

The Responsiveness of Town Planning to Urban
Agriculture in Low-income Neighbourhoods: A Case
Study of Kwa-Mashu in Durban, South Africa.

By

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Declaration

I Hangwelani Hope Magidimisha hereby declare that the work on which this dissertation is my original work (except where acknowledgements indicate otherwise) and that neither the whole work nor any part of it has been, is being, or is to be submitted for another degree in this or any other university.

Signature.....

Date.....

DEDICATION

Walter and Tinny Magidimisha

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ACRONYMS

UA	:	Urban Agriculture
LUMS	:	Land Use Management System
IDP	:	Integrated Development Plan
SDF	:	Spatial Development Plan
LA	:	Livelihood Approach
SL	:	Sustainable Livelihood Approach
KARI	:	Kenya Agricultural Research Institute
CGIAR	:	Consultative Group on International Agriculture Research
HHSC	:	The Health, Housing and Community Services Committee
TPWC	:	The Town Planning and Works Committee
RSA	:	Republic of South Africa
SLA	:	Sustainable Livelihood Approach

ABSTRACT

Urban agriculture in South Africa has been historically labelled as an illegal activity. This has been compounded by the traditional planning system in South Africa that did not recognise urban agriculture as part of the land use in the urban landscape. However despite its illegality, current evidence shows that it is commonly practised by many poor households in developing countries. There is growing evidence that most countries are gradually seeing the value of urban agriculture among poor households and to this end, they are beginning to realise the importance of incorporating it in their urban policy packages. Despite this recognition and acceptance of urban agriculture as a livelihood and food security strategy among the urban poor, little attention is paid to it. This research examines urban agriculture from a purely spatial planning perspective by way of elaborating on the spatial allocation of land for urban agriculture. The focus of the research is on identifying the factors that explain the unresponsiveness of the town planning system and challenges that confront urban farmers with the intention to suggest alternatives. At the core of the town planning system, are legislations and policies. Despite these irresponsive legislations such as NEMA and Health Act which hinder the practice of urban agriculture along sensitive areas such as river banks and road reserves urban agriculture continues to flourish. Regardless of minimal support from local authority the research findings show that the practise of agriculture is a common phenomenon among urban poor. The onus is therefore on the local authorities to promote it by putting in place mechanisms that should promote its growth and integrate it into mainstream development plans.

Chapter 1

Introduction

1.1. Introduction

Even-though urban agriculture has been historically labelled as an illegal activity; current evidence shows that it is now commonly practised by many poor households in developing countries (Mbiba, 1995; Mubvami, 2006 and Chivimba, 2004). There is growing evidence that most countries are gradually seeing the value of urban agriculture among poor households and to this end, they are beginning to realise the importance of incorporating it in their urban policy packages. Researchers such as Mbiba (1995), Mougeot (2005), Ren van Veenhaizen (2006) have demonstrated its economic importance among the urban poor in the cities of developing countries.

Despite this recognition and acceptance of urban agriculture as a livelihood and food security strategy among the urban poor, little attention is paid to urban agriculture vis-à-vis urban planning. This research examines urban agriculture from a spatial planning perspective. Some researchers (such as Mbiba, 1995 and Molly, 2009) have pointed that official views often put more emphasis on environmental and health risks of urban agriculture in violation of town planning zoning rather than on the role of improving food security amongst the poor. This in turn has put a very narrow focus of town planning on the practice of urban agriculture. It is therefore of paramount importance to investigate the responsiveness of the town planning system to the challenges of urban agriculture.

1.2 Problem Statement

Urban agriculture plays a crucial role in the health of the urban poor during food crisis. According to the United Nations World Food Programme Report (2008:12) higher food prices pushed 115 million people into hunger in 2007 and 2008. The rise in food prices means that people eat less. Vulnerable populations switch to cheaper foods that fill them up and ease their hunger, but that are less nutritious. More important to note is that people who fail to get the correct nutrients and vitamins become more prone to illness, learn less, and have lower productivity. The cost of hunger is estimated to amount to as much as 11% of the Gross Domestic Product (GDP) in some countries (Molly, 2009).

This trend is not very different from the South African picture where it is noted that 57% of people in South Africa are living below poverty line (Human Science Research Centre, 2007). This is accompanied by the increase in the rate of unemployment from 21,2% to 23,1% (3 March 2009, Business news paper). This trend left people with no choice but to engage in agricultural activities to supplement their monthly expenditures. For example people of Kwa-Zulu-Natal province are still marred by high poverty rates of about 66%, inequalities in the distribution of income between various population subgroups and unemployment of about 59% (Human Science Research Centre, 2007). The majority of people in urban areas are migrants from rural areas who came to urban areas in search of better life. Between 1994 and 2001, the total urban population in Durban increased rapidly from 20% to 33% (Pauw, 2005). With such rapid increase of urban population the city fails to have capacity to meet their basic needs such as food and shelter. For much of this population, growing food is the only way to survive and make a living.

Despite the fact that traditional planning system in South Africa does not recognise urban agriculture as part of the land uses in the urban landscape, the urban poor continues to practice urban agriculture in areas which are not zoned for this purpose, such as road reserves, river banks, railway reserves and electricity servitudes (CSIR, 2002). To this end the research intends to find out why town planning has remained unresponsive to urban agriculture despite its acknowledged role in the lives of the urban poor

1.2.1 Broad Objective

The broad objective of this study is to find out why town planning in eThekweni municipality has remained irresponsive to urban agriculture, and ultimately come up with recommendations to promote the inclusion of urban agriculture in the planning of urban settlements in South Africa.

1.2.2. Specific Objectives

- To identify and assess the suitability of land currently being used for urban agriculture. The aim is to establish the spatial distribution and suitability of land for urban agriculture.
- To identify challenges that urban famers face in the municipality the aim is to suggest alternatives to address them.
- To identify factors which explain the non-responsiveness of town planning to urban agriculture in Ethekewini Municipality

1.2.3 Research Questions

Main Research Question:

What are the factors which explain the non-responsiveness of town planning to urban agriculture in low-income households in eThekweni Municipality?

Sub-Questions

- Who are the urban farmers?
- What situations force households to embark on urban agriculture?
- Under what circumstances do these farmers operate in the urban environment?
- What type and level of infrastructure is put in place to support urban agriculture?
- To what extent does the Land Use Management Systems take cognisance of urban agriculture?

1.3. Rationale for the Study

The decision to pursue this study was motivated by the growing recognition and evidence that urban agriculture is becoming a major source of livelihood among the urban poor households. This is happening in the background of increased poverty in major urban centres arising out of insufficient incomes coupled by a buoyant rural to urban migration in South Africa (RSA, 2002).

Most urban centres in developing countries reveal farming activities everywhere, not only on the outskirts but also in the heart of the cities and towns (KARI, 2004). Available information indicates that most of urban farming is undertaken by the vulnerable poor households who also account for approximately 50 percent of the urban population living below the absolute poverty line (Rogerson, 2005). The legal situation on urban agriculture is unclear with most urban dwellers assuming it to be illegal. But on the other hand, a closer look at government policies and legal instruments (such as the Local Government and Public Health Acts) indicate that urban farming may be practiced under certain restrictions.

1.4 Defining Urban Agriculture

Defining urban agriculture has been a challenge. A number of authors (Koc, 1999; Mbiba, 1998; Moustier, 1998) have given different definitions of urban agriculture. Bakker et al (2000:9) argue that most authors use their findings to refine the definition of urban

agriculture. Among the different types of approaches to the definition of urban agriculture are the following

- Mbiba, (1998) defines urban agriculture from development concepts.
- Moustier, (1998) focuses on food entitlements.
- Rakodi, (1995) defines it from an urban household strategy.
- Koc, (1999) looks at it from a food security perspective.

However, a more comprehensive definition is borrowed from the UNDP (United Nation Development Program) which defines urban agriculture as:

An activity that produces, processes and markets food and other products, on land and water in urban and peri-urban areas, applying intensive production methods and reusing natural resources and urban wastes, to yield a diversity of crops and livestock (UNDP,1996:11).

Most important to this definition is the belief that products that are produced and processed by urban farmers are intended to supplement income of the urban poor. Coovadia (1995:6) substantiates this definition by further noting that “researchers identified the issue of urban poverty, and promote urban food self reliance by encouraging urban agriculture”. This is the same argument put across by Mbiba (1995) who argues that urban agriculture boosts the base assets of the urban poor and reduces vulnerability of women and children to urban economic collapse. It is therefore interesting to note that underlying this definition put forward by the UNDP is the need to take urban agriculture into consideration in order to sustain the life of the urban poor.

Mbiba (1995:16), in his conceptualisation further defines the linkages between the activity and socio-spatial processes in the city. He defines urban agriculture as the production of crops or livestock on land which is administratively and legally zoned for urban uses. But he further states that urban agriculture is viewed as “non-urban”, implying that it is not considered as a sector in a socio-economic sense as well as an active urban land-use activity as compared to other traditional activities such as housing. Indeed this is undeniable given the traditional meaning of an urban environment and the definition of urban as that which is non-agricultural.

Another integrated definition is given by Bakker *et al.* (2000:10) who define urban agriculture as:

An industry located within (intra-urban) or on the fringe (peri-urban) of a town, an urban centre, a city or metropolis, which raises or processes and distributes a diversity of food and non-food products, reusing mainly

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.

However, in the cities of developing countries, urban agriculture is associated with the urban poor. In defence of this idea, *Jacobi et al* (2000), borrowing their views from Ratta and Nasr (1999)'s work, argue that urban agriculture is emerging strongly in Sub-Saharan Africa, where the fastest urban growth will occur in countries least equipped to feed their cities.

But it should be noted from the onset that it is not adequate to define urban agriculture since it does not give a clear comprehensive picture of what it is. In this regard, focusing on the key elements that contribute to the need to legally recognise urban agriculture helps to a large extent to understand it. In this research this involves associating urban agriculture with urbanisation and the urban poor.

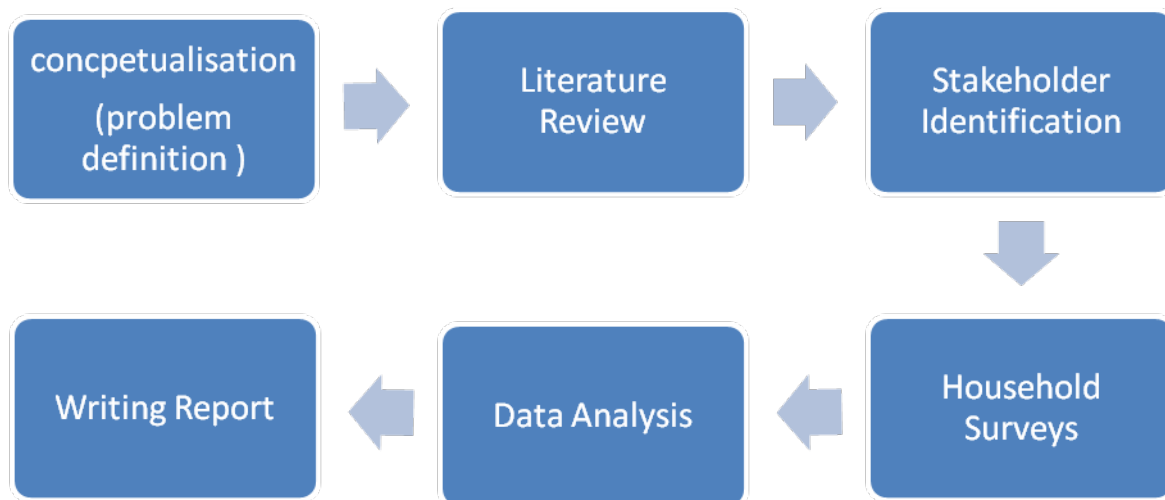
1.5 Methodology

This section presents the methodology of this study. According to Mikkelsen (1997), research methodology is a systematic way of collecting, analysing and presenting data. In this regard, this Section explains how data was collected, analysed and presented for this research. To achieve this objective the section starts off by outlining the research process, analysing sources of data, data collection methods, the sampling procedure, indicators and concludes by highlighting some of the problems encountered in the field.

1.5.1 The Research Process

The study was carried out in six major stages. This can be conceptualised diagrammatically as shown Figure 1. However, it should be noted that this diagram only shows the logical linkages and stages that were taken to conduct the study. It shows the sequential chain of events. But, within these wide categories of the research process, a variety of methods and techniques were used to gather information. It should be emphasised that the use of various methods and techniques provided the platform for validating information obtained. Above all, both quantitative and qualitative methods were used in the process of data collection.

Figure 1.1. The Research Process



1.5.2 Data Sources and Collection

This research on the responsiveness of town planning to urban agriculture collected data from two major sources. The first source of data was collected from secondary data sources and the other one from primary data sources. These two methods are discussed in detail below.

(1) *Secondary Data Sources*

Secondary data refers to information which is already documented and at times published in the form of books, journals, theses and magazines (Mikkelsen, 1997). Information from secondary sources provided both historical and current data on the responsiveness of town planning to urban agriculture in low-income neighbourhoods. The wide range of existing data provided adequate information to help analysing the responsiveness of town planning to urban agriculture. Such information further provides opportunities for verification of the claims that urban agriculture is a non-urban land use. In addition, it further contributed to the conceptual framework where the modernist theory and the livelihood approach were discussed. On the other hand, it must be noted that the public sector such as eThekweni Municipality provided information pertaining to the population, land-use plans which show the land zoned for different uses.

(2) *Primary Data*

Primary data is raw data which is obtained straight from the field (Mikkelsen, 1997). This

type of data was obtained from the case study in Kwa-Mashu which is the low-income neighbourhood in eThekweni Municipality (see Map 1, Locality Map) where urban agriculture is practised. The information was also obtained from town planners involved in land use planning and management. The collection of primary data was done by using three key techniques: mapping, questionnaire surveys and observations. These three techniques are discussed below.

(i) *Mapping*

Mapping is a handy technique that allows presentation of information in a condensed and readily understandable form (Mikkelsen, 1997). Maps of the study area were obtained from eThekweni Municipality. Maps were used to fulfil a number of data requirements among which are:

- Demarcating the boundaries of the study area,
- Showing the distribution of physical and social infrastructure,
- Plot sizes.
- Areas where urban agriculture is being practised

(ii) *Surveys*

Household surveys are one of the tools that were used in data collection in this research. A sample of 30 households was selected from the case study where questionnaires were administered through interviews. Basically, two distinct interviews were held in the process namely, individual interviews and key informants.

a) *Individual Interviews*

These were face-to-face interviews with individuals selected in the sample. The size of the sample was determined after some exploratory work was done. But it was scientifically determined. Selected respondents in the field were required to answer questions on a wide range of issues among which are:

- Land tenure status,
- Amount of money paid for urban agriculture land,
- Types of crops grown,
- Sources of inputs,

- Employment details,
- Income levels,
- What they use farm products for,
- Adequate skills for urban agriculture,
- Challenges confronting them,
- Level of infrastructure and services provided to support urban agriculture, and
- Policies in place to support urban agriculture.

The questionnaires used in the survey comprised both open-ended and close-ended questions (See Appendix 1 for questionnaires).

b) Key Informants Interviews

These interviews were carried out with people who are well-informed and had special information relating to urban agriculture and who are familiar with the area. Among the people who were included in this list are senior officials in the municipality such as local town planners, environmental planners, and councillors. Outside the public sector, community leaders who have been associated with urban agriculture were also interviewed. Some of these key informants were identified in the field through the snowball approach since it was invariably difficult to identify all of them at an early stage. However, no structured questionnaires were designed to collect information from key informants but specific issues discussed focused on:

- Mode of land delivery for urban agriculture,
- Tenure status of urban agriculture farmers,
- Level of infrastructure and services provided to support urban agriculture,
- Policies in place to support urban agriculture,
- Institutions and organisations that support urban agriculture and
- The future plans for urban agriculture.

(iii) Participant Observation

Observation allowed the researcher to get information by just looking at the situation on the ground. The method contributed to the better understanding of the research problem by the researcher since it allowed personal contact with the situation. In addition, it also allowed the

use of the camera to capture developments on the ground. The importance of this approach is that it was used in combination with other techniques such as mapping and household interviews in collecting and recording of information.

1.5.3 Sampling Procedure

Kwa-Mashu is a low-income neighbourhood with a total population of 38 000 people (Statistics SA, census 2001). It is divided into 12 sections ranging from Section A to Section M (see Map 1).

The research was undertaken in Sections G where urban agriculture is most commonly practised. The selection of this Section was based on the preliminary investigations that showed the concentration of urban agriculture in this Section - a factor which was further confirmed by the local authority. Further details to the nature of urban agricultural activities in the area were identified through the help of the municipality and the local leadership who are familiar with the activities in the area. This was further confirmed through a reconnaissance of the study area which involved driving through the area and identifying specific locations where urban agriculture is practised. A total of 30 households were randomly identified by blindly picking the names of households from a sampling frame of 83 farmers and these were in turn during the survey.

1.5.4 Indicators

Indicators were used in assessing various aspects of urban agriculture in this study. Indicators were derived from works of experts in the field of urban agriculture. Three key indicators were identified and these are:

- *Access to Finance:* The requirements to access finance from banks by urban farmers was used as an indicator for urban agriculture support.
- *Availability of Land:* Availability of land for urban agriculture and mode of land delivery was used as an indicator for access to urban agriculture by urban farmers. The suitability of land for urban agriculture was assessed on the basis of the appropriateness of where urban agriculture is practiced such as river valleys and road reserves, in relation to their compliance with existing zoning schemes.

- *Availability of Infrastructure:* The availability of infrastructure (both off-site and on-site) was used as a measure of urban agricultural support. This was achieved by direct observation in the study areas and use of secondary sources from the municipality. Such infrastructure relates to water and sewerage works for off-site bulk infrastructure, and access roads, individual water and sewerage connections on urban agriculture land.

1.5.5 Problems Encountered with Fieldwork

The major problem encountered in the field was the refusal of respondents to answer questions and at times, their absence from home during the times we visited their households:

Outright refusal by some households to respond to the questions.

This outright refusal was mainly due to the political tension because this study was done a week after the presidential and parliamentary elections of 2009. Most people were therefore, not ready to take any questions because they thought that the study was driven by some political motives. This at one time led to some households playing a 'hide and seek' game. This refusal problem was partially overcome through careful briefing about the purpose of the research and asking whether the respondents had any questions, concerns or reservations about the survey. The local councillor was very helpful in this case since most of the households knew him. He helped us to gain access to individual households.

Unavailability of some respondents at home.

There were also a number of 'call-backs' for some household heads who were working during normal working hours of the week. This forced the researcher to go back to the households late in the evenings and during weekends. This problem occurred particularly in the low-density/high-income cluster of Kwa-Mashu Section G. It was dealt with by making appointments (call-backs) at the convenience of the household heads.

Despite these short-comings, adequate information from the local community was collected. In addition, it was easy to undertake observations in the area without any negative incidents from the community.

1.6. Structure of the Dissertation

This dissertation is divided into 6 chapters with each chapter dealing with a specific theme. The following is a brief summary of chapters included:

Chapter 1: The Introduction and Background

The introduction to town planning and urban agriculture is outlined in Chapter 1. As an introductory chapter, it starts-off by defining urban agriculture from a broad perspective. Then it goes on to explain the challenges the urban environment is facing such as urbanisation and urban poverty. It is in this chapter where the general and specific purpose of the research are explained and justified as contentious issues worth investigating. The driving forces of the research are also given in this chapter and these are placed as key research questions. Also included in this chapter is the methodology of the study. The chapter concludes by giving a general outline on how the whole research is structured.

Chapter 2: The Conceptual Framework

Urban agriculture is seen as a survival strategy among the urban poor. Chapter 2 therefore looks at the responsiveness of town planning to urban agriculture by explaining the different theoretical underpinnings that have emerged in the discipline of planning. It is in this chapter where the impact of the modernist planning approach on urban agriculture is elaborated. This chapter also gives an overview of the livelihood approach as a strategy used by the urban poor to sustain themselves. The idea behind giving such an insight is meant to further establish the importance of urban agriculture and stress the need for responsiveness in town planning.

Chapter 3: Literature Review

This chapter reviews the literature around the world with regard to urban agriculture. It starts with international case studies with a focus on from the Third World countries – Zimbabwe and Kenya. The bringing on board of these two case studies to a large extent is meant to compare and contrast the responsiveness of town planning in South Africa to urban agriculture. It concludes by giving a detailed insight into the existing situation in South African.

Chapter 4: Case Study of Kwa-Mashu

The research findings are presented in Chapter 5. This chapter is basically divided into two major sections. The first section is a general background of Kwa-Mashu with a focus on existing situation (social and economic). It is followed by a detailed presentation of the data

on urban agriculture in Kwa-Mashu. However, there is no discussion about the findings in this chapter other than just presenting the data from the field.

Chapter 5: Reflection on the Objective

The information obtained from the field and presented in Chapter 5 comes under analysis in this chapter. The focus is to give insights into the nature of findings presented above by way of explaining in detail the nature of urban agriculture and the (none)-responsiveness of the planning system. The discussion is informed by the objectives, the literature in place and the data obtained from the field.

Chapter 6: Summary of findings, Recommendations and Conclusion.

This is the last chapter of the dissertation. Based on the overall research, this chapter proposes a number of recommendations which the government should accommodate if urban agriculture is to succeed for the benefit of the urban poor. The chapter also summarises the whole research paper by highlighting the major issues raised in the dissertation.

This chapter basically introduced the whole research on urban agriculture in relation to its responsiveness to town planning. The chapter gave a background on the perception of the traditional planning system to the role of urban agriculture in the urban economy. This was done by looking at various works which have been done by other researchers on this subject. It also streamlines clearly the aim and objectives of the study with a focus on eThekweni Municipality in South Africa. Also included in this chapter is the research design captured in the form of the tools and techniques that were used in the field to collect data. Limitations that were encountered during the course of the research are also outlined. The chapter concludes by giving an outline of the structure of the whole thesis.

Chapter 2

Conceptual and Theoretical Framework

2.1 Introduction

This chapter looks at the conceptual framework which forms the basis upon which the response of town planning to urban agriculture can be analysed. This research will make use of the modernist perspective and the livelihood approach as the main theories that can be used to understand planning in relation to urban planning. These two theories fit well in this research since they clearly show the influence of the traditional planning system and how it impacts on urban agriculture especially among the poor households. To meet this requirement, this Section starts off by discussing the modernist perspective from a theoretical point of view and slightly touches on its implications on the South African urban environment and then discusses the livelihood approach from a food security point of view.

2.2 The Modernist Perspective to Planning

The modernist movement in planning emerged out of the chaos and inefficiency created by capitalists at the height of the industrial revolution. It converged towards a common destination dictated by the technical and organisational imperatives of advanced industrialisation. In the same fate, Third World countries were expected to disintegrate and reform in line with this trend (Preston, 1996:171). South Africa, like any other country in the world, imported these modernist ideas in its quest to make its cities functional. This section investigates how modernist planning permeated the South African regime during the Apartheid era and the implication this had on the built environment. It further analyses the legacy of Apartheid planning and how it is impinging on the functioning of cities in contemporary South Africa. In order to meet these objectives, this section is organised in three areas. Section one briefly introduces the concept of modernism in planning by focusing on the history of modernism. These ideas of modernism are discussed later on in practice from a South African perspective in the second section. The legacy of modernist planning in Apartheid South Africa and the modernisation perspectives to urban agriculture are discussed in section three.

2.2.1 Modernism and Urban History Form

Modernism has always been seen by theorists as a cultural reaction to the process of modernisation associated with the rise of capitalism in the 19th and 20th centuries (Davison,

2002). The concept of modernisation refers to the ideological and philosophical vestiges of the European period of enlightenment (Duminy, 2007). In Europe, it emerged as a tool that was meant to mediate between the capitalist selfish motives of accumulation and the inefficiently organised production space that was emerging in the form of towns (Saff, 2004). Critical manifestations that characterised the industrial city included physical degradation, functional chaos and the general miseries that the working class suffered (Preston, 1996). As already indicated in the opening paragraph, modernism as a school of thought in the planning fraternity was a reaction to these negative challenges that were associated with these cities. In addition, the impetus for the institutionalisation of planning grew out of social problems related to massive immigration, large-scale manufacturing and the lack of controls over the built environment (Maharaj, 2003). Commenting on the evolution of modernist planning in American cities (Beauregard, 1989:385) summarises the urge behind the planners of the day by noting that:

Planners grasped early on that different capitalists pursue different spatial investment strategies in an uncoordinated fashion, thus creating an intra-capitalist competition alongside capital-labour struggle for control over the built environment. If the industrial city was to be an efficient mechanism for capital accumulation, and if labour was to be allowed respite from the ever expanding oppression of the factory system and be given protection from unrestrained property capital, someone had to bring order to its fragmented form.

It was therefore envisaged as the task of planners to produce organised and physically coherent cities grounded in good functional and aesthetic principles. These early modernist planners were encouraged by utopian attitudes and beliefs that social problems could be tamed and humanity liberated from the constraints of scarcity and greed (Gans, 1968). It was believed that once capitalism was tamed, the city organised, and prosperity diffused socially and spatially, the lower classes would rise to affluence and take on the values and behaviours of the middle class. The process of developing modernist planning was driven by universalising forces whose focus was to allow functionality and efficiency in urban space (Robinson, 2006)

Resonating from the modernist perspective of planning are a number of themes that can be regarded as the major drives and these include knowledge, functionality, efficiency, the spatial paradigm and the public interest.

Knowledge was seen as the basis for development in modernist planning. Modernist thinking was driven by the understanding that objective truth was only obtainable through science. The belief was that the world was logical and orderly – therefore its internal logic can be uncovered and subsequently manipulated (Robins, 2003). Knowledge and reason, it was believed, would free people from fatalism and ideologies and allow the intrinsic logic to the industrial society to be uncovered and exploited. To this end, knowledge in planning was evaluated on a performance criterion since it was within the scientific mode of legitimation. Therefore, modernist planners were supposed to act as experts who could utilise the laws of development in order to provide societal guidance (Lyotard, 1984).

Central to modernist ideas in planning was the need to maintain functional equilibrium in the built environment. Appalled by the chaos that characterised the industrial cities, the belief among planners was that the functional organisation of the city would allow orderliness and efficiency in the operation of the city (Robinson, 2006). This led to the emergence of functional zoning as a key attribute in the planning fraternity. Key features of zoning that emerged were the segregation of land uses into different and compatible land uses such as housing, industrial and commercial developments. In addition, land was also allocated for open spaces such as green belts and parks. By so doing, it was believed that the organic and totalising view of the city would leave little leeway for chaos and indeterminacy (Hall, 1989).

The central ideas of modernist planners were also to be achieved through a spatial paradigm. In planning circles, this spatial paradigm involved production of grandiose plans (in the form of blue prints) that were meant to guide development (Preston, 1996:171). It is in these plans that knowledge and functional zoning ideas were articulated. These were meant to guide spatial developments. These plans displayed seriousness, depth and austere autonomy in the cities that were to emerge.

Finally, the ideas of modernist planning were also driven by the belief that the state was progressive in that regard; it would do anything in the name of the public interest. From this progressive perspective, it was envisaged that the state could be an instrumental representative of the interests of all citizens as disclosed by the expertise of planners (Beauregard, 1989). It was believed that planners were void of self-interest and were also disengaged from the interests of any particular group. As neutral practitioners, planners could

easily position themselves within the state without being labelled political and then play a mediatory role between capital and labour (Saff, 2004).

In this regard, modernist ideas of planning and development focused on large-scale, metropolitan-wide technologically rationalised, and efficient urban plans. Such grand plans (such as master planning schemes) were supposed to arrange land use activities in functional zones. For example, Ebenezer Howard, Frank Lloyd Wright and Le Corbusier devised new ways of organising human settlements and lining arrangements in what they perceived to be orderly and efficient manners.

Macleod, (<http://www3.sympatico.ca/david.macleod/POMO.HTM>) summarises the key tenets of modernist planning around specific themes such as the conceptualisation of the city itself, designing, strategic planning and decision making style:

- *The concept of the city:* The city was conceptualised as an object represented by a mass of housing.
- *Themes in urban design:* Here, the emphasis was on lower densities and sunlight, functional zoning, mixed flats and housing.
- *Themes in strategic planning:* Focus was on the redevelopment of flats (through the bulldozer approach), controlled expansion through suburbs, new towns and the creation of green belts.
- *Decision making:* The development of either blue-print (unitary) plans (of the 1940s – 1960s) or adaptive plans that were supposed to guide city growth.

Borrowing from the ideas of Beauregard (1989:383), it can be summarised that:

The modernist project is derived from beliefs about knowledge and society and is inextricably linked to the rise of capitalism, the formation of the middle class, the emergence of the scientific mode of legitimation, the concept of an orderly and spatially integrated city that meets the needs of society, and the fostering of an interventionist state. Technically, rationality is viewed as a valid and superior means of making public decisions and information gathered scientifically is regarded as enlightening, captivating and convincing.

It is therefore in the light of this foregoing background that the rise and development of modernist planning in apartheid South Africa has to be analysed from. The following section contextually builds on these arguments and applies them to the South African case.

2.2.2 Modernism and Apartheid South Africa

Modernist ideas in South African cities during the Apartheid era are a post-World War I creation and they reached a new level through a conference organised by a remarkable group of students of architecture at Witwatersrand University in June 1938. To a large extent, these ideas, like in Europe, were a response to industrialisation, high rates of urban-ward movement, automobile growth and every imaginable challenge of accumulating wealth and poverty that affected the cities (Mabin and Smit, 1997:202). The Apartheid government took upon itself to introduce town planning as a technical instrument that would guide the development and growth of cities in South Africa. This task was seen through a number of legislations among which is the Natal Town Planning Ordinance 1949 which required local authorities to undertake town planning. This was designed along the 1919 British legislation (Robinson, 2006). Therefore, the key characteristics of modernism that were employed by planners during the Apartheid period are more or less similar to the global forces of modernism that were sweeping the world during the same period. These, are already noted above in the introduction include zoning, slum clearance, public housing and the preparation of town planning schemes. These are discussed in detail in the section below.

Technical concepts used during Apartheid South Africa

The technical concepts that were used by planners during the Apartheid regime can be noted under specific themes and these are:

- ***Preparation of town planning schemes:*** The preparation of town planning schemes is one of the technical concepts which the Apartheid regime borrowed from modernism and used to advance town planning in many cities. Through the Natal Town Planning Ordinance of 1949, local authorities were compulsorily required to prepare town planning schemes. The purpose of these schemes was to control land use, density, building size and the position of buildings (Robinson, 2006). While these schemes were prepared at local level (municipality), they were supposed to be approved by the provincial authorities. Some municipalities in the Transvaal province such as Witwatersrand and Pretoria undertook joint schemes as required by the Witwatersrand and Pretoria Joint Town Planning Committee of 1933 (Mabin and Smit, 1997:200).

- ***The bull dozer approach:*** One of the technical features of planning during Apartheid South Africa was slum clearance. The need to remove slums from cities first emerged during the World War I when the influenza epidemic killed hundreds of thousands of South Africans. This saw the demolition of slums in most major cities such as Cape Town and Johannesburg. In the case of Johannesburg, the outbreak of plague in the crowded inner city neighbourhoods resulted in the removal of Africans to native locations (Mabin and Smit, 1997:199). Further legislation came on board in 1934 (the Slums Act) that gave more powers to local authorities to destroy existing areas and to replan them. For instance, the production of grand plans for the reconstruction of central districts in Cape Town also witnessed wholesale demolitions among which were slums (Robinson, 2006).

- ***Public Housing:*** It was noted above in the introduction that one of the themes of modernism was the undertaking of programmes for public housing. This of course was partly a response to the need to eradicate slums but more so, to create a better urban environment through improved housing. Hence under the Public Health Act of 1919, there was need to undertake planning and to provide finance for public housing schemes. The passing of the 1934 Slums Act also required local authorities to make provision for substitute housing (Saff, 2004). The 1950s and 1960s therefore witnessed a boom in public housing that actually surpassed the early years. Significant densification took place through high rise residential buildings in Johannesburg while Cape Town witnessed enormous low density spatial expansion in housing. Among such grand housing schemes is Soweto which emerged in 1965 in Johannesburg (Watson, 1998). Hence modernist principles were conveyed through suburbanisation as planners both (public and private) applied their technical knowledge to the development of cities.

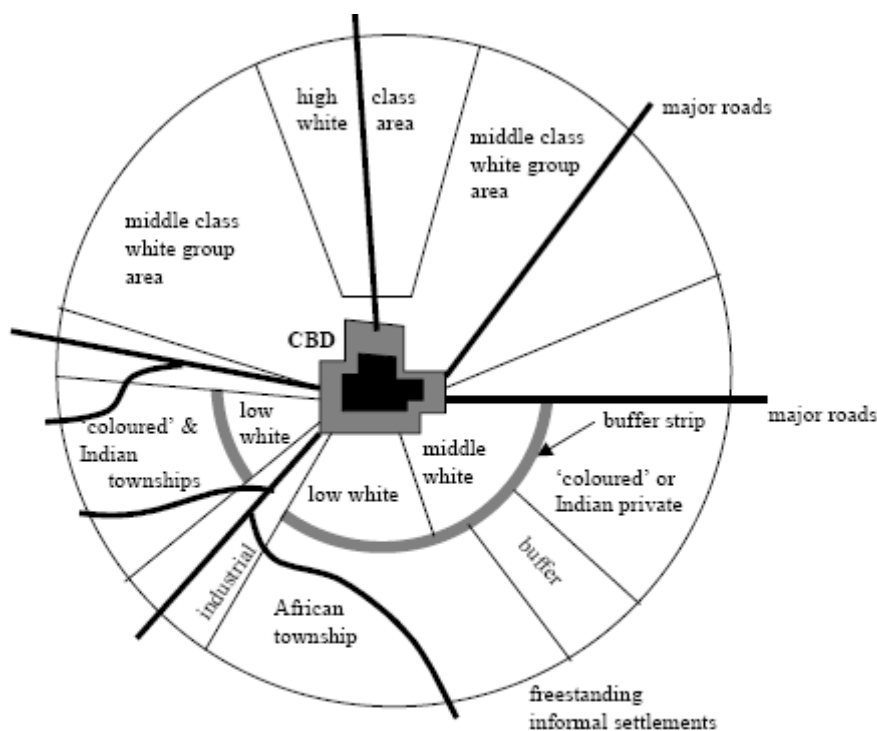
- ***Zoning:*** It has been envisaged throughout the modernist era that zoning was the hallmark of the planning system. Zoning was seen as the key technical apparatus that was used to segregate incompatible developments (Jordan, 2002). In this case, it was used to regulate land subdivision and use, both inside and outside municipal areas. It was also used to control density, building size and positions of buildings on given sites. Planning during the reconstruction years in Cape Town, for instance, witnessed the demolition of major areas of the city as new plans were laid out for different land uses such as commercial, industrial and residential development. However, as Watson (1998) observed, residential land use zoning had some racial component of restructuring which gained force from

1943 onwards. But the whole approach to town planning (though segregatory) advanced in a more or less, same process. This is clearly noted in the quotation below extracted from Mabin and Smit (1997:10):

The race for zoning, that is the creation of locations (for Africans) and residential areas for coloureds and Asiatics, is of cardinal importance in our country; but it cannot be separated from simultaneous planning of white areas, industrial areas, traffic systems, the recovery of natural resources, etc....

In fact, the country was characterised by dual planning with racial zoning on one hand, and preparation of proper town planning schemes for the white minority. In summary, it can be noted that the Apartheid cities, to a large extent, were shaped by the global wave of modernist principles that were more pervasive in Europe and America at the time. But locally, they were also influenced by the need to guide the development of cities along racial lines. Figure

Figure 2.1: Structure of Apartheid City.



After R.J. Davies, "The spatial formation of the South African city", *GeoJournal* (Supplementary Issue 2, 1981).

2.1 on page 19 illustrates the structure of apartheid cities.

2.2.3 The Legacy of Modernist Planning in South Africa

The legacy of modernist planning in South Africa can be understood from the spatial imprint of racial segregation that was a result of the apartheid system. Among such features that are a legacy of modernist planning are spatial segregation though on racial lines, residential neighbourhood units, fragmentation of urban settlements and lack of facilities and amenities for the low income group.

It was noted in the preceding section that planning in urban areas though following the principles of modernism, was also shaped by the racial separation and an assumption that Africans were simply sojourners in the “white cities” (Watson, 1998:338). The movement of Africans from their homelands into urban areas was checked by legal controls which also extended to the use of public facilities in urban areas. This principle of separation was extended to people of coloured and Indian origin. Although their permanency in the city was accepted, they were also removed from areas that were designated for white occupation and transferred to newly-built racially separate townships on the verge of the urban areas. Indeed up to this day, this spatial imprint of apartheid is still visible in most residential areas which are dominated by one particular race. The outcome of such a city was to a large extent facilitated by the planning system in place.

Another feature which is a result of modernist planning during apartheid South Africa was the development of unique residential neighbourhood units. Watson, (1998:338) notes that these units were surrounded by buffer strips of space with limited entrances with their focus on community facilities and limited commercial outlets. Giving the example of District 6 in Cape Town, Watson (1998:339) further observes that families were removed from areas which the government declared slums and resettled in modern planned suburbs in accordance with the latest planning ideas.

The influence of apartheid policies on modernist planning in South African, to a large extent resulted in the manipulation of spatial space at the expense of urban agriculture in some sections of the city. The previous regime prevented the establishment of urban agriculture in areas classified as urban areas due to the belief that urban agriculture was a rural activity which could not be practiced in urban areas.

Above all, one of the legacies of modernist planning was the fragmentation of urban areas into different functional zones but based on racial lines. The dispersion of residential areas along different racial groups meant that the cities, in some areas were no longer compact as

expected, but became more fragmented. The situation was worsened by the change in the apartheid policy in the later years where informality (as seen through residential areas) was tolerated in well defined residential areas.

In summary, it can be noted that the legacy of modernist principles that were advanced during Apartheid South Africa through town planning schemes are still visible spatially today. These, however, are still being perpetuated not only by contemporary planning principles, but by land costs and security concerns.

2.2.4 Modernisation and Urban Agriculture

Sanyal (1984) cited by Mbiba (1998) argues that modernization theory views urban agriculture as a backward subsistence rural activity practiced by rural migrants who are new in the urban environment. It further suggests that urban agriculture is a temporary activity and it damages the urban environment as such there is no need to include it as urban land use. While on the other hand new Marxist theory views urban agriculture as a means of labour to reproduce itself, this theory argues that urban agriculture makes labour to be exploited since workers have to work twice in the factory and at home (Kekana, 2009). Hence there is no need to practice urban agriculture. Kekana (2009) further notes that urban agriculture reduces pressure from employer to pay workers what they deserve in this regard; urban agriculture is discouraged since it is seen as a backward and exploitative activities.

Contrary from the picture painted above urban agriculture is neither always subsistence focused nor an exclusion activity for poor migrants from rural areas, instead many who are involved in it derives benefits from this activity. Indeed these are the same views echoed by (Kekana, 2009) that a number of urban households have used urban agriculture as a shield during economic crisis. To this end, the exclusion of urban agriculture as an urban land use is unrealistic. Such exclusion deprives the urban poor of food, proper health and income since urban agriculture is seen as livelihood strategy for the urban poor.

2.3 The Livelihood Approach

Another way of understanding the responsiveness of town planning to the demands of urban agriculture can be through the livelihood approach. This is a result of a wide recognition that very few rural and urban low income households rely on a single source of income-generating activity (Rakodi, 2002:3). Their survival is dependent on a multiplicity of activities that are used as a source of livelihood. A livelihood comprises the capabilities, assets (including both material and social resources) and activities required for a means of living.

Carney (1998), further argues that as a tool, the livelihood framework is used to serve a number of purposes among which are to:

- Define the scope of and provide the analytical basis for livelihoods analysis, by identifying the main factors affecting livelihoods and the relationships between them;
- Help those concerned with supporting the livelihoods of the poor people to understand and manage their complexities;
- Become a shared point of reference for all concerned with supporting livelihoods, enabling the complementarity of contributions and the trade-offs between outcomes to be assessed;
- Provide a basis for identifying appropriate objectives and interventions to support livelihoods.

The livelihood approach is a response to poverty and as such, it argues that households have access to a portfolio of assets, both tangible and intangible and access to rights that they capitalise on to change their lives. A number of authors (such as Rakodi, 2002; Coovadia, 1995; Kekana, 2006) give an elaborate insight into the nature of assets and these are identified as finance, human, natural, physical and social.

Financial capital can be described as income that is obtained from the sale of labour, pensions and remittances that can be obtained from outside the household. When such income is in surplus, households can save it thereby changing it into financial capital or it can be transformed into a tangible asset that can be liquidated at a later stage. Having such capital is essential for the households since it is used as a mechanism to use in the event of stresses or shocks arising in the household. Apart from savings, another facet of financial capital is the ability of households to have access to affordable credit. Access to credit is essential for

households since it allows them to develop enterprises, purchase housing or to invest into some sort of infrastructure which in turn helps to improve their livelihoods.

Another asset identified above is human capital. According to Lee-Smith (2006:46) this type of capital comes in three forms; these being labour, health, education and other related skills. Labour is simply defined as the capacity or ability to work. This is fundamentally dependent on the health of households thereby becoming a significant determinant in the quality of labour. In addition, the value of human capital is equally improved by having access to education as well as other related skills obtained through training in various fields. Access to education provides further opportunities to households to improve the value of financial capital.

Another asset equally important is natural capital. This type of capital comes in the form of natural resources such as land, forests and natural water resources such rivers. Ayaga, Kibata, Lee-Smith (2005) note that natural capital is not significant to the urban poor households. But they acknowledge that the widespread practice of urban agriculture is a significant indicator to the fact that land is equally important to the livelihoods of the urban poor. However, due to lack of proper recognition of urban agriculture as a major contributor to the livelihoods of poor urban households, its practice has been relegated to the level of an illegal activity, often practised on marginal land or on land which is environmentally sensitive or contaminated (Petra, Axel, Jorg, 2000). Other forms of natural capital are equally seen as less significant in urban areas. River sources for instance, are seen as major sources of water for washing and drinking as well as contributing towards food in the form of fish. Forests, on the other hand, are viewed as indirect contributors to the quality of the human environment through enhancing quality environments such as serving as filters for polluted air and improving the aesthetic value of the built environments.

Physical capital as an asset comes in different forms such as housing, livestock, economic and social infrastructure as well as production equipment. Rakodi, (2002:47) notes that housing is the most important asset for the urban poor since its use is diverse. As a source of financial capital, housing can be rented out to those in need in return for some form of income while on the other hand, space within and around the house can be used productively to generate income through market gardening or using part of the house as a workshop or a tuck shop. These have become a common practice among the urban poor. On the other hand,

livestock in urban areas is reared as a supplement to food but at times also for sale. Physical capital also comes in the form of public infrastructure which could be physical or social infrastructure. Physical infrastructure is infrastructure that is in the form of municipal or engineering services such as roads, sewer and water reticulation. Social infrastructure, on the other hand, is infrastructure that comes into being after social infrastructure has been implemented such as schools and health facilities (Ayaga, Kibata, Lee-Smith, 2005). Access to such services provides households with an opportunity to improve their own human capital but which also have a significant impact on financial capital. Above all, access to equipment which comes in the form of production equipment such as machinery, utensils and vehicles is vital for enhancing household enterprises.

The last type of assets comes in the form of social and political capital. This manifests itself in the form of social support mechanisms and information. Carney (1998:7) further elaborates on this type of capital by noting that it includes social resources (such as networks, membership of groups, relationships of trust and reciprocity, access to wider institutions of society) on which people draw in pursuit of livelihoods. This network of support and reciprocity that may exist within and between households and within communities and on which people can call may provide poor households with access to loans, child care, food and accommodation. The success of such networks is dependent on access to information about opportunities and problems. A very good example of such information needs is information about casual labour markets and other opportunities. However Krant, (2001) notes that social networks are not all supportive of the poor as social capital and are generally thought to be less robust in urban areas because of the mobility and heterogeneity of their population.

2.3.1 Sustainable Livelihood Approach

A very important development in the literature of livelihoods for the poor was the transformation of the traditional livelihood approach to the inclusion of the element of sustainability. This led to the birth of sustainable livelihoods - a concept which was first introduced by the Brundtland Commission on Environment and Development as a way of linking socio-economic and ecological considerations in a cohesive, policy-relevant structure. The 1992 United Nations Conference on Environment and Development (UNCED) expanded the concept, especially in the context of Local Agenda 21, and advocated for the achievement of sustainable livelihoods as a broad goal for poverty eradication (Krant, 2001:6). It stated

that sustainable livelihoods could serve as an integrating factor that allows policies to address development, sustainable resource management and poverty reduction simultaneously. The traditional definition of sustainable livelihoods as provided by Chambers and Conway in their classic 1992 paper entitled “Sustainable Rural Livelihoods: Practical Concepts for the 21st Century” recognises that:

A livelihood comprises the capabilities, assets (stores, resources, claims and access) and activities required for a means of living; a livelihood is sustainable when it can cope with and recover from stress and shocks, maintain or enhance its capabilities and assets and provide sustainable livelihood opportunities for the next generation; and which contributes net benefits to other livelihoods at the local and global levels and in the short and long term (adopted from Krantz, 2001:6).

As can be noted from the definition, many of the issues identified above in the traditional livelihood approach are also addressed here. However, a major distinction is made between environmental sustainability which refers to the external impact of the livelihood on other livelihoods, that is its effects on local and global resources and other assets, and social sustainability, which concerns the internal capacity of a livelihood to withstand outside pressure that is to cope with stress and shocks and retain its ability to continue and improve over time. Stresses are defined as pressures which are typically continuous and cumulative and therefore to some extent predictable such as increase in population or a decline in resources while shocks are impacts that are typically sudden, unpredictable and traumatic such as fires, floods and epidemics. Chambers and Conway, (1992:14) argue that any definition on livelihood sustainability should therefore include the ability to avoid or more usually, to withstand and recover from such stresses and shocks.

Therefore, the use of the sustainable livelihood approach to development provides a picture of the key elements in describing or understanding the issues affecting livelihoods in a household, community, region or country. It is therefore agreed (among authors such as Khanya-aicdd, 2006; Rakodi, 2005; Conway, 1992) that the concepts of sustainable livelihood approach include:

- People’s **assets or capitals** (natural, human, financial and social);
- People’s **vulnerabilities** or susceptibilities to stresses and shocks (e.g. vagaries of climate, crime, conflict etc);

- The **policies, institutions, processes and organisations** (PIP) which affect people (formal, informal, at different levels);
- The **outcomes** that people are looking for (which may increase the capitals, reduce vulnerabilities, or others);
- The **livelihood strategies** people adopt to achieve these (which are affected by the PIP environment, vulnerabilities etc);
- The **opportunities** which people have to address the outcomes, which have proved very useful in planning (vulnerabilities).

The most important aspect about sustainable livelihood approach is that it goes beyond the traditional livelihood approach in terms of recognising and understanding areas of concern where there is need for intervention. It identifies the complexity of various factors and how they impinge on development. The approach recognises the importance of human capabilities, types of capital, vulnerabilities, opportunities, strategies as well as policies, institutions, processes and organisations. In this regard, it is a useful framework for structuring and analysing the development situation and how policies and services are affecting it. This is done in a holistic overview of how different elements in development are addressed. Above all, it is an important tool that can be used to evaluate impacts that result from certain developmental interventions.

The value of sustainable livelihood approach in this research is further elaborated by how normative and operational principles operate in practice. It should be remembered that these principles are yardsticks of best practice and they are widely shared by development practitioners. A number of authorities such as (Carney, 1998; RSA, 2000; Krant, 2001) noted that normative principles of sustainable livelihood approach are:

- ***People-centred:*** sustainable development and poverty elimination requires respect for human freedom and choice as well as an understanding of the differences between groups of people and the development of focused interventions.
- ***Empowering:*** support should result in increased voice, opportunities and well-being for people including the poor.
- ***Responsive and participatory:*** people must be key actors in identifying and addressing their livelihood priorities, including the poor. Outsiders and organisations need processes that enable them to listen and respond to people's views.

- **Holistic:** there is need to understand people's livelihoods and how these can be enhanced in a holistic way, which recognises the interrelationships between the different aspects of their lives, although actions arising from that understanding may be focused.
- **Sustainable:** there are four key dimensions to sustainability – economic, institutional, social and environmental sustainability. All are important – a balance must be found among them.

Operational sustainable livelihood approach principles, on the other hand are:

- **Strength-based:** it is important to recognise and understand people's strengths, including those of the poor people, and not just their problems. This is respectful and provides a platform on which livelihood strategies can be developed. It is important to build on the strengths of organisations.
- **Multi-level (or micro-macro links):** sustainable development and poverty elimination is an enormous challenge that will only be overcome by working at multiple levels. Micro-level activities should inform the development of policy and an effective governance environment. Micro- and meso-level structures and processes should recognise micro realities and support people to build upon their own strengths. Top-down strategic action as well as bottom-up participatory processes are required.
- **Conducted in partnership:** implementation of development requires using the strengths of different organisations, public and private, in the most effective way. Partnerships should include people and their organisations, including those for poor people. Partnerships should be transparent agreements based upon shared objectives.
- **Disaggregated:** it is vital to understand how the livelihoods of various disadvantaged groups differ – in terms of strengths, vulnerabilities and voice – and what effect this has. Stakeholder and gender analysis are key tools. Therefore, this allows for greater targeted actions.
- **Long-term and flexible:** poverty reduction requires long-term commitments and a flexible approach to providing support, which can respond to emerging circumstances.

Further elaboration is required here as far as linking sustainable livelihood approach to the research requirements. Of major concern is to analyse how multi-level links of the sustainable livelihood approach are critical determinants to developmental problems such as land use planning. This is of fundamental concern because development problems can disconnect or connect policies and services to people's lives, especially for the poor and those who are socially excluded. The bottom line is that policies need to be based on a good understanding of the reality of services at meso and micro levels. In simple terms, this relates to the situation with people's livelihoods (micro), and how interventions can assist at higher levels (i.e. meso and macro levels). This can be translated to mean that the best practice in work on institutions (often meso level), needs to be based on an understanding of people's livelihoods (micro), and the policy environment (macro). Where the later is not helpful, it must also seek to influence the policy environment, otherwise it risks irrelevance. The application of these views at different levels is shown in Table 2.1.

Table 2.1. The Micro-Meso-Macro Levels

Level	Function	Unit
Micro	Community level where people live	Community, parish/ward.
Lower meso	Lowest level of management of services	District, borough/local municipality.
Upper meso	Intermediate level, which provides support to and supervision of the lower meso.	County, region/district, province.
Macro	Policy Level	Region, country/ province, region.

Khanya-aicdd, 2006:4

As can be deduced from Table 2.1, policy issues come from the macro level which can take the form of national, regional or provincial policies. This cascade down to lower levels where implementation and management is done at meso and micro levels. This could be at community or local levels.

2.4 Summary

This section started of by defining urban agriculture, and looked at how planning has influenced the development of South African cities. In doing so, the chapter used the principles of modernism as these were seen as the major factors that influenced the form,

shape and distribution of space in most cities that emerged during the industrial period. The modernist principles used here were analysed purely from a planning perspective and were borrowed from both the European and American experiences. In addition, they were also analysed from a local perspective through the window of Apartheid planning.

It has been establishment from the conceptual framework that modernism was driven by the belief that solutions to problems that bedevilled most industrial cities lay in knowledge. It was believed that knowledge could be used to manipulated problems since it was seen as the source of universal solutions to problems. Hence planning as a profession evolved during this era to challenge the selfish and greed ways that land in the post-industrial cities was being used. Using the principles of zoning, town planning schemes, slum clearance and public housing, supported by legislations (such as health acts), planning was envisaged as a profession that would bring order to the chaos that characterised these cities. In Apartheid South Africa, these modernist ideas were blended with apartheid principles of segregation that resulted in fragmented urban form. The urban space that emerged was therefore divided along racial lines with most African blacks seen as temporary residents in urban areas. But the opening up of these urban spaces to the black majority has led to a whole lot of problems that the government is struggling to solve among which are housing shortages and poverty which has really changed the nature of space created during the apartheid era. Admittedly, such traditional planning did not designate any zones for urban agriculture which in essence was seen as a rural activity.

However, at look at the livelihood approach reviewed that the poor have resources which they can use to alleviate poverty. It is not only access to urban facilities that is essential but also access to land which they can use for agricultural activities in order to supplement their meagre salaries. A sustainable livelihood approach advocates the need to link up the poor people's capabilities with government policies so that they can become participants in the urban economy.

Chapter 3

Literature Review

3.1 Introduction

The aim of this section is to establish the extent to which traditional town planning accommodates urban agriculture both locally and internationally. This is done by way of looking at international practices (specifically Zimbabwe and Kenya) before shifting the focus to South Africa.

3.2 International Experience on Urban Agriculture

Urban agriculture is increasingly becoming an important activity of the urban poor both at international and local levels. As Mubvami and Mushamba, (2006) notes, the growth of human settlements creates competition between traditional urban land uses and urban agriculture. This in turn has made town planners to generally accept that the peri-urban zone is a mixed zone (where agriculture can be practised) in terms of land use categories whilst the intra-urban zone remains a preserve for traditional urban uses.

However, they further note that urban agriculture has the potential to be successful because of its multi-functions and relations with city issues yet it is not fully recognised as an urban land use. Among such multi-functions identified are that cities provide easy access to markets and a prevailing high demand for food reduces transport costs for produces and abundance of resources and opportunities. It can be argued that urban agriculture has always been part of the city but urban planning and policies that recognised it as an urban land use are what are lacking.

Urban planning in most developing countries has tended to be characterised by long range planning, which adopt a blue print approach. This type of planning is associated with rigidity and lack of responsiveness to social issues (Mubvami and Mushamba 2006). These are the same views echoed by RSA, (2002) which notes that complex and unwieldy applications and approval processes prescribed place the possible utilization of urban agricultural opportunities beyond the reach of ordinary person.

3.2.1 Practice of Urban Agriculture in Harare - Zimbabwe

There is a reasonably well defined sectoral structure in the city of Harare in terms of the distribution of high-income areas or low-density housing and low-income areas or high-density housing where population densities are as high as 8, 719 per square kilometre can be found (Kamete, 2007). In such areas, the cultivation of public space in Harare was largely undertaken on vacant land adjacent to the high-density housing areas. This land often comprises poorly drained vleis areas, where soils are unsuitable for building. Road-side verges, land bordering the railway tracks, and the banks of ditches are also favoured.

This cultivation is largely of crops for domestic consumption, mostly maize, groundnuts, sweet potatoes and green vegetables. Toriro, (2006) points out that those responsible for cultivation include low-income families unable to meet their basic needs through cash income derived from formal employment. This is the same view echoed by Rogerson and May, (1995) who argue that the urban poor see urban agriculture as a major means of income supplement. The study carried out by Kamete, (2007) in Harare shows that there has been an average annual increase of 67% in land area cultivated by the urban poor within Harare between 2005 and 2007. The expansion in area cultivated can be attributed to general population increase, rural-urban migration, a growing number of dependents per household, burgeoning unemployment and inflation resulting in a lowering of income in real terms (Kamete, 2007).

3.2.1.1 Legislations and Urban Agriculture in Harare

As noted by Bowyer and Tengbeth, (1995) urban agriculture in Harare takes place in areas which are not specifically zoned for such purposes. To this end, off-plot cultivation is mostly illegal. As a result, crops in Harare have been destroyed by the city authorities, even in times of drought. The most actively implemented legislation for control of this cultivation is the 30 metre law of the Natural Resources Act. This Act forbids cultivation within 30 metres of any water course. By doing so, it ensures the maintenance cover of vegetation that helps to disrupt the path of surface runoff and sediments in the water courses and prevent the loosening of soil adjacent to water courses which would be eroded. This legislation is further supported by the municipal by-law forbidding cultivation without written approval of the local authorities and allows for the destruction of crops grown without approval (Bowyer and Tengbeth, 1995).

Tariro, (2006) notes that there has been increasing conflict arising between the urban poor and the authorities because of the latter's adherence to the implementation of policies controlling the cultivation of public land. When challenged as to the reasons for such policies, the authorities cite reasons of environmental protection. These include protection against soil erosion, the sedimentation of nearby water bodies, effects on local hydrology and an increase in the provision of breeding sites for malarial mosquitoes.

Bowyer and Tengbeth, (1995) point out that the urban hierarchy of city officials who apart from having their core responsibilities, but are also partly involved in controlling urban agriculture in Harare include:

- The Municipal Police who were given responsibility for agronomic supervision;
- The Natural Resources Board which was called on to provide information stating and explaining restrictive legislation of the Natural Resources Act;
- AGRITEX which provide guidelines for land conservation and management;
- The Town Clerk's office which communicates the actions, findings, recommendations and requests between these various actors and other municipal bodies;
- The Director of Works who was given responsibility for activities in the low density areas;
- The Director of Housing and Community Services, who was given responsibility for activities in the high density suburbs;
- The Health, Housing and Community Services Committee (HHCSC) which is responsible for liaising with the community regarding the community's needs;
- The Town Planning and Works Committee (TPWC) which is responsible for land use planning;
- The Finance and Development Committee (FDC) which is responsible for obtaining rents for activities carried out on council-owned land;
- The Ministry of Education and Culture which undertakes awareness programmes, educating school children as to what the restrictions are on urban agriculture

With so many institutions and individuals involved, it can be argued that the complete appreciation of the rationale behind the enforcement of environmental legislation may be compromised by intra-bureaucratic responsibilities, particularly the relationship between environmental concerns and the social impact of government actions.

Bowyer and Tengbeth, (1995) mentioned the nature of the enforcement of legislation in Harare which encompass a variety of approaches, including:

- An air-drop of information leaflets stating that cultivation within 30 metres of any water course is illegal;
- The physical demarcation on the ground of what constitutes a water course by the Division of Town Planning;
- Supervision of agronomic activities by the municipal police;
- The periodic destruction of crops grown in contravention of the relevant legislation under the auspices of either the Director of Housing and Community Services or the Director of Public Works.

According to Kamete, (2007) the enforcement of legislation, either through the destruction of crops or levying of fines, has been mollified to some extent by the opportunities for residents to form cooperatives and as such, to apply for the permission to use designated urban land for the cultivation of crops. The procedures for this are lengthy and cumbersome, and relatively few groups have applied. Even when some groups have obtained permission, bureaucratic confusion has resulted in unfortunate incidents where legal crops have been slashed and cooperatives have requested financial compensation running into thousands of dollars to make up for the cost of inputs.

The hostile reactions by the authorities to illegal off-plot cultivation has varied over the years. However in recent years, the authorities have somewhat relaxed their attempts at controls especially in the face of stringent political challenges the country is facing. This has largely affected food security in the country and which in turn explains the soft stance the authorities are taking. Despite this change in attitude, the threat of strong reaction from the authorities still hangs over any illegal cultivation in Harare and the legislative basis for such action still remains. At the same time the need to practise urban agriculture has become even more pressing as the impact of the economic structural adjustment programme and political uncertainty has percolated deeper into society (Kanyenze 2004). As with other cities in Africa, there is also increasing evidence that middle-income families are becoming involved in urban agriculture, not always as direct producers or consumers, but as organisers of production and employers of individuals from poorer households as labourers (Toriro, 2006). The ways in which this commercialised production is integrated into the food retailing system

is as yet uninvestigated and constitute one of the aspects of the research programme into the social and environmental impact of urban agriculture being undertaken.

3.2.2 Practice of Urban Agriculture in Nairobi -Kenya

The exclusion of agriculture from the urban landscape in most developing countries is seen as a legacy of colonial urban planning and Kenya is not an exception to suffer such consequences. According to Egziabher and Lee-Smith (2006), during pre-colonial times, land was in communal ownership in Kenya but this have changed since land is now either under public or private ownership. Public land is owned by either the municipal council or the central government and is either used for municipal or government purposes (MCN, 1999). It is important to note that such land does not include urban agriculture. According to the municipal by-laws, farming practices are forbidden within the town's boundaries but the practice is tolerated and the by-laws permit it under stringent conditions such as along road reserves, in the middle of roundabouts, between railway lines, in open spaces and parks, along rivers and river valleys, under power lines and within backyards of residential plots (Olima, 2006). This brings into focus the problem of access to land for urban agriculture in Kenya's urban areas. This means there is no full support for urban agriculture. However Olima, (2006:3) identified several factors which are constraints to the development of urban agriculture in Nairobi (Kenya). Some of these constraints are imposed by the government, the market and support agencies and they include:

- Inadequate institutional/legal framework,
- Limited access to agricultural inputs and post-production services,
- Inadequate technical knowledge of urban agricultural practices,
- Organizational constraints,
- Political and socio-cultural biases,
- Lack of physical security,
- Poor rating of urban agriculture as an authentic urban land use and
- Lack of access to land.

Olima, (2006: 4) further notes that:

Currently there are no urban planning policies that specifically address the issue of urban agriculture as a means for food security, with western concepts continuing to dominate the field of urban planning in Kenya. The planning approach has led to dense residential areas with little space left over for other food production

activities i.e. urban agriculture. The regulations regarding crop cultivation, however, are still forbidding save for agricultural land that came to be located within the recent urban boundaries after their expansions. In short, urban planners have continued to exhibit low levels of involvement in food systems such as urban agriculture.

3.2.2.1 Legislation and Urban Agriculture in Nairobi

Although agriculture is not legally recognised as an urban land use, there is increasing evidence that farming is a widespread activity in Kenya often practiced by vulnerable groups, the majority of whom are women. It is worth to note that urban agriculture alleviates hunger and poverty for those who lack wage-employment yet there is no coherent legal and policy framework governing it. Ayaga, Kibata, Lee-Smith, Njenga, and Rege (2005), note that under the Local Government Act (Cap. 265) local authorities in Kenya are given the power to lease, transfer or allocate land for temporary use (Section 144). They also have the power (under Section 201) to make bylaws necessary to:

- Maintain residents' health, safety and wellbeing,
- Maintain good rule and government in the area,
- Prevent and suppress nuisance,
- Control, regulate, prohibit or compel any act they are empowered to perform.

However, Nairobi City Council has used these powers to enact bylaws that prohibit cultivation on public streets and keeping livestock that create a nuisance. Ayaga, Kibata, Lee-Smith, Njenga, and Rege (2005), further notes that Section 144 (c) of the Local Government Act also prohibits cultivation by unauthorized persons on land that is not occupied or enclosed, or land belonging to private persons, government and local authorities. Like in other countries, Kenya Public Health Act (Cap, 242) in Section 157 (1) empowers the Minister of Health to prohibit cultivation or irrigation within and around townships.

Mphaso, (2005) argues that the origin of main urban centres in Kenya can be attributed primarily to either administrative considerations or the construction of railways or both. Most of these urban centres were gazetted as townships under the Townships Ordinance of 1903, as centres of colonial authority and rule and as 'islands of health' and security, over which strict sanitary control could be maintained under the Township Rules provided in the ordinance (Mphaso, 2005:21). Hence, there was no regulation that was in place to promote, let alone safeguard urban agriculture.

3.2.2.2 Recognition of Urban Agriculture in Nairobi

However, due to the rapid increase of the practice of urban agriculture, the municipality nowadays allows crop cultivation as long as the crop is less than one metre high. Most people cultivate the common food crops, mostly for their own consumption (Kulshreshtha, 2006: 47). Crops like kales, cow peas and spinach are also cultivated for commercial purposes, as there is a ready market for these products. This to a large extent, has caused tension between the Department of Public Health and the Municipality since the Department of Health argues that urban agriculture causes diseases to urban dwellers.

Due to the presence of diverse opinions on urban agriculture in Kenya, the Kenya Agricultural Research Institute (KARI) in collaboration with the Regional Office of Urban Harvest, a system-wide initiative of the Consultative Group on International Agriculture Research (CGIAR), organized a one-day stakeholders' workshop in (July, 2004) to develop consensus on providing an enabling environment for advancing urban and peri-urban agriculture in Kenya. The workshop also received support from the International Livestock Research Institute. Among issues high on the agenda were Legislation and Governance Framework, Land Use Management and Physical Planning. Ayaga, Kibata, Lee-Smith, Njenga, and Rege, (2005) indicate that after some exotic discussion on such issues by different stakeholders, it was agreed that:

- There should be a review of all urban agriculture relevant legislation, with a view to determine compatibility with policy;
- Local authorities should review urban agriculture relevant laws in terms of the policy goal and the national legislation review;
- Bylaws that attain the policy goal should be formulated;
- A system of participatory governance should be established;
- Urban farmers need to be facilitated to organize themselves, and community farming should be encouraged;
- There is need for public awareness of urban agriculture while the review goes on;
- Local authorities and other stakeholders need to be educated on the interpretation of existing laws and bylaws;
- There is need for integration of urban agriculture in urban planning. Currently there are no links between agriculture and land use planning;

- There is need for a policy decision on the allocation of underutilized land to urban agriculture for income generating activities. The national law is clear on land use for agriculture in towns;
- There is need for the harmonization of policies. Policies exist but legislative changes and implementation are difficult. In particular, the Ministry of Livestock and the Ministry of Health should recognize urban agriculture.

Kulshreshtha, (2006) criticised the workshop by noting that it did not say much about the implementation process. It successfully identified problems and solutions as far as urban agriculture is concerned but it was very silent on how to implement such solutions

3.3 Practice of Urban Agriculture in South Africa

One important aspect that underpins IDPs and which is also at the core of the current democratic South African Government is the need to ensure that individuals have access to economic opportunities and sufficient nutritious food to satisfy their needs. This calls for the need to bring on board urban agriculture during land use planning. But major findings by Van Rooyen *et al* (1995) illustrate that;

- Agriculture in South Africa's urban land use planning is considered as a non-urban land use activity
- Limited attention is given to the utilisation of high agricultural potential land in urban land use planning
- Urban agriculture is practised as unauthorised under rain fed water;
- Urban agriculture more often shifts to give way to industrial and residential land use activities

Although some cities (such as Cape Town, Johannesburg) in South Africa have already started to integrate urban agriculture as an urban land use, there are still a number of factors that contribute to the poor practice of urban agriculture in South Africa. Participants in urban agriculture encounter a wide-range of constraints and problems and are unable (because they lack resources) to address problems on their own. Urban agriculture has contributed to the competition for resources such as land, energy, finance and labour.

3.3.1 The Challenges to the Practice of Urban Agriculture in South Africa

(a) Access to Land

Land is a prime factor that contributes to agriculture. However this prime factor especially in the urban context is scarce. Agricultural land in urban areas is competing with other major land-uses such as housing, industries, public facilities, power lines and conservation (CSIR, 2002). CSIR further states that the perception that exists among some urban planners and policy makers is that agriculture is not a recognised urban land use. Hence there is no need to include it in urban spatial planning. The RSA, (2001) notes that another critical aspect with regards to access to land is insecurity of land tenure. This relates mostly to urban agriculture on commonage land or other state owned land where urban agriculture is viewed as a secondary land-use and momentary in nature. In this regard, urban farmers cannot obtain a longer-term lease to make a firm commitment or to solicit grants. Boateng's (2002) major finding about problems of urban cultivators was that the absence of usufruct has created fear among farmers that they could lose the land on which they farm at any time. Therefore there is no need to invest much on it.

(b) Access to Finance

The majority of households that practice urban agriculture are the urban poor. They do not possess any real assets that they could offer as security, neither do they have a proven track record that could demonstrate their aptitude and commitment. Even if they do have access to land through state land ownership, they cannot use this as a means to acquire finance because financial institutions and donor agencies require long term lease agreements before they could render substantial financial assistance (CSIR:2001). Therefore, this makes it difficult for the urban poor to have access to finance to fund their agricultural projects.

(c) Legal and Regulatory Requirements

In most cases urban agriculture subsists in an environment governed by an overabundance of disjointed and uncoordinated legislation dealing with land use, health and the environment. The RSA, (2002) argues that this is because legislations place limitations on the scope and location of urban agriculture. In addition, the RSA, (2002) states that complex and unwieldy application and approval processes are prescribed which place the possible utilization of urban agricultural opportunities beyond the reach of ordinary poor people. However, it must be borne in mind that urban agriculture can take place under legal and regulatory

requirements but it needs to be reviewed as an urban land use activity. This would in turn help to streamline processes and minimize turnaround times for applications for land use and assistance.

(d) Access to Water

Like any form of life, urban agriculture is dependent on water. Without access to water, urban agriculture cannot be successful. Stanley, (2003) notes various constraints that hinder the supply of water for urban agriculture in South Africa. Among such constraints are:

- The impact of the principles and regulations on the National Water Act (No.36 of 1998);
- Cost of the provision of water supply in terms of pipe lines, reservoirs;
- Cost of potable water and;
- Cost of electricity for water pumps at well points/boreholes.

(e) Infrastructure and Security/Theft

The provision of infrastructure such as water, roads, fencing and roads is expensive in the context of urban areas. This is the same view echoed by Stanley, (2003) who notes that water supply and electricity in urban areas is expensive since initially, it was meant to cater for the high income groups. Watson, (1998) points out that prior to democratic elections in South Africa (1994), urban areas were home to elites. This to a large extent excluded poor people from the urban areas since it was assumed that they could not afford urban life.

Boateng, (2002) argues that the majority of people who practice urban agriculture are the urban poor who cannot afford to pay for infrastructure and service provision. For example, the consumption of electricity for water pumps; poultry farming and fencing could be costly and would place an extra burden on the urban poor. Indeed if crops, animals and equipment are not well fenced, they can be stolen. It must also be borne in mind that the provision of security such as lockup facilities, dogs, and fencing place extra cost on the urban poor who are active participants as far as urban agriculture is concerned.

(f) Knowledge and Skills

If urban agriculture is to be useful, knowledge and skills are necessary for the urban farmers. It is important to note that urban farmers who originated from rural areas are most likely to have knowledge and skills for farming. However Stanley, (2003) argues that such skills and knowledge are not always appropriate in the urban context (See Table 3.1 for details). To this

end skills and knowledge for urban agriculture in the urban context are required. Urban farmers need to apply the appropriate production or farming techniques that are reconcilable with the urban situation. Usually urban farmers utilize traditional and inappropriate methods from rural areas. Stanley, (2003) further notes that urban farmers lack capacity to bring together their need, know-how and activities in such a manner that becomes a sustainable venture and which contributes to their livelihoods.

Table 3.1. Differences between Agriculture in Rural and Urban Situations

Factor	Rural Agriculture	Urban Agriculture
Farm types	Conventional; farms consisting of interdependent sub-units.	Unconventional; partly without soil (rooftop, hydroponics, etc.); more specialised independent units acting in clusters.
Livelihood	Farming is a primary livelihood, engaged full-time.	Farming is often a secondary livelihood, engaged on a part-time basis
Production factors	Lower costs of commercial inputs Presence of low cost organic and waste wastewater.	High land price, land scarcity Higher costs of labour, High cost of (drinking) water.
Farmer organisation	Often already in place and more easy to accomplish since farmers share same social background.	Often lacking and more difficult to accomplish since farmers are dispersed.
Environmental context	Relatively stable; land and water resources rarely polluted.	Fragile, often polluted land and water resources.
Availability of credit services	More likely (although maybe for larger farmers and males only)	Hardly available (but credit services for the informal sector is available and these might attend farmers too).
Market	Distant markets; Marketing through middlemen and marketing organisations; Low degree of local processing.	Closeness to markets; Direct marketing to customers possible and informal chain; High degree of local processing (including street foods).
Land security	Relatively high	Insecure, often informal use of public land, competitive land uses.

Adapted from: Henk de Zeeuw, 2004

In as much as there are vast differences between rural and urban agriculture as illustrated in Table 3.1, the need for urban agriculture especially among the urban poor cannot be overlooked. Learning from the above mentioned barriers emanating from land-use planning, it can be argued that South Africa has failed to accommodate urban farming. Colonial urban planning which has been widely adopted by contemporary South African planners and city administrators has never accommodated agriculture as a major land use (Boateng, 2002). There is no doubt that definitions of urban and urban activities have most of the time excluded agricultural land use and agriculture activities.

3.3.2 Town Planning in eThekweni Municipality

The planning system in eThekweni Municipality is also a general reflection of the nature of the planning system in the country. It should be recalled that planning and urban reconstruction in Apartheid SA was segregatory based on the provision of services along racial lines. Other than whites, all racial groups did not have permanent tenure in the cities of SA. In particular, blacks were accommodated outside cities in Bantustans. However, by the late 1980s and early 1990s, the Apartheid Regime was softening its segregatory stance by adopting reconciliatory and integrative approaches which became a reality after the attainment of democracy in 1994.

However, it is important at this juncture to note that the Apartheid legacy is not the only constraint to land use planning in eThekweni Municipality, but also the geographical location makes it difficult for planners. Out of the total area of about 229 700 hectares, only 9 385 hectares of municipal land in Durban is developable whilst the rest is undevelopable due to different reasons such as floodplains, environmental sensitivity, wetlands, rivers and hilly terrain (Durban Metropolitan Area Volume 1, 1998). Lack of adequate developable land places a greater challenge to planners who are expected to plan for over 2,7 million people within the developable area. Further to that, the imbalance of population in different sites (north, north central, south central, south, inner west, and outer west) of Durban makes it more difficult for the planners and other relevant authorities to allocate resources. Watson, (2002) shed some light by noting that it is only after the democratic elections of 1994 when all people from different backgrounds began to have access to the cities. Indeed these are the same views noted in the Spatial Development Plan, (Durban Metropolitan Area Volume 1, 1998) which argues that historically, Durban has been a racially and culturally divided city reinforced by spatial segregation. However, major changes were ushered in after the 1994

national elections and more recently, with local government restructuring which occurred in 1996.

In addition, it is also of great importance to note in passing that the new government introduced the Constructive Act (Local Government Municipal Demarcation Act, 1998). This Act is one of the major catalysts that contribute to integrated development planning. It is concerned with the demarcation of the boundaries of local municipalities.

However, despite all these planning interventions, it still remains a fact that eThekweni is experiencing a number of challenges among which are poverty, unemployment, illiteracy, and HIV/AIDS (Robinson, Brown, Todes and Kitchin, 2003). Above all, the legacy of Apartheid is still lingering and this will also take some time to deal with. But, it is encouraging to know that households are trying to live up to these challenges by engaging in a number of activities such as urban agriculture and informal markets. But to what extent are these activities supported by the planning system? This is the question this research is striving to answer by looking at the planning system vis-à-vis urban agriculture.

3.3.2.1 Land-use Planning in Durban since 1994

The problems confronting urban planners seeking to reconstruct and reintegrate the cities did not arise only from urban planning under the Apartheid regime, but also from rapid urbanisation, official urban reform and the collapse of Apartheid controls (Watson, Mabin and Hindson, 1993). Between 1994 and 2001, the total urban population in Durban increased rapidly from 20% to 33% (Pauw, 2005). It is the birth of the democratic government that encouraged urbanisation to grow at alarming rates of about 6,8% since prior to the election of the first democratic government in SA in 1994, the planning system was controlled, hierarchical, bureaucratic and fragmented; and therefore, checked the movement of people (Robinson, Brown, Todes and Kitchin, 2003). Worden, (1994) further sheds some light in this discourse by noting that Durban was largely shaped by the Apartheid state's policies of control, containment and deflection. He further notes that population influx control was one of the prime measures specifically designed to contain urban growth through treating African residents in cities as temporary sojourners who required state authorisation to live in urban areas. Indeed it is an irrefutable stance that the Apartheid policy's focus of displacing African urbanisation to the Bantustans in Durban was achieved. Sutcliffe (2000:1-2) notes three processes which worked as vehicles to achieve displacement of the majority blacks:

- Informal settlements which had emerged within the defined white city of Durban prior to 1950 were simply destroyed and Africans forced to resettle in Kwa-Zulu-Natal or other Bantustans. The largest of these shanty towns was a ten square kilometre suburb housing some 150 000 people of colour called Cato Manor-Umkumbaan.
- Borders were gerrymandered so that African townships fall under the political and administrative control of Kwa-Zulu-Natal Bantustans. By early 1970, all the major African areas basically being gerrymandered out of the city of Durban.
- As Africans were removed from farms in the rural areas of the Province of Natal, many found their way into the ring of settlements within the Kwa-Zulu Bantustans.

It is after these devastating epochs where the majority blacks who had limited access to cities finally got the opportunity soon after the democratic election of the majority government in 1994. A significant number of the population migrate to urban areas in search of jobs. It is generally understood that cities have long acted as the engines of human, cultural, technological and economic development. In this regard, the majority of people move to urban areas in search of better life. This in turn has led to over population of cities resulting in high rates of unemployment. This high rate of unemployment and population growth in the cities, to some extent, has placed a greater burden on town planners since there is great need to take on board these factors during land-use planning. The eThekweni Municipality is no exception to these challenges.

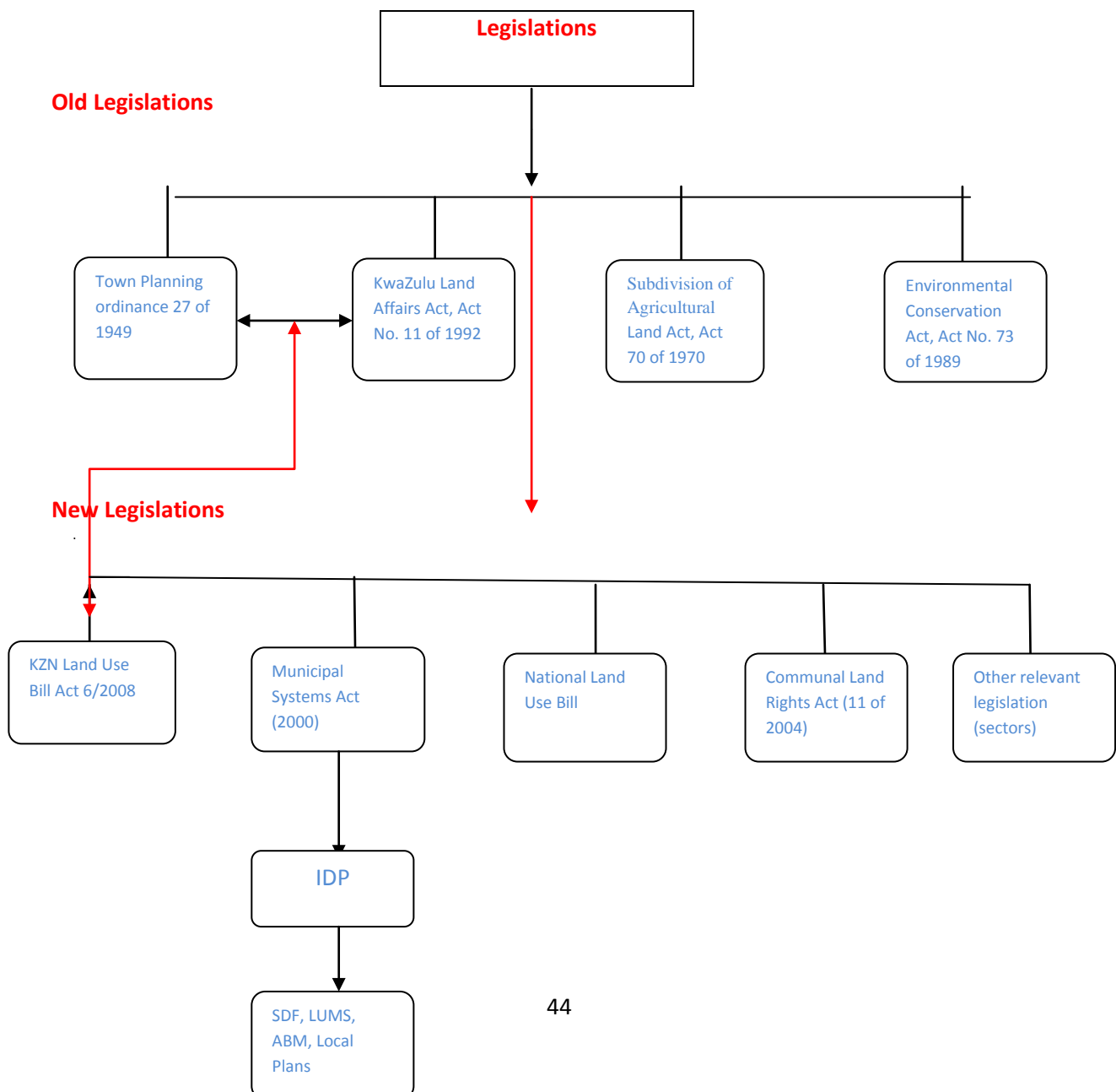
The high unemployment rate to a large extend has left many people with no choice but to participate to urban agriculture activities. The dilemma which town planners in eThekweni Municipality face is answering the question of land use prioritisation. Given the fact that eThekweni Municipality does not have adequate land for development as noted in the preceding Section, traditional planners see shelter as the major priority which overrides urban agriculture. To this end, there is no land which is zoned for agricultural purpose. However, the picture painted on the preceding paragraph raises question about the principles that inform allocation of land uses. A look at the South African planning system sheds light on this question.

3.3.2.2 Legislative Framework of Planning in South Africa

The arrival of democracy in South Africa in 1994 was accompanied by a number of changes as far as policies and legislations are concerned. This to a large extent has a profound impact

on planning practice. Indeed it is an undeniable stance that town planning is guided by a number of policies and legislations from different disciplines such as environmental, political, economical and health sciences. It must be noted from the onset that if the town planning system is to be successful, there is need for a holistic approach which incorporates these different disciplines. This Section looks at the town planning system in South Africa - specifically focusing on the legislations and how they govern spatial development of urban areas. Town planning in South Africa is guided by a number of legislations. Figure 3.1 illustrates the old and new legislations. For the purpose of this research the focus will be on new legislations. However, legislations outlined here do include sector plans such as NEMA among others.

Figure 3.1 Legislation Framework



(a) Municipal System Act 2000

In terms of the Municipal Systems Act, (No. 32 of 2000) each municipality must prepare an Integrated Development Plan (IDP) for its area of jurisdiction. An IDP is a strategic planning tool of local government at the scale of the whole municipality. A more integrated and commonly used definition is given by Harrison (200:185) who notes that the:

Integrated Development Plan is a participatory approach to integrate economic, sectoral, spatial, social, institutional, environmental and fiscal strategies in order to support the optimal allocation of scarce resources between sectors and geographical areas and across the population in a manner that provides sustainable growth, equity and the empowerment of the marginalisation

As a strategic document, it spells out the municipality's strategic plan of action for the next five years. Any IDP should be focused with clear targets, deliverables and timeframes. In essence, a comprehensive IDP should incorporate the following aspects:

- Sustainable development plan,
- Service delivery plan,
- Community service plan,
- Administration plan,
- Financial plan,
- Governance plan.

Each of these plans should have a strategic direction, desired outcomes, targets and performance measures. However, like any other development plan, the development and success of any IDP is dependent on a number of factors among which is the efficiency of the concerned municipality.

(b) Spatial Development Framework

The Municipal Systems Act (No. 32 of 2000) requires that the IDP should have a Spatial Development Framework (SDF), which should include basic guidelines for a land use management system that apply to the whole municipality. In essence, a SDF is a plan or a map which suggests the appropriate location and form of physical development and investment to promote desired outcomes. The Municipal Systems Act, Act (No. 32 of 2000) argues that Land Use legislation must be prepared for the whole of the municipal area including both urban and rural areas. The SDF is a legal binding component of the IDP and therefore, it needs to be specific and precise in cases where it wants to enforce or prevent

certain types of land uses. In addition, it consists of codifications and simulations of all actions required by the municipality and other role-players to manage land use and regulate land development. It is one element in a suite of land management tools, and is intended to promote coordinated, harmonious and environmentally sustainable development. For example, the Nquthu Municipality (2006/07 IDP Review: 2) identifies the following as key elements of a land management system:

- Spatial Development Framework; various Spatial Plans, Frameworks and Schemes,
- Valuation and rating system,
- Property registration, ownership and tenure,
- Infrastructure and services provision,
- Building bylaws, including signage and elevation control,
- Health bylaws,
- Environmental issues and requirements,
- Road and transportation requirements.

(c) Land Use Management

A Land Use Management System (LUMS) refers to all the actions required by a municipality to manage land, of which Schemes are one component (See Figure 3.2). Schemes are tools used by municipalities to guide and manage development according to the vision, strategies and policies of the Integrated Development Plan and Spatial Development Framework and in the interests of the general public to promote sustainable development and quality of life (KwaZulu-Natal Land Use Management System 2004:8). The KwaZulu-Natal Nature Conservation Management Act (No. 9 of 1997) further summarise the objectives of schemes and these are meant to:

- Designate desirable land uses and provide clarity on what may or may not occur on a property and what may be considered at the discretion of the municipality,
- Promote the certainty of land use which protects property values and creates investor confidence,
- Resolve conflict between different land uses and to control negative externalities,
- Balance the interests of individuals with those of the public,
- Enable the co-ordinated and efficient use of land,
- Enable the efficient movement of persons and goods,

- Figure 3.2. Diagram of a Scheme



Local area plans are informed by the SDF and they support and reinforce the strategic elements by providing the detail to consolidate the framework. Local plans are best placed to respond to local contexts and need thorough a diversity of responses (EtheKwini Municipal

Area, May 2002). Among such responses are local community needs which are identified through the participation of the community during plan preparation.

(e) Area Based Management

Area based management plans provide a useful tool to ensure mobilisation of community action, integration of service delivery and the deepening of democracy. Area Based Management is operationalised through the entire municipal area. In the case of eThekweni Municipality, key operational elements of Area Based Management include:

- Integrated area management,
- Customer service centres,
- Community action support,
- Land use Management System and Information support.

From the above mentioned objectives, it comes out clear that schemes are responsible for allocation of land for urban agriculture. It is at this particular stage of planning where urban agriculture can be incorporated into the urban landscape. It is worth noting that the idea of zoning and schemes is not a new concept, it has been there over the years but it is just that it was used in selfish motives by traditional planners. According to Watson, (2004) during the Apartheid era, schemes were used to cater for the needs of the elite. Hence the genesis of LUMS in South Africa brings hope for the urban poor since it seeks to address such challenges. LUMS provide a management tool for other interests such as health, transport, environment, finance and infrastructure. It is meant to be transparent and be able to provide information to officials, consultants, home-owners, developers and politicians on what may or may not occur on a parcel of land or what the municipality may consider at its own discretion.

At the core of LUMS is the participatory approach or communicative planning. Commenting on the participatory approach, McConnell (1981:163) noted that everyone has a duty to the community in which the free and full development of his personality is possible.

In the exercise of his rights and freedom, everyone shall be subjected to such limitations as determined by law solely for the purpose of securing due recognition and respect for the rights and freedoms of others and of meeting the just requirements of morality, public order and the general welfare in a democratic society. But more interesting in communicative planning is the recognition that through public participation, people themselves know best

their own needs, that they can identify their own problems, and that they should be able to set their own priorities for change. The level and magnitude of participation varies considerably. As shown in Box 3.1, the ladder of participation ranges from citizen control to manipulation.

Box 3.1: The Ladder of Participation



Source: Adapted from Knowles and Materu (1999:18)

While a detailed discussion of participation is beyond the terms of reference of this research, it is worth noting that effective community participation should be followed by visible action. Above all, public participation needs realistic targets and timescale, and should have a thorough understanding of the needs and concerns of the community. This simply means that community participation in action planning must achieve more than token consultation as illustrated in the ladder of participation.

Indeed it is an undeniable stance that having communicative planning as the core tenet of LUMS is a good signal to the government's vision of taking on board people's concerns. This will also give room to the urban farmers to be able to raise their problems as far as agriculture is concerned – an approach which is advocated in sustainable livelihoods. However it must be borne in mind that what we suffer today is the legacy of Apartheid planning of which it will take time to be able to reverse it.

(f) Other Relevant legislations which Impact on Urban Agriculture in South Africa

Another important aspect to note is that Schemes provide a management tool for other interests such as health, transport, environment, finance and infrastructure. Depending on the

nature of schemes, town planners will have to interact with the concerned departments. For example, the agricultural scheme needs the intervention of various departments such as the Departments of Land Affairs, Health and Water. This is because all these departments have legislations that impact on agriculture. For example National Environmental Management Act (No. 107 of 1998) forbids cultivation within 30 metres of any water course. It argues that the plantation of crops on such areas contribute significantly to the soil erosion and water pollution. On the other hand the Public Health Act (No. 61 of 2003) empowers the health specialist to prohibit cultivation or irrigation within townships because of the health risk associated with it such as an outbreak of dysentery and diarrhoea.

Unfortunately, the intervention of various departments left town planners with limited powers as far as preparation of development plans in other departments (see Box 3.2).

Box 3.2. An Insight into the Preparation of Agricultural Schemes.

The Agricultural Land Act, No. 70 of 1970. In terms of this Act the following approvals are required:

- Consent to give notice that a Scheme relating to agricultural land has been prepared or submitted for a municipality,
- Approval of a Scheme prepared for agricultural land,
- Approval of any contemplated change of use of agricultural land.

The Department of Agriculture and other agencies have developed a number of agricultural 'land uses' to assist in the management of the agricultural sector. It is recommended that planners do not zone agricultural land for particular crops in accordance with these 'uses'. To make a farmer apply to the Local municipality to change crops adds unnecessary regulation. Furthermore, most planners would not have the expertise required to make this type of decision. There may be exceptions to this recommendation. In certain circumstances management overlays could be useful in guiding the management of certain crop - types to achieve desired strategic outcomes.

Source: Kwa-Zulu-Natal Land Use Management System, 2004:9

As can be seen from Box 3.2, the Agricultural Land Act No. 70 of 1970, which ironically is still in use, gives an insight into the preparation of agricultural schemes and how they affect land uses for agricultural purposes. Among other requirements, the Act determines the land that can be put to such use, the types of crops that can be grown and how the process of applying for such land use can be done through the relevant municipality.

3.4 Summary

What comes out clearly from both international and local experiences is that urban agriculture is seen as a non-urban land use. This supports the view by Mbiba, (1995) who argues that the use of urban space for agriculture has not been seriously considered in land use plans or urban development dialogues yet it is seen as a survival strategy for the urban poor. Henk de Zeeuw, (2004:7) substantiates these ideas by noting that the socio-cultural biases against urban agriculture are often strong. Some arise from the outdated European 'city beautiful' views of what a city should be while some are related to local cultures. They often pertain to views about aesthetics, efficiency, hygiene and modernity in general. The biases tend to be persistent, particularly when they become institutionalised through policies, laws, regulations and enforcement mechanisms. The negative attitudes of critical actors are particularly constricting. Mbiba, (1995) further states that town planners and urban managers have open spaces which are reserved for future development. The urban poor view such land as idle land which could be put to immediate productive use such as agriculture.

Chapter 4

Case Study of Kwa-Mashu

4.1. Background to Kwa-Mashu

Kwa-Mashu is located in the north of the eThekweni municipal area, close to the new zone of economic growth. It is approximately 17 km to the north-east of the city centre of Durban. It is connected to the city centre through the N2 highway via Mandela Road that runs directly into the centre of the residential development. Kwa-Mashu covers an area of 15 square kilometres and is basically made-up of 12 neighbourhoods. These neighbourhoods that range from A to M are spread over a hilly terrain in the area. Map 1 shows the spatial location of Kwa-Mashu.

Kwa-Mashu was built by the South African Apartheid government between 1957 and 1970. The development of Kwa-Mashu should be seen in the light of the political environment that prevailed in pre- and post Apartheid South Africa. It should be recalled that planning and urban reconstruction in Apartheid South Africa was segregatory, based on the provision of services along racial lines (Robinson *et al*, 2004). Other than whites, all racial groups did not have permanent tenure in the cities of South Africa. In particular, blacks were accommodated outside cities in Bantustans. However, by the late 1980s and 1990s, the Apartheid Regime was softening its segregatory stance by adopting reconciliatory and integrative approaches which became a reality after the attainment of democracy in 1994 (Hindson and McCarthy 1994). Kwa-Mashu was born out of the need to mop up what the Apartheid regime believed to be the “mess” that was gradually accumulating in Cato Manor in Durban Central. The crisis of Cato Manor was a result of Apartheid South Africa’s policies that were segregatory and therefore excluded other racial groups from residing in the city. Among such policies were the failure to recognise equality among races in relation to rights, privileges and benefits. This resulted in the forced removal of residents of Cato Manor (Indians and Blacks) to areas outside the city such as Kwa-Mashu, Phoenix and Umlazi. When it was developed, its administration was outside and separate from the general administration of the city of Durban.

The first democratic election in South Africa in 1994 saw the ushering in of a new era. Kwa-Mashu was politically reintegrated into Durban Municipality. It is among other 46 racially separated local government entities that were integrated into Greater Durban through the six local councils that constituted the Transitional Local Councils, later becoming part of the Durban Metropolitan Council (Godehart, 2007). This change meant that Kwa-Mashu was supposed to benefit from the new administration through better infrastructure (among other services). This integration went further in the year 2000 when the government consolidated large rural areas into one council under the new name of eThekweni Municipality.

4.1.1 The Socio-economical Profile of Kwa-Mashu

Statistical evidence available (2007) shows that Kwa-Mashu has a total population of 38 169 people and the majority of these are Africans. Although the area is predominantly resident to Africans, there are few other races that are also found in this area but their contribution to the total population is insignificant as Table 4.1 shows. There are only 28 coloureds and only 17 Indians residing in the area.

Table 4.1. Racial Composition in Kwa-Mashu

Race	Population	Percentages
African	38121	99.9
Coloureds	28	0.1
Indians	17	0.04
Whites	3	0.01
Total population	38169	100

Source: Census, 2007

Another interesting feature about the population in Kwa-Mashu is that there are more females (52%) than males (48%) in the area. This in turn explains why most households in the area are female-headed.

Table 4.2. Gender Proportions in Kwa-Mashu

Gender	Number of Gender	Percentage
Male	18390	48
Female	19779	52
Total	38169	100

Sources: Census, 2007

As far as the age profile is concerned, the dominate age-group in Kwa-Mashu is between 5 - 34 years which, approximately represents 41% of the total population. This is followed by the 35 - 65 years age-group which represents 26% of the total population. The dependent age group (of between 0 - 4 years) and the old age group (of 65 years and above) contributes only 10% and 3% respectively, to the entire population of Kwa-Mashu. Table 4.3 summarises the different age-groups of Kwa-Mashu.

Table 4.3. Age Groups in Kwa-Mashu

Age Groups	Population	Population in Percentages
0 – 4	3740	10
5 – 14	7896	21
15 – 34	15 466	41
35 – 64	9 853	26
> 65	1 214	2
Total	38169	100

Source: Census, 2007

The demographic profile of Kwa-Mashu shows that there is a high number of people who are dependent as compared to those who are independent. This is observable by looking at the number of those who are employed, unemployed and those who are not economically active. The statistics on employment status shows that 35% of the people are not economically active and 36% of the people are not employed as compared to 29% of people who were employed. Table 4.4 summarises these details.

Table 4.4: Employment Status in Kwa-Mashu

Employment Status	Population from 15 to 65 years	Percentages
Employed	7 385	29
Unemployed	9 069	36
Not Economically Active	8 997	35
Total	25 451	100

Source: Census, 2007

Generally, the majority of people in Kwa-Mashu earn between R9 601 and R19 200 per annum. As shown in Table 4.5 this group is followed by 17% and 16% of people who earn between R4 801 and R9 600 and those who earn between R19 201 and R38 400 per annum respectively. On the other hand, there are up to 28% of the people in Kwa-Mashu who do not get any income at all. This figure is very far from the lowest paid whose income is up to R4 800. The highest paid households in the area earn between R1 228 801 and R2 457 600 per annum.

Table 4.5: Household Income Levels in Kwa-Mashu

Household income (per annum)	Household	Percentages
No Income	2 422	28
R1 - R4 800	506	6
R4 801 - R9 600	1 541	17
R9 601 - R19 200	1 626	18
R19 201 - R38 400	1 420	16
R38 401 - R76 800	831	9
R76 801 - R153 600	315	4
R153 601 - R307 200	93	1
R307 201 - R614 400	18	0
R614 401 - R1 228 800	3	0
Total	8775	100

Source: Census, 2007

The population of Kwa-Mashu can also be further understood from the type of housing found in the area. There are basically three broad classes of housing found in the area these being formal, informal and the traditional type. The formal and informal types of housing represent a typology commonly found in urban areas with the formal representing planned and durable type of housing while the informal representing squatter and slum-type of housing. The traditional type is basically associated with the rural type of housing. Housing statistics for Kwa-Mashu show that 5 468 houses are formal while 2 847 houses are informal. The traditional type of housing present in the area is only 428. This typology is shown in Table 4.6.

Table 4.6: Household Sizes in Kwa-Mashu

Dwelling type	Number Of Households	Percentages
Formal	5 468	62
Informal	2 847	32
Traditional	428	4.87
Other	32	0.36
Total	8775	100

Source: Access Map, 2006.

The typology of housing is also associated with the type of physical infrastructure connected to it. Such infrastructure relates to electricity, water, solid waste removal and toilets. The level of service provision in place in Kwa-Mashu varies with the type of infrastructure. For instance, the management of solid waste in the area is so efficient that in 2007, it was almost 100%. On the other hand, connection to electricity though reasonably high was 75% of the total households in Kwa-Mashu. The type and level of service provision in the area is given in Table 4.7.

Table 4.7: Basic Household Services in Kwa-Mashu

Delivery of basic household services	Percentages
Electricity	75
Refuse Disposal	100
Flush Toilets	60
Water	69

Source: Census, 2007

4.1.2 Public Facilities in Kwa-Mashu

The development of Kwa-Mashu was meant to provide a self-contained residential area for black Africans on the periphery of the city of Durban. In this regard, the provision of public facilities was seen as one of the major ways of achieving this aim. There are a number of public facilities that are available in Kwa-Mashu and these include schools, health centres, commercial centres, libraries and open spaces (among others). The type and number of these facilities provided are summarized in Table 4.8.

Table 4.8: Major Facilities in Kwa-Mashu

Major facilities	Number of major facilities
Library	1
Clinic	4
Sports-fields	2
Police	1
Hospital	1
Community Halls	2
Schools	13
Shopping centre	2

Source: Census, 2007

The spatial distribution of these public facilities is also shown in Map 2 which was drawn as part and parcel of the 1957 Master Plan prepared to guide the development of the area.

4.1.3 Land use Planning in Kwa-Mashu

Land use planning in Kwa-Mashu is guided by the eThekweni IDP since it falls under the eThekweni Municipal Area's Unicity boundary. It consists of all major elements of the IDP such as situation analysis, a vision statement, strategic and proposed projects to achieve vision and capital investment framework. Godehart, (2007) argues that the prime concerns of people of Kwa-Mashu were safety and security. Indeed these are the same views echoed by Len Baars, (2008) who argues that some of the challenges that are faced in Kwa-Mashu include:

- High unemployment, low skills base,
- Crime and security,
- Poor transport infrastructure linkage to City,
- Lack of investment - both public and private-sector,
- Shops destroyed in the 1980's violence,
- Economic linkage - cross-border trading issues,
- Emergence of informal trading and activities.

The vision statement that guides Kwa-Mashu Integrated Development Framework reflects these and other concerns of the residents. It is envisaged that by the year 2015, Kwa-Mashu:

Will be a thriving and attractive suburb with all economic classes complementing vibrancy and riches of the area. It will be a clean and safe environment with all residents living in acceptable serviced housing within a general good quality of life that is sustainable. Employment opportunities will be provided both in areas outside Kwa-Mashu and Kwa-Mashu itself. Public facilities will be fast, clean and safe. There will be tolerance, forbearance and a high level of local development orientation and pride (North Central Local Council 1998, 24)

The Integrated Development Framework for Kwa-Mashu suggests a number of strategies to fulfil its vision. Such strategies include spatial, housing and social facilities. For the purpose of this research, spatial strategies will be discussed. Godehart (2007:105) notes that spatial strategies are structured as follows: Sub-regional, Concept Plans, Structure Plans and Precinct Plans. She further elaborates the objectives of these strategies in Kwa-Mashu as follows:

- **Concept Plan:** The focus is to develop three commercial nodes connected by three activity spines as main structuring elements. These nodes include a township centre, the node adjacent to neighbourhood Unit E and Bridge City.

- **Structure Plan:** This aims to transform the uniform network of residential roads into a hierarchical system promoting linkages and permeability of the movement system within the township.

Further analysis on the spatial situation of Kwa-Mashu by Godehart (2007:113) shows that the basic spatial structure of Kwa-Mashu has not yet changed since its initial development. These spatial structures include: the township centre, the neighbourhood unit centres, the residential neighbourhood units themselves and the hostel unit.

It has already been indicated from the literature review that one of the key components of an IDP is a Spatial Development Framework (SDF), which should include basic guidelines for a Land Use Management System (LUMS) that apply to the whole municipality. LUMS make use of schemes which are statutory mechanisms used by municipalities to guide development, management and regulation of the use of land and buildings across a municipality. In this regard, the eThekweni IDP (2004d) illustrates that the town planning scheme in Kwa-Mashu consists of twelve land use zones which are:

- Civic and social.
- Road reserves,
- Worship,
- Fuel and service stations,
- Education,
- Commercial,
- Industry,
- Residential,
- Public open space,
- Transport and utilities.

The spatial expanse and distribution of these land use zones can also be seen from Map 2.

The development of Kwa-Mashu is currently governed by an area based management scheme which basically incorporates Inanda, Ntuzuma and Kwa-Mashu - called INK. Kwa-Mashu is perceived as falling under an Area Based Management Learning Area with a mixed investment node whose aim is to invest in both social and economic areas. Investment points as noted by the Spatial Development Framework (May 2002) do not specify specific issues

especially in the case of urban agriculture. Apparently, such issues are supposed to be dealt with by the participation of the community. As such, no details are captured at this level about urban agriculture.

4.2 Summary

This chapter basically introduced the case study of the research which is Kwa-Mashu. It gave a spatial location of the residential area and outlined the different residential areas (sections) of Kwa-Mashu. In the outline, it was noted that Kwa-Mashu was developed during the Apartheid era in the 1950s and 60s when traditional planners were driven by modernist principles. As a result, urban agriculture was not part of the land-uses that was proposed by the 1957 Master Plan. The IDP and development scheme prepared in the post-Apartheid era (2004) similarly shows a continuation of the traditional planning practices where again, urban agriculture is not considered as an urban land-use. This is so despite the recognition by the SDF that consideration should be given on how and where people earn their living as well as how and where people respond to their natural environment. This in turn brings in critical questions about how and where urban agriculture is practised. The response to this question is given in Chapter 5.

Chapter 5

Study Findings

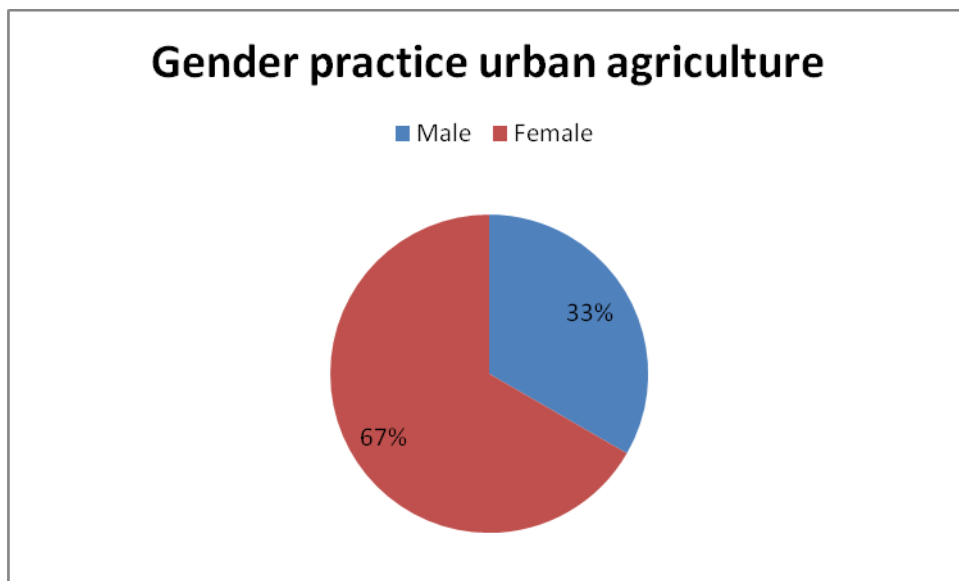
5.1 Introduction

This section presents data collected in the field on urban agriculture. The information was collected from people who practice urban agriculture and those who do not practice. Therefore the presentation of data in this section is in some cases is done in a comparative approach where data from urban farmers is presented together with data from non-urban farmers. For a logic approach, data is presented in a thematic way which reflects the objectives of this research (see Chapter 1 for research objectives). It should also be noted that information from the officials is presented in the relevant themes. Since the objectives inform research questions, this chapter therefore tries to answer such question on the relevant themes.

5.2 Who are the Urban Farmers?

Gender, employment status, educational level and house ownership gives an insight into answering the question concerning the identity of urban farmers. Evidence from the fieldwork carried out in the area shows that urban agriculture in Kwa-Mashu is practiced by both male and female members of the community. But as shown in Figure 5.1, the gender balance in the practice of urban agriculture is tilted more towards the female than the male members of the community. As can be seen from Figure 5.1, 67% of people who practice urban agriculture are females as opposed to only 33% of males who participate in urban agriculture. From a purely traditional perspective of human society, such a scenario is expected since it is believed that men spend most of their time away from home - possibly at work while most females are left at home attending to household chores. While spending most of the time at home, women combine their household chores with outdoor activities such as agriculture. But worse still is the nature of the employment sector where it is normally found that there are more opportunities open to men than to women.

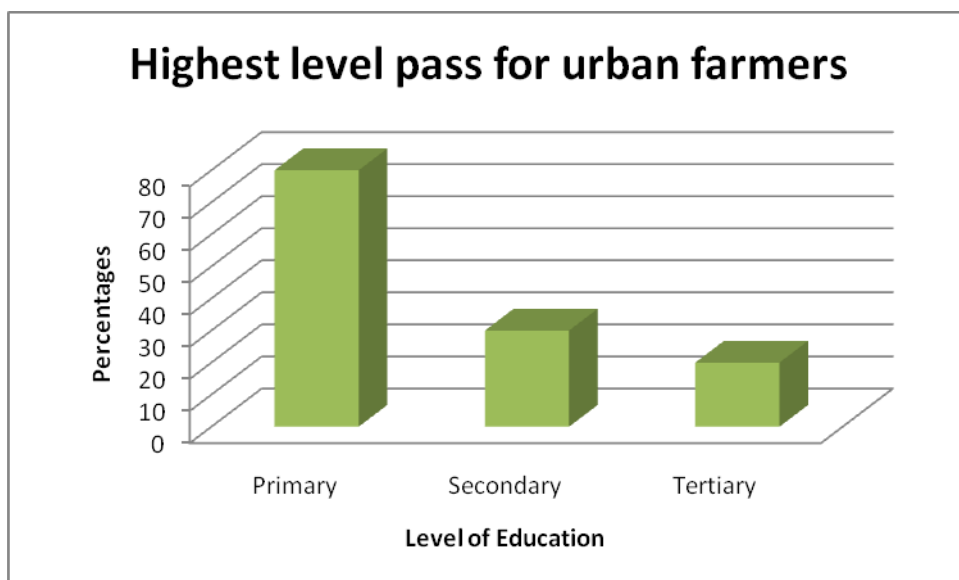
Figure 5.1. Gender Distribution in the Practice of Urban Agriculture



Source: Survey Results, 2009

Another aspect related to people who practice urban agriculture is their educational status. As can be discerned from Figure 5.2, the highest number of people who practice urban agriculture are those whose highest level of education is primary education. This group represents 67% of the respondents interviewed in the field. 20% of the urban farmers have secondary

Figure 5.2. Educational Levels of Urban Farmers

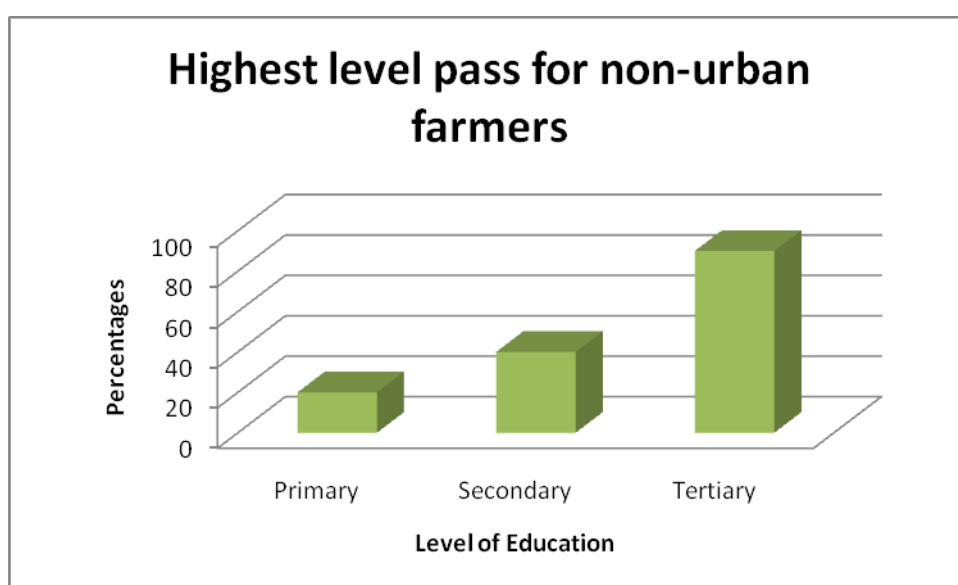


Source: Fieldwork Results, 2009

education. Only 13% of people with tertiary education are urban farmers. This to a large extent shade some light on the question pertaining to urban farmers.

The educational levels attained by urban farmers is a direct opposite of the educational qualifications held by those who are not involved in urban agriculture. As can be observed

Figure 5.3. Educational Levels of Non-urban Farmers



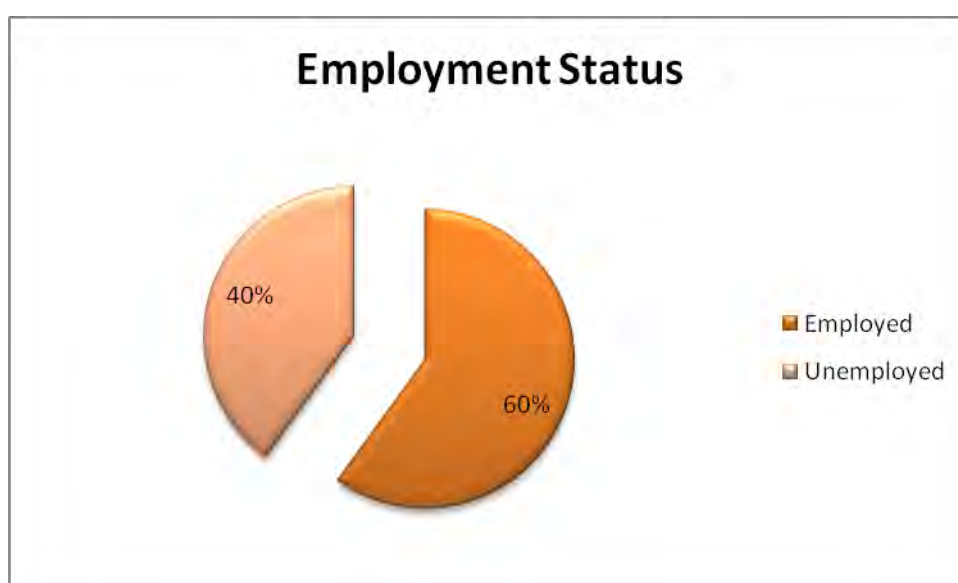
Source: Fieldwork Results, 2009.

from Figure 5.3, 85% of the people who do not practice urban agriculture have attained tertiary education as compared to those who practice urban agriculture. On the other hand, the percentage of non-urban farmers who hold primary education is only 5%. Those who have attained secondary education still maintain a middle position (10%) - a percentage which is similar to those who also practice urban agriculture.

The practice of urban agriculture is also closely linked to employment status and income levels of urban households as revealed by the survey. As shown in Figure 5.4, people who are mostly involved in urban agriculture are mainly those who are not employed and these make up 60% of the respondents interviewed. The other group, which makes up 40% are those people who are employed.

The employment levels are also closely linked to the income levels of households involved in urban agriculture. 60% of the people involved in urban agriculture are in the low-income bracket and they earn less than R5 000 per month (see Table 5.1). This figure, combined with the marginalised group (20%), shows that people who practise urban urban agriculture are

Figure 5.4. Employment Status of Urban Farmers



Source: Fieldwork Results, 2009

those whose incomes are low or none at all. On the other hand, 20% of households who practice urban agriculture are in the middle and high-income groups where their income is above R5 000 per month.

Table 5.1. Household Income of Urban Farmers in Kwa-Mashu.

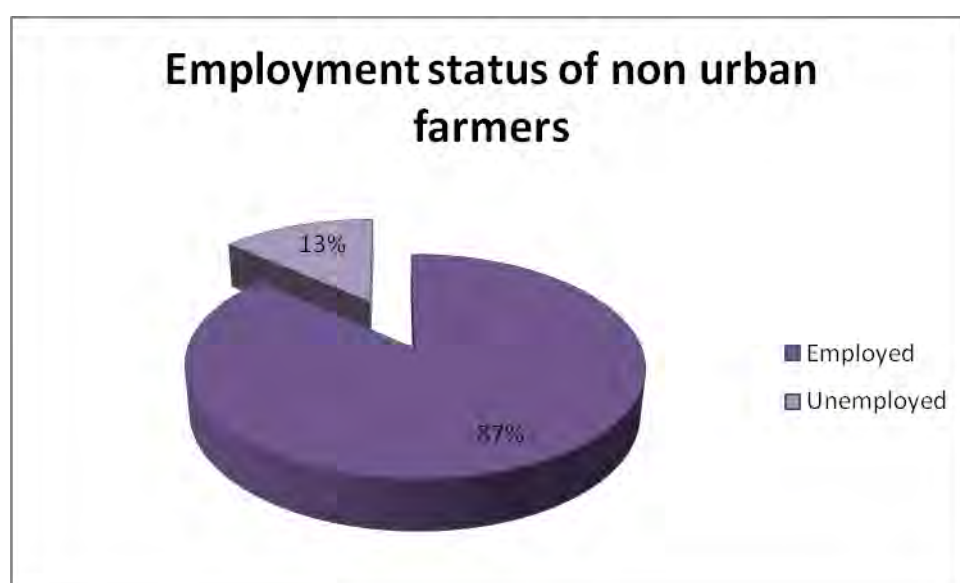
Categories	Household income (in Rands)	Number of farmers	Number of farmers (in %)
Marginalised	None	3	20
Urban poor/ low income	2 501 - 5 000	9	60
Middle income	5 000 - 10 000	2	13
High-income	10 001 plus	1	7
Total		15	100

Source: Fieldwork Results, 2009.

The employment status of non-urban farmers clearly shows a high proportion of those who are not employed yet they are also not engaged in urban agriculture. This group represents about 87% of the respondents in the field. On the other hand, there is only a small percentage of people who are not employed and who do not practice urban agriculture. This group only represents 13% of the people who were interviewed in the field.

But this scenario must also be understood from the level of education attained by people involved in urban agriculture. Coincidentally, 67% of people who engage in urban agriculture

Figure 5.5. Employment Status of Non-urban Farmers



Source: Fieldwork Results, 2009.

have only basic primary education. This further strengthens the traditional notion where males were given better educational opportunities than females. Those who hold better qualifications and who practice urban agriculture have only secondary education and they account only for 20%. It can therefore be concluded that urban agriculture is practised by people who have attained low levels of education. But this is also expected in this area given the fact that this residential area is one of the symbols of Apartheid creation and such, most people did not have opportunities to further pursue education. The age group of most of those who practice urban agriculture (which is above 55 years) further substantiates this argument.

Lack of education has also contributed to poor employment opportunities which in turn have greatly contributed to poor income levels of people in Section G of Kwa-Mashu (see Table 5.2).

Table 5.2. Income Levels of Non-urban Farmers

Categories	Household income	Percentages
Marginalised	None	20
Urban poor/ low income	2501-5000	60
Middle income	5000-10000	13
High-income	10001 plus	7
Total	-	100

Source: Fieldwork Results, 2009

This is the case with most urban farmers in Kwa-Mashu where it was observed 60% are not employed at all. Even for those urban farmers who are employed (40%), they do low-paid jobs such as house-maids, security guards and waiters. As shown in Table 5.2, these are jobs which give people not more than R5 000 per month. Therefore, for them to survive they need to find ways of supplementing their food and incomes - hence urban agriculture is such one means that they use to further sustain their lives. But it also has to be remembered that Kwa-Mashu is a low-income residential area and as such, it is expected that most households have low incomes and some rely much on the Department of Social Welfare for support. It can therefore be concluded that households that engage in urban agriculture are those who are vulnerable.

This aspect of vulnerability is further reflected in the housing tenure status of urban farmers. The survey reviewed that almost half of them (53%) are those who do not own houses as opposed to 90% of households who own houses (see Figure 5.6). This clearly shows that while house-owners have other means of getting extra income (through rental income), those who do not own houses have no alternative sources other than to engage in other means to sustain themselves. Hence urban agriculture has come to represent a major means through which they can sustain themselves.

A number of reasons were put across by non-urban farmers as to why they do not practice urban agriculture. As can be noted from Table 5.3, ranking high on the number of reasons is the issue of lack of security. This was mentioned by all 13 people who were interviewed.

Table 5.3. Reasons for not Practicing Urban Agriculture.

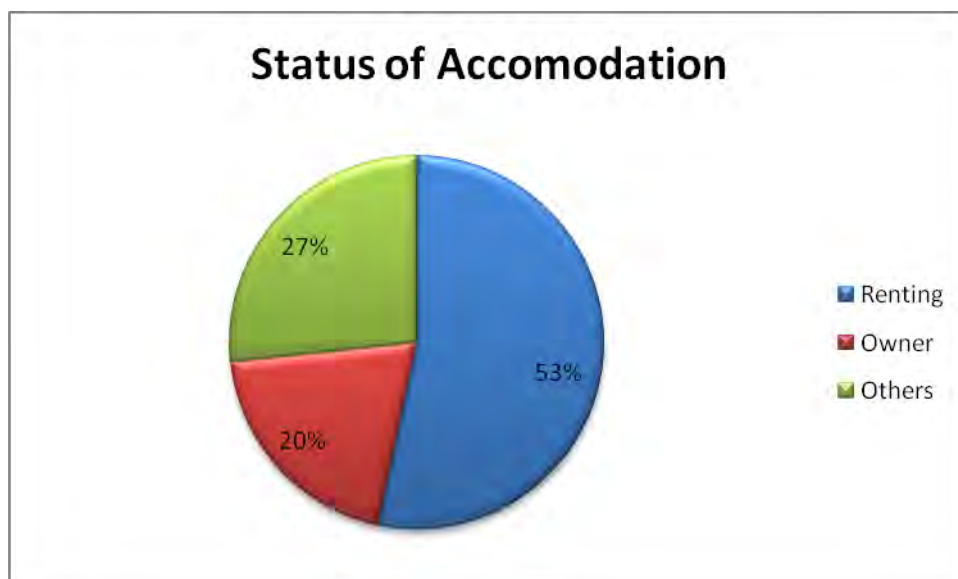
Reasons of not practicing UA	Number of respondents	Respondents in Percentages	Rank
Poor security	13	87	1
Lack of finance	13	87	1
Lack of time	12	80	3
Lack of land	10	67	4
Rural activities	5	33	5
Having farm in rural areas	4	27	6

Source: Fieldwork Results, 2009.

Similarly, lack of financial support also ranked high on the reasons why they do not practice urban agriculture. Another important factor that was mentioned during fieldwork was unavailability of time to engage in urban agriculture. This ranked third among the reasons people gave as to why they do not engage in urban agriculture. Some respondents argued that they could not engage in urban agriculture because land was not available to undertake this activity. This response ranked fourth among the reasons put forward by respondents. Another interesting response from the respondents was that agriculture was a non-urban activity and as such, there was no need to practice it in the urban environment. The last group of respondents who in some way concur with this group indicated that they practice agriculture back in the village (rural home) and as such, there was no need to practice agriculture in their urban area. This group ranked sixth among the respondents.

Another important aspect about urban households who practice urban agriculture in Kwa-Mashu's Section G is the link between the farmers and their tenure status. In other words, this relates to the nature of their housing status as to whether they own or merely rent the houses in which they stay. Generally, the survey results show that urban agriculture is practised by both landlords and tenants in Kwa-Mashu. The fact that it is practised by a diversity of households is a very good indicator of the value of urban agriculture among urban households.

Figure 5.6. Tenure Status of Urban Farmers

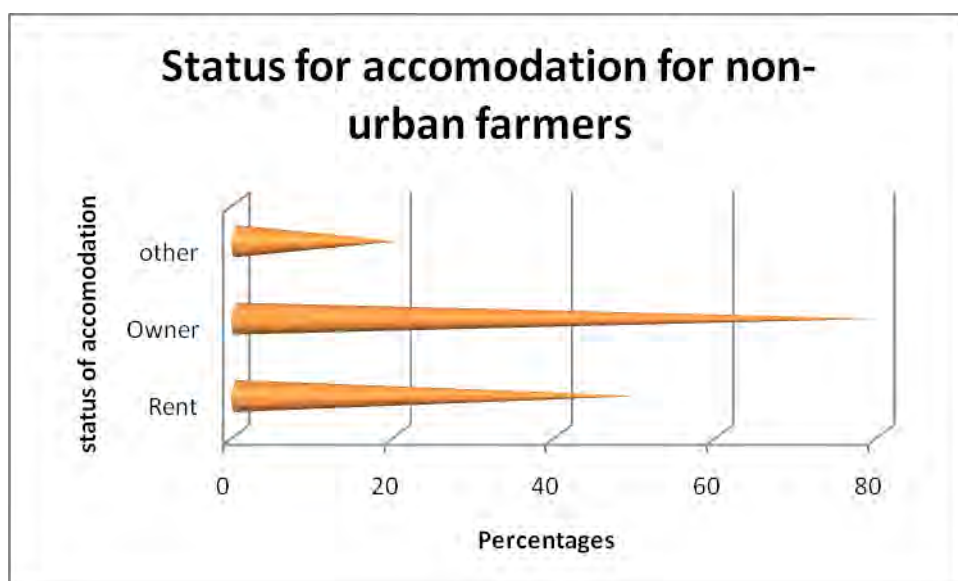


Source: Fieldwork Results, 2009.

Results from the fieldwork (as shown in Figure 5.6) shows that of all the households who were interviewed, half of them (representing 53%) own houses in which they stay while 27% are mere tenants. The other group, representing 20% of the total households interviewed neither own nor rent the houses they occupy but they are mere residents of the area. Some are staying in their parents' houses while others are custodians of houses left by friends and relatives who are away.

When one compares the tenure status of these households in relation to urban agriculture, the results clearly show that urban agriculture is practised more by the vulnerable households. As shown in Figure 5.7, most house owners interviewed, (90%) do not practice urban agriculture while only a handful of households with rental houses (6%) do not engage in urban agriculture. On the other hand, the least group of households who do not practice urban agriculture (4%) is that of households whose tenure status is categorised as others. These figures are further shown in Figure 5.7 which illustrates the tenure status of non-urban farmers. Therefore one can safely conclude that urban agriculture is a survival strategy for the urban poor since in most instances, people who rent housing cannot afford to own their own properties. In the context of low income residential areas, such people may be renting only one or two rooms which they can only afford as compared to renting the whole house. Hence for them to survive, they engage in other survival strategies such as urban agriculture in order to cushion themselves from various economic problems.

Figure 5.7. Tenure Status of Non-Urban Farmers



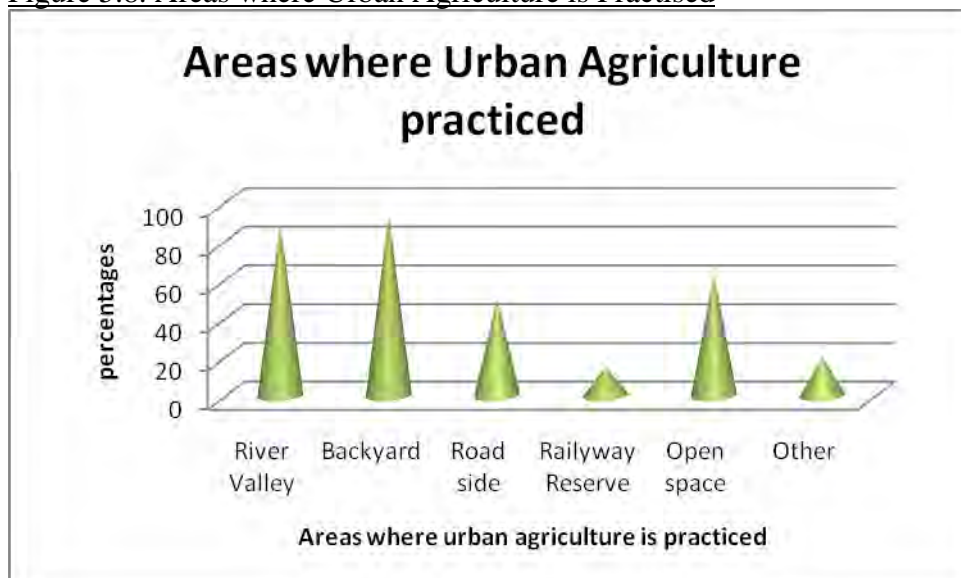
Source: Fieldwork Results, 2009

In summary, it can be concluded that people who engage in urban agriculture are the vulnerable members of society. This level of vulnerability is exhibited through the type of people who mostly practice it (i.e. women), their low academic status, low income and unsustainable tenure status. Hence from this perspective, urban agriculture can therefore be seen as a means the vulnerable members use to shield themselves against adverse aspects of the urban environment. Among such negative adverse conditions are unemployment and low income levels.

5.3 Suitability of land for Urban Agriculture

Like any other type of agriculture, the practice of urban agriculture in Kwa-Mashu takes a number of dimensions. Among these issues are places where urban agriculture is practised, types of commodities produced, what they are used for and some challenges these urban farmers face when undertaking this activity. The practice of urban agriculture in Kwa-Mashu is not done on specific land designated for that use. Instead, as already noted, it is practised in the backyard, any open space, roadsides, railway reserves and river valleys as shown in Figure 5.8. Under such circumstances, the nature of land where it is practised can be classified as onsite (i.e. when it is being practised on the residential plot) or off-plot (i.e. when it is being practised outside the residential plot).

Figure 5.8. Areas where Urban Agriculture is Practised



Source: Fieldwork Results, 2009

The only land that is easily accessible and legally available to people is the backyard on their plots. But in both instances, (be it on-plot or off-plot), the sizes of the plots for practising

urban agriculture are small. This negatively impacts on those practising livestocking since they cannot afford to let their animals graze freely. Goat breeders for instance, tie their animals throughout the day. While this is also a security measure on their part not to lose their animals to thieves, it is also a constraint on their part as far as management is concerned since they have to employ people throughout the day to tend to them. In some cases, goats are limited to their shelter since there is no land for grazing. These farmers instead depend heavily on buying animal feeds - a factor that further impact negatively on their finances. This in turn pushes up the price of their goats on the market. A small goat, for instance can fetch up to R700 on the market. In addition, lack of land reduces the need to breed goats by farmers. Instead, they buy goats for resale from farmers in the Eastern Cape. This has significantly affected their scale of operation.

Plate 5.1. Livestocking in Kwa-Mashu.

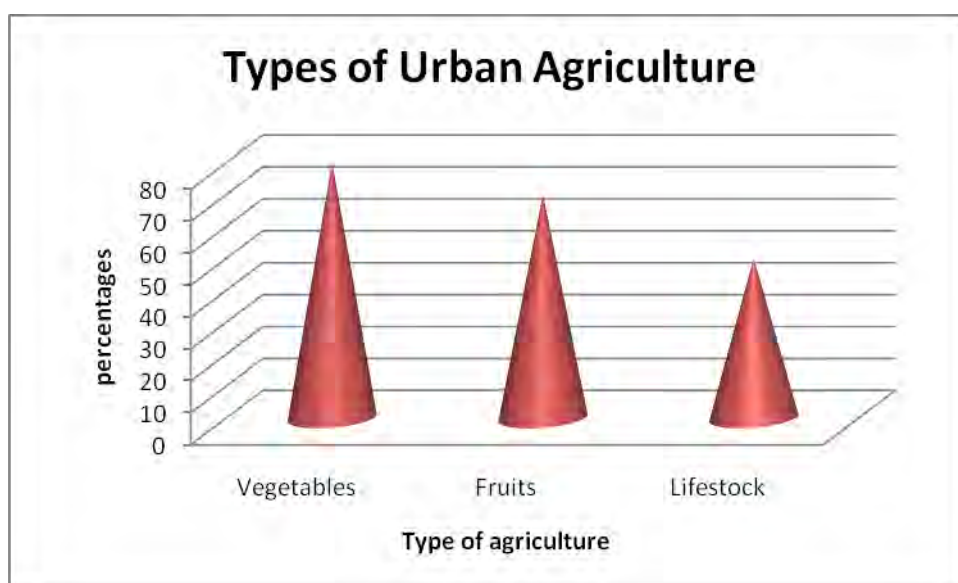


Source: Fieldwork, 2009

The place where urban agriculture is practised also has implications on the sizes of the plots and on the type of crops grown. With most on-plot practices, the amount of space available for cultivation is small. It has therefore emerged that such space is used mostly for growing

food for household consumption by the urban poor. However, there are instances where some products are sold to the local market such as for those who practice poultry and those who have orchards for fruit trees. The advantage of on-site plots is that there is security and therefore instances of commodities being stolen are minimised and isolated. In addition, the presence of infrastructure such as water and electricity further enhances productivity. For example, it is possible to grow crops throughout the year since water is readily available while for those who are into poultry, it is possible to provide lighting for the chicken. But it has to be pointed out that the practice of on-plot urban agriculture is mainly done by a small percentage of urban farmers (27%) who own houses. The fact that on-plot cultivation involves use of water and electricity means that those who rent rooms from home-owners do not have the right to do this because it pushes rates up. On the other hand, with off-site urban agriculture, plot sizes are still small but crop production is seasonal since it is rain-fed. This is a true fact when one considers roadside plots and those plots on the railway reserve. But in all these plots, a variety of crops are grown as shown in Figure 5.9. Among such crops grown are

Figure 5.9. Types of Urban Agriculture Practised



Source: Survey Results, 2009.

maize, sweet potatoes and groundnuts which are highly dependent on seasonal rainfall. Moreover, these products are prone to thieves since these plots have no security provided.

In some instances, people opt to use river banks where they can fetch water from the river for watering the crops. In such areas, there are a variety of crops grown and agriculture is a year-

round activity. Crops grown here include a variety of vegetables such as tomatoes, spinach and onions as shown in Plate 5.2.

As shown in Figure 5.9, among the people who were interviewed, the biggest percentage of them (70%) are involved in the production of vegetables such as spinnach, onions, tomatoes and pumpkins (also see Plate 5.3). This group is followed by those who produce fruits (60%). Among the common types of fruits produced by urban farmers in Kwa-Mashu are pawpaws, mangoes and avocados. The last group of urban farmers, who represent the smallest percentage of urban farmers (40%) are involved in livestocking. The type of animals that are kept by these urban farmers are goats and chickens (see Plate 5.1).

Plate 5.2. Types of Vegetables in Kwa-Mashu



Source: Fieldwork, 2009

The products from urban agriculture are normally put to different uses. The common use to which products from urban agriculture are put to is basically for domestic consumption which to a large extent represents about 80%. Some urban farmers produce their products for sale but this is a very small proportion which is as low 12%. The least category to which products are used for is whereby farmers donate them to pre-schools, to domestic workers, to destitutes as well as to neighbours. However, some farmers never enjoy their products since they are

stolen before they are harvested. Figure 5.10 summarises the use to which urban agricultural products are used for.

Figure 5.10. Use of Urban Agriculture Products



Source: Fieldwork Results, 2009

In conclusion, it can therefore be pointed out that as far as the suitability of land for practising urban agriculture is concerned, the point of reference used to qualify this objective is by analysing it from purely a land use perspective as opposed to a technical perspective that could be given by agricultural specialists. But at the same time, suitability is a relative term that can be dependent on the assessor - hence it has to be understood from different stakeholders. But such a position would give a disjointed picture about the whole venture of urban agriculture. Hence the assessment given here is based on a number of indicators such as recognition by the municipality, availability of infrastructure and security. Firstly, it has been noted already that the municipality did not zone any land for agricultural purposes.

But the land that farmers use is that land they deem suitable for their purpose. The unavailability of land designated for this purpose has resulted in people using any accessible open space for this purpose. This in turn seems to run into conflict with other land uses designated in these places invaded by urban agriculturalists. Cultivation in most low-lying areas somehow affects free-flowing of urban infrastructure such as water and sewer lines. For instance, a number of crops could be seen around sewer manholes while others on road verges (such as maize) obscure visibility on road sides. Further to this point, lack of recognition of such land has also impacted negatively on potential farmers who feel that the

land is not big enough to support large-scale farming while at the same time they could not use the land to acquire financial support from banks. Then it can be argued that lack of recognition has deprived this land any opportunity to be provided with infrastructure both from the municipality and from the potential stakeholders.

5.4 Challenges Faced by Urban Famers

Practising urban agriculture in Kwa-Mashu is associated with a number of challenges. Among these challenges are lack of land, high production risk, lack of water, electricity, lack of finance, lack of representation and inadequate technologies. Table 5.4 illustrates these challenges that urban farmers face in Kwa-Mashu's Section G.

Table 5.4: Challenges to Urban Agriculture

Challenges	Numbers of respondents	Respondents in Percentages	Rank
Lack of land	26	87	1
High production risks	26	87	1
Lack of finance	23	76	3
Lack of water, electricity	20	67	4
Lack of representation	16	53	5
Inadequate technologies	15	50	6

Source: Fieldwork Results, 2009

5.4.1 Lack of Land for Urban Agriculture.

Ranking high on the list of challenges is the issue of land which was mentioned 26 times by respondents in the field. Challenges concerning land relate to its unavailability and non-suitability for agricultural purposes. This challenge was mentioned by both urban farmers and non-urban farmers. But lack of urban land for agriculture has to be understood in different contexts. From the perspective of non-urban farmers, the inadequacy of land for urban agriculture is the main reason that makes them not to engage in this activity. The argument is that there is no land specifically designated for this function by the municipality, hence wherever it is practised, it is mainly in portions of land that is not sustainable.

The practice of urban agriculture in Kwa-Mashu's Section G is not done on specific land designated for that use. Instead, it is practised in the backyard, any open space, roadsides, railway reserves and river valleys as the researcher observed. Generally, it can therefore be argued that there is both on-plot and off-plot cultivation. As far as off-plot urban agriculture is concerned, it can be noted that the local authority did not designate land for such use and as such, people rely on any land that is readily available and accessible to undertake this activity. But quite interesting about these spaces outside the residential plots is the fact that the municipality does not stop people from using such land for agriculture. For instance, crops on the roadside and on railway reserves are left intact when the municipality is cutting grass around the neighbourhood (see Plate 5.4). In addition, the municipality does not regulate stream-bank cultivation especially along the river valleys. Therefore, although land is not provided, the municipality, by default, supports the practice of urban agriculture by the community see (see Plate 5.4). Hence the legality and illegality of this practice on any piece of land is debatable.

It appears that the issue of land is critical in the municipality as a whole. The official position on land for urban agriculture is that land is critical not only for urban agriculture. But the municipality has shortage of land for a number of activities including housing. One official who is a town planner further remarked that:

"I do not see why the municipality should put land aside for urban agriculture while people do not have housing, people do not sleep in the gardens, they need shelter".

The issue of inadequacy of land is, to a large extent, further related to the risk factor associated with urban agriculture. When urban agriculture is practised on portions of land that is not designated for this purpose, it is difficult for farmers to exercise maximum rights on these pieces of land because they do not own that land (tenure insecurity). During the informal interview with some of the urban farmers, one remarked that there was no need to erect terraces or improve the soil if there are no guarantees from the government that they will reap their benefits from this land in the long run. Indeed these are the same views shared by some officials from the municipality, who noted that there is no clear legal framework that people should practice urban agriculture by the road sides, river banks and other spaces reserved for services such as electricity, water pipes and telecommunications. Apart from

insecurity of tenure, such plots fall prey to thieves who invade them and steal crops. But despite this challenge, those practicing urban agriculture cannot put security measures such as fencing to protect their crops because they do not have outright rights over these plots. Some argue that another similar risk factor is related to fear of unknown action the municipality can take against urban agriculture. This is a genuine fear given that there is no clearly defined policy or legal tool in place which urban farmers can use in practice and to protect them. It is generally known, for instance, that there are a number of regulations that govern land uses on the river bank such as environmental laws (NEMA). But given the lax development control in place, one can still practice urban agriculture in environmentally sensitive areas and get away with it (see Plate 5.5).

5.4.2 Lack of Infrastructure

Urban agriculture, like any other urban activity, requires the support of infrastructure. Infrastructure provides services that support economic growth by increasing the productivity of labour and capital thereby reducing the costs of production and raising profitability, production, income and employment (Robins, 2008). To this end if urban agriculture is to be viable, there is need for adequate infrastructure support. Unfortunately this is one of the major problems experienced by urban farmers since they do not have access to water, electricity and roads to support their farming activities. This view was echoed by 67% of the people in the field who confirmed that lack of infrastructure was a drawback to agricultural development in the urban areas since it restricted the practice.

For example, they are restricted to seasonal agriculture which is rain-fed because where plots are available; there is no water available to allow irrigation for the whole year round. Where water is available on residential plots where onsite agriculture is practised, the sizes of the plots is not big enough to support sustainable agricultural activities. Similarly, lack of electricity reduces diversity in agricultural practice. Electricity could be a major factor to enhance security on off-site plots. Another factor related to infrastructure is the issue of unavailability of finance. While on the other hand the municipality did not invest in infrastructure for urban agriculture, the urban farmers too, do not have adequate resources to invest in infrastructure. Use of meagre resources has seen farmers building poor and unsustainable structures. Some even use recycled materials which are not durable at all. The

case of a household involved in a poultry project as shown in Plate 5.3 is a good example of poor support given to urban farmers.

Plate 5.3. Urban Farmers Building a Chicken-run in Kwa-Mashu



Source: Fieldwork, 2009

5.4.3 Lack of Security

The field surveys revealed that 87% of the respondents view urban agriculture as a risk activity. This risk relates to lack of security whereby products from the urban farms are stolen. One of the urban farmers during interview remarked that:

“everytime I plant my crops by the road side people steal them. I feel very discouraged to continue planting since I am not sure whether I will be able to reap what I sowed“.

She further notes that what makes her continue planting is the fact that she does not have adequate money for her monthly expenditure since agricultural products that she plant helps her to supplement her monthly groceries. She claimed that she have reported this case to local leaders but unfortunately, the response was very passive.

During the interview with the local leaders of Kwa-Mashu, when the researcher asked them about the issue of lack of security they indicated that Kwa-Mashu is known for crimes. These

are the same sentiments shared by city officials when they were asked about the same issue - a response which sends signals of helplessness on the part of victims.

5.4.4. Lack of Representation of Urban Farmers

Other factors that are also considered as challenges to urban agriculture recorded in the field include lack of representation of urban farmers. Lack of representation relates to unavailability of organisations at both community and municipal levels that can engage with urban farmers in their pursuance of agricultural activities. One of the urban farmers remarked that:

We do not have people who represent us to the local authority. If we had people who represented us, we would not be suffering from issues like lack of land, lack of security and inadequate technology. The Municipality would recognise us and support us because it would have realised that there are a number of people who are practising urban agriculture. But as it is now, the municipality does not even know how many people are involved in urban farming.

Indeed these are the same views shared by municipal officials who on the other hand argue that farmers should organise themselves and have representatives. They further argued that without self initiative and organisation on the part of the farmers, it was difficult for the municipality to attend to individual problems.

5.4.5. Lack of Adequate Technology

Technology has become important in the fast life of today. It is technology which has brought distant locations closer and made the world a smaller place to live. To this end if urban agriculture is to flourish, technology has to play a vital role in the production process. Facilities among urban farmers such as tractors and pest control equipments are vital. They play a major role towards production. Lack of technology is mainly to do with unavailability of modern farming equipment. When local authorities were asked about the inadequacy of technology, they argued that the Municipality did not have adequate money. The only way the Municipality could raise money is through the payments for services provided such as water and electricity. But the unfortunate thing which the Municipal officials also raised is that most households were unwilling to pay for services rendered.

5.5. Responsiveness of Town Planning System to Urban Agriculture.

It has been noted earlier in Chapter 3 that Kwa-Mashu is an apartheid era creation and as such, it was developed at a time when modernist principles of planning were at their peak in South Africa. Modernist principles are virtually known for the traditional practice of town planning which relegated urban agriculture to the rural environment. Hence, land zoned within the city did not have a place for urban agriculture. Thus for a long time, no recognition has been conferred to this activity not only in the South African case, but from a global perspective as well. Mbiba (1995), for instance indicates that the local authority in Harare (Zimbabwe) did not take it lightly either in the 1990s when they cut all maize that was grown by urban farmers. But this was not to be for a long time as the informalisation of most third world cities was gradually intensifying due to increased urbanisation. So for quite some time, the world took time to recognise and bring on board urban agriculture as an activity that could be undertaken in the urban environment. Therefore in the case of Kwa-Mashu, the original development plans did not accommodate this function since the whole planning system was irresponsive to urban agriculture (See Map 3).

However, while the Integrated Development Plan and other subsequent plans would not define this use spatially, the local authority was somehow changing its stance in line with the change in the global position on urban agriculture. Although this decision could not be defined spatially in existing development plans, the Municipality has been able to tolerate this function by allowing people to pursue the activity without taking an offensive stance. Crops grown on road sides and railway reserves are left to grow freely without interference from the Municipality. Similarly, stream-bank cultivation also goes on without intervention from the municipality. In some areas such as Section G, land which was initially zoned for school sporting fields as well as for public sporting fields have been converted into agricultural plots. This is a tacit approval from the Municipality since some farmers who participate in this activity pay R100 per month to the Municipality. This in turn has kept away other potential participants since some potential farmers cannot afford to part with R100 every month. But, never the less, this is an ad hoc approach that does not operate within any given planning framework. There is no point of reference as to determine the nature of operation for urban agriculture.

This had had implications on the suitability of land being used for urban agriculture. Moreover, it had impacted negatively on the whole activity of urban agriculture since it is considered as a peripheral activity with considerably less attention being given by the

Municipality. With no land zoned for urban agriculture, areas where cultivation is done compete with areas zoned for other activities. It is common to see urban agriculture competing for space with sewerage manholes, electricity servitudes and road reserves for signage. This has adverse effects on existing infrastructure. For instance, interference with existing infrastructure is common. Road signs are at times obscured with crops thereby creating a hazard to traffic. On the other hand, cultivation around manholes and sewer pipes further expose the infrastructure to the surface. Plate 5.4 clearly shows the impact of ad hoc land use planning for agriculture where maize crops are seen under electricity power lines and on road verges where road signs are also be located.

Plate 5.4. Maize Crops Competing for Space with Urban Infrastructure



Source: Field work, 2009.

Another adverse impact is seen in the case of stream bank cultivation where environmental laws are barely considered, let alone monitored. For instance, loose soils being carried into the local streams are common. In addition, a lot of litter is thrown in the stream. Ultimately, most streams in the area have become a health hazards – the water has a greenish colour with a strong odour coming from it. Ironically, it is from these same streams where water for irrigating crops is drawn - a factor that put urban farmers at great health risk from water-borne diseases (See Plate 5.5).

The laxity of proper land use for agriculture has also resulted in incompatible use of land - especially the juxtaposition between some houses and the nature of urban agriculture. A point in question is the practice of poultry and goat rearing within residential areas. There are instances where almost half the residential plot has been turned into a chicken run or shelter for goats. This in turn produces a nauseating odour that deprives the neighbours of a quality and health residential area. But seemingly, the local authority does not take notice, let alone control such adverse developments.

Plate 5.5. Sources of Water for Urban Farmers



Source: Fieldwork, 2009.

But quite interesting is the fact that planning officials seem to be unaware of agricultural activities going on. One town planner of the Municipality indicated that the zoning of land for urban agriculture is not only a responsibility for planners but that a number of departments are involved such as the Department of Agriculture, the Department of Public Health and the Department of Environmental Affairs. In addition, he indicated that the planning section did not have much say in the demarcation of land for such use. More important to note is that there is no identity of people who practice urban agriculture in the area. When the researcher asked the local authority about the number of people who are involved in urban agriculture in

Kwa-Mashu Section G, the officials always hide behind the statement that urban agriculture is not their responsibility. An identity of these people would help the authority to determine the nature of their activities and how best they could be accommodated in the spatial plans of the municipality. The researcher had to use the snowball approach in some cases, to identify some of these farmers especially those engaged in livestocking.

Hence lack of knowledge of who the urban farmers are does not only reflect poor management on the part of the Municipality, but also has made the Municipality to lose an important source of income which can be tapped from urban farmers. Apart from ad hoc payment of insignificant rates, taxation of farmers, if well planned and organised could yield significant income. Some farmers are aware of this and they are not keen to be known by the Municipality. Hence the position that can be assumed from the status-quo is that the Municipality has a lukewarm response to urban agriculture.

5.6. Summary

Firstly, it has already been noted that the Municipality did not zone any land for agricultural purposes. But the land that farmers use is that land they deem suitable for their purpose. The unavailability of land designated for this purpose has resulted in people using any accessible open space for this purpose. This in turn seems to run into conflict with other land uses designated in these places invaded by urban agriculturalists. Cultivation in most low-lying areas somehow affects free-flowing of urban infrastructure such as water and sewer lines. For instance, a number of crops could be seen around sewer manholes while others on road verges (such as maize) obscure visibility on road sides.

Further to this point, lack of recognition of such land has also impacted negatively on potential farmers who feel that the land is not big enough to support large-scale farming while at the same time they could not use the land to acquire financial support from banks. Then it can be argued that lack of recognition has deprived this land of any opportunity to be provided with infrastructure both from the Municipality and from potential stakeholders. Urban farming in this case is seen as a peripheral activity in the city with no potential existing organisation among the farmers to represent them. This also contributes to the whole host of challenges they are facing because no one is interested to listen to isolated and individual problems which do not seem to have a wide impact on the neighbourhood. In this regard, it

can be argued that urban agriculture in Kwa-Mashu Section G is only a survival strategy among the poor households with little or no recognition from the Municipality

Chapter 6

Summary of Findings, Conclusion and Recommendations

6.1. Introduction

In concluding the thesis, this Section is divided into two sections. The first section looks at some of the recommendations that could be put across to improve the practice of urban agriculture in South Africa. These recommendations are drawn from the emerging issues in

the research findings as well as from the lessons learnt from the international practices. The second section wraps up the whole paper by summarising the key issues.

6.2. Summary of Findings

This research basically looked at how town planning responds to the practice of agriculture in urban areas. The research was driven by the need to assess why the planning system has remained unresponsive to the practice of urban agriculture. In trying to respond to this aim, the paper considered a number of objectives among which are the type of land used for urban agriculture, stakeholders involved in urban agriculture and challenges that urban farmers encounter in their practice of agriculture. The rationale behind the need to consider all these issues stemmed out of the recognition that urban agriculture is becoming a major source of livelihood by the urban poor. That being the case; it must be supported by the government. Indeed in line with this observation, the research noted that there are close to 80% of people in Kwa-Mashu who are in the low-income bracket. These are the very people who are poor since they do not have adequate income and they have to rely on other means of sustenance for them to survive in the harsh urban environment. Unfortunately, for them to fulfil this role, they have to depend solely on their initiatives in the form of labour because there are no other sources of resources they obtain from the government. Urban agriculture, however, has emerged as one such source of survival

Unfortunately, the planning system has remained insensitive to the plight of the urban poor who engage in urban agriculture. The continual perpetuation of the traditional planning principles has relegated the practice of urban agriculture to the periphery. This lack of recognition has negatively impacted on the whole practice since the government's support is mere piece-meal and ad hoc. For instance, there is no support given to the urban farmers in the form of zoned land provided with relevant infrastructure. On the other hand, no formal recognition is granted by other formal organisations (such as financial institutions) in supporting the practice. This is the position where urban agriculture in low-income residential areas is at the moment in South Africa. If this scenario is to change for the better, then the recommendations noted above in Section 6.2 need to be taken on board. As long as there is no formal recognition of urban agriculture by all sectors of the government, urban farmers will continue practising as any other informal sector of the urban economy - a factor that will continue making it side-lined in all aspects.

6.3. Recommendations

Chapters 4 and 5 presented and discussed the major issues that are associated with urban agriculture in South Africa as represented by the case study of Kwa-Mashu. However, in this presentation, a number of issues have been identified, both positive and negative, which impact on the practice of urban agriculture. But quite significant in the practice of urban agriculture is the realisation that the recognition of this activity within the urban framework is very low and as such, it does not draw much support from the urban economic and legislative forum. That being the case, urban agriculture is only practised through individual initiatives without much support from the local government. Therefore, if urban agriculture is to be given positive support in the urban landscape, a number of factors have to be considered. These range from changing the framework of the planning system to become more accommodative to provision of resources.

6.3.1 Changing the Perception of Planners and other Professionals

Most planners in developing countries have a view of the city which is based on old fashioned European planning pertaining to countries in which most of them have been trained. More important to note is that land regulations in these countries are outdated, while laws on health and environment restrict the integration of urban agriculture as an urban land use. They are often concerned about aesthetics, efficiency, hygiene and modernity in general. These negative attitudes of critical actors are particularly constricting especially in cities that are undergoing rapid urbanisation and in formalisation. For instance, when planners and economists regard urban agriculture as a marginal, informal-sector activity, the bias spreads to the market and credit agents, to legislators and the general population (UNDP, 1994). This eventually obscures the need to pay particular attention to the need to incorporate the activity in the urban landscape.

However this situation is gradually changing with increasing recognition of the importance of urban agriculture as a source of livelihood for the urban poor. Most governments and local authorities have begun to support urban agriculture and they are seeking ways to make it more successful and sustainable. According to Mougeot, (2000) Latin America and Tanzania have started to appreciate the importance of urban agriculture by way of integrating it in urban land use.

It is important to note that municipalities in South Africa are local planning authorities. As local planning authorities, they have powers and functions to plan and implement local development plans including enforcement of development control. In addition, municipalities have the power to specify or formulate development policies through by-laws. As policy-making bodies, municipalities can determine and shape the process of development at the local level. In this regard, municipalities can promote or prohibit urban agriculture. Therefore if urban agriculture is to be given a chance to survive in a highly competitive urban environment, such foresight needs to come out clearly in all development plans both in terms of policy as well as in special plans.

eThekweni Municipality needs to play a greater role integrating urban agriculture in land use plan. The Municipality will need to include urban agriculture in its planning policies, regulations and legislations that guide land use planning and management. However if these policies and legislations are to be effective, the municipality will need to work hand in hand with other Departments such as the Department of Health, Land Affairs, Water and Forestry and Social development, Environmental and Food Security. Indeed these are the same sentiments shared by Dubbeling and Gunther (2006) who noted that urban agriculture takes place in a multi-sectoral environment and it touches on a large number of urban management areas such as land use planning, environmental and waste management, economic development, public health, social and community development and it involves a large diversity of systems and related actors.

Department of Land Affairs

Land is a prime factor that contributes to agriculture. Without land, urban agriculture cannot be practiced. It has come out clearly from the findings that access to land and security of tenure is one of the barriers to urban agriculture. However, leaving land allocation for agriculture to this Department creates a disparity between the planning departments that are charged with day-to-day management of municipal areas. In addition, it creates bureaucracy which is not healthy for smooth delivery of services. By-laws should be put in place that should address directly the critical land requirements of the low-income households who are involved in urban agriculture. This process of formulating by-laws should involve households

who are involved in urban agriculture since they are the ones who know what they want. A top down approach, as opposed to the participatory approach results in the creation of by-laws that are partial and do not directly address the problems.

Department of Health

It is an undeniable stand that urban agriculture, like any other industry, has the potential to impact negatively on human health. But it must be noted that most of these potential negative effects can be minimised when urban agriculture is acknowledged and properly managed. The Department of Health should develop and implement policies that minimise health risks without compromising food production needs of the urban poor. eThekweni Municipality should learn from other countries such as Cuenca in Ecuador. The policy thrust in Cuenca in Ecuador has been designed to regulate the use of chemical fertilisers and pesticides in urban areas, with the intention to promote training and exchange on ecological farming practices, to provide licenses and incentives to micro-enterprises that produce and supply ecological-friendly inputs and to promote secure hygienic conditions for handling, food processing and vending of food (Mubvami and Mushamba, 2006). Together with the Departments of Land and Environment, such a move would promote the development of a health and sustainable urban farming environment.

Department of Environment

There are many industries that impact negatively on the environment such as the petroleum industry. But their negative impact does not prohibit them from operating in the urban landscape. Instead, the “green people” have come up with policies that minimise the negative impact to the environment. Urban agriculture can affect the environment negatively if not well managed. But it is worthy to note that when well managed, urban agriculture can have positive impact on the urban environment such as:

- Using it as tool for environmental management of nutrients and waste recycling;
- Transforming derelict land and passive open spaces;
- Beautifying the city through city gardens;
- Reducing environmental pollution through recycling of solid and liquid waste.

A good example of an aspect of environmental management is that of the case of Harare. Tariro, (2003) notes that the City of Harare irrigates pastures on large-scale commercial farms that support over 1 000 cows, using waste water from its Crowborough and Fire Sewer Works. The water filters down and finds its way back to the city reservoir after a natural purification process.

Therefore, if urban agriculture is to be integrated into the urban landscape in Kwa-Mashu, new planning tools and approaches that are more flexible need to be encouraged. The perspective of health inspectors need to change from looking at urban agriculture from a negative perspective. Mougeot, (2000) illustrates that planning is used as an approach to make cities healthy and disease free. Urban agriculture can improve the nutritional and health conditions of residents.

Marielle and Merzthal (2006: 23) stress that if urban agriculture is to be successful there is great need to take of multi-functional stakeholders into consideration. They further note that Multi-Stakeholder Processes are:

- Processes that aim to involve stakeholders in improving situations that effect them
- Forms of social interaction that enable different individuals and groups, who are effected by an issue, to enter into dialogue, negotiation, learning, decision making and collective action;
- About getting government staff, policy makers, community representatives, scientists, business people and NGO representatives to think and work together (see also <http://portals.wdi.wur.nl/msp/>).

More important to note is that for urban agriculture to be more effective, project, policy and planning processes on urban agriculture should address the needs and priorities of the different stakeholders involved, as well as the specific socio-economic and political-institutional context in each locality.

6.3.2 Food Security

Urban agriculture is seen as a source of livelihood strategy for the urban poor. Given the current economic crisis, urban agriculture has become the best solution for the urban poor to supplement their food. EThekwini Municipality does include food security on its policies but

it is poorly implemented. Incorporating food security statements in policy documents is not enough, but the implementation of such policies is what is critical. This includes having the strategies to implement such policies as well as to allocate sustainable resources. Therefore, there is need to take an integrated approach to urban agriculture. This should involve making it part and parcel of the IDP with both structures and resources so that it could have a meaningful impact. But as long as urban agriculture is seen as a peripheral activity without any identifiable structures in place, it will always be sidelined at the expense of other land use zones such as residential, industrial and commercial activities.

6.4. Conclusion

In view of the topical nature of urban agriculture in contemporary urban discourse, one can be forced to conclude that urban agriculture is here to stay and the onus is on urban managers to accommodate it. This is a challenge all planners will have to contend with given the continual informalisation of third world cities and the unprecedented increases in population caused by urbanisation. These developments are putting pressure on the urban environment especially on the provision of urban services for the vulnerable urban populations. Under such circumstances, urban agriculture is emerging as one of those survival strategies the urban vulnerable households can rely on in order to endure the unprecedented harsh realities of the urban environment. For these poor households, urban agriculture has become one of the major sources of income and food. This is expected given the meagre incomes such groups are getting from their employments. But unfortunately, the venture into urban agriculture has remained peripheral due to the hostile reception they get from local authorities. As the research findings has shown, there is still lack of appreciation among urban practitioners that urban agriculture can be accommodated in the urban landscapes. Driven by modernist principles of planning, these urban managers still view urban agriculture as a non-urban activity and as such, it does not receive adequate attention in the planning system. This in turn has seen the practice of urban agriculture being practised in an unsustainable manner within the city limits. Unfortunately, as long as there is no proper recognition and support of urban agriculture by urban managers, the practice will always remain peripheral and unsustainable – a situation which will always aggravate the already deplorable situation of the urban poor.

Appendix 1

Questionnaire

University of KwaZulu-Natal
Howard-collage campus
School of Architecture of Architecture, Planning and Housing
Urban Agriculture

Questionnaire : Urban Farmers in KwaMashu

KwaMashu Section.....

Introduction

Hi, my name is Magidimisha Hope. I am a student at the University of KwaZulu-Natal currently doing my Masters degree in town and regional planning. As part of the requirements of this degree i am expected to write a thesis on a topic of my choosing. My topic is on the responsiveness of town planning system to urban agriculture in kwaMashu. The interview with you is an important way of obtaining information regarding my thesis.

Your anonymity and confidentiality will be protected at all times. Apart from basic demographic details such as gender, employment description, educational level no personal information is required for this research. You participate completely voluntarily and therefore have the option to withdrawing your permission to participate at any stage without any negative consequences. I am happy to make a copy of the report available to you should you request.

1. Where do you stay?

.....

2. Gender

- 1. Male**
- 2. Female**

3. Status of accommodation

- 1. Renting**
- 2. Owner**

3. Others

.....

4. What is the size of your household

1. Two
2. Three
3. Four plus

5. Are you original from Kwamashu? If not specify

.....

6. How many members of the family are working

1. Two
2. Three
3. Four plus

7. What your highest standard of education

1. Primary level
2. Secondary level
3. Tertiary level

8. Are you employed? If yes where are you working?

1. Yes
 2. No
-

9. How much do you earn per month?

1. 1000- 2500
2. 2500-5000
3. 5000-9000
4. 10000 plus

9. Where do you practice urban agriculture?

1. River valley
 2. Road side
 3. Open Space
 4. Railway reserve
 5. Backyard
 6. Other
-

10. How big is your farm

.....

11. How do you obtain your land?

1. Bought it
2. Own it
3. Inherit
4. Other

12. If you bought it how much did you pay?

.....

13. If you are renting it, how much do you pay per month?

.....

14. Who did you buy your agricultural land from or rent from?

.....

15. If you own it, do you have title deed?

.....

16. What do you use your product for?

.....

.....

17. How long have you been practising urban agriculture?

.....

18. What type of infrastructure do you have in your farm?

.....

.....

19. What are the challenges that you face?

.....

.....

20. Is there any organisation or municipality that support you?

.....

.....

21. What is your land tenure status?

.....

.....

22. Do you have adequate skills to practice urban agriculture?

.....

23. Do you employ any labourers?

.....

24. Where do you get your input?

.....

24. How much is your monthly expenditure on

School fees	
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Groceries	
Transport	
Accommodation	
Electricity and water	

Bibliography

1. After R.J. Davies, “The spatial formation of the South African city”, Geo-Journal (Supplementary Issue 2, 1981).

2. Armar-Klemesu, M. (2000). Urban agriculture and food security, nutrition and health. In: N. Bakker et al. (eds.). 2000. Growing cities, growing food: urban agriculture on the policy agenda. Feldafing (Germany), DSE.
3. Ayaga, G., Kibata, G., Lee-Smith, D., Njenga, M. and Rege, R. (2005). Policy Prospects For Urban and Peri-Urban Agriculture In Kenya. Urban Harvest –International Potato Center, Lima, Peru
4. Bakker N, Dubbeling M, Gundel S, Abel-Koschella U, de Zeeuw H (2000). Growing Cities, Growing Food. Deutsche Stiftung für Ernährung und Landwirtschaft, Germany.
5. Beauregard, R.W. (1989). Between Modernity and Postmodernity: The Ambiguous Position of US Planning. Department of Urban Planning and Policy Development. Rutgers University, New Brunswick, USA.
6. Boating, A. (2001). Urban Cultivation in Accra: An Examination of the Nature, Practices, Problems, Potentials and Urban Planning Implications.
7. Bowyer-Bower, T.A.S. and G. Tengbeh. 1995. The Environmental Implications of (Illegal) Urban Agriculture in Harare, Zimbabwe. Working Paper 4. Paper presented at the ODA Workshop on the Environmental, Social and Economic Impacts of (Illegal) Urban Agriculture in Harare, Zimbabwe, University of Zimbabwe, Harare.
8. Chambers, R. & Conway G. (1992) Sustainable Rural Livelihoods: Practical Concepts for the 21st Century. University of Sussex, Institute for Development Studies, DP 296, Brighton.
9. Coovadia, Y.Y (1995). Urban Agriculture as a Survival Strategy: Implications for Planning.
10. CSIR.2002. Study Report: Urban Agriculture in South Africa. Pretoria
11. Davison, C. (2002). An Evaluation of Existing Residential Layout Design Approaches in Zimbabwe and Suggestions for Alternative Approaches. Urban Forum Volume 13 Number 4.
12. Egziabher, A. G.; Lee-Smith, D.; Maxwell, D. G.; Memon, P. A.; Mougeot, L. J. A.; Sawio, C. J.(2006) Cities feeding people: an examination of urban agriculture in East Africa. International Development Research Centre.
13. Gans, H. (Ed) (1968) City Planning in America: a Sociological Analysis. Basic Books, New York.
14. Government of Zimbabwe:

- Regional, Town and Country Planning Act (Revised Edition, 1996) Chapter 29:12.
 - Urban Councils Act (Revised 1996) Chapter 29:5.
15. Hall, P. (1989) The Turbulent Eighth Decade: Challenges to American City Planning. Journal of the American Planning Association. 55, 275-282
 16. Ir. Henk de Zeeuw (2004) The development of Urban Agriculture; Some Lessons Learnt, Key note paper for the International Conference” Urban Agriculture Agro-tourism and City Region Development”, Beijing, 10-14 October, RUAF), Leusden, the Netherlands.
 17. Julian May and Christian M. Rogerson (1997). Poverty and Sustainable Cities in South Africa: The Role of Urban Cultivation. University of the Witwatersrand, Johannesburg.
 18. Kamete, A.Y. Cold-hearted, Negligent and Spineless? Planning, Planners and the (R)Ejection of “Filth” in Urban Zimbabwe. International Planning Studies Vol. 12, No. 2, 153-171, May 2007.
 19. Kanyenze, G. (2004). Economic Structural Adjustment Programme (ESAP): Precursor to the Fast Track Resettlement. In Post-Independence Land Reform in Zimbabwe: Controversies and Impact on the Economy edited by M. Masiwa. Friedrich Ebert Stiftung and Institute of Development Studies. University of Zimbabwe, Harare. pp 90-123.
 20. Kekana, D. (2006). A Socio-Economic analysis of urban agriculture
 21. Krantz, L. (2001). The Sustainable Livelihood Approach to Poverty Reduction – An Introduction. Swedish International Development Cooperation Agency. Division for Policy and Socio-Economic Analysis.
 22. Hindson D and McCarthy J (1994) “Defining and Guaging the Problem” in Hindson D and McCarthy J (eds) Here to Stay: Informal Settlements in KwaZulu-Natal.
 23. Len Baars, Senior Project Manager: eThekwin Municipality, Economic Development Unit. Presentation on Case Study of Township Centre Establishment (Kwamashu Town Center).
 24. Lyotard, J.F. (1984) The Post-modern Condition. University of Minnesota Press, Minneapolis, MN.

25. Mabin, A. and D. Smit (1997). Reconstructing South Africa's Cities? The Making of Urban Planning 1900-2000. Planning Perspectives, 12, 193-223.
26. Mbiriri, P.I. (2001). Land and Land use Development. Paper presented at the Local Economic Development Policy Workshop for Eastern and Southern Africa (October 29 to November 2, 2001).
27. Macleod, D. <http://www3.sympatico.ca/david.macleod/POMO.HTM>.
28. Mbiba, B. (1995). Urban Agriculture in Zimbabwe. Avebury, UK.
29. MCN (1999). Strategic Nakuru Structure Plan, Action Plan for Sustainable Urban Development of Nakuru Town and its Environs.
30. Mirer, C; Kyessi, A.; Mushi, N and Atekyereza, P. (1999) Urban Agriculture in East Africa: practice challenges and opportunities
31. Mubvami ,T and Mushamba, S (2006) *Intergration of Urban Agriculture in land use planning*
32. Musandu-Nyamayaro, O. (2008). The Case for Modernisation of Local Planning Authority Frameworks in Southern and Eastern Africa: A Radical Initiative for Zimbabwe. Habitat International 32:15-27.
33. North Central Local Council (1998a) Kwa-Mashu: Integrated Development Framework. North Central Local Council. Durban.
34. Olima (2006) Urban Agriculture constrains: University of Nairobi
35. Pauw, K. (2005). A Profile of KwaZulu-Natal: Demographic, Poverty, Inequality and Unemployment
36. Petra, J.; W.D. Axel and A. Jorg (2000). Urban Agriculture - Justification and Planning Guidelines. Urban Agriculture Notes. City Farmer. Canada.
37. Preston, P.W. (1996) Development Theory: An Introduction. Blackwell Publishers, UK.
38. Rogerson, C.M. (1997). Globalisation or Informalisation? African Urban Economies in the 1990s in C. Rakodi (Ed) "The Urban Challenges in Africa: Growth and Management of its Large Cities. United Nations University Press. New York.

39. Rakodi, C. (1996). Urban Land Policy in Zimbabwe. Environment and Planning A 28 (9): 1529-1718.
40. Rakodi, C. (ed.), 1997, The Urban Challenge in Africa: Growth and Management of its large cities. Tokyo, New York and Paris: United Nations University Press.
41. Robinson, P.S; Brown, A.E; Todes and F. Kitchin. (2003). Methods of Achieving Integration in Development Planning: Early Experience from South African Municipalities. *IDPR*. 25(3): 263-281.
42. Robinson, McCarthy and Forster (2004). Urban Reconstruction in the Developing World. Learning through an international best practice
43. Rakodi C. & Llyod-Jones T. (2002) Urban Livelihoods: A Framework for Analysis. University of Sussex. Institute for Development Studies, WP 72, Brighton.
44. Republic of South Africa:
 - The Integrated Food Security Strategy for South Africa. Department of Agriculture. Pretoria (2002)
 - Nguthu Municipal Area (IDP Review, 2006/2007)
 - KwaZulu-Natal Management Landuse System. Update 2004. Provincial Planning Development Commission.
 - eThekwin Municipality Area, May 2002.
 - The Agricultural Land Act No. 70 of 1970.
 - National Water Act No. 36 of 1998.
 - Census 2001 Statistics.
 - Census 2007, Statistics.
 - North Central Local Council 1998.
 - eThekwin Municipality IDP. 2002 – 2006.
45. Saff, G. (1994) The Changing Face of the South African City: From Urban Apartheid to the Deracialisation of Space.
46. Stern, Richard E. and Rodney R .White (eds), (1989), Africa Cities in Crisis. Boulder, San Francisco and London: Westview Press.
47. Todes, A. (2000) Reintegrating the Apartheid City? Urban Policy and Urban Restructuring in Durban.

48. The Prime Minister's Directive of 1984. Government of Zimbabwe.
49. Toriro, P. (2006). Town Planning in Zimbabwe: History, Challenges and Urban Renewal Operation Murambatsvina. Harare, Zimbabwe.
50. UNDP (1996). Urban Agriculture: Food, Jobs and Sustainable Cities. United Nations Development Program, Publication Series for Habitat II, Volume One. UNDP, New York.
51. UNCHS/HABITAT. (1996). An Urbanising World: Global Report on Human Settlements 1996. Oxford: Oxford University Press.
52. Watson, V. (1998). Planning Under Political Transition – Lesson from Cape Town's Metropolitan Planning Forum. International Planning Studies. Vol.3, No.3.
53. Watson, V, Mabin, A and Hindson D. (1993). Restructuring the Built Environment: National Housing Forum.
54. Wekwete, K.H. (1995). Planning Law in Sub-Sahara Africa – A Focus on the Experiences in Southern and Eastern Africa. Habitat International Vol.13, No.1: 13-28.
55. Winter, C. (1983). The classification of Traditional African Cities. Journal of Urban History.
56. Worden, N. 1994. The Making of Modern South Africa: Conquest, Segregation and Apartheid. Oxford: Blackwell.