of a two-model zone ordinance for community gardens, namely:

1. User Zone Protection. The proposed model suggests that a community garden be approved for use in residential, high density, industrial and other areas subject to its use being determined by the community.
2. Open Space Protection. The model allows for the community garden to become a sub-use of open space (NPLAN, 2009 p.3).

In the Local Government context, such a model will address the land use problem experienced in the peri-urban and rural areas of the eThekwini Municipality. Because the allocation process according to the model takes place in a controlled manner, the gardeners will have to comply with all other health and business regulations that are applicable to such sites.

The observation that statutory control measures implemented by local authorities could handicap agricultural practices within built-up environments is not unique to South Africa, but a global phenomenon. Mougeot (2003) and Mbida and Van Veenhuizen (2001) cite examples from Durban and Harare, which leads one to conclude that town planning strategies are obstructing the production of food in built-up environments in Southern Africa. This observation begs the question: “Are town planners aware of how regulations affect the capacity of the poor to produce suitable food for their survival?” It was argued that the answer to this question would require a survey involving town planners, who thus became one of the focus groups in this study.

2.2.6 ROME DECLARATION OF FOOD SECURITY, 1996

The United Nations Rome Declaration on Food Security (1996) was the first international attempt to address hunger amongst the poor and destitute in the world. This Declaration was followed by the Millennium Development Goals of the United Nations (United Nations, 2000) which reaffirmed the goal of the Rome Declaration to

halve the undernourished people of the world. This important goal is also enshrined in the South African Constitution in the Bill of Rights Section 27 (b) (SA, 1996) and is applicable to all citizens of South Africa. Although global goals regarding food security have been stated, the indications are that these goals regarding global food security are not gathering momentum (United Nations, 2010). A report on the number of undernourished people in Sub-Saharan Africa shows that the prevalence grew to a staggering 175 million people, which is 30% of the world's population (United Nations, 2010). The report also states that Africa is the "most food-insecure region in the world" with east, central and southern Africa in particular showing negative trends. These figures demonstrate that the Millennium Development Goals of the United Nations (2000) are not becoming a reality.

The momentum to address hunger amongst the poor and destitute in South Africa seems to have slowed down over the last sixteen years. In the spirit of the Millennium Development Goals, the South African Government launched two initiatives to eradicate poverty and to ensure sustainability. President Mbeki launched a state-driven job creation initiative which would have resulted in achieving a Gross Domestic Product (GDP) growth rate in the region of 4.5% (Mbeki, 2006). Moreover, this initiative should have halved poverty and unemployment in South Africa by 2014 (Mbeki, 2006). This meant that Government intended to halve the 24% unemployed figure for South Africa one year before the attainment of the millennium goal was due. In his 2006 State of the Nation address, President Mbeki stated that for accelerated shared growth to succeed in South Africa, the machinery of the state as well as that of Local Government should function effectively and efficiently so that the Government could roll out and fast track its programs to address the poverty, underdevelopment and unemployment problem in South Africa. It is assumed that one of the instruments to address poverty would have been agriculture. However, it was five years later that President Zuma announced in Parliament that 2011 would be the year of job creation in South Africa (Zuma, 2011). One of the areas he identified where jobs should be created was in agriculture, but it is not clear whether this included urban agriculture even though water reservoirs, wind mills and irrigation systems would be rehabilitated. The target was to create five million jobs by 2020. This new target date implies that the Government was aware that the Millennium Development Goals set for 2014 were not achievable in

South Africa. In the meantime, the unemployment figure for KwaZulu-Natal stood at 33% in 2012 (Mboto, 2010) which was higher than the national average. Naidoo and Padayachee (2012) argue that because the eThekwini Municipality, which is situated in the KwaZulu-Natal Province, attracts migrant workers who seek employment, it can be concluded that the unemployment figure in the eThekwini Municipal area must be somewhat similar to the provincial figure. According to the Quarterly Labour Force Survey of 2012 which was issued on 1 September, the unemployment figure nationally had risen from 24.9% in 2011 to 25.5% in 2012 (Statistics SA, 2012b) and further to 25.6% in 2013 (Jobless tally jumps to new high, 2013). It would appear that sixteen years after the Rome Declaration in 1996 of which South Africa was a signatory, the goal of halving the number of undernourished people had not come to fruition in South Africa.

The non-attainment of these worthy goals needs further scrutiny. If the Town Planning Department of the eThekwini Region were proactive in addressing the goals, they should have prepared a list of properties owned by Council - as well as by private individuals or organisations - that are suitable for food production. In other words, a land inventory as proposed by Cole, Lee-Smith and Nasinyama (2008) should have been prepared. Such a land inventory would have revealed the number of people each parcel of land could support and this would have been available to facilitate planning. Grimm (2009, p.30) argues that such a planning inventory will ensure that town planners are able to exploit those properties that are safe for the growing of food and fruit by ensuring that the land does not become a dumping ground for dangerous materials that could threaten the lives of the gardeners.

2.2.7 THE UNITED NATIONS MILLENNIUM GOALS OF 2000

The 2000 Millennium Declaration of the United Nations (United Nations, 2000) addresses the need for the provision of services as well as the promotion of social and economic development within the world's nations. There are millennium goals that relate to important sections of the South African Constitution. The Declaration includes eight Millennium Development Goals with quantified targets to motivate and to provide an accounting mechanism that will ensure and enable millions of poor people to improve their livelihoods. Two of the eight Millennium Development Goals that are relevant to urban agriculture in South Africa are:

Goal 1: To eradicate extreme poverty and hunger and halve the figure by 2015;

Goal 7: To ensure environmental sustainability.

On a global scale, urban agriculture was seen as a critical component for halving the 2010 figure of 60% of the world population that was living below the international poverty line and was suffering from extreme poverty and hunger (De Zeeuw et al., 1999). Agriculturally inspired economic growth is still seen as a mechanism for upliftment and ensuring sustainability (De Zeeuw et.al, 1999).

2.2.8 LOCAL GOVERNMENT

Local Government, in terms of the South African Constitution (SA, 1996) and the Municipal Systems Act (SA, 2000), should provide points of delivery to ensure a livelihood for the citizens of South Africa. Legislation provides guidelines to Local Government for funding and determines what services are to be provided after due consultation with the residents in their area. Research by Manor (2001) has shown that three elements must be present for a democratic, decentralised Local Government to function effectively:

- substantial financial resources;
- substantial power devolvement to local authorities;
- accountable Council officials who are in turn accountable to elected representatives who are in turn accountable to voters.

Should any one or more of these elements not be present, democratic decentralisation is very likely to fail and ultimately, the impact will manifest in the standard of the services that are provided to the people in the peri-urban regions of the local authorities (Manor, 2001 p.4).

With reference to substantial financial resources, an article entitled ‘South African Local Government: 10 Years Later’ in the NGO *News & Views* (2011) publication makes reference to the financial and administrative challenges municipalities are facing. A report entitled “ANC shrinks as debt swells” (2011) by online *News IOL* and eThekwini Councillor MacPherson (2011) both report that the KZN Provincial

legislature revealed that the eThekwini Municipality was owed four billion rand by both ratepayers and government departments in 2011. One of the three elements, namely financial resources that can destabilise the democratic decentralisation process of local governments, is therefore real. Moreover, it was reported that consumers could expect reduced service delivery and efficiency because the Global Credit Rating reported that the South African Government was struggling to meet its own revenue targets (Reduced service delivery on the cards, 2013). It is this revenue that is needed to feed into the grant transfers of municipal revenues.

The implications for service delivery by Local Government as entrenched in the White Paper on Local Government (Chipkin, 2005; SA, 1998d) must be mentioned. In this White Paper the legislator underscores the important role of Local Governments in service delivery; for example, the National Government believes that many of the required national service functions can best be provided more efficiently and effectively at a local level. Such a decentralisation process will have to be managed carefully as it will have additional financial implications for each local authority (Section G Municipal Finances 2.2.4). The challenge for the fiscus of the local authority is therefore clear, but the Government's objectives can become a confounding variable in the process. The non-payment for services provided by local authorities to governmental and provincial departments applies a fiscal squeeze on Local Government budgets. The outcomes of such a strategy have a two-fold cascading impact on the finances of the local authority, the first being a non-budgeted mandate at the expense of the local authority. For example, the expenses to clear vacant land owned by the government and the concomitant non-payment of rates for the services are for the account of the local authority. The second is that the generation of funds for the clearing services rendered by the Local Government has implications for the rates residents have to pay to fund the services provided to Government (Manor, 2001; Chipkin, 2005).

The White Paper on Local Government (SA, 1998d) does not deal with the fiscal policy for local authorities. It does indicate that some funding from national level will be transferred to deprived areas without it becoming a vertical equalization (Section G Municipal Finances 2.2.4) (SA, 1998d). As a consequence, the Government's

medium term expenditure framework indicates that “local authorities will have to do more with less” as the downward funding to local authorities will decrease.

Moreover, the White Paper on Local Government (SA, 1998d）introduced the new concept of “Cooperative Government” which implies that all levels of government should work together. In this process the national and provincial governments are permitted to devolve power of higher level line ministries to local offices, for example town planning. Manors (2001, p.5) argues that, in order for local authorities to perform their duties, their newly acquired functions should be developed with available funding. However, only the functions have been devolved but not the financial support to sustain the functions (Manors, 2001 pp.9 &19). These devolved functions are competing for funds that could have been used for food security. The long term impact of inadequate funding is that a health crisis could be looming because of an acute shortage of EHPs in Local Government. To address this imminent disaster, large companies and restaurants dealing with food and its preparation are engaging private companies to do health related inspections of their premises (Fekken, 2011; Myburgh, 2013 p.1). At the end of the day it means that those rate payers who can afford to pay must indirectly finance governmental and provincial operations.

In order to appreciate the impact of funding (or the lack thereof), it is important to understand how funding relates to the standard of the services that are provided. The Constitution under Section 27 (b) refers to the right of every citizen to sufficient food and water and in Section 28 (1)(c) to children’s basic nutrition (SA, 1996). In the Central Zone Agricultural Unit of the eThekwini Metro, a single meal is provided each day to learners in some schools by the Department of Basic Education. These meals consist of a starch with gravy and one vegetable. A similar meal is provided five times a week by Council at some of the Community Centres for those in need. Therefore, it could be argued that through the provision of social assistance, the letter of the law in terms of Section 152 (1)(d) of the Local Government in the Constitution Section 27 (b) (SA, 1996) is being heeded. However, the quality and nutritional value of the food provided will be determined by the funds allocated for such support services.

2.3. CARE FOR AND THE WELFARE OF PEOPLE

From a horticultural perspective, the Acts that impact on the establishment of an urban agriculture community and the welfare of the people of in the eThekwini Municipality in South Africa, are

1. The National Health Act, Act 61 of 2003
2. The National Water Act, Act 36 of 1998
3. The Foodstuffs, Cosmetics and Disinfectants Act, Act 54 of 1972 with related regulations
4. The Foodstuffs, Cosmetics and Disinfectants Amendment Act 32 of 1981
5. Environmental Legislation
6. Agricultural Legislation

2.3.1 THE NATIONAL HEALTH ACT, ACT 61 OF 2003

The focus of the National Health Act 61 of 2003 (SA, 2003) with particular reference to Section 2 (c)(ii) is to protect, respect, promote and fulfil the rights of the people in an environment that is not harmful to their health and well-being. Therefore, besides protecting the health of the citizens and the environment where they live, the food they consume and the food they grow must also be protected. For this to occur in an urban agriculture environment, the quality of the soil, water and atmosphere where food is being grown must be tested on an ongoing basis. In addition, the importance of testing for the presence of lead and other heavy metals is also stressed (SA, Department of Water Affairs and Forestry, 1996; Basics of Health Assessment, 1999; Petit, Aubrey & Rémy-Hall, 2011). This implies that checks should be in place to ensure that vegetables grown and consumed in an urban agriculture setting are properly washed and correctly treated in the harvesting, transporting, marketing and preparation processes.

The depopulation of rural communities as a result of unemployment and the spill-over effect of people into urban settings will, of necessity, result in a population of subsistence farmers in urban and peri-urban settings in ever increasing numbers. As a result, the demand for support services will increase in an environment where

the funds available to local authorities to provide services are diminishing. The gap between the ideal protection of citizens as stipulated in the Health Act, Act 61 of 2003 (SA, 2003) and the Agricultural Products Standards Act, Act 119 of 1990 (SA, 1990), and the realities on the ground will increase dramatically. Unless the slide towards a health crisis among the urban and peri-urban poor can be checked, a national disaster could result. However, communities do have a quality known as 'traditional knowledge', which is that innate capacity to survive. This capacity and the resultant initiatives and skills that 'survivors' have need to be identified, recorded, protected and mobilized.

2.3.2. THE NATIONAL WATER ACT, ACT 36 OF 1998

South Africa is not a water rich land and its water and the use thereof need to be carefully managed. The National Water Act, Act 36 of 1998 (SA, 1998b) entrenches the government of the day as the custodian of all the water in South Africa. With reference to the usage of water, Schedule 1(a) determines that the use of water is a controlled activity if (i) water is taken from a source for reasonable domestic use and for (ii) small gardening, but not for commercial purposes. Schedule 1 (1)(b)(ii) stipulates that water used for commercial applications requires a licence or permit.

Despite the obvious sensitivities to water usage entrenched in the Act, some problems need to be highlighted. Although the Act is sensitive to the domestic and small scale use of water, it is not sensitive to the size of the farming activity nor to the financial status of the user or subsistence farmer who is required to make applications for permits for water use. In an urban or peri-urban setting of a local authority, the issue is further complicated when the number of subsistence farmers increases on a daily basis and when there is a concomitant demand for clean water by Council (eThekwini, 2010). This poses several questions. For example, in a situation where clean water cannot be provided, where does the responsibility lie to ensure that the water from an alternative source being used is safe for human consumption or food growing? The Water Act (SA, 1998b) in itself triggers questions about a series of confounding health related problems, with the issue of health education being prominent. Furthermore, whose responsibility is it to educate the users on the issues related to safe use of water in an environment where there is no access to safe water? From a governance perspective, where does the responsibility

lie to ensure that the stipulations of the Water Act are enforced? Does the responsibility for enforcement of the Health Act, Water Act or the Environmental Conservation Act reside with national, provincial or local bodies? With reference to the issue of the requirement to apply for a permit/licence to have access to water, how and where does a subsistence farmer in an urban agriculture environment apply, and what is the relative cost of a licence given the financial status of an unemployed individual? Are these costs within the reach of the poor, partially educated citizen? These were issues that were addressed in this study.

2.3.3. THE FOODSTUFFS, COSMETICS AND DISINFECTANTS ACT, ACT 54 OF 1972 AND RELATED REGULATIONS AND AMENDMENTS

The Foodstuffs, Cosmetics and Disinfectants Act, Act 54 of 1972 (SA, 1972) and related regulations deal with the processes of food preparation, bottling and bagging of food for storage which are controlled by the Director General: Health. This Act has several regulations such as the salt regulation, which specifies the quality of salt that can be used in food preparation (Regulation 1102:9/1/2001), pesticides residues (Regulation 1448: 26/8/1994) and microbiological standards for foodstuff (Regulation1588: 20/12/2002). Information on labels on containers and bottles of the products being prepared for sale are also regulated (Regulation146/2010). These label regulations have been further revised to ensure no ‘misleading description’ and the new regulations came into effect on 1 March 2012 (Van de Riet, 2011 p.42). The public was forewarned about these changes as reported by Solly Mabotha, a spokesman for the Department of Health (Meyer, 2005). However, a brief analysis of the communication medium showed that the amendments that occurred in the regulations were communicated to a sophisticated, financially sound audience and not to the general population such as the unemployed and peri-urban subsistence farmers.

The challenge is therefore to communicate changes in legislation and regulations to a growing population of subsistence farmers who do not have access to the printed media and other sophisticated communication sources. It is a known fact that subsistence farmers sell their excess produce to generate capital and that they are, by implication, subject to the requirements of the Act. Ignorance of the requirements of Act 54 of 1972 and its amendments only aggravates the plight of the people trying

to make headway in the legislative minefield by trying to produce and sell products, a process that will add value to their lives. The dilemma associated with this Act is further aggravated by the fact that the Foodstuffs, Cosmetics and Disinfectants Amendment Act (SA, 1981) places the responsibility for the testing of foodstuffs squarely in the hands of EHPs.

2.3.4 ENVIRONMENTAL LEGISLATION

The Environmental Conservation Act, Act 73 of 1989 (SA, 1989a) and other environmental policies require that an environmental impact assessment must be done prior to each urban agriculture practice that changes the land use from grazing to any other form of agricultural use. Approval for such a change must be obtained from an independent, competent authority in writing. This practice is further expanded in the Conservation of Agricultural Resources Act, Act 43 of 1983 (SA, 1983b) where it is stipulated in Section 2 (a-e) that written permission is required before land which has never been cultivated during the preceding ten years, can be cultivated in conjunction with the Environmental Impact Assessment (EIA) process. Section 21 (2)(a) of the Act also states that no property with a gradient of more than twelve degrees may be transformed without written authority. It must be noted that all the urban agriculture sites included in the study area (Figure 1) had a gradient greater than the legal minimum level. Moreover, regulations within the Act (Sections 4, 5 and 6) state that the property user must protect the land from water and wind erosion as well as water logging and salination, whereas regulation 7 determines that land users may not garden within 10 metres horizontally of the flood area of a watercourse. In a subsistence farming environment, conformity to such statutory stipulations has little meaning and it has been observed that in practice, some of the gardeners are gardening right up to the water's edge. Public open spaces are also used for agricultural purposes without the necessary authorisation as is required in terms of Section16 (1) of the revised regulations of the Environmental Management Act 107 of 1998 (SA, 1998a) and the National Environmental Management Amendments Act 62 of 2008 (SA, 2008b).

The revised regulations were promulgated in terms of the Spatial Development Framework (South Afirca, Department of Agriculture and Land Affairs, 2001) to

ensure that all core areas which are considered as highly irreplaceable are protected from change or that they are restored to their former levels of biodiversity functioning. In conjunction with these regulations, the National Environmental Management Act (SA, 1998a p.2) stipulates that "the State must protect, promote and fulfil the social, economic and environmental rights of everyone and [must] strive to meet the basic needs of previously disadvantaged communities". This means that in addition to environmental rights, the socio-economic conditions of the people must also be assessed before any agricultural activity is allowed to take place. No evidence of such socio-economic assessment could be found. One source (Education and Training Unit, n.d) mentions that subsistence farmers cultivate crops on public open spaces and that Local Government is responsible for the management of public open spaces (Education Training Unit, n.d) which should be protected through controls. In reality however, this control does not happen in the study area because the management and allocation processes are dichotomous, as pointed out earlier (see 2.2.5). The question is raised whether the eThekwini Municipality will ever have a desire to change the status of designated public open spaces to allow community gardening. If this happens, re-zoning will have to take place. The process will unfortunately not be straight forward as it will require an application in which all the envisaged changes are listed in terms of the requirements, spesifying mixed use or changed use. Based on its track record, Council's political will to engage in this complex process is questioned.

Should any changes be proposed, two Acts have jurisdiction in this matter, namely the Environmental Conservation Act (SA, 1998a) and the Environmental Management Act (SA, 1989b). In addition, cognisance should also be taken of the recommendations in the White Paper on Spacial Planning and Land Use Management (SA, Department of Agriculture and Land Affairs, 2001). In the case of river corridors and/or their tributaries, a minimum buffer strip of 30 metres from the edge of the river must be allowed. No development, ploughing or grazing may occur within this barrier strip and such areas should, over time, be converted back to the status of Core Areas. In this regard a dichotomy exsists because agriculture is seen as a provincial Broad Spatial Planning Category and it is not recognized as a Local Government category (Western Cape, 2005 p.6). This means that urban agriculture

does not even feature at Local Government level as part of the process of spatial development, even though it is a reality on the ground. This could be one of the reasons that community gardening has not received proper recognition and support.

Cognisance must be taken of the fact that the Environmental Conservation Act (SA, 1989a) controls the reduction of habitat and biodiversity and also the inappropriate use of land, water and other natural resources. Yet the reality on the ground is that unemployed people who are desperately hungry and who need to survive have been and are still gardening in these areas and have already removed all or most of the natural vegetation. This practice, along with the rapid unplanned urbanization and lack of open land use planning, contributes not only to increased poverty in the city, but also to loss of natural resources. This problem is exacerbated because existing planning deals with holistic settlement issues and not specifically with the loss of valuable plant material on each informal gardening site (KZN: Provincial Planning and Development Commission, 2001; 2004).

The power to control land use is vested in officials at national level; for instance, Resource Conservation Inspectors at regional offices apply the national Conservation of Agricultural Resources Act (South Africa, 1983b). The authority to control the Environmental Conservation Act (South Africa, 1989a) rests with the "competent authority" and the Environmental Council to whom the authority of the administration of this Act has been assigned.

2.3.5 LEGISLATION AND POLICIES PERTAINING TO AGRICULTURE

The ANC policy that was developed in 1994 (African National Congress, 1994) recognises agriculture as a multi-faceted phenomenon because it:

- gives recognition to the fact that the majority of urban and rural South Africans are net food purchasers;
- urges that every effort should be made to ensure that food prices are stable and affordable;

- envisages that all people at all times will have enough food to eat and will therefore have a healthy, active lifestyle; and
- recognises the fact that it is vitally important to enhance the affordability of food by introducing a range of measures such as raising incomes and exempting basic food from Value Added Tax (VAT) (African National Congress, 1994).

The ANC encourages the provision of support services to food producers in urban, peri-urban and especially rural areas. These service providers must then ensure that production improves the household food supply by providing training for educationally disadvantaged communities. The service providers will be the extension officers of the Department of Agriculture and also the horticulturists/ agricultural officers working for provincial and local authorities. This approach is also supported by the Rome World Food Summit (United Nations, 1996).

In order to provide the support services as envisaged by the ANC, it is necessary to appoint qualified officials to deal with health issues. These officials need to ensure the health and the protection of consumers from health hazards such as excessive levels of pesticides and toxins in food. The ANC also wishes to protect consumers from sub-standard or under weight products and they wish to ensure that basic safety and hygiene standards are maintained within the food production cycle. However, inflexible regulations may obstruct small agricultural production and marketing endeavours from taking place and local initiatives from coming to fruition. These challenges are addressed in the Agricultural Products Standards Act (South Africa, 1990) and the Agricultural Pest Act (South Africa, 1983a). In summary, the Pest Act provides for preventing and combating pests while the Products Standards Act classes fresh vegetables but also determines that measures should be in place to ensure that produce does not contain any organism that may endanger human life.

The Agriculture Policy (South Africa, Ministry of Agriculture and Land Affairs, 1998) deals with important general strategies/principles of food production. In this regard, the Act stipulates that “national and household food security [is] equally important

and must be addressed from a multi-dimensional point of view" (South Africa, Ministry of Agriculture and Land Affairs, 1998 p.9).

The following objectives of the World Food Summit (United Nations, 1996) as entrenched in the White Paper on Agriculture (South Africa, Department of Agriculture, 1995) are also highlighted:

- "Services to farmers will be rendered in an equitable manner which discourages existing and potentially discriminatory practices and allows the benefits of development to be more widely distributed, taking into account that access to resources, scale of production, use of purchased inputs and volume of marketable production differ from farmer to farmer" (White Paper, p.4)
- "Affirmative action programmes will be focused on South Africans with a low income who were previously denied access to opportunities in agriculture, and will ensure access to agricultural resources, credit and farmer-support services" (White Paper, p.4)
- "Government's agricultural programmes should contribute to the independence and self reliance of all participants in the agricultural sector. Ensuring security of land tenure under all land-tenure systems will be promoted as a basis for the effective utilisation of agricultural resources" (White Paper, pp.4 & 5).

Under production systems and practices, the White Paper (South Africa, Department of Agriculture, 1995) deals with the importance to strive for national as well as household food security. The White Paper states that the Government should support the full spectrum of production from the urban food garden through to large-scale production of food. This production must be labour intensive so as to create jobs even down to the processing/packaging/bottling of farm produce and other by-products. Yet, although the Government debates the issue of "using targeted programmes and cost effective means of achieving equity and anti-poverty objectives" (African National Congress, 1994), and despite the Strategic Plan of the South Africa Department of Agriculture, Forestry and Fisheries (2012, p.5) in which reference is made to the need of an encompassing "strategy on urban and peri-

urban agriculture", none of these targets have materialized in the eThekwini Municipality Area. Moreover, experience has shown that the government has not assisted with the effective development of opportunities for small and medium farmers to raise their production for consumption or sale. These observations are illuminated by the following:

Even though the government has abolished the pre-democratic control boards and transferred these assets to industry trusts which must, *inter alia,* provide market information, export advice and product development, this in my experience is is not happening and consequently I have observed that the development of productive small urban farming initiatives has been jeopardised.

Recognition is given to the good work done in developing the "home garden" initiative by NGOs (South Affrica, Ministry of Agricultural and Land Affairs, 1998 p.9) and the private sector. However, no mention is made in this document of how the government intends to promote this process of food production except through funding. It is stated that the Government expects all funding to be paid back (South Affrica, Ministry of Agricultural and Land Affairs, 1998 p.41). It further acknowledges the fact that small-scale farmers make productive use of unused land and that they are indirectly creating local labour opportunities. In addition, local cash flows are also created as purchases are made for necessities within the communities where gardens have been established. Unfortunately, no evidence could be traced in the acts that Government had put anything in place to augment the process of small urban farming. In fact, the acts do not refer to urban and peri-urban community gardening. This phenomenon is only referred to in broad terms and nothing specific has been promulgated to address the needs of urban and peri-urban community gardeners.

Marketing requires that special attention needs to be given to small-scale farmers as their small produce outputs are normally not acceptable to macro market agents and traders. Like the large commercial farmers, small-scale farmers must have "infrastructure and marketing support in the form of market facilities and related information, packaging and storage facilities as well as transport services" (South

Africa, Department of Agriculture, 1995 p.7). Having de-regulating the market, the Government expects the private sector to provide marketing information (South Africa, Department of Agriculture, 1995 p.15). The fact is that this legislative information is not available to ordinary citizens as nothing of the kind could be traced in the literature, which implies that a potential job creating initiative landed on the rocks. It appears that vital information that is urgently needed for such developments is not readily available or accessible to the man in the street.

The discussion document on agricultural policy (South Africa, Department of Agriculture, 1995 p.15) places great emphasis on the urgency for research to determine methods of increasing food production for food insecure households; yet no mention is made of how this research will be funded. However, the document does make provision for public funding for food safety, public health, environmental protection and plant and animal improvement (South Africa, Department of Agriculture, 1995).

An analysis of the Vision and Mission statements of the provincial Department of Agriculture (KZN, Department of Agriculture and Environmental Affairs, 2004) revealed that both these departments embrace the concept that the key strategy to the province's growth and development is enbedded in agricultural and environmental management. The basis for their belief is two-fold:

1. Agricultural potential is 366% compared to the present production;
2. The most disadvantaged live in areas where the most potential for agricultural production exists (KZN, Department of Agriculture and Environmental Affairs, 2004).

These observataions imply that both departments should focus on the self-reliance, entrepreneurship, empowerment, continuous growth and development of the community to reduce the increasing unemployment rate of approximately 1% per year (KZN, Department of Agriculture and Environmental Affairs, 2004). The Strategic Plan encourages the provision of support, training and assistance to farmers in agricultural economics and marketing, yet nowhere does the plan state that the departments should support subsistence gardeners/farmers who cannot

afford to participate in any of the proposed schemes, nor is any mention made of strategies to support food security at household level such as providing school feeding schemes, special nutrition schemes or food stamps for people with HIV and their immediate families. These observations led to the conclusion that the concept of urban agriculture and its association with subsistence farming in Local Goverment areas of responsiblity have been neglected at provincial level.

The environment is a national asset and the sustained utilization of natural resources is an important aspect of farming. Although it is the responsibility of farmers to produce food to provide in the needs of the nation, this must be done whilst ensuring that the damage to the fragile soil and the fauna and flora is minimised. The Government on the other hand is also responsible for ensuring that all the latest knowledge and resources necessary for managing natural resources are accessible and affordable to farmers. Moreover, in terms of the National Water Act (South Africa, 1998c), the Government should ensure that all sectors of the South African community have equal access to water as a natural resource.

2.3.6 NATIONAL DEVELOPMENT PLAN (NATIONAL PLANNING COMMISSION)

The National Planning Commission was appointed in May 2010 (South Africa, National Planning Commission, 2013 p.25) and comprised twenty six people, mainly from outside the Government who were all experts in key areas. The Commission's diagnostic report which was released in June 2011 identifies South Africa's achievements and shortcomings since 1994. This report highlights nine primary challenges, four of which are indicated below. Although this particular research on urban agriculture in the eThekwini region commenced prior to the formation of the Commission, their observations and findings (South Africa, National Planning Commission, 2013 p.25) are relevant and applicable to the study:

- too few people work;
- spatial divides hobble inclusive development;
- the public health system cannot meet demands or sustain the quality of health;
- public services are uneven and often of poor quality.

Whilst taking the South African demographic trends into consideration, the Commission points out that issues regarding better nutrition and health care also need to be addressed (South Africa, National Planning Commission, 2013 p.30). Some of these goals (p.34) as identified by the Commission that need to be addressed are the following:

- providing affordable access to quality health care while promoting health and well-being;
- ensuring household food and nutrition security;
- realising a food trade surplus with one third produced by small scale farmers or households;
- new spatial norms and standards;
- interventions to ensure environmental sustainability and resilience to future shocks;
- professionalise the public service by strengthening accountability.

The problem statement and sub-problems of this research indirectly reflect the same views as expressed by the Commission. This is significant in the light of the fact that these problem statements had been formulated before the Commission's report was released.

2.4 REALITY CHECK ON LEGISLATION AND REGULATIONS

Community gardens are operational in the Central eThekwini Agricultural Region despite all the statutory requirements that may have a negative impact on their chances for survival. The manifestations of the legal stipulations, should they be implemented to the letter, will in many instances hinder development and agricultural progress in the region will be stifled. The survival of gardening practices as they are currently occurring will, for five reasons, grind to a complete standstill:

2.4.1 AVAILABILITY OF FRESH WATER

Section 27(b) of the Bill of Rights in the Constitution (South Africa, 1996) proposes a two-fold situation for each citizen who is without sufficient food and water. Firstly, in situations where the citizens are not able to provide food and water for themselves, these items should be provided for them. Unfortunately, this is not happening as only some destitute people are fortunate enough to receive soup and bread from the local authority once a week in some locations (Personal Observation).

The availability of fresh potable water will always be a serious challenge. By law each family is entitled to six thousand litres of safe filtered water each month (Our Water Commons, 2013) irrespective of the number of members per family. Thereafter, water usage above the limit is subject to payment each month. This water is for drinking, cooking and washing and flushing if applicable. Schedule 1 (1)(b)(ii) of the Water Act (South Africa, 1998c) makes provision for water to cultivate subsistence crops, but not for commercial purposes. In an environment where unemployment is rife, the water needed for subsistence gardening has to come out of the free water quota allocation otherwise it has to be paid for. The question of whether these gardeners have the know-how to capture alternative sources of water and whether they are able to use what water is available sparingly, is moot (Texas Rain Water Harvesting, 2005; Toro, n.d.). It can be suggested that greywater (household waste water) and blackwater (sewer water) be used, but their application in each instance has health implications, many which the gardeners do not have the knowledge and training to appreciate.

2.4.2 EFFECTIVE COMMUNICATION

Citizens' ideal world is to have a safe and healthy environment in which to live as well as the capacity to communicate their needs to the authorities. This need to be heard is considered important because legislation makes provision for it in the statutes to ensure that every citizen's views are recorded. In terms of municipal objectives as stipulated in Section 19 (2)(a)(b)(c) of the Municipal Structures Act (South Africa, 1998b) and Section 29 (1)(b) of the Municipal SystemsAct (South Africa, 2000), an ideal platform is created through a consultation process within the constituencies where the needs of citizens are identified and translated into the

Council's IDP. Shortcomings in the Municipal Structures Act were identified in its original gazetted format and amendments to the Act were introduced five years later (South Africa, Local Government Laws Amendment Act, 2008a). Despite these amendments, experience has shown that the consultation methodology proposed by the Municipal Systems Act is not representative when the needs of the citizens are recorded. One manifestation is that town planning regulations have not been altered/adapted to make food gardening a viable, acceptable and controlled practice to all within built-up environments. In practice, this means that community gardeners are cultivating their crops and surviving on land that is occupied illegally.

It is a given that as core components, Town Planning and the Spatial Developmental Framework have to form an integral part of the Integrated Development Plan of a local authority (South Africa, Local Government Municipal Systems Act, 2000 p.26). The two systems must address the needs of the people after vigorous and wide consultation; only then will a planning process be rendered that is not distorted and non-reflective. In order to achieve the community input objective, invitations to meetings are placed on public notice boards or are advertised in newspapers. As an operative in the Central eThekwini Agricultural Region, I have observed that consultation did take place in a number of instances in the built-up areas. However, given the distribution of and accessibility to the dwellings of the poor and destitute community gardeners in the peri-urban areas of this region, the opportunities for these citizens to become aware of a pending meeting and to attend it are remote. As a consequence, no inputs have been made by such citizens in the revision of town planning regulations pertaining to issues that impact on food gardening. This issue is further aggravated by the fact that the Spatial Planning and Land Use Management Act (South Africa, 2013) was gazetted, but it still had to be interpreted and implemented at the time of the study. Cognisance must be taken of the fact that town planning regulations are not easily understood by the average citizen and that the new legislation might be even more confusing.

2.4.3 AUTHORISATION TO GARDEN IN BUILT-UP ENVIRONMENTS

The impact of non-consultative regulations has many ramifications. For example, the Town and Regional Planning Commission of KwaZulu-Natal implemented the

Land Use Management System (LUMS) in 2001 and 2004 which, if strictly applied, would effectively eliminate all food growing projects in the Central eThekwini Agricultural Region as agriculture is not allowed within built-up environments without the necessary Municipal authorisation (KZN, Provincial Planning and Development Commission, 2001; 2004). Any cost to obtain authorisation is beyond the financial capacities of the destitute and the poor. The implication of such a cost-ruling is that because each special consent application to use residential properties for growing food would be beyond the financial means of most subsistence community gardeners in the region, such community gardening activities will be non-authorised and no records will exist that the gardening ever took place. Moreover, as many of these gardeners sell their produce to other residents in the areas, problems associated with health and food regulations would be difficult to manage.

The National Development Plan (NDP) (South Africa, National Development and Planning Commission, 2013) recently published highlights from their investigation into the new spatial norms and standards. A point raised in the NDP is the fact that the Public Health system is not coping with the demand for sustainable quality of food or the need for better nutrition and health care (South Africa, National Development and Planning Commission, 2013 p.335). This suggests that although the legislation is in place for the right reasons, the design for rolling out the legal health control systems in a peri-urban setting is not sensitive to the issues that affect poor people in peri-urban and rural areas.

2.4.4 HEALTH RELATED ISSUES

In terms of the purpose of the National Health Act (South Africa, 2003b), people have the right to an environment that is not harmful to their health. They also have a right to protection against food that is grown and consumed (South Africa, 2003 p.2). To be able to satisfy this requirement of the Act 61, EHP officials that are operating on the ground should be appointed by the Director General of Health in terms of the Food, Cosmetics and Disinfectants Amendment Act 32, Section 2 (South Africa, 1981). Amendments to Act 32 make provision for the testing of foodstuff by the EHPs operating in their areas of responsibility. However, an investigation of available documentation revealed that no EHP appointments had been made in the

spirit of the Act and that no additional testing was being done other than the testing of food products within registered food premises. In addition, no checks were being done on the salt, pesticide residue and microbiological levels of home based food products, nor on the labelling of food products sold in the peri-urban settings under investigation.

Furthermore, in terms of the Water Act (South Africa, 1998c), water can be taken from a stream for growing a small food garden, but water cannot be taken from a stream for commercial purposes without a water permit. Nothing is reflected within this legislation as to who is responsible for ensuring that the water used for gardening activities is safe for human consumption and for the cultivation of vegetables (de Bruyn, n.d.). In addition, heavy metals and insecticides can be taken up by the plants which can endanger the health of consumers. The problem is further aggravated when the person who is cultivating the land is not the owner of the property or has a lease agreement with a distant owner. Their efforts to obtain a water permit for commercial growing will amount to nothing.

2.4.5 ENVIRONMENTAL IMPACT

From a conservation point of view, Section 26 of the Environmental Conservation Act (South Africa, 1989a) requires that an environmental impact assessment has to be done before embarking on a commercial gardening project; only once written approval has been obtained can a specific project be rolled out. Moreover, Section 6 (2)(a-e) of the Conservation of Agricultural Resources Act (South Africa, 1983b) specifies that written authorisation has to be applied for at the same time as when the application for the EIA is done, especially if the land has not been farmed for the previous ten years. Given this constraint, it is highly unlikely that an uneducated person who only wants to grow food will be aware of the fact that applications need to be in place prior to the soil being turned and plants being planted. Nor will these gardeners be cognisant of the fact that authority should be obtained if land in excess of 12 degrees is toiled. Lastly, in terms of the Environmental Management Act (South Africa, 1998a), land may not be cultivated within the minimum buffer strip of 30 metres from the edge of a water course. Unfortunately, the reality is that most

urban and peri-urban gardens are found within this minimum buffer strip as it makes for easier access to water to irrigate the crops.

The importance of having legislative controls in place to protect the health and safety of residents is stressed. However, the reality is that in order to survive, less affluent and often uneducated citizens are growing food crops using untested water and soil. These gardeners are not in possession of water permits, grow their gardens on land within the buffer strip of 30 metres from the edge of the available water course, establish gardens on land with a gradient of more than 12 degrees, and often run their small, informal operations on properties for which they do not have a lease. Vegetables that are produced in such settings are not only privately consumed but also sold; this means that uncontrolled crops are turned into value added produce outside the realms of legislative control. A policy to create a balance between survival and control is therefore needed.

2.5 SUMMARY

The South African Constitution (South Africa, 1996) appoints Local Government to address service delivery to the people as they are located closer to the citizenry than the other levels of government. The Government also devolves certain powers and responsibilities down to Local Government, sometimes without the finances to perform the required functions. This means that the local authority has to fund most of these services out of the rates and taxes that it collects from ratepayers. However, many ratepayers battle financially and cannot afford to pay ever rising fees and taxes.

Food and water have to be provided at local level to the poor and destitute within the limitations of the revenue collected by the local authority. Moreover, other essential needs and wants as identified within the communities through the laid down procedures within the legislation must also be addressed. Two sources of food are available to provide in the needs of the very needy: firstly, the food grown on small parcels of land in built-up spaces in the city and secondly the food grown on the outskirts of the city.

Food that is brought into the city is required to meet the standards for agricultural products as laid down in legislation. However, no regulations or checks could be traced for food that is grown within the city, although legislation requires that health practitioners should test the soil and water being used to grow such crops (South Africa, 1972 and 1981). It is my contention though that, as most of these gardeners function independently and without any form of registration, officials will be unable to trace the majority of them, if at all.

No source of information could be traced to establish how food from urban and peri-urban community gardens travels through to the table of the consumer, nor could it be determined if any checks and balances are in place to ensure the health and welfare of the citizens who consume such food. EHPs within the Local Government structure do regular checks of shops and food outlets where most other food is handled to ensure that the health of citizens is maintained at an acceptable level, but no checks are done on food grown within the urban and peri-urban environments.

Moreover, no regulation or any reference could be traced that indicates any checks or control for the consumption or sale of vegetables grown within the built-up environment. It could therefore be assumed, but not confirmed, that these vegetables by-pass the existing health checks that are in place.

Identifying sites where vegetables are grown within the built-up environment appeared to be a hit-and-miss endeavour. Observations revealed that many such informal gardening sites are found on vacant pieces of land and available road verges. These sites all seem to have the same characteristics as they are in close proximity to dwellings that are assumed to belong to the gardeners, as well as to available water sources. No literature that provided regulations or checks that would legalise the use of this land for gardening activities or that gave any indication of other residents' views on the safe and acceptable use of this land could be traced.

CHAPTER THREE

THE DATA AND THE TREATMENT OF THE DATA

3.1 INTRODUCTION

The overall aim of the study was to analyse those factors influencing policy development for urban agriculture in the Durban/eThekwini Metro environment with reference to the community gardeners, the residents in adjacent areas as well as the officials associated with town planning and health regulation. The ultimate goal was to identify the key elements required for the formulation of a policy for viable, sustainable urban agriculture practice in a dynamic urbanizing society.

3.2 SCOPE AND CONTEXT OF THE STUDY

The area targeted for the project comprised the agricultural areas in a region that is known as the Central Area of eThekwini Municipality. This area includes Hammersdale and Inchanga in the north, Molweni and Lindelani in the east, and Umbumbulu, Umlazi and Silverglen in the south. The area comprises 709 km^2 and has a mix of basic and sophisticated infrastructure with both limited and well developed reticulated running water systems. In both the urban and peri-urban areas water is at times supplied by means of water tank trucks whilst inhabitants close to a stream use the water that is available (Figure 2). As a result of the population and development dynamics in the region, it was not possible to determine the exact number of people who resided in the region, although the general consensus at the time of the study was that the population figure of this region represented about 30% of the total area of the eThekwini Municipality (Figure 1).

In 2009 there were about 600 registered community gardens throughout eThekwini region; some were privately owned while others were on school and church premises as reported by a company of consulting engineers (VELA-VKE, 2009). Vegetables of various varieties are grown in these gardens and are used to feed families, terminally ill individuals and school children. Parents and school children

Figure 2: eThekwini Council staff and vehicle delivering water to a community garden in the Central eThekwini Agricultural Region. (Source: Personal collection)

participate in the cultivation of crops and food preparation (Personal observation: Luganda school). In blessed seasons and after plentiful harvests, excess produce is processed and preserved for later consumption. The limited kitchen facilities that are available at local community halls are not used for food processing; this is done in larger hall facilities where the kitchens comply with health regulation standards.

All vegetables are cultivated organically and the control of weeds and other pests and pathogens is done by hand clearing and mulching; thereafter pests and diseases are controlled by home-made organic fungicides and pesticides. In such a trial-and-error environment where data about the soil, water and air quality are non-existent, families and communities continue to survive on the fruits of their agricultural endeavours while the growth of crops is contested by pests of all kinds. There is no money to buy chemical fertilizers or pest control products in an environment where invader plants and noxious weeds provide adequate habitats to rodents and insects. Control of these antagonists can be difficult. Survival in a subliminal hostile environment is further complicated by conflicts in many of the statutory regulations on local, provincial and national level with respect to the production of crops for sale, health, safety and use of land and water for food production (Summary of relevant legislation, Appendix 3). In close proximity to the

community gardeners, rate paying owners reside in privately owned or rented homes and sometimes in more informal dwellings such as shacks and huts. Health and town planning services are provided throughout the region.

CENTRAL AGRICULTURAL ZONE BOUNDRY

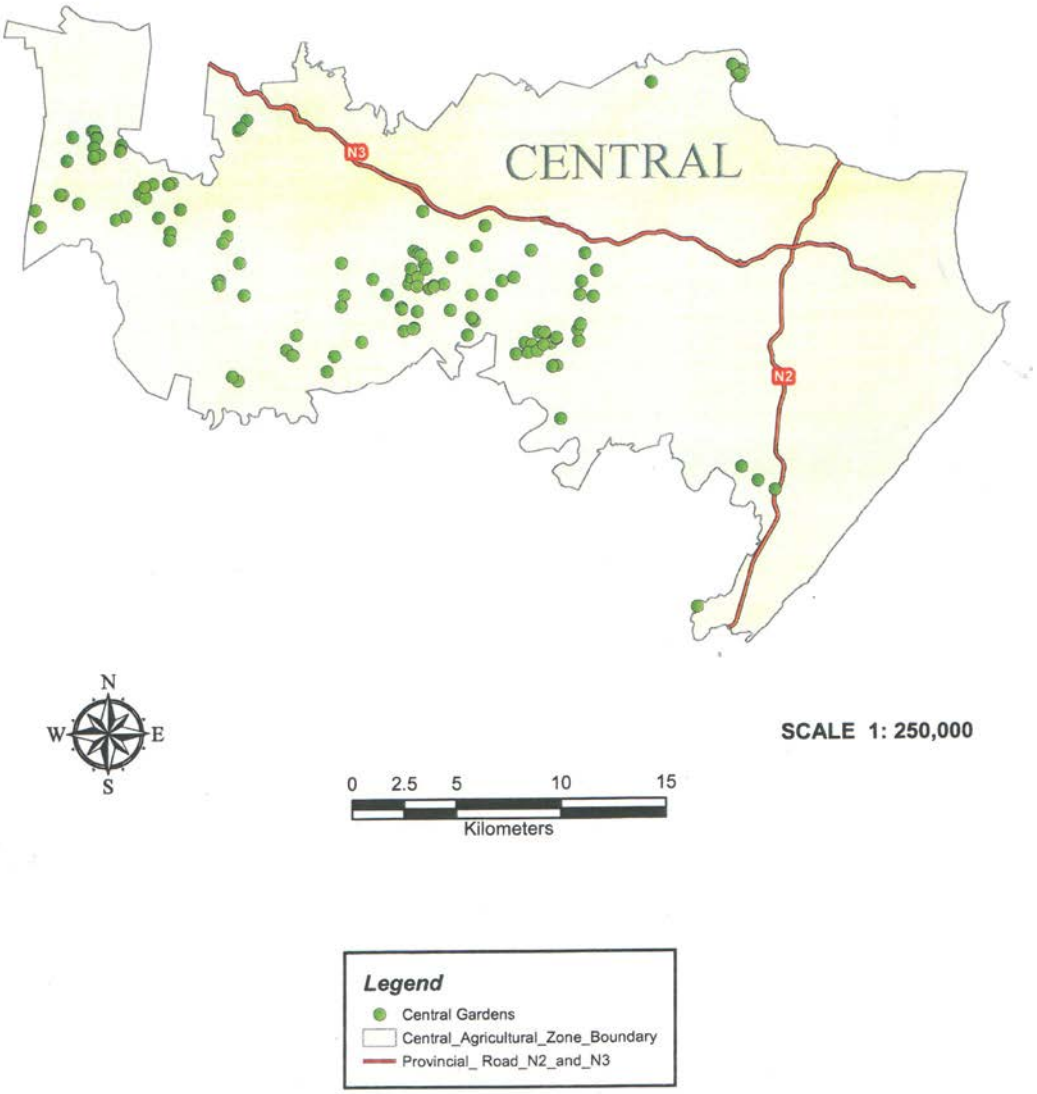

Figure 3: Distribution of the cultivation plots of the community gardeners sampled for interviews during the investigation. (Source: eThekwini Municipal Engineers, 2012)

In light of the socio-economic complexities within the population and the legislative issues that have been discussed, it was clear that the horticulturists of the eThekwini

Parks, Leisure and Cemeteries Department (formally the Inner West Department of Parks and Recreation) would face many challenges when trying to implement Inner West Resolution EF312A of 22 June 1999 (Inner West Council, 1999) (Appendix 1). A holistic approach towards the development of a policy for urban agriculture was therefore necessary.

3.3 METHODOLOGY

This study was approached as an exploratory investigation in order to address the identified research problem and sub-problems. The study drew its data from a wide range of primary and secondary sources which included structured interviews with role-players as well as documentary and statutory sources. Since the ultimate objective was to identify the key elements needed to formulate an urban agriculture policy, the integrated views of the various stakeholders related to urban agriculture were needed to structure the urban agriculture policy. In the absence of real-time data over a broad front and by taking cognisance of the size of the Central eThekwini Agricultural Region, its infrastructure and personal security, a base line exploratory approach (Bless & Higson-Smith, 1995; Cooper & Emory, 1995; de Vos, Strydom, Fouché & Delport, 2002) was used to collect the data from the respective role-players in order to identify:

- potential relationships between the variables in an urban agricultural setting;
- factors that were preventing/hampering the urban agriculture process;
- indicators for action to alleviate the problem; and
- other areas that would need further investigation or research after the initial exploratory research was completed.

3.3.1 IDENTIFICATION OF ISSUES TO BE ADDRESSED THROUGH THE QUESTIONNAIRES

A review of related literature highlighted the relevant developments that had taken place in the field of urban agriculture in other parts of the world, specifically in East- and Central Africa such as Zimbabwe (Kutiwa, Boon and Devuysr, 2010), Uganda (Cole et al., 2008), and Malawi (Mkwambisi et al.,2011). From these authors'

observations it was possible to identify the focus areas that had to be researched in order to identify the critical elements needed to formulate an urban agriculture policy, and to determine what was practical and possible for inclusion in such a policy. The population groups targeted for the study were community gardeners, residents living in close proximity to community gardens, town planners and environmental health practitioners. A structured questionnaire was administered to each of the selected respondent groups. The respective questionnaires are presented in Appendices 5, 6, 7, 8 and 9.

3.3.2 QUESTIONNAIRE CONSTRUCTION

The design of the structured questionnaires made provision for the integration of the views of the eThekwini based stakeholders with regard to those issues that could affect the design of the urban agriculture policy (Figure 4). This was done by ensuring that critical questions to the community gardeners were also included in the questionnaires to the residents, environmental health practitioners and town planners (Figure 4).

Since eThekwini horticulturists interact with all the stakeholders directly or indirectly, all questions were related to the scope of their job descriptions. The design of the questionnaire for the exploratory baseline study focused on four distinct areas:

1. **Factual Biographical Data** (independent variables) (Questions 1 – 10). The baseline data characteristics of each target grouping were needed to get an appreciation of the fundamental composition of:
    - Community gardeners who were on the receiving end of all strategies for development and upliftment;
    - Residents who paid rates and owned property;
    - Environmental Health Practitioners who were the custodians of the environmental health status of the region; and
    - Town planners who designed and gave character to new residential developments within the constraints of the existing legislature.

2. Knowledge of urban agricultural issues over a broad front.

The questions on knowledge of urban agricultural issues varied per questionnaire but were listed mainly in Questions 11 - 29. The concept "urban agriculture" is often used when reference is made to a wide range of issues

concerning the cultivation of agricultural products in built-up areas. The overview of the knowledge of urban agriculture was needed to define:

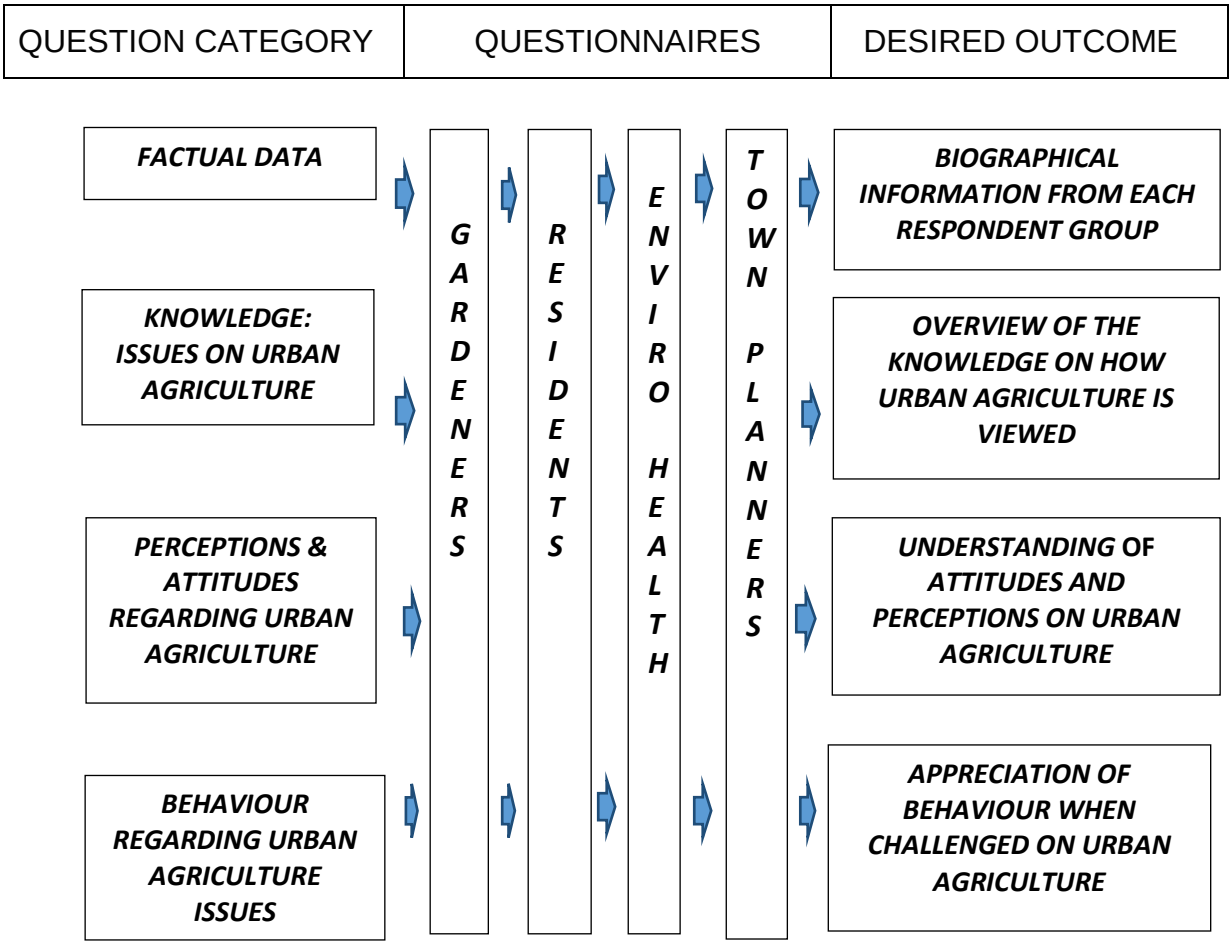

Figure 4: Theoretical approach to the collection of data to determine the desirability of urban agriculture as viewed by the role-players (Local design)

- the overall challenge of community gardeners with regard to legal stipulations regarding issues like land ownership, sale of produce, health and waste management and the use of water from streams, rivers and dams;

- the insights of residents regarding the practice of urban agriculture in close proximity to their homesteads;
- the insights of environmental health practitioners operating in the Central eThekwini Region regarding the impact of the environment of their health management operations;
- the approaches of town planners when new developments embrace agricultural practices or application for zoning changes are submitted for approval.

3. Perceptions of and attitudes towards the concept of urban agriculture

The questions exploring perceptions and attitudes varied between questionnaires but were listed mainly in Questions 35 – 45. Since facts and knowledge about issues give rise to the perceptions and attitudes of individuals, the data on the perceptions and attitudes of the respondent groups were needed to:

- understand the frustrations and fears of community gardeners with regard to the scope of the services provided by the eThekwini Municipality;
- appreciate the stance residents as rate payers would take when an urban agricultural concept is mooted and which will be financed through the rates they pay and which can affect the value and safety of their property;
- understand how training and background knowledge of environmental health practitioners affect appraisals of the environmental health situation in urban agriculture;
- understand how training and background knowledge of town planners can affect appraisals of the legislative stipulations regarding urban agricultural developments in the eThekwini setting.

4. Behaviour of respondents.

Questions on how respondents would behave when confronted with the concept of “urban agriculture in a built-up area” were contained in Question 46 and thereafter.

The baseline exploratory approach towards the study necessitated the use of dichotomous questions in most of the question categories. Therefore, the critical questions to the community gardeners that were also included in the questionnaires to the residents, environmental health practitioners and town planners, were also simple dichotomous questions. No Lickert or Semantic Differential Measurement Scales were used as would be expected in descriptive and explanatory surveys (Heise, 1970; McLeod, Pippin & Wong, 2012) when questions are asked to gauge a sense of the knowledge, perceptions, attitudes and behaviour. In total the community gardeners were asked 67 questions, residents 56 Questions, EHPs 67 questions and the town planners 62 questions. The questionnaires administered to the study respondents are presented in Appendices 5, 6, 7, 8 and 9.

3.3.3 SAMPLING AND STRUCTURED INTERVIEWS

Because the composition of each target group differed from that of the others, four different approaches were used to sample and administer the questionnaires. The determination of a sample size is of paramount importance in ensuring that the sample is representative of the target population. According to Survey Monkey (n.d.), an ideal sample should be at least 10% of the target population.

In this exploratory base line study the population sizes of the different target populations were varied which, in some instances, implied that the entire population had to be sampled in order to collect a meaningful set of data. As a consequence, the 10% sample “rule” was not applied in this study. However, given the issues associated with logistics, accessibility, topography and personal safety in the area of operation, the major determining factor in arriving at an appropriate sample size was the manageability of the sample size. The disaggregated sample sizes of the stakeholders are shown in Table 1.

1. **Community gardeners/urban agriculturists.** The eThekwini community garden register listed all the registered community gardeners in the Central eThekwini Agricultural Area (VEL-VKE, 2009). One hundred and twenty two plots were registered for the central region and a 25% sample was drawn. A random number generator was used to select 33 gardens (see Annexure 8).

Table 1: Sample sizes of each response group sampled

	Response Group	Sample Size
1.	Community Gardeners	33
2.	Residents	36
3.	Environmental Health Practitioners	12
4.	Town Planners	17

Sampling was done as follows:

The 25% selection was necessary because the community gardeners were highly mobile and the chances of not locating the registered gardener were real. Gardens that were not cultivated were scrapped from the list and the next closest one was chosen. One person per garden was interviewed. The localities of 20 of the 33 plots are shown in Figure 3 in green. The remaining thirteen were not plotted by the end of the exercise because no GPS was available for use to determine the grid references of sites. The summarised data based on the interviews are shown in Appendix 5 and the responses to the open questions from these interviews are presented in Appendix 9.

2. Residents. With regards to residents and their views on the concept of practicing urban agriculture in close proximity to residential settings (Table 2), it was decided to target conservancy/community groups within 2 km from the gardens in the area where they reside. The reason for this decision was that people with a passion for conservancy and their community would, as a group:

- have the best knowledge of the dynamics within the areas where they lived;
- have an appreciation of environmental legislation affecting their area;
- have a vested interest in their community and in the health of the people residing in the area.

Unfortunately, several people within these groups declined to participate and in two cases only one member completed the survey. A possible explanation for the decline response could be that urban agriculture, conservancies and

squatter camps are synonymous with vacant land and that it was possible that they believed that their responses could be used as justification for opening conservancies for urban development. Eventually a total of 36 residents participated. A list of the people interviewed will be provided on request by bona fide researchers subject to noting the fact that all respondents who participated wanted their results kept confidential. The summarised results of the interviews are presented in Appendix 6. A summary of the responses to the open questions are listed in Appendix 9.

Table 2: Residents associated with conservancies living within 2 km from a community garden within the Central eThekwini Agricultural Region

Conservancy	Responses
Chatsworth Garden Club	5
Clermont Community Forum	8
Hillcrest/Alviston Conservancy	1
Kloof /Gillits Conservancy	0
Kwadengenzi	8
Mariannridge	5
Pinetown/New Germany Conservancy	2
Westville Conservancy	7
Total	**36**

3. **Environmental Health Practitioners.** In 2009 eThekwini Municipality employed 71 Environmental Health Practitioners of which 14 were deployed in the Central eThekwini Agricultural Area. It is known that Environmental Health Practitioners specialise in human health in a built-up environment. Of the 14 EHPs selected, 12 were interviewed. A summary of the responses to the questions are shown in Appendix 7 and the responses to the open questions are listed in Appendix 9.

4. **Town Planners.** In 2010 eThekwini Municipality had only 14 town planners in its employ which meant that conclusions regarding the views of this grouping on urban agriculture would be drawn from an extremely small population.

However, in the central region of eThekwini a further 16 private, who did designs of townships when contracted by the eThekwini Municipality, were traced. A number of lecturers qualified in town planning were also located at the University of Natal. As a consequence this approach towards town planning also had to be reflected in the survey involving town planners. Therefore, a three-pronged approach was used to collect data on the views of town planners regarding urban agriculture:

i. **Academic input**: Prof. Mike Kahn and Ms Annette von Reisen from the Department of Town Planning at the University of KwaZulu-Natal and a private town planner were interviewed on land management in KwaZulu-Natal (Personal Communication, 2009). Unfortunately, when approached later the staff of the Department of Town Planning of the University declined to participate in the survey.

ii. **Private Town Planning Agencies:** practitioners in the eThekwini Municipality area of responsibility.

iii. **Town Planners employed by the eThekwini Municipality**,

Interviews were conducted during the period May 2010 to August 2010 with stakeholders in each of the target populations. The results are shown in Appendix 8 and a summary of the responses to the open questions are listed are presented in Appendix 9.

3.3.4 CONSENT AND CONFIDENTIALITY

A consent form giving the title of the project, the name and contact details of the author, the objectives of the study and the projected amount of time it would take to complete was prepared. All the participants were advised that there would be no personal benefit to their participation and that they could withdraw at any time without any penalty. It was reiterated that the information would remain completely confidential, that nobody would be personally identified within the study and that there were no known or envisaged risks. Participants were further advised that the Ethics Committee of the University of South Africa had also given this study clearance. Concerns or comments could be forwarded to the principal investigator

and/or his supervisor. Lastly, they were asked to sign a voluntary consent form in which they agreed to participate in the survey (Appendix 4).

3.3.5 PRETESTING THE QUESTIONNAIRES

After the construction of the questionnaires, a pre-test was done to evaluate their validity. Three recently retired persons in the respective fields were selected and asked to complete the questionnaire. Retirees were selected to ensure that the pre-test respondents would not be asked again later to fill in the same/revised questionnaire. The purpose of the exercise was to:

- ensure that the questions asked were understood;
- determine whether the responses to the questions were relevant to the objectives of the investigation;
- confirm that the responses could be captured, analysed and interpreted.

The pre-test exercise highlighted a number of problem areas regarding the construction of some questions as well as the dexterity to complete the questionnaire on their own. Such observations necessitated changes before the interviews could be conducted. A Zulu speaking lady who was knowledgeable in agriculture was trained to administer the questionnaire to the community gardeners and the Zulu residents. All those interviews were done under supervision.

3.3.6 CRITERIA FOR ADMISSIBILITY AND PROCESSING OF THE DATA

The completed questionnaires were screened to determine whether they had all been completed correctly. The responses were coded and transferred to a Micro-Soft 2007 spread-sheet before further processing was done.

Two groups, namely the Environmental Health Practitioners (EHPs) and the town planners were invited to a collective meeting where the questionnaires were explained to them so that they could ask any questions or get clarity. Thereafter they were given sufficient time to complete the questionnaires before the forms were collected. The external town planners were contacted telephonically and asked to

participate and an explanation was provided when they agreed. The questionnaire was dropped off at their respective offices and later collected.

3.4 LIMITATIONS

This investigation was an exploratory baseline study on urban agriculture and the focus was on those key issues that must be considered when a policy for urban agriculture is formulated. Therefore, cognisance was taken of the unique characteristics of each response group which were captured under:

- educational backgrounds;
- the circumstances that defined their daily existence;
- their exposure to the various statutory stipulations that defined their perceptions of urban agricultural activities; and
- their experiences of the provision of services to the region where urban agriculture was practised.

These characteristics underscored the importance of having a photographic view of the community gardeners, residents, town planners and EHPs. It presented a clear picture of how they related to the concept of urban agriculture.

Cognisance was taken of the limitations of the exploratory baseline approach since various issues could affect the validity and reliability of the investigation. The following were applicable:

1. **Sampling.** Given the difficulties experienced with regard to topography, infrastructure (roads), accessibility, personal safety, distances to be travelled in the rural area and the availability of the respondents, it became necessary to conduct most interviews during the day. Where possible, random sampling was done but it was not possible to confirm how up-to-date the official address lists were. Several of the gardens on record were found to be inactive. As a consequence, a person associated with the next closest active garden was interviewed.

2. **Voluntary participation levels**

i. Town planners. The entire town planner population was sampled but then a number of the town planners declined to participate in the survey. As a result, the characteristics emanating from the various group samples were projected onto populations that were characterized by the samples only, and not onto the general population. In addition, the lecturers of the University were not prepared to participate in the investigation. No reasons were given.

ii. Residents. With the exception of one, all the residents of the conservancies in the more affluent areas of the area of investigation declined to participate in the survey.

Against the background of urban agriculture in the Central eThekwini Agricultural Region, it is a fact that the four target groups make contact on a daily basis in real life situations. Such contact is either direct or indirect. However, no official data could be traced on the extent of such associations as no statistics are maintained by the eThekwini Municipality. Horticulturists must provide their services in such a setting which invariably results in *ad hoc* operations. The exploratory baseline approach necessitated that questionnaires be designed to place such comparative data on record. However, given the educational mix, population distribution, language preferences, reasons why a relationship with urban agriculture existed and its impact against legislative requirements, the possibility existed that the formulation of some critical questions might be ambiguous and even inappropriate. To avoid the potential to collect inconsistent responses and to enhance reliability, each community gardener respondent as well as Zulu speaking resident was interviewed by a Zulu speaking person trained to administer the questionnaire. Time and budget did not allow a further check for reliability by re-visiting the same people and to compare answers.

CHAPTER FOUR

RESULTS

4.1 INTRODUCTION

In Chapter Three the exploratory survey methods for capturing data pertaining to the gardeners, residents, EHPs and town planners involved in the study were identified and discussed. The design of the structured questionnaires made provision for the integration of the views of the stakeholders in the eThekwini research focus area with regard to the key issues related to legislative compliance and community needs analysis. The findings based on the analysed data resulted in the identification of key elements that should be included in the design of an urban agriculture policy. This was achieved by ensuring that critical questions put to the community gardeners were also included in the questionnaires to the residents, environmental health practitioners and town planners (Figure 3). The processed responses to each question are shown in Appendices 5, 6, 7, 8 and 9. The results based on the critical questions as reported in Chapter Four illuminate the respective responses of the four target populations that relate key elements that should be included in an urban agriculture policy. Because each group of respondents operated within its own area of operation associated with their own interpretations of accountability and responsibilities, the responses are reported collectively for overall comparative purposes, as illustrated in Figure 3.

4.2 BIOGRAPHICAL DATA

Questions 1–10 captured the biographical baseline data from each target group. Since the overall aim of the study was to identify those factors that could influence policy development for urban agriculture in the Durban/eThekwini region, an appreciation of the biographical orientation of each response group was needed. Although the responses show that with a single exception all the respondents were South African citizens, it was anticipated that the biographical standing of each group would influence their specific orientation towards the urban agriculture concept. As a consequence, issues like gender, race, education, qualifications, experience and exposure to urban agriculture were relevant and are reported.

4.2.1 GENDER DISTRIBUTION

Gender plays an important role in urban agriculture (Mbida, 1995; Mougeot, 2005; Hovorka, de Zeeuw & Njenga, 2009). In South Africa subsistence farming is practised mainly in the rural areas but the practice also affects urban areas (Baiphethi & Jacobs, 2009; Du Toit, 2011). In urban and peri-urban settings, various families have to resort to growing food to survive or to supplement their income. Question three of the four groups explored the gender issue and the results are presented in Table 3.

Table 3: Gender Distribution in the Various Response Groups Associated with Urban Agriculture in the Area under Study

		Female	Male	Missing	Total
		%	%	%	%
Community Gardeners	n=33	80.0	17.7	3.3	100
Residents	n=36	67.7	30.3	0	100
EHPs	n=12	53.8	38.5	7.7	100
Town Planners	n=17	35.3	64.7	0	100

Table 3 illuminates the reality of gender involvement in urban agriculture in the eThekwini area. Of the community gardeners who were practising urban agriculture in the Central Zone area, 80% was female. Similar findings on the role of gender in urban agriculture have been reported in the literature. Hovorka et al. (2009) argue that women in South America, Africa, India and the Far East are synonymous with the practice of urban agriculture. The current study corroborated this observation as it revealed that 67.7% of the residents and 53.8% of the EHPs who were associated with urban agriculture were females. This female majority was in contrast with the 64.7% male town planners who are associated with the design and outlay of the townships and who operate from offices in the Central eThekwini area.

4.2.2 RACE DISTRIBUTION

Race will always be a sensitive issue simply because cultural practices and traditional knowledge can come in conflict with national, provincial and local legal

requirements and stipulations. It was therefore important to get an appreciation of the racial mix of the study population and to identify the group that was on the receiving end of all the strategies for development and upliftment in the Central Zone area. Question five reported on the race distribution of all respondents (Table 4).

Table 4: Race distribution of the various respondent groups

		Black %	Coloured %	Indian %	White %
Community Gardeners	**N=33**	96.7	0	0	0
Residents	**N=36**	57.6	0	15.2	27.3
EHPs	**N=12**	46.2	0	15.4	23.1
Town planners	**N=17**	17.6	5.9	29.4	47.1

Table 4 shows that 96.4% of the sample of gardeners in the area of investigation were of the African (or Black) population group. Since the investigation was conducted in KwaZulu-Natal and as the interviews with them were conducted in Zulu by a Zulu speaking field worker, it may be assumed that the gardeners represented the Zulu ethnic group. The residents that these gardeners interacted with were made up of Blacks (57.6%), Whites (27.3%) and Indians (15.2%). The environmental health services that were managed by the eThekwini Municipality were provided by 46.2% Black, 15.4% Indian, and 23.1% White EHPs. These predominantly Black race distributions were in contrast with the 17.7% Black and 47.1% White town planners who were associated with the design and outlay of the townships.

4.2.3 EDUCATIONAL LEVELS

The educational status of a population may determine to what extent innovative strategies can be developed for implementation. Since the unemployment rate amongst the community gardeners and residents in the Central Zone region was high and also because they were on the receiving end of all the strategies for development and upliftment, the importance of their level of qualifications, and by implication the communication potential of all the role-players associated with urban agriculture, became relevant. Questions six and seven explored the qualification

levels as well as the types of educational institutions that had been attended (Table 5).

Table 5: Highest educational levels achieved and institutions attended by respondents

		Primary School %	Secondary School %	College %	Technikon %	University %	Unknown %	Total %
Community Gardeners	**N=33**	43.3	56.7	0	0	0	0	100
Residents	**N=36**	3.1	31.3	18.8	18.8	28.1	0	100
EHPs	**N=12**	0	7.7	0	53.8	30.8	7.7	100
Town Planners	**N=17**	0	0	0	11.8	88.2	0	100

A considerable educational gap between the community gardeners on the one hand and the town planners and EHPs on the other hand was revealed. Table 5 shows that on the one side of the spectrum only 56.7% of the community gardeners had achieved a secondary school education. At this exploratory level of the investigation no effort was made to determine which grades had been achieved. On the other side of the spectrum 100% of town planners and EHPs had been exposed to tertiary education, i.e., Technikon – now Universities of Technology - and University. By implication, the two latter groups would be well versed in academic literature.

4.2.4 WORK AND AGRICULTURAL EXPERIENCE

The authority to make decisions in any operation depends on the position a person occupies in an organisational hierarchy. In any given situation, the higher the ranking of the post of the official, the greater will the impact of the decision be. In this context the concept “urban agriculture” will have a diverse impact on the different levels of the community and rate payers in the eThekwini Municipality region, and for different reasons. Therefore, it was argued that an appreciation of the different angles from which the respondents viewed and addressed the questions would enable the identification of key issues for the development of a policy for urban agriculture. Residents and officials should interact at community meetings. All role-players are, in terms of Section 29(1)(b)(i) of the Municipal Systems Act (South Africa, 2000), invited to attend such briefing sessions. A survey of the ranking range of all the role-players would therefore give an indication of the inputs that could be expected from such a diverse population. Table 6 reports on the responses to

questions eight and nine gives an overview of the organisational ranking status of the different role-players that were interviewed.

Table 6: Reflections on respondents' years of exposure to work and agriculture

	Community Gardeners	Residents	EHPs	Town Planners
	n=33	n=36	n=12	n=17
	% Range (years)	% Range (years)	% Range (years)	% Range (years)
Work Experience	3.3 – 5.7	4.7 – 31.5	7.2 – 30.6	11 – 27.6
Agriculture Experience	4.4 – 19.6	0 – 17.9	0 – 38.7	0 -16.1

Table 6 reflects that community gardeners had a range 3.3 - 5.7 years of work experience but a range of 4.4 – 19.6 years exposure to agricultural practices. The results do not show whether the community gardeners took up gardening as a result of unemployment and as a method to survive or whether it was an intentional decision to do gardening. On the other side of the scale, town planners had only a range of 0 - 16.1 years exposure to agriculture; yet, by the nature of their job descriptions, they made decisions on food security issues affecting community gardeners.

4.2.5 POSITION OCCUPIED

As stated above, the authority to make decisions in any operation depends on the position a person occupies in an organisational hierarchy. The higher the ranking of the official (for example, if a person is a senior official of the eThekwini Municipality), the greater will the impact of any particular decision be. However, the impact of any decision will be dependent on the relevancy and quality of the information the person receives from peer and superior officials as well as from rate payers. As with years of work experience, it was argued that it would be important to gain insight into the ranking range of all the role-players as it would give an indication of the inputs role-players could offer from both an occupational and rate payers' perspective. Such

inputs would be valuable in developing a policy for urban agriculture. Table 7 reports on the responses to question ten in connection with the organisational ranking status of the different role-players interviewed as well as that of self-employed and non-employed individuals.

Table 7: Occupational ranking of the various role-players in urban agriculture

	Community Gardeners	Residents	EHPs	Town Planners
	n=33	**n=36**	**n=12**	**n=17**
	%	**%**	**%**	**%**
Senior Management	0	13.8	9.1	25
Middle Management	0	3.4	36.4	12.5
Junior Management	0	6.9	36.4	31.3
Academic	0	13.8	18.2	6.3
Home Maker	0	6.9	0	0
Student	0	3.4	0	0
Unemployed	52.2	10.3	0	0
Other*	47.8	41.4	0	25
Total	**100**	**100**	**100**	**100**

**Other = Pensioners / self-employed / cottage industries*

The results in Table 7 illustrate the gap between the operational ranking status of community gardeners on the one extreme and the professionals employed by eThekwini Municipality on the other. The results show that 100% of the gardeners did not have any occupational or operational status. Given their educational background and command of English, they most probably will interact with junior management (36.4% EHPs and 31.3% town planners) when they need to consult with the officials of the Municipality. In practice, junior management implements the policies, rules and regulations of the Council on ground level and they are effectively

the communication medium between senior management and the community gardeners and the residents.

4.2.6 URBAN AGRICULTURE AS PART OF A TRAINING/ACADEMIC CURRICULUM

Each professional post within the eThekwini Council is filled with qualified staff who do specific jobs. This implies that any member of staff has completed a theoretical academic component before completing an in-service training programme before being appointed into a permanent post. Given the generic nature of most programmes presented by the universities and technikons (currently universities of technology), it was important to establish whether both theoretical and practical training prepared the incumbents to operate in an urban agricultural setting. Questions 11 (EHPs) and question 13 (town planners) explored the issue of urban agriculture as part of a training curriculum. The results are presented in Table 8.

Table 8: Exposure to the concept of urban agriculture during training for the profession

		Exposure to Urban Agriculture		
		Yes	No	Not Sure
		%	%	%
EHPs	**n=12**	41.7	58.3	0
Town Planners	**n=17**	41.2	47.1	11.8

The results in Table 8 show that urban agriculture featured in the academic training of EHPs and town planners. However, the results do not reveal whether the exposure took place during the academic training programme or through in-service training or workshops. The rate of EHPs and town planners that did not have exposure to urban agriculture during their theoretical and practical training is slightly higher (58.3% and 47.1% respectively) than the number of respondents who did have some exposure (41.7% and 41.2% respectively).

4.2.7 EXPOSURE TO URBAN AGRICULTURE AND SUPPORT FOR THIS PROCESS

All role-players in the area of responsibility of a municipality must, in terms of Section 29 (1)(b) of the Municipal Systems Act (South Africa, 2000), be invited by the local authority to attend briefing sessions on issues that require residents' inputs and approval. Through such a consultation process, the Council has to establish what the needs of the community are and what resources are available before the needs can be prioritised and ranked. In the spirit of Section 29 1(b)(iii) of the Act, they must survey and establish the exposure to the concept of urban agriculture and the level of support for it before establishing such a practice in a built-up area. Questions 11 and 39 (community gardeners), questions 8 and 13 (residents), questions 14 and 16 (EHPs) and questions 15 and 20 (town planners) explored the issues related to exposure urban agriculture and support for the concept (Table 9).

Table 9: Exposure to and support for the concept of urban agriculture.

	Community Gardeners	Residents	EHPs	Town Planners
	n=33	n=36	n=12	n=17
	%	%	%	%
Exposure to Urban Agriculture	100.0	90.9	90.9	82.4
Support for Urban Agriculture	100.0	90.9	66.7	88.2

Table 9 shows that the concept of urban agriculture was a familiar concept among all the respondent groups and that relatively strong support existed for the urban agriculture concept in a built-up environment. The question did not explore the reasons why support was given nor did it explore how exposure to the concept had come about.

4.2.8 DEFINITION OF AND SCOPE FOR URBAN AGRICULTURE

A definition of urban agriculture as presented in the questionnaires embraces a description of the respective localities where urban agriculture can be practised. The definition states that urban agriculture is: *The sustainable and productive utilisation*

of natural resources and other inputs by people for plant and/or animal production purposes, either for own consumption or for marketing produce in close proximity to and/or in urban settings (Mougeot, 2003).

The definition was written in such a manner that the reader would understand the ramifications of the defined terms as well as the localities where agriculture is practised in an urban setting. Question 12 explored the orientation of the four response groups regarding the locality options available for urban agriculture in the eThekwini Municipal area. This overview highlights which areas respondents viewed as acceptable for establishing agricultural activities. The results are in Table 10.

Table 10: Preference Rates for Areas where Urban Agriculture could be established

Area suitable for Gardening	Community Gardeners n=33 %	Residents n=36 %	EHPs n=12 %	Town Planners n=17 %
Gardening - CBD	2	9	8	2
Gardening - Suburbs	17	20	2	10
Gardening - Peri-Urban	4	8	1	0
Gardening - Rural	16	4	0	0
Crops – Vacant Land/CBD	8	11	0	0
Crops - Vacant Land /Suburb	17	12	0	0
Crops-Vacant Land-Peri-Urban	0	12	1	0
Crops - Rural	16	3	0	0
Other	0	2	0	0

Table 10 gives an overview of the sites that could be used for urban agriculture and the respondents' views on the suitability of these sites for the practice of urban

agriculture. The definition highlights combinations of gardening and crop production with the locality (suburban, rural and peri-urban) where the crops can be grown.

Some community gardeners (16%) indicated crop production in rural settings as a focus for urban agriculture. Also interesting is that 9% of the residents thought that urban agricultural practices could take place in the CBD. It is important to note that a few EHPs and town planners selected gardening in suburbs (2% and 10% respectively) but did not seem to appreciate that the definition of urban agriculture could also include crop production on vacant land, whether in suburbs, a CBD, or in peri-urban or rural settings.

4.2.9 LOCATIONS/SITES FOR URBAN AGRICULTURE

The approaches to town planning within a municipal environment are regulated by the Municipal Systems Act Section 4 (2)(g)(i) (South Africa, 2000). The designs of town planners working in a municipal area of responsibility must conform to specific stipulations of the Act; specific areas are demarcated for industrial development and others are set aside for residential and recreational facilities. The provision of parks and public open spaces is thus a legal requirement and rate payers finance the upkeep of those areas. However, a policy for urban agriculture may challenge the existence of parks and public open spaces and it was important to establish how the various respondent groups viewed the prospect of growing crops in spaces that have been designated for sports fields, lawns and flower beds. The location issues that were explored in question 16 (community gardeners), questions 18, 19 and 20 (residents), questions 18,19 and 20 (EHPs) and question 53 (town planners) are reported in Table 11.

The responses to Question 12 revealed interesting possibilities in the context of future town planning. The residents, who are also rate payers, appeared to support the concept of using vacant spaces for urban agricultural endeavours. They indicated that they supported the use of portions of parks (66%), school sites (83%) and protected areas (77%) for urban agriculture. The reasons for these particular biases were not explored but the educational and social upliftment significance of food production within a residential area cannot be ignored. On the other hand, residents appeared very protective of the use of vacant land and wetlands as none of this group saw these areas as having potential for agriculture. However, as this

Table 11: Potential sites that can be used for urban agricultural practices

	Community Gardeners n=33 %	Residents n=36 %	EHPs n=12 %	Town Planners n=17 %
Parks	0	66	0	0
School Sites	23	83	0	0
Protected Areas	0	77	70	37.5
Vacant Land	24	0	30	0
Wetlands	0	0	50	0

issue was beyond the scope of the investigation it was not further investigated. It can only be speculated that the "well to do" residents were concerned about the future status of the wetlands in their area. Conversely, some may have felt that the opportunity costs associated with the preservation of wetlands could very well be outweighed by their concerns regarding the availability of food for their next meal.

The responses of the community gardeners were also interesting. Although it was expected that community gardeners would suggest that parks and vacant land be used for gardening activities, no support by them for these areas was recorded. This finding may well be because no parks or vacant land had ever been demarcated in these areas and, as a result, the concept was foreign to them. It is understandable that wetlands would not be an option because all crops are grown on dry land. In contrast with the residents, EHPs suggested that protected areas (70%), vacant land (30%) and wetlands (50%) should be used. Wetlands are associated with mosquitoes and other health related problems. It may be surmised that, from their perspective, the draining of wetlands would solve a series of health related problems.

4.2.10 ASPECTS OF WATER PROVISION

Water is one of the most essential items needed for food growing. This water should have a neutral pH and be clean and free from heavy metals, pathogens or micro-organisms that could poison the soil, plants and the residents that consume the crops produced. South Africa is an arid, water stressed country. Water must be

used sparingly and correctly and the country cannot afford to pollute the water sources. This supply should also be retained and stored wherever possible for later use during dry periods. Questions 17, 18 and 34 (community gardeners), question 21 (residents), 17 and 41 (EHPs) as well as questions 28, 52, 59 and 60 (town planners) investigated various aspects associated with water and its sustained use in an urban agricultural setting (Table 12).

Table 12: Sources from which water could be obtained for agricultural activities

	Community Gardeners n=33 %	Residents n=36 %	EHPs n=12 %	Town Planners n=17 %
Storm Water	100	84.8	0	81.3
Retention Ponds	90	84.8	25	81
Flood Plains	93.3	83.9	0	70.6
Rivers/Streams	0	72.9	50	12.8
Waste/Greywater	0	56.3	0	52.9

Table 12 shows that the majority of residents, town planners and community gardeners supported the use of water that is readily available, irrespective of the source. However, the community gardeners did not support the use of river or stream water for agriculture. The reasoning behind this negative response was not clear, but it could be surmised that the gardeners had been sensitised to the issue of the pollution of rivers and streams in built-up and even peri-urban areas and that they would therefore be conscious of the potential dangers associated with polluted water and the production of food. The fact that greywater was not selected as an option by this group could be ascribed to the fact that many houses do not have running water and the concept of “greywater” might thus have been meaningless to them.

The relatively low support (only 25%) by the EHPs for the use of water from retention ponds as a safe option was somewhat surprising because the quality of water in

these ponds can be monitored and controlled and it would therefore be a safe option for watering gardens and crops.

What must be noted is that although the residents supported the principle of using river/stream and waste/greywater (72.9% and 56.3% respectively), the concept of using river water was supported by only 12.8% of town planners and the use of greywater was rejected by 100% of the EHPs. It may be surmised that these two groups' sensitivity to water pollution and their knowledge of the dangers associated with it for food production may have provoked these responses.

4.2.11 TESTING OF WATER, SOIL AND AIR

Control of any human disease associated with pathogens, micro-organisms, heavy metals and organic-compounds is done by means of appropriate tests before any control measures are implemented. Such control measures are mandatory. The Constitution (South Africa, 1996) and Section 2 (c) of the Foodstuffs, Cosmetics and Disinfectants Amendment Act (South Africa, 1981) specify that EHPs must do tests to ensure that the water, soil and air in a given environment are safe for human existence and the planting of food, particularly within a city. This means that the soil and the water that are used for cultivating food must conform to acceptable standards; if not, the health of the users can be jeopardised. Not all users of water and soil, especially those that cultivate food for survival, are aware of the mandatory stipulations regarding the safe use of water and soil for cultivating crops. Given their survival needs, these people have their own views on how the safety issues should be monitored. Questions 17, 18 and 34 (community gardens), question 21 (residents), questions 17 and 41 (EHP) and questions 28, 52, 59 and 60 (town planners) explored the issues related to the safe testing of water and is reported in Table 13.

Table 13 lists the broad category tests that have to be done to ensure that residents and industry can function in an environment where the water, soil and air are conducive to a healthy existence. These tests are mandated by law and are the responsibility of EHPs. Table 13 shows that neither the community gardeners nor the residents had been exposed to such mandatory tests.

Table 13: Respondents' knowledge of present and future requirements for testing water, soil and air for safety

	Community Gardeners n=33 %		Residents n=36 %		EHPs n=12 %		Town Planners n=17 %	
	Present	Future	Present	Future	Present	Future	Present	Future
Soil	0	0	0	100		0	50	0
Water	0	0	0	100	58.3	0	50	0
Micro-Organisms	0	0	0	0	8	0	0	0
Other Organisms	0	0	0	0	0	0	0	0
Air	0	0	0	0	0	0	50	0
Heavy Metals	0	0	0	0	0	100	0	0
Pathogens	0	0	0	0	0	100	0	0
Organic Compounds	0	0	0	0	72.7	0	0	0
Health Assessment	60	0	0	0	0	16.7	0	0

With the exception of health assessments (60%) (Testing of air, water and soil) that had been done, it was clear that community gardeners' food production activities were subjected to all the negative and harmful impacts of the environment without any early warning system operating in support of their agricultural operations. Of concern is the revelation that this group was not aware that such tests should be done in the future to safeguard their produce against the harmful effects of a variety of natural elements. All the residents (100%) indicated that soil and water tests needed to be done in the future.

In this regard it is important to note that some testing (water) is being done by the EHPs as well as the town planners. Although Table 12 (section 4.2.10) indicates that both groups test water (58.3% and 50% respectively). It is expected that the EHPs would also monitor air quality since so many health threatening hazards are as a result of air-pollution and air-borne diseases. All the other tests ranging from organic compound to heavy metals and micro-organisms in water, soil and air need to be done in order to be compliant with the stipulations of the Constitution.

4.2.12 SCOPE FOR TRAINING IN URBAN AGRICULTURE

For urban agriculture to be successful, any future policy should ensure that the strategy is sustainable. Training is the basis for succession and an awareness of the training needs of urban agriculturists is essential for the formulation of a policy on urban agriculture.

The views of the respondents on the issue of training for urban agriculture are collected in questions 52 and 60 (community gardeners), questions 28 to 34 (residents), 41 EHPs and 56 to 59 (town planners) and is reflected in Table 14.

Table 14: Proposed training for urban agriculture

Training Area	Community Gardeners n=33 %	Residents n=36 %	EHPs n=12 %	Town Planners n=17 %
Gardening	100	0	0	0
Health, Disease & Pathogens related to Harvesting of Foodstuffs	0	0	100	0
Health, Disease & Pathogens related to Marketing of Foodstuffs	0	0	100	0
Health, Disease & Pathogens related to Preparing of Foodstuffs	0	0	91.7	0
Safe Use of Greywater (Waste Water)	0	0	41.7	0
Safe and Correct Use, Handling, & Storage of Agro-Chemicals	0	0	100	0
Planning/Funding	100	0	0	0

The results presented in Table 14 (section 4.3.2) summarise the preferences/needs of two distinct groups in the investigation. On the one side the community gardeners had two long- term needs namely training to do gardening (100%) and funding (100%). On the other side, EHPs emphasised that professional health education

over a broad front was their calling. They indicated that urban agriculturists should be trained in health diseases related to foodstuffs (100%), pathogens and marketing (100%), pathogens and food production (91.7%), safe use of greywater (41.7%), and safe handling of agro-chemicals (100%). Accommodation of these needs will have to be considered in the formulation of a policy for urban agriculture. As this is a process in which town planners should be intimately involved, their lack of interest in commenting on training opportunities for urban agriculture is a matter of concern.

4.2.13 POTENTIAL HEALTH AND RECREATION BENEFITS OF URBAN AGRICULTURE

Provision is made within town planning policy to ensure that the environment is healthy and stimulating for the residents. Provision is also made for active and inactive recreation pursuits within the city in which the citizens can participate. These pursuits are essential for the health and well-being of all and can include gardening since gardening is considered as a recreational pursuit. The respondents' views, questions 18, 34 and 36 (community gardeners), questions 43, 44 and 45 (residents), questions 14 and 16 (EHPs), question 52 (town planners) on the areas where urban agriculture can benefit citizens are reflected in Table 15.

Table 15: Views on areas where urban agriculture can benefit citizens

	Community Gardeners n=33 %	Residents n=36 %	EHPs n=12 %	Town Planners n=17 %
Conservation Areas	100	0	0	0
Retention Ponds	100	0	0	81.3
Parks	56.7	0	0	0
Open Spaces	0	0	0	0
Shade Trees	0	56.7	0	0
Fruit Trees	0	63.3	0	0
Gardening	0	0	100	0
Health Benefits	0	0	66.7	0

An analysis of the results presented in Table 15 illustrates that the respective backgrounds of each response group seemed to dictate what they would emphasize as being important for future development. The emphasis of community gardeners was on conservation areas (100%), retention ponds (100%) and parks 56.7%. Residents focused on shade and fruit trees, whereas EHPs emphasised gardening (100%) and health benefits (66.7%). Town planners were largely in favour of retention ponds as an area that can benefit urban agriculture.

4.2.14 BENEFICIARIES OF URBAN AGRICULTURE

Food growing within a city has several benefits for both the gardener and the residents within the area of production. Therefore it is vitally important to establish who is/will benefit from urban agriculture and whether there are any other direct or indirect benefits that could accrue from urban agriculture. Questions 62, 63 and 64 (community gardeners) explored the issues that were related to beneficiaries and the results were reported in Tables 16 land 17.

Table 16: Income of respondents pertaining to urban agriculture

	Community Gardeners n=33 numbers	Residents n=36 numbers	EHPs n=12 numbers	Town Planners n=17 numbers
Salary	Not Specified	0	0	0
Family	0	0	0	0
Neighbours	0	0	0	0
Sick	0	0	0	0
Other	0	0	0	0

The results presented in Tables 16 indicate the financial benefits of urban agriculture and Table 17 indicates the beneficiaries of urban agriculture as perceived by the respondents. On the one side the community gardeners were already practising gardening as a means of survival and to them gardening was a reality. Conversely, residents, EHPs and town planners secured an income in some other way. From the non-committal nature of the results it was concluded that the income of the

Community Gardeners was not specified as they were reluctant to reveal such figures because they may also have been receiving government grants.

Table 17: Income of respondents and direct / indirect beneficiaries of urban agriculture

	Community Gardeners n=33 numbers	Residents n=36 numbers	EHPs n=12 numbers	Town Planners n=17 numbers
Salary	Not Specified	0	0	0
Family	>20 persons	0	0	0
Neighbours	>20 persons	0	0	0
Sick	0	0	0	0
Other	0	0	0	0

Determining specific income was beyond the scope of the study as this would not affect the development of a policy for urban agriculture at this point. The responses were thus from the varied perspectives of the respondent groups. Although they did not specify their income, if any, the community gardeners indicated that families and neighbours were beneficiaries of their urban agricultural practices. Strangely, the sick were not specified as beneficiaries of urban agriculture by the community gardeners. It is significant that in their responses to open-ended questions, EHPs and town planners appreciated the beneficial potential of urban agriculture but their reasoning for this was not explored in the questionnaire.

4.2.15 USE OF ORGANIC AND HUMAN WASTE FOR MAKING COMPOST OR FERTILISER

It was reported that there were about 600 registered community gardens throughout the Central eThekwini region; some were privately owned while others were located on school and church premises (VELA-VKE, 2009). A mobile survey of the area revealed to the researcher that there were other gardens that were not captured in this report. Given the hilly topography and the poor fertility of the soil in the Central eThekwini Agricultural Area, the need for compost and fertilizer is omnipresent. Waste materials - both organic (plant and human) and inorganic – that are generated within the city could, after processing, become a source for compost and fertilizer for

urban agriculture. There is also a requirement within the Constitution (South Africa, 1996) and in terms of the Waste Act (South Africa, 2008c) to use waste material so that the city can become more sustainable. It was therefore important to determine the views of the respondents on the use of organic and inorganic products for fertiliser in questions 53 (community gardeners), questions 46 (residents), questions 42 (EHPs) and questions 29 and 30 (town planners). The results are shown in Table 18

Table 18: Views on using plant and human waste as fertilisers

	Community Gardeners n=33 %	Residents n=36 %	EHPs n=12 %	Town Planners n=17 %
Organic Waste	100	61.3	63	47.1
Human Waste	0	0	9	23.5

Table 18 reflects that there was significant support for using organic waste for compost and fertilisers by the gardeners (100%), residents (61.3%), EHPs (63%) and town planners (47.1%). It must be noted that there was no support for the use of human waste as fertilizer by the community gardeners and residents, whereas only minimal support was offered for human waste as fertilizer by EHPs (9%) and town planners (23.5%).

4.2.16 KNOWLEDGE OF LEGISLATION

Most officials, and in some cases residents, had come into contact with legislation with regards to urban agriculture and other peripheral matters that might affect urban agriculture. It was mostly in the case of officials that knowledge existed about urban agriculture legislation, as could be expected owing to their fields of training and expertise. As it could be assumed that it is in only rare situations that residents will know about or deal with all aspects of legislation, it was important to determine whether respondents were aware of basic legal stipulations regarding the sites where gardening can be practiced. These basic legal stipulations were identified as using water from rivers or streams and establishing gardens within flood lines and on gradients exceeding a 12 degree slope. The responses to questions 41, 42 and 50

(community gardeners), question 22, questions 47, 49 and 49 (EHP) are shown in Table 19.

Table 19: Knowledge of legislation on urban agriculture

	Gardeners (n=33)%		Residents (n=36)%		EHPs (n=12)%		Town Planners (n=17)%	
	YES	NO	YES	NO	YES	NO	YES	NO
Stream/river water for irrigation	96.7	0	9.1	72.7	0	0	88.2	11.8
Flood line use	93.3	6.7	0	0	45.5	36,4	0	0
Sites with 12 degree slopes	32.1	67.9	0	0	20	80	0	0

The results revealed that a significant number of community gardeners were aware of the stipulations in the law regarding the use of water from streams and rivers as well as the dangers of establishing gardens within flood lines. However, their knowledge of establishing gardens on sites exceeding a 12 degree slope was limited to only 32.1%. This lack of knowledge may account for the large number of gardens that can be viewed on the slopes of hills during a mobile survey of the area. On the other hand, residents were less knowledgeable about legislation for the use of river and stream water for irrigation as only 9.1% of this group indicated knowledge of legislation in this regard. It was noted in the responses to question 21 that residents had little objection to gardeners using water from rivers and streams, possibly because they were not aware of any health related issues that could be present in the water. Moreover, their lack of responses to the questions on flood line and steeply sloped land use reflects their limited knowledge of legislation in these matters.

As could be expected, town planners had a high rate (88.2%) of knowledge of urban agriculture related legislation; what was surprising was the fact that none of the EHPs expressed opinions regarding the use of stream water for irrigation and that only 45.5% had knowledge of legislation whereas 36.4% reported no knowledge of legislation. Moreover, the limited knowledge (20%) expressed by EHPs regarding the use of sites with slopes in excess of 12 degrees is in conflict with the stipulations of

Section 21 (2)(a) of the Environment Conservation Act (South Africa, 1989a). A possible reason for this result is that these officials deal with citizens' state of health only within built-up environments and not in the natural environment itself.

The above results have been highlighted as they were of vital significance to achieving the objective of identifying criteria for the formulation of an urban agriculture policy.

CHAPTER FIVE

DISCUSSION

5.1 INTRODUCTION

The purpose of this investigation was to determine key factors that would support gardeners, rate payers, EHPs and town planners in the effective and sustainable establishment of community gardens. The focus of the investigation was on the Central eThekwini Area. To address the aims of the study, an operational hypothesis was formulated to guide the study in its exploration of the relationships between the role-players in the study group and the effects of statutory regulations on the implementation of urban agriculture processes. An illumination of these relationships and the impact – or the lack of the impact – of statutory regulations elucidated significant key components for urban agriculture policy development. However, the study experienced limitations due to its exploratory nature, the relatively small sample, challenges associated with the topography of the rural terrain (which comprised approximately 709 km^2), security and personal safety issues and problems inherent in the complexity of the study groups. These challenges limited the possibility of generalising the results.

Nevertheless, the results generally provided support for the operational hypothesis which stated that if the impact of existing national standards for town planning, business development, conservation, security, water, marketing and health regulations on the urban agricultural practices in the Central eThekwini Agricultural Region could be shown, then the key elements needed for establishing an urban agriculture policy for the eThekwini Municipality would become visible and clear.

What is of critical importance that became clear in the evaluation of the results is that although there was support for the urban agriculture phenomenon, this support was not communicated through the lines of communication among the departments.

A right to clean water and sufficient food in South Africa is a given. South Africa has a progressive National Constitution (South Africa, 1996) and according to Section 27 1(b) of the Bill of Rights, every South African citizen has the right to sufficient food and water. This study demonstrated how the third tier government, through appropriate legislation, should be involved in appropriate processes to ensure that every citizen can access food and water. An analysis of the relevant documents also showed that legislative mandates to implement these national objectives at Local Government level (South Africa, 2000) are in place and that, in principle, all food renewal systems and strategies should move forward. However, this investigation showed that the national objectives of access to food and water for all are not a reality. The right of community gardeners in the Central eThekwini agricultural area to have access to food and clean water as enshrined in the Constitution and as outlined in Resolution EF312A of the Inner West Council (1999) has not materialised. This investigation revealed that many legal, procedural and financial issues complicate any strategy to deliver what is promised by the Constitution. Moreover, it was revealed that efficient and constructive communication between all the stakeholders did not take place. These findings led to the conclusion that the lack of effective communication between the departments of Parks, Recreation and Cemeteries and Health, Town Planning and Development of the Central eThekwini Agricultural Region was a limiting factor which impacted negatively on every endeavour of the stakeholders to enhance food security.

Moreover, the study revealed gaps in the sense that new international developments in the field of urban agriculture such as the changes to town planning regulations (Hall, Isaacs & Saruchera, 2007; American Planning Association, 2009; White, 2011; Krispi, 2011; Hagey, Rice & Flournoy, 2012; Dreschner, n.d.) and development rules for community gardening (NPLAN, 2009; 2011; Kutiwa et al., 2010; US Environmental Protection Agency, 2011) or employability (Varley-Winter, 2011) have not been taken into consideration by the eThekwini Council. None of the above, nor the KwaZulu-Natal Provincial Growth and Development Plan (KZN Provincial Planning Commission, 2012), have been considered for a holistic development of urban agriculture strategies in the eThekwini Central Region.

5.1.1 INNER WEST COUNCIL RESOLUTION EF312A

Citizens' constitutional right to food and clean water not only implies that governmental and legal support systems must harmonise with the food and water needs of people, but also that they should make it possible for people to access food and water. The first step towards realising the National Government's goal of clean water and food for all in the eThekwini Municipality area of responsibility was taken in 1999 when the erstwhile Inner West Council resolved in Resolution EF312A to accept the development and promotion of community gardens as part of their local economic policy. The responsibility to operationalise this resolution was vested in the Department of Health, Parks and Recreation and the Department of Planning and Development (Inner West Council, 1999). This community development programme was to take place in the old Inner West Council which now forms part of the Central Zone of the eThekwini Council. At that Council meeting, the supporting role of horticulturists in establishing community gardens was also specified (Inner West Council, 1999) (Appendix 1).

Item 8 of Resolution EF312A specified that "research be conducted to ensure proper production practices in order to promote the sustainability of Community Gardens" (Inner West Council, 1999) (Appendix 1). Unfortunately, no evidence could be found that such research had been conducted which may explain why guidelines for an urban agriculture policy for the eThekwini Metro were never produced. In addition, no evidence could be found of inter-departmental communication between the Department of Health, Parks and Recreation and the Department of Planning and Development prior to or after the amalgamation of the Inner West Council into the eThekwini Council. In addition, no communication occurred regarding urban agriculture among other relevant departments within the eThekwini environment (Figure 5), for example the Department of Environmental Health and Town Planning. Item 6 of Resolution EF312A (Inner West Council, 1999) proposed that each gardener should receive a compost allocation once a year until they became self-sufficient compost producers; however, this undertaking never materialised. A number of reasons could explain this breakdown in undertaking such as the fact that the objectives of the resolution were never conveyed to the horticulturists (personal observation) who would have undertaken the assignment to train the gardeners in

the art of compost production had they been instructed to do so. In conclusion, Resolution EF312A seemed to have been a mere paper exercise in response to the Constitutional appeal to provide access to food and water to all citizens.

5.1.2 GUIDELINES FOR URBAN AGRICULTURE

Guidelines to manage the urban agriculture problem in the eThekwini Metro are fraught with omissions and gaps. When the Municipal Guidelines for Agricultural Development and Food Security in eThekwini document (Institute of Natural Resources, 2007) are analysed and compared with similar documents such as the urban agriculture policies of the cities of Toronto (1991), Cape Town (2007), Seattle (2010), San Francisco (Civil Eats, 2011) and Chicago (2011), no reference is made in the eThekwini document to:

- compliance with legislation and regulations with regards to lease or loan agreements pertaining to community gardeners;
- the inclusion of urban agriculture in land use management and planning and in other municipal development strategies;
- dual approaches to ensure food security and the creation of income for community gardeners;
- subsidisation of water for vulnerable groups;
- criteria for providing assistance to community gardeners.

The above omissions imply that the eThekwini Council will have to investigate the issues listed in order to gain a deeper understanding of the approaches that can be followed to accommodate urban agriculture within the built-up area of eThekwini. As was revealed by the findings of the study, a number of key areas such as vision and objectives, policy directives and the structure of consultative forums need to be addressed. This means that a new set of agricultural development and food security rules/guidelines will have to be incorporated in an urban agriculture policy to regulate this important activity among its citizenry. A key area that was illuminated by the study is the process of procurement of authority from Council to engage in community gardening. It seems urgent that Council waives or drastically reduces the

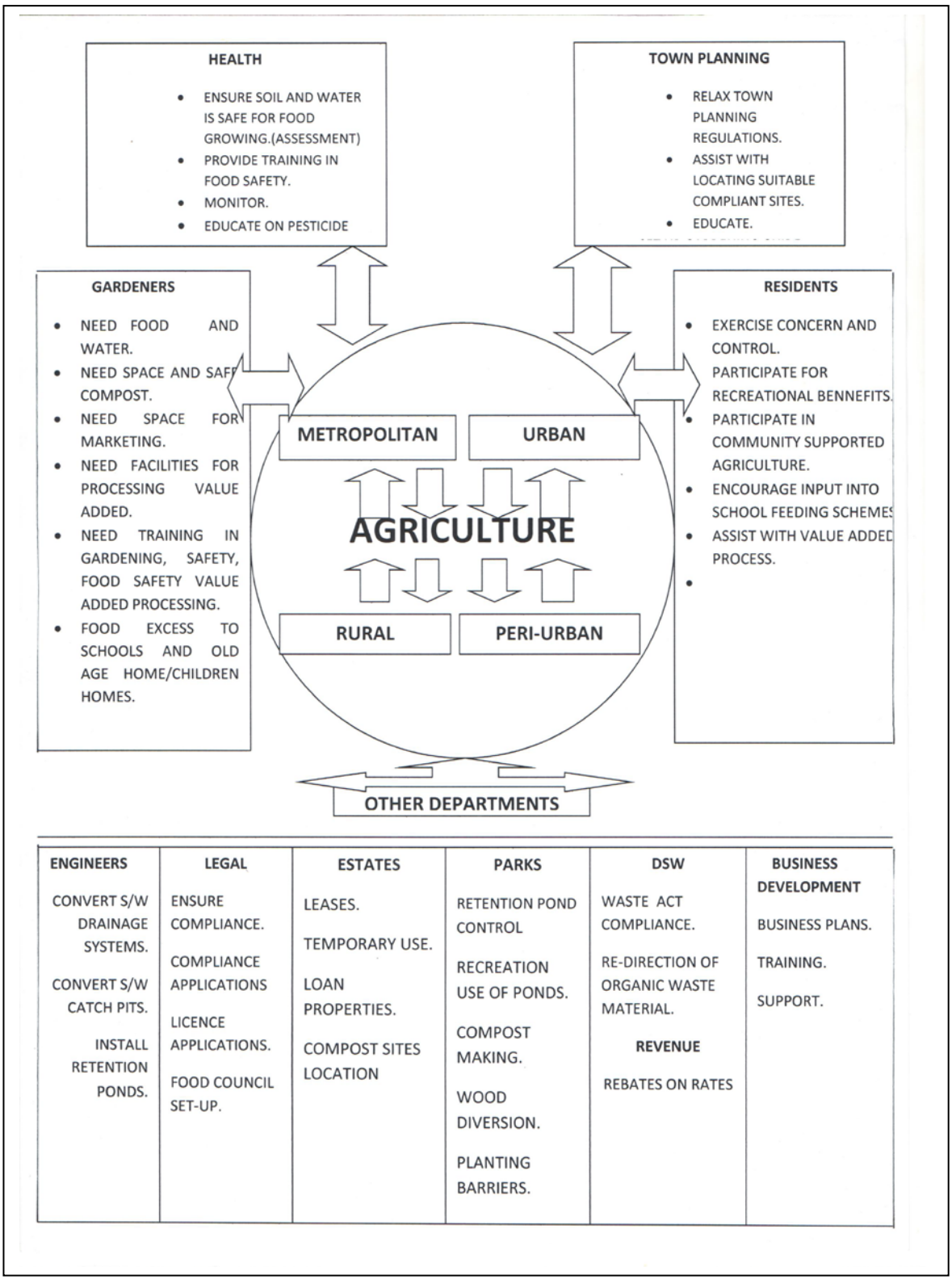

Figure 5: Proposed inter-departmental communication links between the Department of Health, Parks and Recreation and the Department of Planning and Development in the eThekwini Council. (Source: Local design, 2013)

special authority fees applicable to community gardeners when application is made to practice urban agriculture within the built-up environment.

5.1.3 AFFORDABILITY OF URBAN AGRICULTURE

Recent publications suggest that not all the ratepayers and government departments can afford the rates and taxes that are currently levied. The eThekwini Municipality is reported to have a large deficit (Sanpath, 2010); it therefore follows that agricultural related services would be limited to some extent. With reference to the gaps in the eThekwini urban agriculture vision as illuminated above, the identification of issues needed for the formulation of a sustainable policy on urban agriculture can only be meaningful if cognisance is taken of the outcomes of the goals of the first three sub-problems that were identified at the start of the investigation. The findings pertaining to the following need to be discussed before the criteria for formulating an urban agriculture policy can be listed:

1. The gap between the survival practices among communities and legislative restrictions that impact on their activities;
2. The potential impact of urban agriculture on the standard of living of rate payers and the value of their properties; and
3. The scope for establishing urban agriculture as an integral component of a Metro development programme.

5.2 SURVIVAL PRACTICES AMONG COMMUNITIES AND KEY ELEMENTS FOR POLICY FORMULATION

5.2.1 INTRODUCTION

As a result of the migration of historically rural people to the cities, poverty, food insecurity and malnutrition have become critical urban problems. The numbers and financial standing of these migrants have forced them to occupy the land spaces available in urban and peri-urban settings in order to survive the growing prices of food and other saleable products. The information in Table 3 (section 4.2.1) shows that, at the time of the study, 80% of the community gardeners in the Central eThekwini Agricultural Region were women. The primary role that these women perform is to feed their families in order to survive. These community gardeners not only produce vegetables in their community gardens on vacant urban spaces, but also function as traders by introducing their produce to the informal peri-urban and urban markets without being cognisant of the potential health risks associated with

the food production cycle. A survey of the legislation and the lack of registration documentation revealed that all these activities take place outside the regulations controlling the food production and distribution cycle within the eThekwini region.

Unemployment is not the burden of community gardeners alone. The residents' demographic results (Question 10) show that 10.3% were unemployed whereas 41.1% indicated "other". These findings imply that those respondents who indicated "other" are also potential food producers who may enter the production cycle when circumstances necessitate alternative survival activities.

5.2.2 OPPORTUNITIES FOR THE UNEMPLOYED

The opportunities of the unemployed to break out of the poverty cycle are limited for a number of reasons:

5.2.2.1 EDUCATIONAL DISPOSITION

Given the competition for survival among the unemployed, community gardeners have always been dependent on temporary/migration work, when available, to survive. It is concluded that their needy circumstances together with the socio-cultural traditions that constrain women's mobility are important reasons why 80% of the people cultivating community gardens are women (Table 3). On rare occasions men have been observed within the urban agriculture environment. Such an observation is not new although globally urban agriculture is practised mainly by women when it is practised for subsistence purposes (Mbiba, 1995; Mougeot, 2005; Hovorka et al., 2009). The results of this investigation confirm that this global trend is also prevalent in South Africa. Moreover, this study contends that much can be learnt from the global experience, with particular reference to the educational disposition of the citizenry.

The information in Table 5 (section 4.2.3) shows that the educational level of the women working in the community gardens ranged from 43.3% with a primary school education to 56.7% with a secondary school education. This finding is indicative of the fact that educational level is a critical issue when criteria for an urban agriculture policy are identified. It is a given that community gardeners are operating from a

platform which reeks of poverty, low skills levels and under-development. But it is also true that these citizens do possess primary and secondary basic education which implies that most can read and write, a fact that opens the door marginally for them to break out of the poverty cycle. Unfortunately, the contribution of their skills towards a significant economic return for their gardening endeavours is at present negligible.

5.2.2.2 KEY ELEMENTS FOR POLICY FORMULATION

Basic educational elements that need to be considered for policy development should include the following:

- Human resources development as suggested by Skenjana (2013). The design of the skills development programme should be primarily to empower people to manage issues related to food security, nutrition, health, sanitation, water conservation, entrepreneurial activities, social enterprises, local government and traditional knowledge;
- Programmes to empower citizens to challenge the technical and socio-economic opportunities related to business development in their environment.

5.2.3 COMMUNICATION

The findings of this investigation emphasize the importance of effective communication throughout all sectors of Local Government, with particular reference to the eThekwini Municipality. A number of factors as revealed by the findings suggest that community gardeners seem to be invisible to the EHPs, town planners and other city officials of the Council. For example, it would appear that the community gardeners are at a disadvantage where work or agricultural experience is concerned (Table 6, section 4.2.4). Many community gardeners see themselves as unemployed (52.2%) and only some have had the opportunity to interact with EHPs at junior management level (36.4%) and with town planners (31.3%) (Table 7). These latter two groups have limited agricultural experience except for some of the senior EHPs (Table 7). However, Table 12 (section 4.2.10) shows that 100% of the community gardeners considered harvesting storm water as an optional water source as opposed to none of the EHPs who considered storm water as a viable

water source for community gardens. As communication between these groups is limited, opportunities for community gardeners to communicate their suggestions regarding the storm water through the EHP conduit to officials in Council are therefore very slim. It can be argued that the needs of community gardeners can be communicated to Council through the Ward Councillor and the Ward Committees, but unfortunately the effectiveness of the Ward Committees has been questioned on numerous occasions (Guwa, n.d. a & b; Kimemia, n.d.; Kubane, n.d.; Masiwa, n.d; Mgwebi, n.d.). This implies that the conduit that should have championed the needs of community gardeners at Council level is blocked and no other lines of communication exist. Cognisance must be taken of the fact that 81.3% of the town planners (Table 12, section 4.2.10) indicated that harvesting storm water was an option. However, town planner operations are office related and their reasons for selecting the storm water option may be for totally different reasons than those expressed by the community gardeners. An alternative institutional approach that can facilitate effective and sustainable communication on urban agriculture issues is therefore needed. For example, a Community Garden Forum similar to the one established by the Cape Town City Council (2007, p.6) may go a long way in addressing the communication barriers that exist between community gardeners and the eThekwini Council.

Urban agriculture can only be successful if an integrated and holistic approach is used to create synergistic relationships by involving all the role-players in the design of an urban agriculture policy. In this context Table 9 shows that support for the urban agriculture concept ranged from 100% by the community gardeners to 66.7% by the EHPs and 88.2% by town planners. This strong support suggests that a basis for the development of a synergistic urban agriculture programme exists. However, when the responses regarding areas that will affect the urban agriculture process are analysed (Table 10, section 4.2.8), divergent responses were recorded. Respondents were requested to differentiate between “gardening” and cultivation of “crops”. What was noticeable between the different respondent groups and the various cultural groups that were interviewed was the fact that they each had their own views of what constitutes gardening and what constitutes the cultivation of crops, and none of their views matched. In addition, an interesting divide was

noticeable regarding the localities where the urban agriculture activities could be practised. Neither the town planners nor the EHPs responded to any option that related to the cultivation of crops within the municipal area of responsibility, whereas community gardeners and residents saw no barriers in exploiting these areas for agricultural activities. The reason for these opposite views is not clear and a follow-up investigation should be conducted to determine what the barriers to a common vision of urban agriculture are.

5.2.3.1 KEY ELEMENTS FOR POLICY FORMULATION

Critical communication elements to be considered for policy development should include the following:

- defining and streamlining the upstream and downstream communication lines throughout eThekwini Municipality's area of responsibility;
- stakeholder mobilisation to produce a holistic integration of needs;
- multidisciplinary approach to communicate health and development needs;
- standardising protocols related to legal compliance and understanding issues that relate to, for example, lease agreements, applications for EIAs, and water permits.

5.2.4. SKILLS TO ENHANCE HOUSEHOLD FOOD SECURITY

Survival in the urban agriculture context embraces two issues, namely household food security and the capacity to generate income (Cape Town. City Council, 2007 p.5). As far as Central eThekwini Agricultural Region is concerned, it is my contention that urban agriculture can become the primary driver for a new generation of small, medium and micro enterprises (SMMEs) operating sustainably in the area. The reasoning behind this observation is that the entrepreneurial character of gardeners who are basically responsible for the existing small agro-micro-business operations in the region can become the nucleus of a new type of agricultural SMME. Moreover, horticulturists operating in the region can and must play a major role in preparing the gardening communities for the SMME roles they can perform (Inner West Council, 1999). However, the information in Table 6 (section 4.2.4) suggests that community gardeners have little work experience (range 3.3 to 5.7

years). This implies that their transition from subsistence community gardeners to micro agro-entrepreneurs will not be easy because the basic managerial/operational expertise does not exist. Therefore, if the objective of regulating urban agriculture in the eThekwini Municipality is job creation as specified in Resolution EF312A, then Council will have to accommodate urban agriculture into their Sector Support and Business Development Programmes with the objectives to:

- facilitate SMME development;
- create an environment for start-up businesses to establish themselves (mini-markets, incubator workshops and agricultural training centres);
- ensure that horticulturists are involved in the planning and execution cycle of the programmes.

The contents of such a programme from a skills development perspective are clear. Table 14 (section 4.2.12) shows that 100% of the community gardeners realised that they needed skills to do gardening but they seemed oblivious of issues related to health and disease, marketing of foodstuffs, value adding operations, safe use of all types of waste water and the safe use and handling of agro-chemicals. These are vital survival skills and should be listed as critical elements for the formulation of an urban agriculture policy.

One factor that must not be overlooked is that the Central eThekwini Agricultural Region comprises 709 km^2. According to VELA-VKE (2009), there are about 2,000 subsistence community gardens in the region and their numbers are growing. The region has an approximate population of 697,902 of which an estimated 52.2% are unemployed. Community gardeners are included in this latter group (Index Mundi, 2013). In this scenario there are two positive spin-offs. Personal observations in the field revealed that firstly, the gardeners cannot afford expensive petro-chemical fertilisers and pest control products. As a result all the crops produced are therefore organic. Secondly, in an effort to survive, community gardeners mobilise many traditional knowledge remedies to enhance their chances of producing a harvest. Both issues, namely the know-how to cultivate organic agricultural products and

traditional knowledge systems, can form a platform for the establishment of a new breed of SMMEs in a value adding, peri-urban agro-economy. Cognisance must be taken of these critical issues when a business development programme for the region is developed and the two concepts should be embraced in an urban agriculture policy.

5.2.4.1 KEY ELEMENTS FOR POLICY FORMULATION

To ensure the survival of community gardeners and effective, sustainable operations in an urban agriculture setting, a new and vibrant policy needs to include the following:

- strategies to ensure household food security;
- strategies to enhance the selection and planting of high nutritional value crops suitable for organic production methodologies in the Central eThekwini Agricultural Region;
- agricultural skills development programmes for gardeners as well as SMMEs that will service the supply and value chain;
- food production security management (i.e., knowledge of water, pest control, heavy metal and pathogens testing);
- value adding programmes related to processing harvest excesses to generate capital and establish incubator processing units;
- experience pool and management of expertise;
- stakeholder analysis;
- spatial development programmes;
- social assistance programmes related to provision of start-up seed, compost and tools;
- innovative options to harvest water for use in the urban agriculture setting;
- promotion of a mini-market concept to enhance sales of produce as well as the products of SMMEs.

5.2.5. INDIFFERENCE TO STATUTORY STIPULATIONS

Table 13 (section 4.2.11) reflects a lack of routine testing related to public health and the cultivation of crops. Tests of soil, water, and air are required by the Constitution (Section 24b) and are highly recommended by the Water Quality Guidelines (SA, Department of Water Affairs and Forestry, 1996), which creates a legislative dichotomy. No wonder that the study revealed a disconcerting lack of awareness of such testing among the respondents. Only half (50%) of the town planners seemed to know that soil, water and air tests need to be done in urban agriculture contexts while they remained ignorant of other tests; 58.3% of the EHPs indicated that only water quality needs to be tested. These findings raise a number of concerns as in a commercial farming setting where crops are produced for consumption by the public at large, the situation is strictly controlled. Tests of the soil, water, and air to determine the presence of micro-organisms, heavy metals, pathogens and organic compounds are compulsory and need to be done on a regular basis (South Africa, 1981). Conversely, Table 13 shows that community gardeners, residents, town planners and EHPs are totally ignorant of the tests that could and should be done to safeguard the food produced by community gardeners. Conformance to this statutory requirement is critical if community gardeners aim to sell their produce to those residents who are willing to purchase them (see responses of residents, questions 13 & 14, Appendix 6). An analysis of this finding suggests that the community gardener respondents had never been contacted by EHP officials regarding the importance of routine testing for potentially life threatening agents. This oversight implies that health education is not taking place among food producers in the peri-urban environment of the eThekwini region.

Throughout the world, cities like Toronto (Toronto, 1991), Cape Town (2007) and San Francisco (Civil Eats, 2011) have developed land use management and physical planning systems to support all aspects of urban agriculture. In the process regulations have been formulated to support the growing of food in urban and peri-urban environments. Resident respondents in the current study indicated their willingness to purchase locally grown vegetables but they also indicated that they required proof that the quality of the soil, water and air (residents' questions 35, 36, 40 and 41) is monitored regularly to ensure that the food being produced is safe for

consumption. One method to confirm that tests are being done routinely is to display a report at the point of sale (South Africa, 1996; WHO, 2006; Fekken, 2011). In fact, this is supposed to occur at sites where locally grown vegetables are sold in bulk to supermarkets or hostels for all customers to observe that the produce is safe for human consumption. Personal observation has revealed that such soil, water and air tests are not done as suggested by various sources (SA, Department of Water Affairs and Forestry, 1996; SA, 1981). This lack of testing is to the detriment of both community gardeners and the community.

5.2.5.1 KEY ELEMENTS FOR POLICY FORMULATION

With reference to statutory stipulations with regards to the testing of soil, water and air samples, a policy on urban agriculture needs to make provision for the following:

- spatial development requirements;
- land usage, allocation and conservation;
- establishment of a routine for food, health, water and soil testing;
- establishment of a food/produce quality monitoring programme;
- a site selection and soil testing programme prior to the commencement of food production.

5.2.6 REMOTENESS OF GOVERNANCE

The Constitution mandates local authorities to provide a democratic and accountable Local Government which encourages the involvement of communities and community organisations in all matters of Local Government (South Africa, 1996). The Municipal Structures Act (South Africa,1998b) makes provision for such participatory democratic structures in the form of Ward Committees with the objective of increasing the effectiveness of policy formulation and implementation, especially in marginalised communities. Kabane (n.d.) emphasizes the fact that without effective community participation, local government will not function properly because the ward committees are a vital link informing municipalities about the needs, aspirations, potential and problems of the communities. He concludes that

the ward committees will become irrelevant when ward representatives fail to account to their interest groups and communities.

In my experience, eThekwini Council's method of informing the general public of a pending meeting is to advertise the meeting in local newspapers, thereby inviting the public to attend. The effectiveness of this method can be challenged. For example, a town planning issue that requires the participation of potential gardeners requires the inputs from rural residents, yet the advertisement for the meeting is published in a local newspaper which is not purchased and therefore not read by peri-urban communities. A photocopy of such an advertisement in a local newspaper is presented in Appendix 10. The placing of the advert implies that the Municipality presumes four issues:

1. that the advertisement would be seen and read by all interested parties. The reality is that the majority of the gardeners cannot afford newspapers;
2. that the readers would understand the contents of the advertisement. This is improbable given the low educational levels of many community gardeners (Table 5);
3. that public transport is available and that the community gardeners can afford to travel to and from the venue selected for the meeting;
4. that community gardeners have the ability to make inputs into the proceedings of the meeting.

In view of the manner in which meetings are advertised, it can be concluded that the modus operandi of the local governing power regarding the mobilisation of the community to attend meetings is vastly different from the communication needs of the gardeners operating on the ground.

Town planning regulations do not accommodate urban agricultural practices within built-up environments (KZN, Provincial Planning and Development Commission, 2001; 2004) and little is known about the impact of such stipulations on the survivability of community gardeners. Recent legislation, namely the Spatial Planning and Land Use Management Act (South Africa, 2013), only broadly refers to

urban agricultural practices, but until this Act is fully implemented applications still have to be made for special authority at a high cost to the applicant (KZN, Provincial Planning and Development Commission, 2001; 2004). Because of the high costs and/or the lack of knowledge about these regulations, agricultural practices are undertaken in an uncontrolled fashion. The eThekwini Council has the authority to waive or reduce the fees associated with special applications to grow food given the health and safety frameworks of town planning and health regulations, but such an application will require a fully detailed and motivated report elaborating the needs for this variation of the approved town planning regulations and the waving of the costs.

The potential contribution of other stakeholders towards identifying criteria for an urban agriculture policy needs to be explored. Table 7 (section 4.2.5) shows that nearly half of the eThekwini EHPs and town planners had not been exposed to urban agriculture concepts during their respective professional training. Although Table 8 shows that their levels of exposure and support for urban agriculture had been positive since commencing work, the information in Tables 9 and 10 suggests that the officials had no conception of where these gardens could or should not be established within the city boundaries. This finding is disconcerting in light of the fact that legislation and regulations are not only prescriptive as to what must be done to enhance food security, but also that directives on the localities where such activities can take place are clear (KZN, Provincial Planning and Development Commission, 2001; 2004). However, Table 9 (section 4.2.7) reveals that support for urban agriculture from the town planners' perspective does exist. A summary of the findings pertaining to town planners' questions 25 and 27 revealed that they were of the view that a lot of work would need to be undertaken regarding the lease and loan of land before urban agriculture could be accommodated in the eThekwini region. They also indicated in their responses to open questions 20 and 21 that they were encouraging developers to include areas for agriculture in Spatial Development Plans. In addition, the Foodstuffs, Cosmetics and Disinfectants Amendment Act (South Africa, 2007) stipulates that testing of foodstuffs is required for pathogens, heavy metals, bacterial load and pesticide residue in this food growing environment by health practitioners. Table 13 (section 4.2.11) reports that the EHPs indicated that health education programmes that are true to the spirit of the Health Act should include training in health diseases and pathogens and how they are related to

harvesting, marketing, food preparation, greywater and safe use of agro-chemicals. It was disconcerting to note that none of the resident respondents understood the need for training in any of the areas indicated. It can only be surmised that this lack of understanding is as a result of the lack of effective communication and governance in these matters by the local authority.

5.2.6.1 KEY ELEMENTS FOR POLICY FORMULATION

With reference to the governance of urban agricultural practices, the findings of this study revealed that an effective policy needs to make provision for the following:

- legislative and regulatory compliance by the urban agriculture policy in terms of planning and training;
- alternative participatory structures, such as a community gardeners' committee, to ensure that the wants and needs of community gardeners are accommodated in Council's Integrated Development Plan for Urban Agriculture;
- the accommodation of other national and international best practice urban agriculture policies to guide the local process forward;
- effective representation by and consultation with relevant NGOs and Ward Councillors;
- legislation and regulations that deal cost effectively and compliance with lease or loan agreements of available sites for community gardening;
- the inclusion of urban agriculture in land use management strategies as entrenched in the Spatial Planning and Land Use Management Act (South Africa, 2013);
- subsidised water for vulnerable groups; and
- effective regulations for livestock management.

5.3 IMPACT OF URBAN AGRICULTURE ON THE STANDARD OF LIVING AND THE VALUE OF THE PROPERTIES OF RESIDENTS

Home owners in the Central eThekwini Agricultural Region are the ratepayers in the region. Noteworthy are the educational levels of the residents who are ratepayers in

the region. Table 5 (section 4.2.3) shows that only 34.4% of the residents had primary and secondary school qualifications whereas 65.6% of the residents were college, technikon or university graduates. This finding suggests that residents' association with the community gardeners can introduce an academic realism in the formulation of an urban agriculture policy. As ratepayers and property owners, residents in the area have much to lose should subsistence gardening continue unabated and uncontrolled in built-up areas (Fowler, 2011). Contrary to expectations, only some rate paying residents did not indicate their concerns regarding the principle of growing food on vacant land within the residential areas of their city (Table 11, section 4.2.9). In their responses to the open-ended questions (questions 13 & 14, 26 & 27), respondents expressed the belief that such an activity would be the beginning of squatter camps and that the package of problems associated with such a development would cause their properties to devaluate. However, other residents were of the view that food growing on these sites was vitally important. The residents suggested that housing should be established in one area and agriculture in another. Concern regarding the use of greywater on cultivated crops was expressed by the residents (Table 12, section 4.2.10).

5.3.1. Key Elements for Policy Formulation

With reference to ratepayers and owners of property, a policy on urban agriculture needs to make provision for the following:

- the impact of urban agriculture activities and processes on the value of properties of rate paying citizens;
- contributions of rate payers' societies on the management and implementation of an urban agriculture strategy;
- identification and criteria to identify and allocate suitable land to practise urban agriculture in a sustainable manner in residential and CBD areas;
- Identification of criteria for screen planting between community gardens and residential homes.

5.4 SCOPE FOR ESTABLISHING URBAN AGRICULTURE AS AN INTEGRAL COMPONENT OF A METRO DEVELOPMENT PROGRAMME

5.4.1 INTRODUCTION

To implement an urban agriculture strategy as proposed by Soonya (1999 p.45), the Toronto Public Health Department (1991), the Toronto City Council (2009), Flynn (1999) and Wilford (2011), it is necessary to:

- have a coherent and non-conflicting policy that clarifies all the responsibilities for urban agriculture;
- remove restrictive policies and replace them with a policy which recognises and permits the practice of urban agriculture;
- provide the necessary services that are required by the needy, such as financial, technical and material support;
- use education, demonstration and participation to address the negative perceptions about urban agriculture held by various role-playerss;
- address the needs of the community and not the traditional idea of what the city should be.

In the light of the above, provision must be made to include all relevant parties and to facilitate their inputs in the decision making process.

Although existing town planning regulations in the eThekwini Metro do not permit any form of agriculture in a built-up environment (KZN, Provincial Planning and Development Commission, 2001; 2004). Urban agriculture is a form of agriculture that is normally done in a city or built-up area or peri-urban/rural area where the necessary food renewal systems are in place to support such agricultural activities. Given the socio-demographic setting of the Central eThekwini Agricultural Region, much development has to take place before urban agriculture can become a normal practice in the region.

5.4.2 SUPPORT FOR URBAN AGRICULTURE

Table 9 (section 4.2.7) shows that the concept of urban agriculture was a familiar concept among all the respondent groups and that support for the urban agriculture concept in the Central eThekwini Agricultural Region did exist. The questionnaire did not explore the reasons why support was given nor did it explore the reasons for how exposure to the urban agriculture concept had come about. However, the information regarding the scope and definition of urban agriculture in Table 10 (section 4.2.8) suggests that all stakeholders had a limited view of the potential localities where urban agriculture can be practised. Potential sites ranged from suburban settings (17% gardeners and 20% residents) to crop production in rural settings (16%). It is important to note that although a few of the EHPs and town planners selected gardening in suburbs (2% and 10% respectively) as an option for an urban agriculture location, they failed to appreciate that the definition of urban agriculture could also include crop production and livestock management on vacant land, be it in the suburbs, CBD, peri-urban or rural settings. This may explain why they did not respond to the question. A possible reason for this could also be that the EHPs and town planners as officials employed by the eThekwini Municipality had a different set of needs that was managed through appropriate standard operational procedures. The importance of a proper needs analysis is therefore clear.

5.4.3 NEEDS ANALYSIS

The nature of this investigation was exploratory and an analysis of the responses to the questions suggests that effective communication throughout the Central eThekwini Agricultural Region is the most critical requirement to ensure the successful formulation of an urban agriculture policy for the entire eThekwini Municipal area of responsibility and, ultimately, its implementation in an urban agriculture society. With good communication systems in place and an urban agriculture needs analysis based on a centred design process as suggested by Cavanagh and Chadwick (2005), it would be possible to record the needs of the various stakeholders in the urban agriculture setting. Such a strategic needs assessment would involve consultation over a broad front. The methods may vary depending on factors like time, topography, budgets and target groups. The outcomes of such an analysis will capture the needs of the poorest of the poor.

STEP ONE: ***GETTING STARTED***

What population?
What are you trying to achieve?
Who needs to be involved?
What resources are required?
What are the risks?

STEP TWO*: IDENTIFYING URBAN AGRICULTURE PRIORITIES*

Population profiling.
Gathering data.
Perception of needs.
Identifying and assessing agricultural conditions and determinant factors.

STEP THREE:*: ASSESSING URBAN AGRICULTURAL ACTIVITYIES FOR PRIORITISING ACTION*

Choosing agricultural conditions and determinant factors with the most significant size and severity impact.
Determining effective and acceptable interventions and actions.

STEP FOUR*: PLANNING FOR POLICY FORMULATION*

Clarifying the aims of the proposed policy.
Action planning.
Monitoring and evaluating the strategy.

STEP FIVE*: MOVING ON / REVIEW*

Learning from the project.
Measuring impact.
Choosing the next priority.

Figure 6: Framework for an urban agriculture needs assessment

Adapted from Cavanagh and Chadwick, 2005.

In view of the responses to the questionnaires by stakeholders as recorded in Chapter Four, a municipal coordinated urban agriculture strategic needs assessment could involve the process as outlined in Figure 6 which presents a framework for an urban agriculture needs assessment. The framework was adapted from Cavanagh and Chadwick (2005). The needs assessment requires that the needs of the communities that are to be surveyed are fully understood.

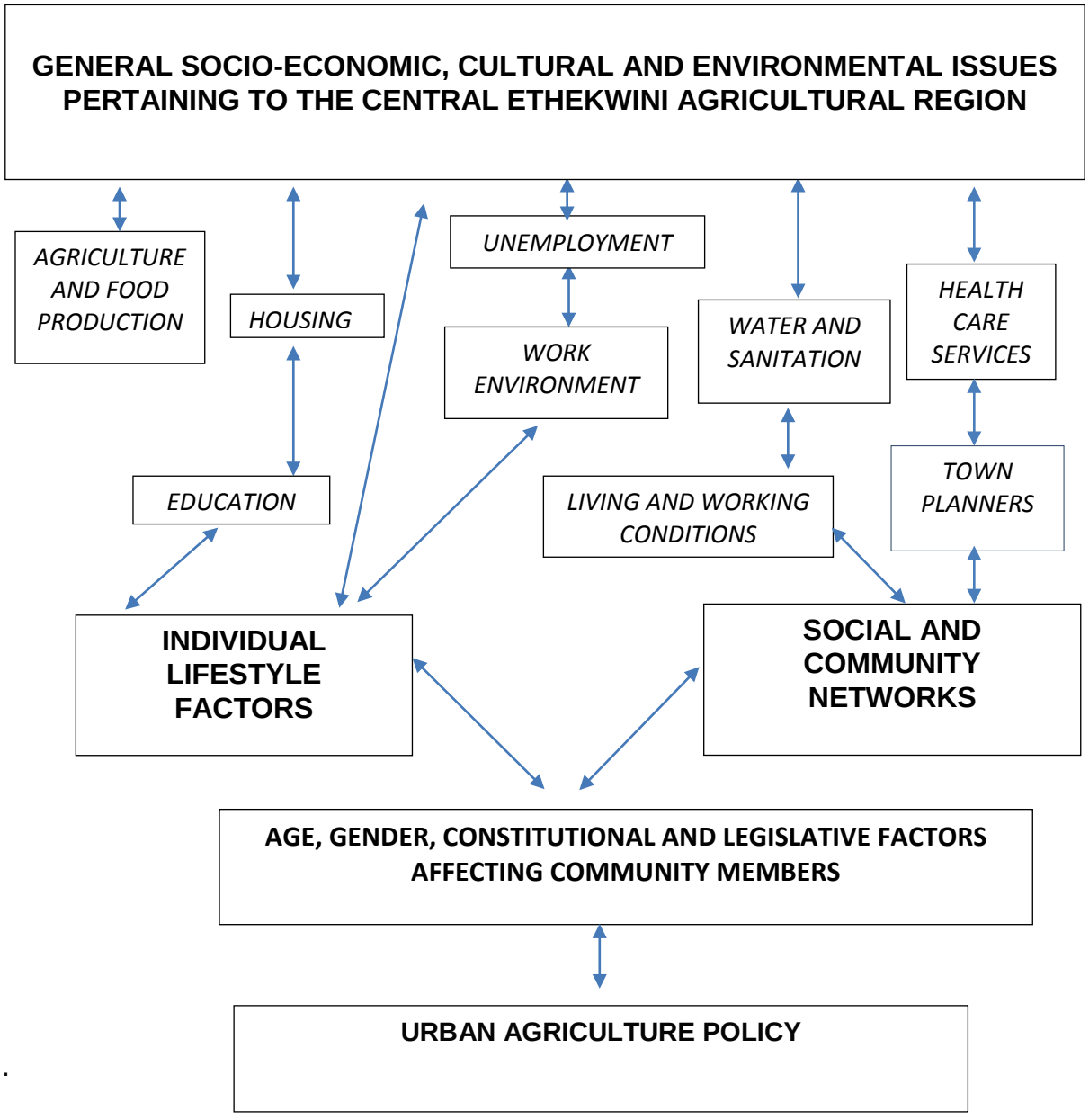

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Figure 7: Urban agriculture related issues that need to be considered when a needs analysis is done. *Adapted from Cavanagh and Chadwick, 2005*.

Their age groupings will differ as will their gender and the employment/unemployment status of the community. These communities are to be found:

- in areas defined by the topography of the environment land;
- according to their ability to access transport;
- in proximity to facilities such as clinics and schools;
- subject to the availability of space to cultivate food; and
- in buildings or dwellings that are structured to harvest water.

Cognisance must be taken of the fact that each community has its own socio-economic and cultural characteristics that are unique (Figure 7) and that have to be included in a needs analysis process, otherwise the results of the analysis will be skewed. Other factors like the aids epidemic, the single parent phenomenon and child-headed households are present and should be included in a needs analysis for an urban agriculture policy.

There must be an appreciation of the fact that each community has, within its own setting, characteristics that are unique and which have to be taken into account during a needs analysis process. If this is not done, the results of the analysis will be inconsistent. Each community has, as is reflected in Figure 7, a spectrum of socio-economic and cultural challenges that must be negotiated in the analysis process. Failure to integrate the challenges into the needs analysis as indicated in Figure 7 will result in an imperfect needs assessment process and an unsound programme that will fail to address the needs of the various stakeholders.

5.5 CHALLENGES THAT IMPACTED ON THE AVAILABILITY OF DATA FOR EVALUATION

The exploratory research approach that was employed in this investigation in order to identify key elements for formulating an urban agriculture policy was triggered by Resolution EF312A of the Inner West Council (1999). The Resolution captured the vision of the erstwhile Inner West Council regarding the enablement of the poorest of the poor to utilise urban agriculture as a survival strategy as well as the essence of the National Constitution (South Africa, 1996) regarding food and social assistance

for those in need. No further records since 1999 that addressed the establishment of a policy for urban agriculture in the eThekwini Metro region could be traced, despite the fact that other municipalities have such policies in place (Cape Town City Council, 2007; Nelson Mandela Bay, 2013). The study area comprised 709 km^2 and presented a complex mix of basic and sophisticated infrastructure and limited and well developed reticulated running water systems. As a result of the population and development dynamics in the region, it was not possible to determine the number of people who resided in the region at the time of the study, although the general consensus was that this region represented about 30% of the total population of the eThekwini Municipality (Appendix 2) (Figure 1). It is for this reason that an exploratory approach was adopted in an effort to determine key factors for an urban agriculture policy.

Given the environment where the greater portion of the interviews took place, the challenges that affected this investigation were:

1. Security and safety of the person/persons conducting the interviews in the area. The relative hostile setting impacted on the safety of the individuals involved in the interviews and jeopardised their personal belongings, e.g. vehicles and personal effects. The spectrum of interviews ranged from poor rural homesteads to new housing developments; from squatter camps to sophisticated houses in the affluent areas.
2. Culture and personal agendas. These factors also played a role as each of these communities, especially the residents and gardeners that were interviewed, did not want to reveal any personal details such as income from community gardening as some of them were receiving government grants which they were concerned they could lose.

The data collection process relied heavily on the goodwill of those people selected for the interviews. In the case of the eThekwini Municipality employees (i.e., the EHPs and town planners), several officials refused to be interviewed or to participate in the study. This attitude limited the sample size considerably. Moreover, many residents residing on conservancies in the most affluent suburbs also refused to participate. As a result, only a limited number

of affluent residents could be interviewed. This negative attitude had not been foreseen.

Even though the questionnaires had been tested and produced appropriate results prior to the role-out, problems were still experienced and had to be dealt with on an individual basis.

3. Access to and validity of official eThekwini documents. Due to the fact that the identification of the needs of the people as specified in Section 26 of the Municipal Systems Act (South Africa, 2000) had not produced the desired results, the eThekwini Council engaged a private consultant to identify and plot all the community gardens. The process appeared to be unsound as it was observed that many plots were not identified nor recorded. The result was that the official records used in the investigation were not complete; i.e., these records contained no identified needs which complicated the exploratory research process (VELA-VKE, 2009). The population of the city was also not divided into sectors which complicated the identification of reliable population groupings within the region considerably.

4. Peer reviewed literature on the subject of urban agriculture was readily available; however, not much literature on issues pertaining to Local Government and urban agriculture in South Africa, especially within the eThekwini region, was available. Most eThekwini related literature had been produced by local commentators; in many instances these were based on personal observations and experiences. Ideally, such sources should have been peer reviewed.

5. Funds to undertake this extensive exploratory research were not readily available and as a result certain functions could only be done once funding became available. As a consequence, interruptions in the data collection process were experienced. The distances that had to be travelled, costs to do interviews, the process of getting access to inter-library loans, printing and copying all impacted on the time frame to complete the research.

In view of the challenges that were experienced and listed, it is concluded that the exploratory findings of the investigation can only have application to the Central

eThekwini area. The results cannot be generalised to other areas in the eThekwini Municipality which implies that this investigation needs follow-up descriptive and explanatory data before a meaningful urban agriculture policy can be formulated.

5.6 FURTHER RESEARCH

Whilst this research was of an exploratory nature, rapid urbanisation ensures that urban agriculture is a fast, uncontrolled growing phenomenon within the South African context. Although research on the urban agriculture phenomenon has been conducted internationally, the applicability of these results to the South African setting needs to be verified with further research into the field of urban agriculture in a Local Government setting. The following approaches would apply:

1. The preservation of traditional knowledge systems and their relationship with income generation operations in a technologically poor environment.
2. The application of education methodologies to maximise the communication potential throughout the eThekwini Municipal structure and systems.
3. Given the basic organic gardening practices that are already in place, training programmes should be structured to complement the existing, albeit often basic organic strategies to cultivate and market crops and to control pests organically/biologically.
4. Given the annual budgetary constraints for development, cost effective programmes that ensure that nutritional crops are planted in localities that are compatible with the growth requirements of the crops need to be developed. Horticulturists can play a pivotal role in this regard.
5. Methods should be developed on how to make the residents and community gardeners legal wise in terms of issues regarding the use of land and water, conformance to health regulations related to food, water permits and environmental impact assessment.

Once these issues have been characterised, the basis for formulating an urban agriculture policy will be in place.

5.7 RECOMMENDATIONS

1. It is recommended that a full report be put before the eThekwini Council to recommend the establishment of a food committee/forum/council. This committee should be comprised of representatives from all the departments of the eThekwini Municipality, urban agriculture representatives, Councillors, relevant NGOs and other experts. The committee should have a mandate to:

    - design and produce a legally competent and applicable urban agriculture policy for the eThekwini Municipality;
    - submit the draft policy for public debate to ensure transparency before final ratification by Council and implementation as an urban/peri-urban agriculture policy. This policy should then replace the existing rural and urban guidelines that are in place (Institute of Natural Resources, 2007).

2. Once this policy is in place, this committee/forum/council should be tasked with the responsibility of ensuring that a food strategy for the city, similar to the one that was established by the City of Vancouver (Mansfield & Kelly, 2013), is formulated and implemented.

5.8 CONCLUSION

The research investigation has shown that there is a dire need for an urban agriculture policy that would harmonise all the components related to poverty elimination, employability, environmental management, and the health and nutritional requirements of all the people of the eThekwini community. The importance of effective communications systems is emphasised.

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ANC **see** African National Congress

ANC shrinks as debit swells. (2011). *News IOL*, May 24. [Online]. Available at: http://www.iol.co.za/business/business-news/anc-shrinks-as-debt-swells-1.1073086#.UQIVzb9tgWk. [Accessed on: 25/1/2013].

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APPENDICES

APPENDIX 1

Inner-West Council: Urban Agriculture Resolution EF312(A)

EF312 REFERRAL TO THE EXECUTIVE AND FINANCE COMMITTEE FROM A MEETING OF THE SOCIAL AND ECONOMIC DEVELOPMENT COMMITTEE HELD ON 10 JUNE 1999

EF312(A) COMMUNITY GARDENS : INNER WEST CITY COUNCIL (17/16/1) [SED 186 REFERS]

Councillor Vedan moved an addition to the recommendation to provide for presentations to be made by the relevant official/s to the Development Forums on the concept of community gardens, which motion was supported.

With regard to Corporate Executive's comment pertaining to fencing and the provision of water, the Chief Executive/Town Clerk confirmed that the costs involved, including associated connection fees, would be to the account of the community concerned.

Following further brief comments posed out of interest by Councillors in terms of research, the predominant subsistence value of community garden projects and the mutual benefit to the participants and the community as a whole, which were satisfactorily addressed by officials, it was

RESOLVED TO RECOMMEND TO COUNCIL :

1. THAT Council accepts the development and promotion of Community Gardens as a function.

2. THAT, subject to approval of (1) above, the following Vision be adopted to guide such development :

   The Inner West City Council recognises the value of Community Gardens and the voluntary effort by community members to develop and maintain these facilities which assist residents in improving the quality of city life by revitalising and cleaning neighbourhoods, stimulating social interaction, conserving and recycling resources, reducing family food budgets and creating opportunities for recreation, therapy and exercise.

3. THAT the Community Gardens Development & Maintenance be controlled by the Parks & Recreation Department, assisted by the Health and Planning & Development Departments.

4. THAT each Community Garden be managed by a Committee selected by the community which will be required to subscribe to the basic rules and regulations as per the Annexure attached to the report of the Director : Parks and Recreation dated 9 June 1999.

5. THAT Council grants free use of available land to the Community Gardens Committees and, that in the likelihood of the Council requiring the land for other purposes, six (6) months notice be given and, where possible, Council assist in the relocation of such gardens.

6. THAT Council assist each Community Garden with a donation of compost once per year until each garden becomes self sufficient in compost making.

7. THAT, as funds become available to Community structures, Community Gardens be fenced, water connections and sheds with tools be provided, as well as proper design and earthworks undertaken.

8. THAT research be conducted to ensure proper production practices in order to promote the sustainability of Community Gardens.

APPENDIX 2

Confirmation of surface area of the Central eThekwini Zone

Mike Leech

From: Cindy Zindela [zindelac@durban.gov.za]
Sent: 09 September 2010 11:35 AM
To: Mike Leech
Subject: Central km2

Hi Mike

The Central square kilometer is 703.6991

Thanks

Mike Leech

From: Cindy Zindela [zindelac@durban.gov.za]
Sent: 08 September 2010 03:44 PM
To: Mike Leech
Subject: Unicity km2

Cindy Zindela.vcf

Hi Mike

I tried to call you but no answer. The square km for eThekwini is 2291.934.

Thanks

Kind Regards

Cindy Zindela
Dept: Proc. & Infra.: Engineering - PMU
Tel: 031-311 6391
Fax: 031-701 2935
Email: ZindelaC@durban.gov.za

APPENDIX 3

Summary of legislation related to urban agriculture and Integrated Development Plan based on Municipal Systems Act, Act 32 of 2000

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APPENDIX 4

Consent form signed by respondents

CONSENT FORM

TITLE: DEVELOPMENT OF A VIABLE, SUSTAINABLE STRATEGY FOR URBAN AGRICULTURE IN A DYNAMIC URBANIZING SOCIETY.

Principle Investigator:
Mr. M. G. Leech
Agricultural Management Unit
eThekwini Municipality Telephone 7032312

You are invited to participate in a study that concerns the knowledge and attitudes towards urban agriculture within an urban environment. This form of agriculture is being used to provide and sustain the necessary food for the poor.

The objectives of this study are to establish why the phenomenon of community gardens/urban agriculture is not as successful as it could be in providing the necessary food for the poor and destitute.

As a participant in this study, you will be asked to complete a questionnaire that contains questions relevant to your field of expertise.

Participation in this study is voluntary, and will take approximately forty five (45)minutes of your time. There are no personal benefits to participation. You may decline to answer any questions presented during the study if you so wish. Further, you may decide to withdraw from this study at any time by advising the researcher, and may do so without any penalty. All information you provide is considered completely confidential; indeed, your name will not be include or in any other way associated with the data collected in the study. Furthermore, you will not be identifiable individually in any written records of this research. Data collected during this study will be retained indefinitely, to which only researchers associated with this study have access. There are no known or anticipated risks associated to participation in this study.

I would like to assure you that this study has been reviewed and received ethics clearance through the Ethics Committee of the University of South Africa.

If you have any comments or concerns resulting from your participation in this study, please contact Dr. D. Coertze on 0836026941 or Mr. M. Leech on 0833253338.

Thank you for your assistance in this project.

CONSENT FORM

I agree to participate in a study being conducted by Mr. M. G. Leech of the eThekwini Municipality. I have made this decision based on the information I have read in the Information Consent Letter and have had the opportunity to receive any additional information I wanted about the study. I understand that I may withdraw this consent at any time.

I also understand that this project has been received by, and received ethics clearance through the Ethics Committee of the University of South Africa and I may contact their office if I have any concerns or comments resulting from my involvement in the study.

NAME: ……(Print)

SIGNATURE …… DATE ……

APPENDIX 5

Summary: responses of community gardeners to the questionnaire

COMMUNITY GARDENERS' QUESTIONNAIRE

A. GENERAL **Office use**

1. Name: ……
2. Surname: ……..
3. Gender: Office use

M **5**	F **27**

4. Nationality Office use

RSA	MOZ	ZIM	OTHER
33	0	0	0 ……..

5. Population group Office use

Asian	Coloured	Black	Indian	White
0	**3**	**30**	**0**	**0**

6. Qualifications- Office use

Primary	Secondary	College	Technikon	University
13	**18**	**1**	**0**	**1**

7. If studied at a College, Technikon or University, please indicate years of study:- Office use

0 –5Y	5-10Y	10-15Y	15-20Y
2	**4**	**0**	**0**

8. Practical work experience:-

(Administrative Clerk –2 years)

0 – 6 yrs			

9. Practical Agricultural experience:-

(Vegetable gardener –2 years)

0 -28 yrs			

If previously Employed /or presently Employed-

10. Position held:- Office use

1	Senior management	
2	Middle management	
3	Junior management	**1**
4	Academic(Teacher)	**1**
5	Home maker	**1**
6	Student	
7	Unemployed	**11**
8	Other	**11**

DEFINITION OF URBAN AGRICULTURE

The sustainable and productive utilization of natural resources and other inputs, by people for plant and /or animal production purposes, either for own consumption or marketing produce in close proximity of urban and /or peri-urban settings.

B. HEALTH

11. Have you encountered the term “Urban Agriculture” Office use

Yes	No
32	**1**

Give definition of urban agriculture and then ask:

12. According to your understanding of the definition of urban agriculture, the process could involve:

		Office use
1.	Gardening in the CBD(Central Business District)	
2.	Gardening in suburbs	
3.	Gardening in the peri-urban regions ✓	
4.	Gardening in the rural regions	
5.	Producing crops in vacant sites in the CBD ✓	
6.	Producing crops in vacant land in the suburbs ✓	
7.	Producing crops in the peri-urban regions ✓	
8.	Producing crops in the rural regions	
9.	Other	

13. In your opinion will the practice of urban agriculture cause health problems in urban areas? Office use

Yes	No	Not sure
0	**31**	**1**

14. Do you think that any involvement in an urban agricultural activity could have health related consequences? Office use

Yes	No	Not sure
1	**32**	**0**

15. If Yes, is it because urban agricultural practices can: Office use

1.	attract mosquito’s if rain water is stored	
2.	can poison crops if polluted water is spayed on the foliage	
3.	can poison the soil if polluted water is used to irrigate the plants	
4.	If water is taken from polluted streams and used for irrigation, can plants be poisoned? ✓	
5.	propagate human diseases if non-sterilized organic fertilizers are used on the crops	
6.	propagate human diseases when unsanitary	

	post-harvesting practices are followed	
7.	involve domestic farm animals that can be carriers of disease	
8.	attract unwanted insects during composting	
9	attract vermin(rats) in composting sites	

16. Do you think that the practice of urban agriculture could involve:

Office use

1.	renting out vacant gardening areas in urban dwellings for cultivation of crops	
2.	using designated vacant municipal land areas for production of fresh vegetables crops ✓	
3.	composting gardening refuse as an alternative method for disposing of organic domestic waste ✓	
4.	using vacant sports field sites in schools for vegetable gardening ✓	
5.	Using wide road verges for growing vegetables ✓	
6.	Using pots or drums to grow vegetables ✓	
7.	Other	

17. What form of water is used in the garden?:

Office use

Tap water	River/Stream water	Rain water	Sewerage water	Grey water	Other
32	**2**	**1**	**0**	**5**	**0**

18. Could storm water from drains be used for vegetable gardening?:

Office use

Yes	No	Not sure
31	**1**	**1**

19. Would you use storm water if it was available in retention ponds?:

Office use

Yes	No	Not sure
5	**28**	**0**

20. Have health workers tested your soil before gardening?:

Office use

Yes	No	Not sure
0	**33**	**0**

21. Have health workers tested your water before gardening ?:

Office use

Yes	No	Not sure
0	**31**	**2**

22. Do health workers test your gardening water regularly ?

Office use

Yes	No	Not sure
31	**2**	**0**

23. Are you aware of the dangers of eating leafy vegetables that have been watered with polluted water ?: Office use

Yes	No	Not sure
30	**3**	3

24. Are you aware of the dangers of human diseases associated with unsanitary post harvest, processing ?: Office use

Yes	No	Not sure
30	**2**	**1**

25. Are you aware of the dangers of human diseases associated with unsanitary post harvest marketing ?: Office use

Yes	No	Not sure
31	**1**	**0**

26. Are you aware of the dangers of human diseases associated with unsanitary post harvest home preparation ?: Office use

Yes	No	Not sure
32	**1**	**0**

27. Have you any knowledge about health risks in food production?:

Office use

Yes	No	Not sure
28	**5**	**0**

28. Do you know the health regulations that affects urban agriculture?:

Office use

Yes	No	Not sure
0	**31**	**1**

29. Did you or anybody you know participate in a health assessment in the urban agricultural sector?:

Office use

Yes	No	Not sure
28	**4**	**1**

30. Are you aware of the microbiological standards for food stuffs?:

Office use

Yes	No	Not sure	
20	**13**	**0**	

C. TOWN PLANNING

31. Are you aware of what town planning does in a city ?

Office use

Yes	No	Not sure	
11	**21**	**1**	

32. Do you understand how town planning affects the public/ratepayers?:

Office use

Yes	No	Not sure	
30	**0**	**1**	

33. Do you know why industries are kept away from residential areas?:

Office use

Yes	No	Not sure	
22	**11**	**0**	

34. Does town planning deal with storm water in new township developments?:

Office use

Yes	No	Not sure	
33	**0**	**0**	

35. Should town planning allow for storm water to be retained in ponds for gardening?:

Office use

Yes	No	Not sure	
32	**0**	**0**	

36. Are you aware that certain areas within a city are protected/conserved for the future within you city?:

Office use

Yes	No	Not sure	
32	**0**	**0**	

37. Should amenities (halls, clinics, parks, sports fields) be provided in your area?:

Office use

Yes	No	Not sure	
18	**15**	**0**	

38. Where you consulted regarding town planning in your area?:

Yes	No	Not sure	Office use
4	**29**	**0**	

39. Did you know that urban agriculture (gardening) is not a recognized land use strategy in cities?:

Yes	No	Not sure	Office use
1	2	1	

40. Should amenities such as space for vegetable gardening be provided in your city?:

Yes	No	Not sure	Office use
30	**2**	**3**	

41. Where you consulted when it was decided that vegetable gardening would not be permitted in a built up area?:

Yes	No	Not sure	Office use
0	**21**	**2**	

D. ENVIRONMENTAL

42. Are you aware that if you change land use to agriculture you have to get written permission?:

Yes	No	Not sure	Office use
20	**12**	**0**	

43. Where you told that you cannot garden closer than ten metres outside the flood plain levels of a stream/river?:

Yes	No	Not sure	Office use
33	**0**	**0**	

44. Do you know what soil erosion is?:

Yes	No	Not sure	Office use
1	2	0	

45. Do you know what wind erosion is?:

Yes	No	Not sure	Office use
31	**2**	**0**	

46. Are you aware that as the property user you must protect the land from water and wind erosion?:

Yes	No	Not sure	Office use
31	**2**	3	

47. Do you know how to protect the property from wind and water erosion?:

Yes	No	Not sure	Office use
0	**33**	**0**	

48. Did you know that you have to get written authority if you garden on slopes of more than twelve degrees?:

Yes	No	Not sure	Office use
15	**18**	**0**	

49. Do you know where to apply for authority to garden in a city?:

Yes	No	Not sure	Office use
9	**20**	**1**	

50. Do you know what is required before application is made for authority to use land for gardening ?:

Yes	No	Not sure	Office use
2	31	0	

51. Are you aware that you may not sell vegetables watered from a stream?:

Yes	No	Not sure	Office use
31	**0**	**2**	

E. GENERAL

52. Do you know how to garden?:

Yes	No	Not sure	Office use
32	**0**	**1**	

53. Do you need gardening training?:

Yes	No	Not sure	Office use
33	**0**	**0**	

54. Do you know what compost is?:

Yes	No	Not sure	Office use
33	**0**	**0**	

55. Do you know how to make compost?:

Yes	No	Not sure	Office use
28	**0**	**0**	

56. Which of the following are components of mulch?:

		Office use
1.	Leaves and twigs	
2.	Grass clippings ✓	
3.	Wood chips ✓	
4.	All of the above ✓	
5.	None of the above	

57. Do you know what mulch is used for?:

Yes	No	Not sure	Office use
31	**0**	**0**	

58. What is mulch used for?:

		Office use
1.	Feeding termites ✓	
2.	Keeping soil cool ✓	
3.	Keeping moisture in ✓	
4.	None of the above	
5.	All of the above	

59. Do you know what terracing is?:

Yes	No	Not sure	Office use
0	**33**	**0**	

60. Do you know what terracing is used for?:

		Office use
1.	Catching water	
2.	Making soil level ✓	
3.	Allowing for easier planting	
4.	None of the above	

61. Do you know how to apply for funding for urban agriculture projects?:

Yes	No	Not sure	Office use
0	**33**	0	

62. Do you know how to apply to parliament for funding for urban agriculture projects?:

Yes	No	Not sure	Office use
0	**0**	**0**	

63. What would happen if you were prevented from growing fresh vegetables?:

		Office use
1.	My family and I would not have food to eat ✓	
2.	My neighbours would not have food to eat ✓	
3.	The poor people in the area would not have food to eat ✓	

4.	I would loose my source of income ✓	
5.	The sick people would have no fresh food to eat ✓	
6.	Not applicable	

64. How many people are dependent on you for gardening?: Office use

1.	0 – 5 People ✓	
2.	1 – 10 People	
3.	1 – 15 People	
4.	1 - 20 People	
5.	More than 20 People	

65. How many sick people are dependent on you for gardening?: Office use

1.	1 – 5 People ✓	
2.	1 – 10 People	
3.	1 – 15 People	
4.	1 - 20 People	
5.	More than 20 People	

66. Do you think the government of the day is doing enough for poverty alleviation?

Office use

Yes	No	Not sure
0	**33**	**0**

67. Who should drive/support the urban agriculture initiative?:

Central Government?

Office use

Yes	No	Not sure
0	**0**	**0**

Provincial Government?

Office use

Yes	No	Not sure
0	**0**	**0**

Local Government?

Office use

Yes	No	Not sure
0	**33**	**0**

Non Governmental Organizations?(NGO's)

Office use

Yes	No	Not sure
0	**0**	**0**

68. What other information would you like to share on urban agriculture?

You will be assisted if you cannot write

See Appendix 9: Summary of open questions

APPENDIX 6

Summary: responses of residents to the questionnaire

COMMUNITY RESIDENTS QUESTIONNAIRE.

A. GENERAL

1. Name…….
2. Surname…….
3. Gender

Office use

M	F
11	**25**

4. Nationality

Office use

RSA	MOZ	ZIM	OTHER
35	**0**	**0**	**1**

5. Population Group

Office use

Asian	Black	Coloured	Indian	White
0	**19**	**3**	**5**	**9**

6. Qualifications

Office use

Primary	Secondary	College.	Technikon	University
0	**11**	**5**	**6**	**10**

7. If studied at a College, Technikon or University, please indicate years of study

Office use

0-5y	5-10y	10-15y	15-20
16	**3**	**1**	**4**y

8. Practical Work Experience:-
(Administrative Clerk – 2 years)

1 -43 yrs			

9. Practical Agriculture Experience:-
(Home vegetables – 2 years

1- 25 yrs			

Present position held:-

Office use

1	Senior Management	**3**
2	Middle Management	**3**
3	Junior Management	**3**
4	Academic	**4**
5	Home Maker	**2**

6	Student	**0**
7	Unemployed	**3**
8	Other	**10**

DEFINITION OF URBAN AGRICULTURE

The sustainable and productive utilization of natural resources and other inputs, by people for plant and /or animal production purposes, either for own consumption or marketing.

B. HEALTH

11.Have you encountered the term" Urban Agriculture"

Yes	No
30	**5**

Office use

Give definition of urban agriculture and then ask:

12. According to your understanding of the definition of urban agriculture, the process could involve:

1.	Gardening in the CBD.	✓
2.	Gardening in the Suburbs.	✓
3.	Gardening in the peri-urban regions	✓
4.	Gardening in the rural regions	✓
5.	Producing crops in vacant sites in the CBD	✓
6.	Producing crops in vacant land in the suburbs	✓
7.	Producing crops in the peri-urban regions	✓
8.	Producing crops in the rural regions	✓
9.	Other	✓

Office use

13. Do you think vegetables grown in a city environment are un-healthy?

Yes	No	Not Sure
6	**25**	**4**

Office use

14. Please motivate your decision.

See Appendix 9: Summary of open questions

15. do you think that herbs grown in a city environment are un-healthy?

Yes	No	Not Sure
4	**26**	**5**

2

Office use

16. Please motivate your decision.

See Appendix 9: Summary of open questions

17. Would you object if a community garden started up near your residence?

Office use

Definitely Disagree	1	2	3	4	5	6	7	8	9	10	Definitely Agree	
	12	**2**	**4**	**13**	**3**	**0**	**0**	**0**	**0**	**0**		

18. Would you object if a community garden started in a portion of a park near your residence?

Office use

Yes	No	Not Sure	
7	**25**	**4**	

19. Would you be happy with a community garden being started in a school near your residence?

Office use

Yes	No	Not Sure	
4	**28**	**2**	

20. Would you be happy with a community garden being started on part of a protected area near you?

Office use

Yes	No	Not Sure	
24	**8**	**1**	

21. Would you object if gardeners used some of the river/stream for irrigation?

Office use

Yes	No	Not Sure	
3	**27**	**5**	

C. TOWN PLANNING

22. Do you think that community gardens provision should be catered for in a built up area?

Office use

Definitely Disagree	1	2	3	4	5	6	7	8	9	10	Definitely Agree	
	0	**2**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**33**		

23. Is participation in gardening a healthy activity for citizens?

Office use

Definitely Disagree	1	2	3	4	5	6	7	8	9	10	Definitely Agree	
	0	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**33**		

24. Do you think storm water could be retained in ponds for recreation and gardening purposes?

Office use

3

Definitely Disagree	1	2	3	4	5	6	7	8	9	10	Definitely Agree	
	0	**2**	**2**	**13**	**3**	**0**	**0**	**0**	**0**	**21**		

25. Do you think there is a place for protected areas in a city?

Office use

Definitely Disagree	1	2	3	4	5	6	7	8	9	10	Definitely Agree	
	0	**2**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**27**		

26. Would you allow controlled gardening in these protected areas?

Office use

Definitely Disagree	1	2	3	4	5	6	7	8	9	10	Definitely Agree	
	0	**7**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**23**		

27. Please motivate your decision.

See Appendix 9: Summary of open questions

In terms of the Urban Agriculture definition:-

28. In your opinion is there any problem with people growing vegetables in a city?

Office use

Yes	No	Not Sure	
8	**27**	**0**	

29. Are you aware of any regulations affecting gardening in a city?

Office use

Yes	No	Not Sure	
15	**19**	**2**	

30. In your opinion should law enforcement officers be tasked with destroying vegetables being grown within a city?

Office use

Yes	No	Not Sure	
4	**31**	**1**	

31. Would you object to vegetables and fruit being grown on road edges and public spaces?

Office use

Yes	No	Not Sure	
10	**21**	**4**	

C. COMMUNITY GARDENING

32 Do you consider the growing of vegetables and flowers as a recreation pursuit?

3

Office use

Yes	No	Not Sure	
32	**1**	**3**	

33. Would you purchase flowers grown within a city?

Office use

Yes	No	Not Sure	
33	**2**	**0**	

34. Please motivate your decision.

See Appendix 9: Summary of open questions

35. Would you purchase vegetables grown within a city?

Office use

Yes	No	Not Sure	
32	**2**	**1**	

36. Please motivate your decision.

See Appendix 9: Summary of open questions

37. If the Council gave a rates reduction for ratepayers who make their properties available for growing vegetables, how would you respond?

Office use

Definitely Disagree	1 **3**	2 **3**	3 **0**	4 **0**	5 **11**	6 **0**	7 **0**	8 **0**	9 **0**	10 **16**	Definitely Agree	

38. If the Council gave a grant of seed to marginalized people as that they could sustain themselves, how would you respond?

Office use

Definitely Disagree	1 **1**	2 **0**	3 **0**	4 **0**	5 **11**	6 **0**	7 **0**	8 **0**	9 **0**	10 **22**	Definitely Agree	

39. If the council gave a grant of tools to marginalized people so that they could sustain themselves, how would you respond?

Office use

Definitely Disagree	1 **1**	2 **2**	3 **0**	4 **0**	5 **13**	6 **0**	7 **0**	8 **0**	9 **0**	10 **19**	Definitely Agree	

40. Would you support a home industry that marketed produce form a community garden?

Office use

Yes	No	Not Sure	
32	**2**	**2**	

41. Please motivate your decision.

See Appendix 9: Summary of open questions

D. AGRICULTURAL PRACTICES

42. How do you feel about vegetables being grown at schools to supplement the feeding scheme?

Office use

Definitely Disagree	1 **1**	2 **2**	3 **0**	4 **0**	5 **7**	6 **0**	7 **0**	8 **0**	9 **0**	10 **27**	Definitely Agree	

43. Do you think it is appropriate that fruit and nut trees are grown in a City?

Office use

Definitely Disagree	1 **0**	2 **0**	3 **0**	4 **0**	5 **9**	6 **0**	7 **0**	8 **0**	9 **0**	10 **19**	Definitely Agree	

44. Would you support the growing of trees for their wood and fruit within the City?

Office use

Definitely Disagree	1 **6**	2 **3**	3 **0**	4 **0**	5 **5**	6 **0**	7 **0**	8 **0**	9 **0**	10 **21**	Definitely Agree	

45. Would you support a home industry that marketed produce from the wood and fruit of these trees in a urban agriculture setting?

Office use

Definitely Disagree	1 **6**	2 **4**	3 **0**	4 **0**	5 **5**	6 **0**	7 **0**	8 **0**	9 **0**	10 **18**	Definitely Agree	

E. SUSTAINABILITY/WASTE RECYCLING

46. Would you object if the City turned the organic city waste into compost for use in urban agriculture?

Office use

Yes **11**	No **21**	Not Sure **1**	

47. Should other organic municipal waste by-products be used for soil enrichment?

Office use

Yes **26**	No **3**	Not Sure **4**	

48. Is grey water:-

Office use

		5	
1.	Unfiltered Water?		
2.	Stagnant Water?		
3.	Polluted Water?	✓	
4.	Water and additives?		
5.	Rain Water?		
6.	Sewerage Water?		
7.	Washing Machine Water?	✓	
8.	Bath/Basin Water?	✓	
9.	None of the above.		
10.	Other.		

49. Would you use grey water for gardening?

Office use

Yes **20**	No **10**	Not Sure **4**	

50. Would you buy flowers that had been watered with grey water?

Yes	No	Not Sure
23	**8**	**3**

Office use

51. Please motivate your answer.

See Appendix 9: Summary of open questions

52. Would you buy herbs that are watered with grey water?

Yes	No	Not Sure
15	**13**	**4**

Office use

53. Please motivate your answer.

See Appendix 9: Summary of open questions

54. Would you buy vegetables that have been watered with grey water?

Yes	No	Not Sure
17	**11**	**5**

Office use

55. Please motivate your answer.

See Appendix 9: Summary of open questions

56. Are their any other comments regarding community gardening/urban agriculture you would like to record?

See Appendix 9: Summary of open questions

APPENDIX 7

Summary: responses of environmental health practitioners to the questionnaire

ENVIRONMENTAL HEALTH PRACTITIONER QUESTIONNAIRE

A. GENERAL **Office use**

1. Name: ……
2. Surname: ……..
3. Gender: Office use

M **5**	F **7**

4. Nationality Office use

RSA	MOZ	ZIM	OTHER
12	**0**	**0**	**0** ……..

5. Population group Office use

African	Coloured	Indian	White
6	**1**	**2**	**3**

6. . Qualifications- Office use

Primary	Secondary	College	Technikon	University
0	**0**	**0**	**8**	**4**

7. If studied at a College, Technikon or University, please indicate years of study:- Office use

0 –5Y	5-10Y	10-15Y	15-20Y
8	**3**	**0**	**1**

8. Practical Health experience:-
(Health Officer – 2 years)

10 – 38 yrs			

9. Practical Agricultural experience:-

Vegetable gardener – 2 years)

0 – 50 yrs			

10. Present position held:- Office use

1	Senior management
4	Middle management
3	Junior management
	Academic
	Home maker
	Student
	Unemployed
2	Other

.

DEFINITION OF URBAN AGRICULTURE

The sustainable and productive utilization of natural resources and other inputs, by people for plant and /or animal production purposes, either for own consumption or marketing.

F. HEALTH

11. Have you encountered the term “Urban Agriculture”

Yes	No
10	**1**

Office use

12. According to your understanding of the definition of urban agriculture, the process could involve:

		Office use
8	Gardening in the CBD ✓	
6.	Gardening in suburbs ✓	
6	Gardening in the peri-urban regions ✓	
0	Gardening in the rural regions	
0	Producing crops in vacant sites in the CBD	
0	Producing crops in vacant land in the suburbs	
1	Producing crops in the peri-urban regions ✓	
0	Producing crops in the rural regions	
0	Other	

13. Does your training equip you to monitor in the field of Urban Agriculture? Please motivate your answer.

Office use

Yes	No	Not sure
5	**7**	**0**

See Appendix 9: Summary of open questions

14. Do you believe that urban agriculture should be allowed in a built up area? Please motivate your answer

Office use

Yes	No	Not sure
8	**2**	**2**

See Appendix 9: Summary of open questions

15. Do you think that urban agriculture causes health problems in built up areas?

Office use

Yes	No	Not sure
1	**9**	**0**

16. Can gardening become a healthy activity for citizens to participate in?

Office use

Yes	No	Not sure	
12	**0**	**0**	

17. Can health problems arise in water contained in retention ponds?

Office use

Yes	No	Not sure	
9	**3**	**0**	

18. Are protected areas (Wetlands) in cities necessary?

Office use

Yes	No	Not sure	
8	**3**	**1**	

19. Are potential problems foreseen if gardening is practiced in protected areas (Wetlands)?

Office use

Yes	No	Not sure	
4	**6**	**2**	

20. Are potential health problems foreseen should gardening be practiced in these protected areas? Please motivate your answer.

Office use

Yes	No	Not sure	
4	**7**	**0**	

See Appendix 9: Summary of open questions

21. Should there be environmental health inputs into town planning schemes?

Office use

Yes	No	Not sure	
12	**0**	**0**	

22. Should water/ waste water, and retention pond water that is being used for gardening be tested for water borne heavy metals ?

Office use

Yes	No	Not sure	
12	**0**	**0**	

23. Should water/waste water and retention pond water that is being used for gardening be tested for water borne pathogens?

Office use

Yes	No	Not sure	
12	**0**	**0**	

24. Should soils that are being used for gardening be tested for heavy metals?

Yes	No	Not sure	Office use
12	**0**	**0**	

25. Should soils that are being used for gardening be tested for pathogens?

Yes	No	Not sure	Office use
9	**1**	**1**	

26. Is training offered by primary health to residents who garden vegetables using polluted water?

Yes	No	Not sure	Office use
7	**3**	**2**	

27. Is training offered by primary health practitioners to residents who garden using grey water?

Yes	No	Not sure	Office use
5	**4**	**3**	

From your prospective should gardeners be aware of:

28. the proper way of harvesting foodstuffs to control pathogenic organisms?

Definitely Applicable	**8**	**1**	**0**	**0**	**1**	**1**	**1**	Not Applicable

29. the proper way of preparing foodstuffs to control pathogenic organisms?

Definitely Applicable	**9**	**0**	**0**	**0**	**1**	**0**	**2**	Not Applicable

30. the proper way of marketing foodstuffs to control pathogenic organisms?

Definitely Applicable	**7**	**2**	**0**	**0**	**1**	**1**	**1**	Not Applicable

31. the associated human diseases when it comes to unsanitary post-harvesting of vegetables?

Definitely Applicable	**8**	**0**	**0**	**0**	**2**	**0**	**2**	Not Applicable

32. the associated human diseases when it comes to the marketing of vegetables?

Definitely Applicable	**10**	**0**	**0**	**0**	**1**	**6**	**1**	Not Applicable

From your prospective should gardeners be aware of-

33. the associated human diseases when it comes to the unsanitary processing of vegetables?

Definitely Applicable	**9**	**0**	**0**	**0**	**0**	**1**	**2**	Not Applicable

34. the associated human diseases when it comes to the unsanitary preparation of vegetables?

Definitely Applicable	**7**	**1**	**0**	**0**	**0**	**1**	**2**	Not Applicable

35. Are the Occupational Health Risks, in Food Production and Food Processing dealt with by your department?

Yes	No	Not sure	Office use
1	**2**	**3**	

36. Does your Department provide guidance /training for citizens in food production and processing?

Yes	No	Not sure	Office use
10	**2**	**0**	

37. Does primary health educators deal with the following dietary deficiencies in your area of control? Office use

Iron	✓	**Yes**	No	Not Sure	
Calcium	✓	**Yes**	No	Not Sure	
Thiamine	✓	**Yes**	No	Not Sure	
Roboflavin	✓	**Yes**	No	Not Sure	
Niacin	✓	**Yes**	No	Not Sure	
Vitamin A	✓	**Yes**	No	Not Sure	
Vitamin C	✓	**Yes**	No	Not Sure	

38. Do you sample test for the following common micro –organisms on a weekly basis in the area you control- Office use

E.coli	✓	**Yes**	No	Not Sure	
Pseudomonas	✓	**Yes**	No	Not Sure	
Enterobacter cloacae	✓	**Yes**	No	Not Sure	
Salmonella arizonae	✓	**Yes**	No	Not Sure	
Camplobacter	✓	**Yes**	No	Not Sure	
Listeria	✓	**Yes**	No	Not Sure	

39. Do you sample test for the following common micro –organisms on a monthly basis in the area of your control- Office use

E.coli	✓	**Yes**	No	Not Sure	
Pseudomonas	✓	**Yes**	No	Not Sure	
Enterobacter cloacae	✓	**Yes**	No	Not Sure	
Salmonella arizonae		Yes	No	Not Sure	
Camplobacter		Yes	No	Not Sure	
Listeria		Yes	No	Not Sure	

40. Can you sample test for the following other organisms in the area of your control –

					Office use
Helminthes	✓	**Yes**	No	Not Sure	
Protzoans	✓	**Yes**	No	Not Sure	
Nematodes	✓	**Yes**	No	Not Sure	
Flagellates	✓	**Yes**	No	Not Sure	
Balantidium coli	✓	**Yes**	No	Not Sure	

41. From your prospective –

Should waste water be allowed to be used for community gardening?

Definitely Agree **1**	Agree **2**	Neither Agree or Disagree **1**	Do not Agree **3**	Definitely Disagree **1**	Office use

42. Should the use of organic solid waste, be allowed to be used as compost/fertilizer?

Definitely Agree **2**	Agree **5**	Neither Agree or Disagree **1**	Do not Agree **3**	Definitely Disagree **0**	Office use

43. Should the use of processed human waste, be allowed to be used as compost/fertilizer?

Definitely Agree **1**	Agree 0	Neither Agree or Disagree	Do not Agree **5**	Definitely Disagree **5**	Office use

44. Are there any Urban Agricultural sectors within the area of your control?

Yes **4**	No **4**	Not sure **4**	Office use

45. Does your Council do Health Assessments of the Urban Agriculture Sector?

Yes **2**	No **3**	Not sure **7**	Office use

46. Is the Health Department involved in approving applications for land use changes?

Yes **8**	No **1**	Not sure **2**	Office use

47. From a occupational health point of view is it safe to garden within the flood lines of a river or stream?

Definitely Agree **0**	Agree **2**	Neither Agree or Disagree **5**	Do not Agree **2**	Definitely Disagree **2**	Office use

48. Are overgrown areas a health hazard for residents?

Office use

Definitely Agree **2**	Agree **5**	Neither Agree or Disagree **2**	Do not Agree **2**	Definitely Disagree **1**

49. Would there be permanent health problems if people cultivated sloping ground?

Office use

Definitely Agree **1**	Agree **0**	Neither Agree or Disagree **1**	Do not Agree **1**	Definitely Disagree **1**

G. ENVIRONMENTAL HEALTH

50. Are there health benefits for people who do garden?

Office use

Definitely Agree **8**	Agree **4**	Neither Agree or Disagree	Do not Agree	Definitely Disagree

51. Are Residents/Gardeners aware of the Microbiological Standards of Foodstuffs?

Office use

Yes **1**	No **4**	Not sure **6**

52. Does South Africa have a water standard?

Office use

Yes **11**	No **0**	Not sure **0**

53. Is the World Health Organization water standard higher than the South African water standard?

Office use

Yes **3**	No **1**	Not sure **6**

54. Do you know where urban agriculture is practiced in your area of responsibility?

Office use

Yes **6**	No **5**	Not sure **0**

55. Are regular water tests done in streams /rivers where gardening is taking place?

Office use

Yes **7**	No **1**	Not sure **4**

56. Are regular tests done to see if there are organo-cholorine pesticides present in soil used for gardening?

Office use

Yes **2**	No **5**	Not sure **5**

57. Are regular tests done to see if there are organo - cholorine pesticides present in water used for gardening ?

Office use

Yes	No	Not sure
2	**7**	**3**

Is it (in your opinion) necessary to –

58. train gardeners in the safe use, of agro-chemicals?

Office use

Yes	No	Not sure
8	**2**	**1**

Is it (in your opinion) necessary to –

59. train gardeners in the safe storage of agro-chemicals?

Office use

Yes	No	Not sure
12	**0**	**0**

60. train gardeners in the safe handling of agro –chemicals?

Office use

Yes	No	Not sure
11	**0**	**1**

62 . Would you support urban agriculture in an urban environment?

Office use

Yes	No	Not sure
12	0	0

62. Would you like to comment on anything else regarding urban agriculture?

See Appendix 9: Summary of open questions

APPENDIX 8

Summary: responses of town planners to the questionnaire

TOWN PLANNERS QUESTIONNAIRE

A. GENERAL

1. Name: ……
2. Surname: ……..
3. Gender

M	F
11	**6**

Office use

4. Nationality

RSA	MOZ	ZIM	OTHER
17	**0**	**0**	**0** ……..

Office use

5. Population group

African	Coloured	Indian	White
3	**1**	**5**	**8**

Office use

6. .Qualifications-

Primary	Secondary	College	Technikon	University
0	**0**	**0**	**3**	**14**

Office use

7. If studied at a College, Technikon or University, please indicate years of study:-

0 –5Y	5-10Y	10-15Y	15-20Y
5	**5**	**1**	2

Office use

8. Practical town planning experience :-

(Student Planner –2 years)

1 - 25			

9. Practical agricultural experience:-

Vegetable gardener –2years

0 - 25			

10. Present position held in town planning sector:- Office use

1	Senior management	**4**
2	Middle management	**2**
3	Junior management	**5**
4	Academic	
5	Home maker	
6	Student	
7	Unemployed	
8	Other	**4**

DEFINITION OF URBAN AGRICULTURE

The sustainable and productive utilization of natural resources and other inputs, by people for plant and /or animal production purposes, either for own consumption or marketing.

B. TOWN PLANNING TRAINING

11. Did you learn about the urban agriculture in your town planning training?

Yes	No	Not sure
7	**7**	**3**

Office use

Give the definition of urban agriculture and then ask:

12. According to your understanding of the definition of urban agriculture, the process could involve:

		Office use
1.	Gardening in the CBD(Central Business District) ✓	
2.	Gardening in suburbs	
3.	Gardening in the peri-urban regions ✓	
4.	Gardening in the rural regions	
5.	Producing crops in vacant sites in the CBD	
6.	Producing crops in vacant land in the suburbs	
7.	Producing crops in the peri-urban regions	
8.	Producing crops in the rural regions	
9.	Other	

13. Can urban agriculture be recognized as a land use category on its own?

Yes	No	Not sure
14	**1**	**2**

Office use

14. Please motivate/elaborate on your answer.

See Appendix 9: Summary of open questions

15. Does your office encounter planning projects with urban agriculture included within?

Yes	No	Not sure
10	**6**	1

Office use

16. What approach do you follow regarding land use planning?

17. Given your attitude towards town planning development, which one of the participatory approaches would you use? (If not listed please select the closest.)

				Office use
ECOLOGICAL	Yes	No	Not Sure	
NEW URBANISM	Yes	No	Not Sure	
COLLABORATIVE **11**	Yes	No	Not Sure	
JUST CITY PERSPECTIVE	Yes	No	Not Sure	
NEW LIFE MODEL	Yes	No	Not Sure	

18. Does politics influence the direction and emphasis of the town planning process?

Yes	No	Not sure	Office use
17	**2**	**3**	

19. Please motivate your answer.

See Appendix 9: Summary of open questions

20. Is large scale agricultural activities officially allowed in the city?

Yes	No	Not sure	Office use
11	**4**	**2**	

21. Please motivate your answer.

See Appendix 9: Summary of open questions

22. Do urban land zonings indicate areas within the city where urban agriculture is allowed?

Yes	No	Not sure	Office use
10	**5**	**2**	

23. Please motivate your answer.

See Appendix 9: Summary of open questions

24. Could urban land zonings allow for multi-functional use such as large-scale vegetable gardening in schools?

Yes	No	Not sure	Office use
17	**0**	**0**	

25. Please motivate your answer.

See Appendix 9: Summary of open questions

26. Could temporary use of public/private land for agricultural use be allowed for? Including leveling and terracing?

Office use

Yes	No	Not sure
15	**1**	**1**

27. Please motivate on your answer.

See Appendix 9: Summary of open questions

. HEALTH, ENVIRONMENT AND GENERAL

28. Is waste-water allowed to be used for community gardening?
Such as the removal of water, out of sewer lines?

Yes	No	Not sure
0	**8**	**9**

29. Is the use of organic solid waste, allowed to be used in compost/fertilizer?
Can reject tea be used in this process?

Office use

Yes	No	Not sure
8	**0**	**9**

30. Is the use of human waste, allowed to be used for compost fertilizer?
Can latrine buckets be emptied in vegetable gardens? Office use

Yes	No	Not sure
4	**6**	**7**

31. Does the City allow for the processing of domestic low scale meals and bottled city grown vegetable products?

Office use

Yes	No	Not sure
4	**3**	**10**

32. Does the City allow for the distribution and marketing of city grown vegetable products other than through the vegetable market?

Office use

Yes	No	Not sure
5	**1**	**11**

33. Name any restriction applicable to urban agriculture that is in place?

34. Name any policy document where urban agriculture is mentioned ?

35. Does the city support urban agriculture officially in the city?

Office use

Yes	No	Not sure
16	0	**1**

36. What is your response?

37. Do you think the practice of urban agriculture is appropriate in your city?

Office use

Yes	No	Not sure
16	**1**	0

38. Please motivate/elaborate on your answer.

See Appendix 9: Summary of open questions

39. Are there areas where you think urban agriculture <u>should be</u> allowed?

Office use

Yes	No	Not sure
16	**0**	**1**

40. Please motivate/elaborate on your answer.

See Appendix 9: Summary of open questions

41. Are there areas where you think urban agriculture <u>should not</u> be allowed?

Office use

Yes	No	Not sure
8	**6**	**2**

42. Please motivate/elaborate on your answer.

See Appendix 9: Summary of open questions

43. Is urban agriculture recognized as a land use category that is distinct from other land use?

Office use

Yes	No	Not sure	
1	**12**	**3**	

44. Please elaborate on your answer.

See Appendix 9: Summary of open questions

With reference to the institute where you are employed –

45. What departments are responsible for urban agriculture training and guidance?

46. In your opinion should Council formulate policy on Urban Agriculture?

Yes x 17

47. Are there constraints to Urban Agriculture as a development strategy?

Office Use

Yes **10**	No **6**		

48. If YES name three constraints in Urban Agriculture.

49. What means are used to facilitate, promote Urban Agriculture in the City?

50. In your opinion what are the next priority steps needed to respond to Urban Agriculture?

51. Does your City record or keep statistics on urban agriculture activities?

Yes	No	Not sure	Office use
2	**2**	**12**	

52. Can storm water be retained in retention ponds for urban agriculture use?

Yes	No	Not sure	Office use
13	**1**	**2**	

53. Do the regulations allow for the controlled use of protected areas for harvesting materials?

Yes	No	Not sure	Office use
6	**5**	**5**	

54. Are checks and balances in place ensuring areas up for development are not polluted and unsafe for use?

Yes	No	Not sure	Office use
8	**2**	6	

55. In your experience can streams /rivers /bore holes be polluted before becoming part of a residential area?

Yes	No	Not sure	Office use
15	**2**	**0**	

56. Are the health and occupational health requirements for Urban Agriculture catered for in Town Planning? Office use

Yes	No	Not sure	
8	**5**	**4**	

57. Is a health assessment of Agricultural Land /UA Land done during development proposals?

Yes	No	Not sure	Office use
6	**3**	**6**	

58. Does the town planning regulations allow for someone who is poor and under educated to apply for changed land use?

Yes	No	Not sure	Office use
7	**7**	**3**	

59. Does Town Planning make provision for the five and ten year flood line in its planning?

Yes	No	Not sure	Office use
11	**5**	**1**	

60. Can limited use of this flood line be made for urban agriculture practices only?

Office use

Yes	No	Not sure	
12	**2**	**3**	

61. Please elaborate on your answer.

See Appendix 9: Summary of open questions

62. Is this flood line information readily available for community gardeners?

Office use

Yes	No	Not sure	
9	**6**	**2**	

63. Are sensitive land areas catered for and protected in town planning regulations?

Office use

Yes	No	Not sure	
17	**0**	**0**	

64. Does Town Planning allow for agricultural development on sites with a slope of more than 12 degrees?

Office use

Yes	No	Not sure	
10	**6**	**0**	

65. Is Town Planning understood/accessible to the average citizen such as the urban gardener?

Office use

Yes	No	Not sure	
7	**7**	**3**	

66. Do you think town planning could be made more accessible and better understood?

Office use

Yes	No	Not sure	
16	**1**	**0**	

67. Have you any other thoughts or comments you would like to make ?

See Appendix 9: Summary of open questions

APPENDIX 9

Summary of responses to open questions

APPENDIX 9 SUMMARY OF OPEN QUESTIONS

9.1 Community Gardeners

9.2 Residents close to conservancies

9.3 Environmental Health Practitioners

9.4 Town Planners

9.1 Community Gardeners

Open ended question 68: What other information would you like to share on urban agriculture.

• Soil poor needs compost water and fence. • Need fence compost and training. • Need fence, stealing our food. • Too much promises no action. • We need gumboots, drums for water, gloves rain-suits, overalls . • We need fence, compost and water. • Need tractor, fence, tractor must not be controlled by councillors. • We need fencing, training, tractors and water. • Training with certificates, fence our gardens, water. • We need compost tools and fence. • Water, more tools, training, plus place to sell. • More tools we need funds. • We need overalls, safety boots, gloves and hats, hand forks. • We need truck tractor and bakkie. • We need funds to upgrade ourselves as we are also teaching students. • Tools, hoes, rakes training with certificates. • More places to sell food, soil not in a good condition. • We need fencing training and pipes. • We need seed, water compost. • We need training, ploughing, fence, need gutters for rain water. • We need funds tools and seed. • UA must involve and give us funds, training, upgrade our skills, markets. • Need to extend fencing and more taps.	• Need R5, 000 per month to buy seed, overalls, boots, gloves and tools. • Need training, test our soil, more seed. • We need food parcels, training, hats and sun-screen. • We need compost, wheelbarrows, hoe, fork and water. • We need markets, sprinkler pipes. • Many spaces to garden, no support. • Container for tools, fencing, tools toilets, overall s and boots. • Need a water tanker, need a bakkie, to load and deliver.

9.2 Residents

Open ended questions 13 &14: "Do you think vegetables grown in a city environment are unhealthy?"

- Good looking and tasting vegetables can be produced in good soil, precludes plants grown in un-healthy sites.
- As long as best practices are employed-clean sites, un-contaminated water.
- Suburbs provide better crops, depending on use of insecticides.
- Pollution will affect them but careful washing will wash away the effects off.
- Do not think average levels of pollution will affect vegetables. But polluted water may affect vegetables.
- If grown in clean organic soil and pollutants wash off before consumption they should be healthy.
- Vegetables grown in a city environment are not unhealthy.
- As long as there is vacant land it can be used constructively.
- They get the same nutrients that other vegetables get.
- Industries – chemicals coming from factories can affect the growth of vegetables.
- Will get the same vitamins it depends on how you take care of it.
- There is no difference between those that are grown elsewhere.
- Because the land and sand is the same.
- Regardless of where it is grown you get vitamins.
- They are healthy if they use vacant land and clean water.
- It is how they are treated during the process of growth.
- They are healthy.
- It is how the gardener takes care of his garden.
- Air pollution, closed confined spaces, no deep roots.

Open ended questions 15 &16: "Do you think that herbs grown in a city environment are un-healthy?"

- Same reason-produced in contained areas.
- Same as 14.
- Vehicles and industrial pollution would affect the health of plants.
- As above.
- Herbs will be healthy if ground is well prepared.
- Herbs is one of the best plants in anybody's garden because you'll never go hungry.
- They have the same nutrients as others.
- Wash before use.
- Some do not use natural fertilisers.
- Because the land is the same.
- We only buy the best fresh produce.

- They are healthy if they plant in a vacant land.
- If they were treated during the process.
- Keep herbs inside in window boxes.

Open ended questions 26 & 27: "Could controlled gardening be allowed in these protected areas?"

- The balance of nature could be disturbed.
- UA has impacts – created to protect natural environment.
- Protected areas are already under threat and have not been managed properly.
- There is such a need for food gardening that all available space needs to be utilized.
- Poor management of PA –no guarantee foot print will not increase.
- We are helping people and encouraging people and inspiring them to start gardening.
- Yes, because it helps the un-employed to get involved.
- It is good to have a garden big or small in any area as it provides food.
- Because they are using the land effectively.
- It will be a safe community.
- Because it will be protected.
- Planting food is better than keeping land and not planting on it.
- Yes, because the controlled gardens will result in healthy and good vegetables.
- There must be someone to control the gardens.
- I will allow it because they using the land to feed themselves.
- There must be someone to control them.
- Share crops as well as meeting place for house-bound, unemployed, retired folks.

Open ended questions 33 & 34: "Would you purchase flowers grown in a city?"

- Community gardens would help people with their gifts and talents- opportunity.
- I don't see anything wrong with city grown products.
- They must get money to buy seed.
- They are promoting cleanliness in the city.
- It will contribute into the economy.
- Flowers are flowers whether they are grown in a city or not.
- It is cheaper, and easier to get.
- Top support them and they must then support their families.
- Some of the growers or gardeners know how to take care of their gardens and they can grow nice and good flowers.
- Keep their businesses going and by supporting.
- It's how fresh/hygienic it looks also attractive.
- It's a matter of freshness.

- If fresh and pleasant smelling I'll buy.

Open ended questions 35 & 36: "Would you purchase vegetables grown within the city?"

- With quality control in place could benefit both the grower and consumer.
- Good to support local initiatives- lower transport – cheaper produce.
- My own veggies are grown in a city.
- Vegetables are vegetables I can wash off to remove any contaminants.
- Grow my own, not sure about the health of other vegetables.
- Low carbon foot print due to less transport and local employment.
- If vegetables is grown using permaculture gardening.
- It is the same as other vegetables.
- They are from the soil not from the shelves.
- Maybe we can buy with cheaper price.
- Help create jobs for good gardens.
- Because it is the same.
- Easy to get vegetables within the city.
- Only to those who are controlled and protected and who know no what to do with the crops.
- We buy fresh hygienic stuff.
- Buy closer than going to the town wasting money on taxis.
- It is a matter of freshness.
- I am buying vegetables exposed at Checkers fruit and vegetables.

Open ended questions 40 & 41: "Would you support a home industry that marketed produce from a community garden?"

- I am in favour of organic.
- Vegetable growing, provides employment.
- Council should support such initiatives.
- If it can be proved to be organic and not polluted from vehicle or industry.
- There is a need for this to encourage people to grow them and receive an income.
- Grow my own vegetables and herbs.
- Local employment means less people on the street lower transport for produce.
- Un-employed people could earn a living and not wait for hand outs.
- Some people are lazy this is an opportunity to work.
- It will provide jobs and food.
- They make a living out of these gardens.
- It will improve other people's lives.
- It is easy to support people you know of than someone you don't know.

- It would mean community is getting income from growing vegetables and poverty will come to an end.
- For development purposes.
- To encourage the community.
- We support those that try, then those who sit and relax wait for what we don't know.
- They also make a living out of it.
- Yes, fresh from ground to my table.

Open ended questions 50 & 51: "Would you buy flowers that had been watered with grey water?"

- I believe grey water is OK and we need to save and recycle our water supplies.
- Water quality is constantly measured so it does not pose a health hazard.
- Watered down grey water can be tolerated by plants and organisms breakdown soap and oils as soils has sufficient humus and sand particles.
- Flowers are not touched by the soap, washing powder in grey water.
- I do not buy exotic flowers.
- Flowers do not get eaten-toxins would not enter the body.
- There is nothing wrong with flowers/plants being given grey water.
- As long as the plants keep growing there is no problem.
- There is nothing wrong.
- Flowers are not for eating.
- Make sure to wash with clean water before using.
- Not health water.
- Whether the water is clean or not it does the same thing.
- It might destroy the growth of these flowers.
- For hygienic reasons flowers should be watered with pure water.
- There is nothing wrong with flowers watered with grey water.
- Grey water is not health y and is dirty.
- As long as it does not have poison I can use that water for garden.
- Flowers are for decoration and not for eating.

Open ended questions 52 & 53: "Would you buy herbs that are watered with grey water?"

- Herbs will be healthy as grey water does not damage herbs.
- We just have to wash before use.
- Not healthy water.
- Might get diseases.
- Grey water with my understanding is dirty water so it will destroy those herbs and it is un-healthy to use that water.

Open ended questions 54 & 55: "Would you buy vegetables that have been water with grey water?"

- Grey water does not harm veggies.
- We must use water resources as best we can.
- Only if I knew the filtration process and quality of the grey water

Open ended question 56: "Are there any other comments regarding community gardening/Urban Agriculture that you would like to record?

- Initiative long overdue.
- Making marginal land useful.
- Government help with marketing.
- There is an urgent need for UA in poor townships.
- All up-liftment programs should go hand in glove with population dynamics and education.
- Education of public plus implementation committee needed urgently.
- Desperately needed-will provide food and educate the community.
- The poorer communities will benefit from community

9.3 Environmental Health Practitioners

Open ended question 13: "Does your training equip you to monitor in the field of urban agriculture?"

- Environmental Health primary deals with human health issues. Would be able to provide input in agricultural schemes.
- We have all been involved in numerous aspects of our gardens at clinics and schools.
- It is not our speciality, we can only facilitate. This was not in training programme.

Open ended question14: "Do you believe that urban agriculture should be allowed in a built up area?"

- So long as there's enough land available and responsible agricultural methods followed.
- Large amounts of underutilised space that can be set aside for this purpose e.g. rooftops, road verges, areas traditionally used for flower/landscaped gardens.
- There is a need for food production.
- Any vacant site could be used to plant vegetables, trees and flowers to prevent dumping.
- No – because there are no plots available in built up areas (Bad question).
- Yes, so as to ensure that communities are exposed to fresh, nutritional foods.
- Because of the un-availability of the space-but nevertheless gardening is vital for everybody.
- Should be done in pots.

Would you like to comment on anything else regarding urban agriculture?

- It is important to start urban agriculture to improve the quality of food.
- I fully support the concept and would like to add that consideration be given to planting of fruit trees, both commercial and indigenous fruit bearing trees in the urban context.
- A good idea that is proving very popular amongst city dwellers like the U.K. where allotment gardens are cultivated extensively. Would contribute to food security and provide a balance of veg. To the diets of city folks in S.A.
- Our experience in the above has shown that the use of volunteers is problematic.
- Sponsored at the expensive of private ratepayers.
- No production of benefits are proved or published.
- No insecticides are provided or sponsored. Hence large losses.
- You have covered water quality. They don't go off and start their own gardens unless they are given everything. They are not prepared to help themselves.

9.4 Town Planning

Open ended questions 13 &14: "Can urban agriculture be recognised as a land use category on its own?"

- In some cases, Town Planning Schemes recognize "Agriculture" as a zone. For areas outside of town planning schemes, it is considered as "undefined" or "agricultural land".
- Can be permitted by application, if it can be ascended too.
- Can be a green lung that allows other use.
- Not in existence in eThekwini but don't see why a land use couldn't be incorporated would force reservation for agriculture, the use of agriculture in urban areas.
- The land use zone "Agriculture" is often mis-used and land zoned. Agriculture is not always agriculturally viable, but the land use zone restricts more sustainable development. If Agriculture was properly defined as "Urban"/"Rural", then the perception that agriculture only can occur on the outside of urban areas would be corrected. Rates could be adjusted for people practising proper Urban Agriculture.
- Mix of residential and agriculture exists in our areas i.e. rural residential zones.
- It is not widely recognised but should be defined as a separate category in the eThekwini Municipality as our Metro is completely urbanised and we need to encourage agricultural production which is limited.
- As a land use it may be possible but depending on the scale of take up it may be too small to be reflected.
- There need to be a balance between development and the environment in order to minimise global warming and also practice sustainable development by planning for today tomorrow and the future generations.
- Suitable areas should be identified and protected for the use of urban agriculture in order to prevent such areas to be used for residential and other developments. Politicians only want residential development in order to enlarge their voter base.
- Urban Agriculture whilst being intensive should relate only to vegetable growing which has no negative impact on residents immediately abutting. Urban Agriculture is low key family or co-op agriculture related.
- Small scale agriculture can be defended and has special requirement. This can be defined as a land-use category.
- The town planning scheme has "agricultural" zoning but not "urban agriculture".
- It can be but doesn't need to be.
- Market gardening/Small holding.

Open ended question 18 & 19: "Does politics influence the direction and emphasis of the town planning process?"

- At a local government level the majority of decisions taken through the Municipal Systems Act, Municipal Structures Act and Municipal financial Management Act are of a professional and political decision making process.
- Councillor's undue rezoning decisions in Town Planning applications.
- Politicians are the final decision makers.
- Not prepared to answer.
- Politics should not influence planning decisions but the reality is that politics come into play especially if influenced by applicant or up for re-election.
- Think Group Areas Act.
- Unfortunately decisions made in regards to planning are subject to huge political influence which is at times to the detriment of well intentional town planning logic.
- Development within our city projects have been influenced by political agendas. However as a planning branch we have tried to ensure that planning practices is upheld.
- Before approval of council's policy documents they are tabled at the city hall for full-council's endorsement/objection – the councillors are political leaders, which in turn influence town planning process.
- Most project are never implemented due to political influence, they might not be funded because a municipality is not under the leading organisation/party. Some projects are implemented without proper planning just to get the vote from the people.
- The Spatial Development Plans provide direction in the development and town planning process.
- Our city form has been dictated by previous Apartheid political ideologies. We are now trying to normalise our city land, use distribution and road networks with emphasis on integrating previously disadvantage areas into the city network of higher order facilities.
- Politicians determine priorities and allocation of resources.
- Local and national politics determine resource allocation.
- Planning is a public process and cannot be separated from politics. Decisions can be manipulated through political interventions.

Open ended question 20 & 21: "Is large scale agricultural activities officially allowed in the city?"

- The city has a land owner (Tongaat Hullett & Morelands) who has a monopoly on ownership of agricultural land. Large scale agricultural plantations for sugar cane was/is conducted in the eThekwini region. The poor are generally located on the peripheral regions with limited access to agricultural land.
- Planning Schemes allow it by special consent.

- No space.
- We do allow large scale agriculture in municipality but space is limited in the city and “reserved” used for a more profitable land use.
- If a large property is zoned agriculture in terms of the scheme, then it should be no problem to continue to use it for agricultural purpose – but probably would be squeezed out by urbanisation.
- Tongaat Hulett(Sugar Cane)
- There are limited agricultural land that is owned by a major developer namely Tongaat Hulett Development (THD) which is under huge pressure for development. We are losing most of most of our agricultural land due to the demand for housing.
- As a city Branch (Framework Planning)-we have tried to encourage agriculture. The Spatial Development Plans (SDP’s). Have looked at supporting agriculture and we have even consulted with developers to encourage further agriculture and food security.
- The development of Dube Tradeport high intensive agricultural component a test to the allowance of agricultural activities in the city.
- They are usually allowed on the periphery of the city centre.
- In terms of the Spatial Development Plans areas are identified for agricultural activities but these are mainly in peri-urban /rural areas.
- If land is zoned for Agriculture it can be developed (See attached definitions which control the types of Agriculture.)
- Agriculture is an official zoning category. There are tracks within the city which are large enough to sustain agriculture. Health controls play a large part in the impact.

Open ended question 22 & 23: “Do urban land zonings indicate areas within the city where urban agriculture is allowed?”

- Depends if the Town Planning Scheme has zoned land for Agriculture. In some instances, urban agriculture can be considered as a consent use.
- Our scheme in the Outer West permits quite a lot of agricultural industry by consent over a cross-section of different land uses and agricultural uses are also permitted in other zones by special consent, not just agricultural zones.
- Specific land uses are categorised and rationalised into zones i.e. Agriculture in suitable open arable areas comm./residential in areas of flat land not suitable for agriculture.
- Examples of zoned agricultural land mainly in the northern regions for agricultural purposes – sugar farming.
- Agriculture is reflected as a zone in our land use management (LUM’s)and as a land use in our SDP. But urban agriculture is not reflected in LUM’s and SDP is too broad to reflect it in Spatial Plan.
- The land zoning are reflected in the north spatial development plan.
- Usually the zoning map /scheme indicate where permissible uses are and which uses are prohibited.

- I know of no Town Planning scheme which has a zone, reservation or definition of urban agriculture. Areas zoned for agriculture can however be sued for urban Agriculture.
- Not currently.
- Not sure of differences between urban agriculture and agriculture in urban areas.
- Agricultural Zones.

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Open ended question 24 & 25: "Could urban land zonings allow for multi-functional use? Such as large scale vegetable gardening in schools?"

- Town Planning Schemes may need to accommodate agricultural land uses under a "consent" application process.
- By application.
- Often land not used in schools and other areas –this will alleviate hunger and malnutrition.
- Not sure if it is necessary though
- Our schemes permit Agricultural Industry by consent in Educational zones, and many other zones which already indicates a willingness for land use

zones to be multi-functional.

- Schools in rural areas could produce successful farming techniques/ideas commercial could provide areas for small space farming to distressed employees.
- Areas that have peak and off peak uses bends itself to alternative uses it will allow it to be more productive.
- The above example works very well and it should be applied elsewhere e.g. combination of places of recreation along flood plains.
- Planning does emphasise practising green large scale vegetable gardening in schools even at home is encouraged.
- This will contribute to provide food to the very poor. It could also provide additional income for schools.
- Schools, wetland areas, buffer strips to sewerage plants etc should have a multi-functional use. At the moment this happens in formally often in contravention of Town Planning Zones.
- Zoning categories should be designed to allow multi-functional use.
- Mixed use zonings are possible, but in practice are like open floor office plans –no bureaucracy wants it.
- They have always done this.
- Where schools are underutilized the land offers opportunity for low key agriculture.

Open ended question 26 & 27: ”Could temporary use of public/private land for agricultural use be allowed for? Including levelling &terracing?”

- Provided that consent is obtained from the registered landowner and authority from the local authority.
- Only by land application.
- Often land not used in schools and other areas –this will alleviate hunger and malnutrition.
- Some public parks and sports grounds are under- utilised/derelict. Parks and Recreation could lease them out for urban agriculture uses which may be more sustainable.
- Possible, but tenure and ownership will always be a problem.
- Areas that have peak and off peak uses bends itself to alternative uses it will allow it to be more productive.
- Terracing can be constructed on steep slopes and be used for agriculture as well as mitigating soil erosion on such slopes.
- This could help to prevent land invasion / informal settlements.
- In the short term this will work well. The problem arises when the land is taken for its intended use and families previously farming and living of the land lose their lively hoods. Commercial farming and living off the land lose their lively hood. Commercial farming by a company with a fixed term renewable lease would be better than urban agriculture by families.
- However costs of land preparation may exclude it from temporary use.

- Again yes in theory, in practice the demands of the end user may make it difficult.
- Temporary uses are always provided for in schemes.
- Short term leases are available.

Open ended question 37 & 38: "Do you think the practice of urban agriculture is appropriate in your city?"

- Better utilization of vacant land.
- Local economic development plus sustainable urbanisation.
- Agriculture is a primary economic activity.
- High unemployment and poor nutrition leads to need/cost of low levels of food production.
- Urban Agriculture can provide food for the unemployed and if properly managed a cash crop element can provide income.
- It can provide food to the poor.It can also provide work for the un-employed. It can contribute to the maximization of land use.
- It can provide food to the poor. It can also provide work for the un-employed. It can contribute to the maximization of land use.
- A lot still needs to be done about this issue. Allocation of land to practice urban agriculture.
- With urban sprawl more and more agricultural land is being taken up by development.
- It is important to utilise our natural resource to the best we can.
- Important to promote sustainable practices to ensure food security.
- We need a mix of uses to sustain themselves i.e. working close to where you live reduces travelling time and cost while increasing productivity.
- We need to go back to basics whereby people grew some food of their own so as not to be so reliant on money to provide food. the old allotment in England are still community owned and farmed-that started in medieval times.
- Absolutely! Appropriate everywhere impact on food security and transit of goods, environment etc.
- If there's space then use it to feed people.
- Provided that the space and finance is available. It has socio-economic benefits. Urban agriculture can also assist in extending the agricultural supply chains for agricultural produce.

Open ended question 39 & 40; "Are there areas where you think urban agriculture should be allowed?"

- Urban areas adjacent to high density settlements.
- That is what planning is all about.

- Especially in traditional authority areas.
- Disadvantaged areas.
- All buffer strips to wetlands and other facilities e.g. sewerage works. Under power-lines, sub-divisions can be made longer and thinner thereby providing co-op gardening areas on each person's site. This provides security and economy of scale. School sites are left undeveloped for years, there is a five year lead time to build a school yet the sites are provided up front and lie vacant.
- Unused public open spaces that are not environmental sensitive should be used. Portions of vacant land on school sites. Vacant school sites in order to prevent land invasion /informal settlements.
- In primary and secondary schools, as well as informal settlements.
- Areas where large tracks of land are left vacant create a opportunity for development. Some areas such as Chatsworth have limited access to these vacant sites and they are not DMOSS or recreational facilities. These sites provide opportunity for urban agriculture.
- Should be allowed where land is available within reach of markets so goods can be traded in the metro very few areas have green-fields as development is high.
- Gardens in large commercial and industrial complexes.
- Urban agriculture should be allowed anywhere, flats could have roof gardens, informal settlements –earth boxes. Agriculture can occur in a very small space.
- Particularly in suburbs, rooftops or gardens. This could be encouraged by seedling subsidies/further farmers markets etc. and other incentives.
- Public open space zones.
- Sensible open areas with appropriate geotechnical considerations could be explored. Roof top gardening can also be explored. The natural sea/ocean could also be explored for urban agriculture projects.

Open ended question 60&61: "Can limited use of flood lines be made for urban agriculture practices only?"

- Not presently.
- As flood-line areas cannot be developed for built structures – perfect for urban agriculture farming (done for thousands of thousands of years along Nile).
- If agreed to by the relevant departments and service providers.
- May be risks attached to this practice such as erosion and flooding.
- Yes, it can, however change in
- It can be used for recreation purposes.
- Agriculture practices will be subject to Environmental Regulations. In general no development is permitted within 32m from the banks of streams.
- The worst that can happen is crops are washed away.
- Why not?

- In town planning terms use. Building regulations specify no permanent structures below 50 year flood-line. No development below 100year flood-line.
- Farming is permitted in the flood plains.

APPENDIX 10

Public notice from the town planner's office on amendments to town planning schemes

PUBLIC NOTICE

Amendment to Town Planning Schemes

Public Notice is hereby given in terms of Item 14 read with Item 15 both of Schedule 1 of the KwaZulu-Natal Planning and Development Act, 2008 (Act No 6 of 2008), that the eThekwini Municipality is considering a proposal in terms of Chapter 2, Section 9(1) of the KwaZulu-Natal Planning and Development Act, 2008 (Act No 6 of 2008) to:

1. Amend the Amanzimtoti, Botha's Hill, Canelands, Craigieburn, Dassenhoek, Gillitts, Glen Anil, Hillcrest, Isipingo (incl. Isipingo Beach), Kingsburgh, Lower Illovu, Mariannhill, Mount Edgecombe, R293 (Incl. KwaMakhuthu, KwaNdengezi, Magabeni, Mpumalanga Ntuzuma, KwaMashu & Umlazi, Welbedagt), Redcliffe, Shallcross, Tongaat (Incl. Tongaat Beach), Umbogintwini, Umdloti, Umhlanga No.1, Umhlanga No.2, Umhlanga No.3, Umkomaas, Verulam, Welbedagt, Westville No.2 (Reservoir Hills), and Widenham Schemes under the administration of the eThekwini Municipality, by incorporating within them provisions for:

1.1 An Environmental Conservation Reserve with associated controls; and
1.2 A Conservation Zone, with associated land use controls; and

2. Amend the Clansthal, Consolidated Outer West, Durban, New Germany, Pinetown, Queensburgh, and Westville No 1 Schemes by the substitution for the existing wording and format of

2.1 The Environmental Conservation Reserve; and
2.2 The Conservation Zone; and

3. Amend all the Schemes under the administration of the eThekwini Municipality by the insertion of the definitions of Environmental Protection and Nature-Based Tourism

PUBLIC MEETINGS, as part of the public notice process and as envisaged under Item 15(2) of Schedule 1 of the KwaZulu-Natal Planning and Development Act, 2008 (Act No 6 of 2008) for a general Scheme amendment, will be held as follows: -

REGION	DATE	TIME	VENUE
OUTER WEST	3 September 2012	17h30 for 18h00 to 19h00	Hillcrest Public Library Activities Room, 22 Delamore Road, Hillcrest
NORTH	4 September 2012	17h30 for 18h00 to 19h00	Mount View Civic Hall, Amora Drive (off M27-Inanda Road), Verulam.
CENTRAL	5 September 2012	17h30 for 18h00 to 19h00	Natural Science Museum, off Braam Fischer (Ordinance) Road, Durban
INNER WEST	6 September 2012	17h30 for 18h00 to 19h00	Pinetown Civic Centre, 60 Kings Road, Pinetown
SOUTH	11 September 2012	17h30 for 18h00 to 19h00	Amanzimtoti Hall, Cnr Hutchinson and Riverside Roads

Copies of the Scheme amendment report may be viewed between 08h00 and 16h00 weekdays at the Environmental Planning & Climate Protection Department offices in Room 226, Development Planning & City Engineers Building, 166 KE Masinga (Old Fort) Road, Durban or between 08h00 and 12h30, weekdays, at the following Regional Offices:

NORTH REGION: Sizakala Centre, 327 Umhlanga Rocks Drive, Umhlanga Rocks;
CENTRAL REGION: Information Centre, Ground Floor, 166 KE Masinga (Old Fort) Road, Durban;
SOUTH REGION: Municipal Offices, 2 Liberty Road, Lower Illovo
INNER WEST REGION: Sizakala Centre, 2nd Floor, Pinetown Civic Centre, 60 Kings Road, Pinetown
OUTER WEST REGION: Sizakala Centre, Land Use Management Counter, 22 Delamore Road, Hillcrest

The rezoning report may also be viewed via the following web site: -
http://www.durban.gov.za/Resource_Centre/public_notices/Pages/default.aspx

Interested and affected parties are urged to study these documents prior to the submission of any comments.
Written comment on the proposals is to be received by the close of business on 12 October 2012 and should be addressed to the Head: Development Planning Environment and Management, PO Box 680, Durban 4000 or delivered by hand to Room 226, Development Planning & City Engineers Building, 166 KE Masinga (Old Fort) Road, Durban, or by fax at 031-311-7134, or by e-mail to gerald.clarke@durban.gov.za

It should be noted that any person who fails to lodge or forward written comment by the closure date stated above will, in terms of Item 15(3)(g) of Schedule 1 of the KwaZulu-Natal Planning and Development Act, 2008 (Act No. 6 of 2008), be precluded from any further participation in the process.