

URBAN AGRICULTURE

FOOD FOR THOUGHT

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DECLARATION

I, the undersigned, hereby declare that the work in this assignment is my own original work and that I have not previously, in its entirety or in part, submitted it at any university for a degree.

ABSTRACT

An ever changing urban environment, limited economic opportunities and rising poverty, have brought into sharp relief the need for strategies that support the livelihoods of the poor. Urban areas are complex and dynamic systems. No town or city is immune from either external forces (globalisation) that dictate the need to adapt, or to internal pressures (the natural growth pattern of an urban population and rural-urban migration) that collectively can precipitate growth or decline.

The formal sector cannot, in most instances, fulfil the need for secure, regular employment in the urban areas, which leads to increases in unemployment, gradual breakdown of basic services - visual evidence includes large squatter settlements in and around urban centres - and the not unlikely increase in food insecurity. There is no doubt that the future of urban centres is dependent on the effective absorption of the increasing number of urban dwellers into its environmental, economical and social structures, and public policy plays an important role in the success of this process.

The important contribution of urban agriculture in bolstering food security of urban households raises critical planning issues. The spatial integration of our settlements is critical; it holds the potential to enhance economic efficiency and social development. Spatial strategies should be combined with economic and environmental programmes to form an integrated approach towards development. Urban agriculture could possibly catalyse broader developmental processes such as local economic development, whereby disadvantaged communities could potentially secure the benefits of employment and increase food security. The provision of opportunities for urban agriculture not only makes it possible to meet the food needs of the urban poor, but to also ensure sustainable human settlements.

OPSOMMING

In die lig van 'n dinamiese stedelike omgewing, beperkte ekonomiese geleentheid en toenemende armoede, beklemtoon die nood aan strategieë wat die arm stedelike gemeenskap bevoordeel. Stedelike gebiede is ingewikkelde en dinamiese sisteme. Geen dorp of stad is vrygeskeld van eksterne invloede (globalisasie), óf van interne invloede (die natuurlike groeipatroon in 'n stedelike gebied en migrasie van platteland na stede) wat kollektief groei of verval van stede kan aanhits.

Die formele sektor kan in die meeste gevalle nie aan die behoefte van vaste werksaansstelling in stedelike gebiede voldoen nie. Dit lei tot 'n toename in werkloosheid en die geleidelike afbreek in fundamentele basiese dienste - ooglopende bewys hiervan sluit die groot plakkerskampe in en om stedelike sentrums – en die nie onwaarskynlike toename in voedseltekorte. Daar is geen twyfel dat die toekoms van stedelike sentrums afhanklik is van die absorpsie van toenemende stedelinge in hul omgewings-, ekonomiese- en sosiale strukture, en openbare beleid speel 'n kardinale rol in die suksesvolle verloop van hierdie proses.

Die belang van die bydrae van stedelike landbou tot die rugsteuning van versekering van voedsel-sekuriteit in stedelike huishoudings kompliseer beplanning geweldig. Die ruimtelike integrasie van ons nedersettings is belangrik; dit het die potensiaal om ekonomiese vaardigheid en sosiale ontwikkeling te verbeter. Strategieë om ruimte te optimaliseer behoort gekombineer te word met ekonomiese- en omgewingsprogramme, om sodoende geïntegreerde benaderings tot ontwikkeling te vorm. Stedelike landbou kan moontlik 'n katalisator vir verreikende ontwikkelingsprosesse soos plaaslike ekonomiese ontwikkeling wees, waar minder-bevoorregte gemeenskappe werksversekering en -geleentheid het en daar ook voedsel-sekuriteit is. Die voorsiening van geleentheid vir stedelike landbou maak dit nie net moontlik om die behoefte aan voedsel van minder-bevoorregte stedelinge te bevredig nie, maar verseker ook langdurige, volhoubare stedelike nedersettings.

TABLE OF CONTENTS

LIST OF TABLES AND PICTURES	iii
LIST OF ACRONYMS	iii
CHAPTER ONE: Introduction	1
1.1 INTRODUCTION	2
1.2 PROBLEM STATEMENT AND PURPOSE	4
1.3 RESEARCH METHOD.....	5
1.4 LAYOUT OF DOCUMENT	6
CHAPTER TWO: Conceptual Framework - Urban Agriculture and Food Security	7
2.1 INTRODUCTION	8
2.2 HISTORICAL PERSPECTIVE ON URBAN AGRICULTURE.....	9
2.2.1 Early Beginnings	9
2.2.2 The 1970s	9
2.2.3 The 1980s	10
2.2.4 The 1990s	11
2.2.5 Prospect 2000 and onwards.....	12
2.3 WHAT IS URBAN AGRICULTURE?	13
2.4 WHERE DOES URBAN AGRICULTURE OCCUR?	13
2.5 WHO IS INVOLVED IN URBAN AGRICULTURE?.....	14
2.5.1 Producers.....	14
2.5.2 Promoters	16
2.6 WHY IS THERE A NEED FOR URBAN AGRICULTURE?.....	16
2.6.1 The opportunities of urban agriculture	16
2.6.2 What influences the decision-making process of urban farmers?.....	20
2.7 FACTORS CONSTRAINING URBAN AGRICULTURE	21
2.8 URBAN AGRICULTURE AND FOOD SECURITY	23
2.8.1 The concept of food security	23
2.8.2 The South African context	24
2.8.3 Urban food security initiatives.....	28

2.9 CONCLUSION	29
CHAPTER THREE: Case Studies	31
3.1 INTRODUCTION	32
3.2 DAR ES SALAAM, TANZANIA.....	33
3.2.1 Introduction	33
3.2.2 Production systems	34
3.3 HAVANA, CUBA	35
3.3.1 Introduction	35
3.3.2 Production system.....	36
3.4 CAGAYAN DE ORO, PHILIPPINES.....	38
3.4.1 Introduction	38
3.4.2 Production systems.....	38
CHAPTER FOUR: The South African Context.....	40
4.1 INTRODUCTION	41
4.2 URBAN AGRICULTURE, LAND-USE PLANNING AND POLICIES	41
4.3 URBAN AGRICULTURE IN CAPE TOWN	43
4.4 A FOCUS ON SOIL FOR LIFE.....	45
4.4.1 The aims of Soil for Life.....	45
4.4.2 The Soil for Life method	46
4.4.3 Projects supported by Soil for Life	48
4.4.4 General findings relating to the Soil for Life projects.....	50
CHAPTER FIVE: Conclusion	53
5.1 INTRODUCTION	54
5.2 URBAN AGRICULTURE AND PLANNING	54
5.3 POLICY RECOMMENDATIONS FOR DEVELOPING URBAN AGRICULTURE	56
5.4 CONCLUSION	60
BIBLIOGRAPHY	61
INTERVIEWS CONDUCTED.....	69
APPENDIX 1	70
APPENDIX 2	73

LIST OF TABLES AND PICTURES

Table 2.1: The percentage of households that farm in order to supply food for the household	26
Table 2.2: Consumer Price Index (CPI) percentage change in food prices for South Africa	27
Table 3.1: Population size, urban population and GDP growth for Cuba, Philippines, South Africa and Tanzania.....	33
Table 3.2 : Urban agriculture production in Cuba per production system	36
Table 4.1 Soil for Life projects in the Western Cape	49
Picture 1: An example of the 'raised' beds	70
Picture 2: The Umfuleni Community Centre garden	70
Picture 3: Companion planting	71
Picture 4: The Masizame Women's Group.....	72
Picture 5: Vegetable gardens at Nolungile Primary - Khayelitsha.....	72

LIST OF ACRONYMS

AFSC	American Friends Service Committee
CMA	Cape Metropolitan Area
DFA	Development and Facilitation Act
DLA	Department of Land Affairs
FAO	Food and Agriculture Organisation
FSWG	Food Security Working Group
GEAR	Growth, Employment and Redistribution
GTZ	German Technical Agency
IDP	Integrated Development Plan
IDRC	International Development Research Centre
INP	Integrated Nutrition Programme
NALEDI	National Labour and Economic Development Institute
NGO	Non Governmental Organisation
OFY	Operation Feed Yourself
RDP	Reconstruction and Development Programme
RELMA	Regional Land Management Unit
SCGA	Support Group for Urban Agriculture
SIDA	Swedish International Development Agency

SPFS

Special Programme for Food Security

UNDP

United Nations Development Programme

UNICEF

United Nations Children's Fund

WB

The World Bank

CHAPTER ONE

Introduction

1.1 INTRODUCTION

Urban agriculture is probably as old as the first great urban centres built by our ancient civilizations. Agriculture was not sited haphazardly in the urban fabric or disconnected from the rest of its economy. In general, medieval urban centres contained within its walls vineyards, gardens, pastures, fields, cattle and manure (Mougeot, 1996).

The concept of 'urban agriculture' has come of age over the last three decades. Initially, researchers were concerned with the identity of urban agriculture such as the range of production systems, location of farms, practitioners and the legal aspects thereof. Recently, however, there has been a shift towards the relationship of urban agriculture to the economic, social and environmental sustainability of urban centres; i.e. food security, employment opportunities, income generation, health, entrepreneurial development, open space management, waste-resource re-use and community development.

The scale of urban agriculture in the world exceeds common perceptions. Urban agriculture has emerged as a key activity in the informal sector in most southern African countries such as Tanzania, Kenya, Zimbabwe and Malawi (Austin & Visser, 2002). In Kenya and Tanzania, two out of three urban families are engaged in farming; some full-time as entrepreneurs or wage earners and, in other instances, as a part-time household activity (Nasr & Smith, 1996). Countries in the East reflect a more developed urban agricultural sector. Over half a million Taiwanese urban families are members of farming associations. In some Chinese cities, 90% and more of the vegetable requirements are produced within urban areas and there are more urban than rural farmers in the Netherlands, Chile and Japan.

Urban areas are complex and dynamic systems. No town or city is immune from either external forces (globalisation) that dictate the need to adapt, or to internal pressures (the natural growth pattern of an urban population; rural-urban migration), which can precipitate growth or decline. One of the main reasons for rural-urban migration in southern African countries is the search for employment (Austin & Visser, 2002). The formal sector cannot, in most instances, fulfil the need for secure, regular employment in the urban areas, which leads to increases in unemployment, gradual breakdown of basic services - visual evidence includes the large squatter settlements in and around urban centres - and the not unlikely increase in food insecurity. There is no doubt that the future of urban centres is dependent on the effective absorption of increasing numbers of urban dwellers into its environmental,

economical and social structure/circuits, and public policy plays an important role in the success of this process.

Several studies consider food production exclusively, while others consider both food and non-food production. To exclude the non-food category from urban agriculture would restrict our understanding of the urban agricultural system, seeing that exchanges occur across production systems and within particular units (Obosu-Mensah, 1999).

Urban agriculture¹ plots are commonly found in Third World urban centres and are used by the poor as a means to secure vital nutrition and/or supplement incomes where opportunities for employment in the formal and informal sectors are limited and incomes derived from both sectors are low. Interestingly enough, though, food growing is evident across the entire socio-economic spectrum of most urban populations (De Necker et al, 1996; Egziabher, 1994).

Food is the most important requirement for survival and the cost of food alone can consume half or more of the household budget of low-income people. In the urban cash economy, urban residents are expected to be able to meet all their needs through the market, yet wages are often below that required to meet daily needs. In the Western Cape Province, 12% of the households (126 030 units) have an income of R800 or less per month. Approximately 67% of households in the townships of the Cape Town Metropolitan area (CMA) live under the 'poverty line' of R352 per adult per month. Research by the Chronic Poverty Research Centre indicates that 70% of households did not have enough food in 2002 (*Die Burger*, 5 June 2003).

The important contribution of urban agriculture in bolstering food security of urban households raises critical planning issues. Apartheid planning has left deep scars on the spatial structure of our cities, towns and rural areas. The spatial integration of our settlements is critical; it holds the potential to enhance economic efficiency and social development. The structuring of the spatial and economic systems of an urban centre is critical in accommodating the increasing urban population. In African cities urban agriculture has emerged as an element of managing poverty by providing the urban poor with a means of meeting one of their basic household needs. However, the potential of urban agriculture expands beyond the provision of food to encompass increased levels of nutrition for urban households, as well as the potential of becoming an income-generating activity (Austin & Visser, 2002). As planners, there is a need to shift from a regulatory function with respect to controlling

¹ The definitions mainly refer to the production of food fit for consumption by either humans or livestock. This involves mostly cultivated or raised food products (aromatic and medicinal herbs, fruit crops, grain, roots, vegetable) or livestock (cattle, chickens, donkeys, ducks, goats, pigs, sheep). Other plants are cultivated for agro-industrial (tobacco) and ornamental (silkworms) value. Aquaculture is practiced in tanks, pools, rivers and coastal bays

development towards more multi-disciplinary and innovative ways of addressing urban problems such as unemployment and food insecurity.

Spatial planning is a tool that planners can use to guide development in urban areas. Spatial strategies should be combined with economic and environmental programmes to form an integrated approach towards development. Spatial planning is not an individual function but should become part of the work of every department. Urban agriculture can catalyse broader developmental processes such as local economic development, whereby disadvantaged communities could potentially secure the benefits of employment and increase food security.

1.2 PROBLEM STATEMENT AND PURPOSE

In the light of the ever changing urban environment², limited economic opportunities and rising poverty, it is necessary that strategies be generated that improves the lives of the poor urban population. Despite post-1994 national policies and programmes aimed at redistribution, the over-all inter-household distribution of income has worsened (Watson, 2000). The spatial and economic disparities have persisted and become more complex as new forces make themselves felt. Unemployment is a major crisis, with the formal sector of the economy in many instances not able to fulfil the demand for secure employment. This has led urban dwellers to consider alternative means of earning a livelihood.

Currently, one of the strategies of the Provincial Government of the Western Cape to alleviate poverty is a food support project. The purpose of the project is to distribute food parcels to households that are under pressure to provide adequate food sources themselves. The project has distributed 204 836 food parcels throughout the province - 14 000 during 2003 (*Die Burger*, 5 June 2003). The food parcels, however, are not a sustainable solution for urban communities that lack adequate food. This document investigates the feasibility of urban agriculture as a strategy for ensuring food secure households in South Africa; utilising assessment literature; household income; the policy framework; and, case studies. Food security is defined in this document as access by all people at all times to adequate, safe and nutritious food for a healthy and productive life. Food security refers to the provision of basic food requirements to urban households, which could potentially lead to self-sustaining households in the future.

² This includes the physical environment and the population

The benefits of urban agriculture differ within the context of its occurrence. In some countries urban agriculture functions as a strategy to combat malnutrition and food insecurity. The production of excess food usually contributes to the household in the form of additional income or resources for the household. In other countries, urban agriculture is employed to improve the quality of urban environments by using open spaces productively.

Some of the questions in the document that will contribute to a better understanding of urban agriculture are: **what** is urban agriculture; **who** are the urban farmers; **where** does urban agriculture occur; and, **why** do households participate in urban agriculture. As a future planner I see it as essential to develop an understanding of the role that urban agriculture plays in urban communities. If urban agriculture is appropriately developed, it holds the potential to contribute towards more self-sustaining (food secure) households in urban centres.

1.3 RESEARCH METHOD

The first step in conducting my research focused on a broad literature review on urban agriculture. I drew upon different types of literature resources including books, conference and workshop proceedings, scientific journals, magazines, newspapers and the Internet to identify the different theories and occurrences of urban agriculture.

Additional information was gathered from institutions that are involved in urban agriculture. This includes individuals from the Provincial Department of Agriculture (Western Cape), Local Authorities, NGOs (Soil for Life and Abalimi Bezekhaya³) as well as urban farmers. Personal and informal interviews and casual observations were used to obtain more knowledge on this phenomenon. This part of the research was of particular value due to the experiential knowledge gathered via these individuals/institutions.

The second step in conducting my research focused on a case study of urban agriculture in the Western Cape; i.e. the NGO Soil for Life. This NGO focuses on the establishment of communal vegetable gardens in the Western Cape. The vision of Soil for Life is to make a significant and positive contribution to people-centred sustainable development in the Western Cape. Their aims include the improvement of the nutritional and economic status of individuals and communities in urban (and rural) areas while balancing the human needs with nature's capacity to sustain life for present and future generations.

³ Planters of the Homestead (Xhosa phrase)

1.4 LAYOUT OF DOCUMENT

Chapter Two provides definitions of urban agriculture and food security. Urban agriculture is explained in terms of its characteristics and the locality of the phenomenon. The participants in urban agriculture and their reasons for participating are discussed. The concept of food security is described with reference to the White Paper on Agriculture (1995).

Chapter Three highlights some case studies of urban food production as practiced in Asia, Latin America and Africa. Asian cities reflect the greatest advances in production and marketing systems of urban agriculture. Food production in African cities is also not a new concept, and the occurrence of this land-use presents a challenge to the western style concept of urban development in the future.

Chapter Four focuses on the South African context, with specific reference to the Soil for Life projects in the Western Cape. The objectives of the NGO with regard to urban agriculture and food growing, the impact of food production on households as well as some constraints on projects are documented.

Chapter Five, the concluding chapter, identifies and synthesises the information of the preceding chapters. The chapter includes recommendations for further development of urban agriculture.

CHAPTER TWO

Conceptual framework: Urban Agriculture and Food Security

2.1 INTRODUCTION

Urban areas are complex and dynamic systems that constantly change over time. According to Deelstra and Hirardet (2000), there was only one city (London) with a million people in 1800. By 1990, the world's 100 largest cities accommodated 540 million people, and 220 million people lived in the 20 largest cities - mega-cities of over 10 million people - some extending hundreds of thousands of hectares.

The cities of the 21st century are where human destiny will be played out, and where the future of the biosphere will be determined. It is unlikely that the planet will be able to accommodate an urbanised humanity that continues – at an accelerating rate – to draw upon resources from ever more distant hinterlands, or which uses the biosphere, the oceans and the atmosphere as a sink for its wastes. The challenge faced is whether cities can transform themselves into self-regulating, sustainable systems – not only in the internal functioning, but also in their relationship to the outside world.

Urban agriculture is one source of supply in urban food systems, and one of the many food security options for households. Today we face a new kind of crisis, forcing many people to adapt or to adopt new strategies, including spending some of their time growing food. If urban agriculture is to be effectively developed to contribute towards urban food security, it is important to explore both the past and present policies and projects thereof. A historical perspective offers an explanation of the changing nature of urban agriculture and indicates to planners and policy-makers what has been done, as well as what could possibly be done in future. An important first step is to clarify the meanings of the concepts used in past and present policy documents (Maxwell & Armar-Klimesu, 1998).

Concepts are mental tools that we forge – and eventually rework – to better understand, interact with and modify our real world experiences. Concepts are also culturally bound, relevant in some places and less so in others, appropriate today but perhaps less so tomorrow. It is therefore necessary that the role-players in urban agriculture move towards an overarching definition, encapsulating the conceptual system or edifice at international/global level and lower levels (e.g. national, provincial, local levels). Within and subordinate to the overarching concept, situational variations should be catered for the sake of local and regional relevance. The concepts should be revised regularly to remain relevant in changing urban circumstances (Maxwell & Armar-Klimesu, 1998; De Necker et al, 1996).

Cities and urban centres will continue to change – therefore our understanding of the characteristics and functions of urban agriculture must adapt. The concept of urban agriculture contains different building blocks that reveal the general nature of agriculture in the specific context. The remainder of the chapter focuses on the following questions: **who** are the urban farmers; **where** does urban agriculture occur; and, **why** do households participate in urban agriculture.

It is not feasible to suggest *specific* guidelines for developing urban agriculture as an activity that contributes towards urban food security. Therefore, the concept of food security will be explained with reference to its possible relation to urban agriculture. This chapter should be seen as offering some *general* guidelines to help a planner in his/her context to contribute to effective planning and policy-making towards the integration of urban agriculture in the urban setting.

2.2 HISTORICAL PERSPECTIVE ON URBAN AGRICULTURE

2.2.1 Early Beginnings

In times of crisis, like war or recession, growing food in cities has always been essential to urban people. 'Schrebergaerten' (home gardens) were started in Germany after the First World War, while a British campaign, 'Dig for Victory', brought much attention to urban food production in the wake of the Second World War. The so-called 'Cultural Revolution' in China during the 1960s established a policy and programme to achieve nutritional self-reliance for all administrative districts, including urban areas. Land-use and food marketing programmes were established; and to this day China's large and small cities are among the most efficient in food production (Nasr, 2000).

2.2.2 The 1970s

It was not until the late 1970s that urban agriculture became more rigorously documented. One of the most successful urban agriculture development programmes of the time was Operation Feed Yourselves (OFY) in Ghana.⁴ This project was premised on the understanding that much of Ghana's food imports could be grown within the country, particularly in cities, and near factories. The objective of OFY was self-sufficiency in maize, rice, livestock, fish, poultry and vegetables. The government determined the scope of production and the necessary inputs to ensure success; assisting families, associations, and businesses in acquiring the means of production. The programme was implemented over six years (1970 to 1976), during which the production of plantain increased from 200 000 to 849 000 acres; okra from 18 000 to 47 000 acres; and rice from 136 000 to 2 265 000

⁴ Similar programmes, with more or less success, were underway in Zaire and other West African countries, with French government and Food and Agriculture Organisation support

acres. The results of both technological and organisational changes can still be found in Ghana (Smith, 1996).

In central Africa, there was a major example of development co-operation in urban agriculture carried out in Lusaka, Zambia. The American Friends Service Committee (AFSC) commenced by assisting some squatters on the urban fringe to raise vegetables and small livestock to feed their families and friends. The success of the project attracted the United Nations Children's Fund (UNICEF), who expanded the project and added school gardens and training. The World Bank (WB) started with a project of upgrading the squatter settlement. This created the opportunity for the AFSC/UNICEF urban agriculture project to fold into the WB project, and rain-fed farms at the edge of the city were added to the smaller irrigated farms near the dwellings. Save the Children, Food and Agriculture Organisation (FAO) and other international aid organisations mostly supported home or household gardens with the primary objective of improving nutritional status and diets of households (Nasr, 2000).

During the 1970s, Curitiba (Brazil) was at the forefront of policy and programme initiatives to make use of idle land for food and fuel production, utilising urban waste. It is now frequently cited as a benchmark for environmental planning and development (Smith, 1996).

2.2.3 The 1980s

The urban agriculture development co-operation of the 1980s was dominated by the research done by the 'Food-Energy Nexus' project⁵ of the United Nations University. The study focused on four regions – Europe, Latin America, African and Asia – reporting on the status of food and energy production within and near towns and cities. The project delivered twenty-four urban agriculture papers, co-published nine more and archived nine unpublished papers on urban agriculture. For the first time, in one related body of reports, urban agriculture was highlighted as a global phenomenon, thriving in diverse economies, climates, and cultures (Ratta & Nasr, 1996; Smith, 1996).

The International Development Research Centre (IDRC) was involved in studies of urban food distribution systems, and urban food security in twenty-four countries. At the same time, UNICEF conducted a global study with Urban Resource Systems on community and household gardens. The Swedish International Development Agency (SIDA) and other development agencies were supporting farmers' co-operatives in the Zonas Verdes in Maputo and other Mozambican cities. SIDA also supported urban agriculture extension services in Lesotho and Botswana.

⁵ The Final Report was published in 1992

Several local NGOs and community organisations were active in supporting urban farming. These included Human Settlements in Zambia, Undungu Society in Kenya and the Urban Food Foundation in the Philippines. The 'Street Food' project focused on the prevalence and relevance of informal marketing of locally produced (raw and processed) food products. In the middle of the decade, a benchmark study was carried out by the Mazingira Institute in Kenya with IDRC support. The project measured food and fuel production, and it included a range of settlements, from small to large, in different climatic and cultural zones (Ratta & Nasr, 1996).⁶

The Cuban government rapidly changed urban agriculture policies after Russia withdrew its support on the agricultural and food fronts in 1989. The results of the policy-changes are that in Cuba at present, an aspiring urban farmer can gain access to land and water through the National Association of Women. Inputs are available through state supported 'agstores' in many neighbourhoods (Murphy & Novo, 1999; Nasr, 2000).

2.2.4 The 1990s

Development co-operation in urban agriculture in the 1990s started with the United Nations Development Programme's (UNDP) 'Urban Agriculture Initiative'. The study was conducted in six countries in Asia, Africa and Latin America. This study resulted in a book entitled: *Urban Agriculture: Food, Jobs and Sustainable Cities* (Smith & Nasr, 1996). The Support Group for Urban Agriculture⁷ (SCGA) is a product of this project. The original work of the UNDP urban agriculture initiative has been carried forward with support from IDRC, UNICEF, WB, German Technical Agency (GTZ) and others. The GTZ supported a large vegetable production project that was underway in Tanzania, and also supported studies in such related areas as waste management and forestry (Jacobi et al, 1999; Ratta & Nasr, 1996).

In Europe, the Milan, Hamburg and Freiburg local authorities are well known for pro-urban agriculture policies and programmes. Policy is also changing in North America where the states of Massachusetts and New Jersey promote locally grown products. The cities of Toronto, Chattanooga and Hartford have food policy councils to promote local nutritional self-reliance (Nasr, 2000).

While cities and countries are changing their urban agriculture policies, international development agencies should follow in the decade to come. The promotion of urban agriculture requires national

⁶ A significant finding was that the poorest of the poor and the new urban immigrants were not participating in urban farming

⁷ The Network consists of 3 000 members in 40 countries

action to provide the infrastructure for municipalities and communities to develop programmes. In South Africa, after 1994, local governments moved from a regulatory function towards playing a more pro-active developmental function. This is an ideal opportunity for local government to support community development by introducing the necessary guidelines and structures to develop urban agriculture as an important contributor towards enhancing urban food security.

2.2.5 Prospect 2000 and onwards

We can reasonably anticipate that urban agriculture will likely be accepted and implemented as a major intervention in food security and social security programmes. Environmental agencies and programmes should therefore consider integrating urban agriculture into projects as a tool for promoting sustainable environments. A future organisational structure of urban agriculture should strive to enable small producers and processors to market their products efficiently with the benefit of prompt reliable technical and market information, and access to credit. NGOs have contributed to the success of urban agricultural projects in the past and are likely to play important supportive roles in the future. Urban agriculture is currently a function of the informal sector, and the option of public-private partnerships and integration into the formal sector should be researched.

The concept of urban agriculture is evolving rapidly, with far-reaching implications for the future development of urban centres. Initial studies of urban agriculture were concerned with establishing the identity of urban farming (range of production systems, locations, practitioners and legal status), compared to more recent studies that stress the relationship of urban agriculture to the economic, social and environmental sustainability of urban centres; i.e. food security, nutritional status, health, employment and income generation, entrepreneurial development, open space management, waste resource re-use, gender empowerment and community development.

Due to the dynamic nature of urban agriculture, planners need to seek creative ways for establishing a platform for the future of urban agriculture in urban centres. Urban agriculture is context dependent and it is nearly impossible to create a set project that can be implemented in every urban case. The subsequent sections look at the **What, Where, Who** and **Why** of urban agriculture to create a better understanding of urban agriculture. This could enable planners to develop more effective recommendations for integrating urban agriculture in the urban setting.

2.3 WHAT IS URBAN AGRICULTURE?

Mougeot (1996) defines 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. The industry grows, processes and distributes a diversity of food and non-food products through intensive plant cultivation (horticulture and agro-forestry) and animal husbandry (livestock, aviculture and aquaculture). Urban, human and material resources (e.g. household, co-operative, enterprise, corporation) are used and re-used to satisfy daily subsistence needs and the market demand of local consumers.

Ratta and Nasr (1996) distinguish between subsistence farming (growing staples and vegetables for household consumption, sale and exchange with friends and family) and market gardening. Market gardens tend to be larger and more intensively cultivated than household gardens. Market gardeners usually have secure land tenure, and thus they invest more than household gardeners, growing high value vegetables and sometimes raising livestock.

In this document urban agriculture will refer to *the production of vegetables, crops and small livestock by urban households for household consumption and for the urban market*. More simply, it can be described as *agriculture located within or on the fringe of a town or city*. The urban agricultural systems include horticulture, floriculture, forestry, aquaculture, and livestock production.

2.4 WHERE DOES URBAN AGRICULTURE OCCUR?

Generally, research has focused on individual/family, micro, small and medium enterprises, as opposed to larger, national and international undertakings. Given the constraints on access to land, production systems are very diverse – areas used are of all sizes, from tiny home spaces (windowsills, containers, fences, rooftops, basements) to public open spaces and roadside edges.

It is not its location per se that distinguishes urban agriculture from its rural counterpart, but the fact that it is embedded in and interacts with the urban ecosystem. The integration of urban agriculture in the urban system is crucial for the persistence thereof. Several authors have combined urban agricultural research with other related studies. Smith (1996) combined it with the urban food supply system; Lourenço-Lindell (1995) with food entitlements; Koc et al (1999) with food security; and Rakodi (1995) with urban household survival strategies.

The location 'within and around cities and urban areas' is one of the most common elements found in urban agricultural definitions. Most urban agricultural field studies have been conducted in large urban centres, national capitals or secondary cities. However, few actually differentiate between intra- and peri-urban locations. The criteria used in intra-urban studies are population sizes; density thresholds; official city limits (Gumbo & Ndiripo, 1996; Murray, 1997); municipal boundaries of the city (Maxwell & Armar-Klemesu, 1998); land-use zones (Mbiba, 1994); and, agricultural activities within the legal and regulatory purview of urban authorities (Adlington, 1997).

For peri-urban agriculture, the location definition is more problematic. Whereas intra-urban areas of a city are commonly older built-up areas with a low probability of any structural changes, the peri-urban areas are in closer contact with rural areas, and tend to undergo, over a given period of time, more dramatic agricultural changes relative to central areas of the urban setting. Maxwell et al (1998) emphasise the use of land-market pressures and changes in agricultural production as criteria in peri-urban research. In South Africa, a sequence of production systems has been proposed which straddle an urban-rural range of population density thresholds (Mougeot, 2000).

There are several different types of areas used for urban agricultural research. The most common areas are the location of the agriculture plot - on-plot or off-plot. The land-use of the plot (built-up or open space) and the modality of the tenure (cession, lease, sharing, authorized or unauthorized – through personal agreement, customary law or commercial transactions) are also used. Another method has been the official land-use category of the sector where urban agriculture is practiced (e.g. residential, industrial, institutional).

2.5 WHO IS INVOLVED IN URBAN AGRICULTURE?

Urban agriculture is a multi-disciplinary field and needs the attention of different role-players to ensure systematic growth. It is important to establish healthy relationships between the different role-players involved to ensure an understanding of the needs of each one involved. The relationships should be based on the foundation of mutual support for the benefit of all role-players involved.

2.5.1 Producers

Urban agriculture is usually portrayed as an activity practiced by low-income households, especially migrants from rural areas, as a survival strategy. This is a misconception, seeing that urban agriculture is practiced over the total socio-economic spectrum of cities - with the reason for engaging in the activity being different. According to Smith (1996), urban farmers are not recent in-migrants but long-term residents and are not only the poor, but include all income categories.

According to Egziabher (1994) and Obosu-Mensah (1999), urban agriculture, rather than an occupation taken up by recent migrants, is an occupation dominated by established urban residents that have lived in the city for six years or longer. Individuals of practically all age groups participate in urban agriculture. Education is provided at schools and community centres for children and elderly people. Some cases have been documented of hospitals and police stations that also participate in urban agriculture.

▪ **Gender**

Gender ratios vary greatly from city to city, depending on the cultural/religious context, the economic activity and the production involved. Studies of East African countries show that women comprise the majority of urban cultivators (Sawio, 1994). This reflects women's traditional domestic role (production and reproduction) in the family (Sawio, 1994). In West Africa, on the other hand, most of the urban farmers studied in Accra are men (Obosu-Mensah, 1999).

However, there is no doubt that urban agriculture connects well with women's traditional childcare and general household management roles. Urban agriculture strengthens the woman's position to secure food for her household, providing greater control over household resources, budget and decision-making.

▪ **Labour and support**

In several instances people have to rely on the help of others to achieve their goals. New arrivals to urban areas have to establish social networks before they can successfully engage in urban agriculture. Obosu-Mensah (1999) mentions that the establishment of social networks is extremely important to new migrants because without support the migrant is unlikely to secure access to land, water and other inputs.

The characteristics of a relationship or community ties determine the type and degree of assistance or support given and received. In a relationship or social network, the more frequently the members interact the more supportive the relationship, and subsequently the more 'mutual' the relationship. For a gardening group to network (communicate, co-ordinate, and to control its members) effectively, membership is essential; so if possible there should be an entity like a co-operative organisation. In addition, for a network group to exercise control over its members, it should provide services that are vital to the individual members (Adlington, 1997). Kin members are also important sources of support. It is interesting to note that surplus food produced is rarely shared with individuals other than family members (Gumbo & Ndiripo, 1996).

2.5.2 Promoters

NGOs, governments and international agencies have supported urban agriculture in less developed countries since the 1970s. These actors will continue to play a critical role, especially in the realm of influencing the effectiveness of urban agriculture in our cities in the coming decades. The creation of partnerships and nurturing co-operation between promoters, combining resources and efforts to capitalise on the positive impacts, could maximise the efforts of developing urban agriculture within the urban setting.

There are different examples of the important roles that promoters have played, and are still playing in urban agriculture. The national and local political leaders of Tanzania and Cuba appealed for a more self-reliant nation, which had dramatic effects on the food production system in the urban setting. Another important role that promoters have played is the inclusion of urban agriculture into the master plans of the cities of Dodoma (Tanzania) and Maputo (Mozambique). Some countries, for example Uganda (Kampala), have revised certain by-laws for specific production systems in specific zones in the city. In Harare (Zimbabwe), municipal open space has been allocated to urban cultivators.

To ensure the effectiveness of policy-formulation and project design, there is a final area of interest for the planner: **Why** is urban agriculture increasing in the urban setting?

2.6 WHY IS THERE A NEED FOR URBAN AGRICULTURE?

What are the benefits of agriculture as a resource for food security; an urban industry; a land-use; and, an environmental intervention? The urban emphasis is easily answered. The greatest concentration of economic and social deprivation is usually found in cities. It is in the cities that the greatest need exist for the solutions offered by urban agriculture. Howe and Wheeler (2000) emphasise the potential of urban agriculture by stating that urban food growing provides a powerful vehicle for (helping) movement towards more sustainable patterns of urban living.

2.6.1 The opportunities of urban agriculture

With rapidly growing metropolitan areas in Third World Countries comes growth in a variety of by-products of urban life. One of the principal limitations to the sustainability of towns and cities is the disposal of these wastes – waste water and solid waste. Planners should mobilise the option of

applying urban agriculture as a tool to integrate/recycle urban by-products back into the urban setting. The environmental, social and economic opportunities of urban agriculture are discussed below.

▪ The Environment

Water

In cities of the arid and semi-arid regions, the availability of water for household use is limited. Water for irrigation is even less available and thus the nutrient-rich waste water provides a precious agricultural input (Nasr & Smith, 1996). Households could also make use of 'grey'⁸ water in gardens and agriculture projects. This is a positive step to increase good water management, and adds to the sustainable functioning of a city. The occurrence of urban agriculture in cities usually increases the amount of green spaces (permeable surfaces) in a town or city, which allows water and run-off of rain to drain through the soils.

Land

There is a lack of space to grow food in cities, therefore the urban setting as a whole should be seen as a resource to be tapped for urban agriculture purposes. In South Africa, a lack of access to land and/or insecure tenure prevents many urban residents from actively participating in urban food growing. Urban households face a potential loss of important resources if they invest in a food garden, but then risk being evicted or removed from their homestead (De Necker et al, 1996).

Areas that are inappropriate for housing developments, such as floodplains, should be considered for urban cultivation. Other underutilised land such as municipal commonage, police stations, hospitals and community centres which provide potential space to cultivate in the urban set-up, should also be considered for the development of urban agriculture within a city.

Biodiversity

If urban agricultural projects and techniques are designed to promote organic farming, it could promote the biodiversity of a city. Modern intensive farming techniques have had a devastating effect on biodiversity (Howe & Wheeler, 1999). In contrast, urban food growing, particularly the recent forms, tend to be characterised by the use of organic methods. Urban agriculture can benefit the urban soil by using the variety of organic waste materials available for composting in garden soils. Urban agriculture can thus promote the biodiversity of a city through 'Greening Projects'.

⁸ Grey water is water that has been used in the house – bathwater and dishwashing water

Climate

Nasr and Smith (1996) argue that the demand for energy defines the modern cities more than any other single factor. Local transport, electricity supply, home living, service provision and manufacturing depend on the routine use of fossil fuels. There is widespread concern about climate change, resulting mainly from fossil-fuel burning. Urban agriculture can contribute to the improvement of the microclimate of a city (if appropriately planned and integrated into the urban setting) by greening the urban setting and therefore contributing to the reduction of carbon dioxide.

Green spaces around apartment blocks and houses, as well as in neglected spaces in the city, can help to improve the physical climate, because vegetation can increase humidity; lower temperatures; help break wind; and, intercept solar radiation via creating shadows and protected places (Deelstra & Girardet, 2000).

Waste and nutrient recycling

A key factor in the urban ecology is the process of waste management and nutrient recycling. Modern city life has produced an unsustainable linear system of recycling. Little thought is given to where the natural resources come from that is needed for every day functioning. Moreover, little attention is given towards where the urban outputs are discarded.

Every output by the city should be seen as a potential input, which renews and sustains the urban environment. The success of the integration of urban agriculture will determine the extent to which it will use the urban ecosystem, and in turn, be used by the same ecosystem.

▪ **Social**

Quality of life

One of the strengths of urban agriculture is its capacity to make a practical and highly visible difference to people's quality of life. Howe and Wheeler (1999) note that food growing projects can act as a focus for the community to come together, and also help create a sense of local distinctiveness.

Sense of community and communal meeting places

Farming in the open spaces of a community brings the community together. The cultivation in community gardens or on plots adjacent to each other increases the social interaction of people in a community. The community gardens can also create physical structures within a community to organise social and market structures (Drescher, 1996). The structures on the grass-root level are

important for the future integration of urban agriculture into the economic sector of a city. It also creates a communal meeting place where activities different to urban agriculture can take place.

Recreational spaces

Finally, urban agriculture can create recreational spaces in a community. This can make a significant difference in low-income, high-density urban settlements where recreational spaces and parks are generally underdeveloped or not developed at all.

▪ **Economic**

Extra income and food source

Self-produced food in cities provides nutritious food otherwise unaffordable or it supplements the existing food staples (Deveroux & Maxwell, 2001). It affords savings which can be spent on non-food items and other needs such as school fees or clothes. Urban agriculture has a small potential to supplement household incomes, but generally, if there is a surplus of produce, it is given to family or sold to neighbours at low prices (De Necker, 1996).

Stimulates the micro-economy

A less visible but important way in which urban agriculture contributes to local economies is by diversifying the urban economic base. Urban agriculture operates at primary (production), secondary (processing) and tertiary (services and sales) levels.

Employment opportunities

Urban agriculture holds the potential to create employment opportunities for some of the urban unemployed population. It creates opportunities for urban cultivators as well as people involved with the distribution of seeds, implements and the provision of basic support services.

Entrepreneurial training

Training and education in urban agriculture can mobilise individuals and groups to enter into the urban market through different entrepreneurial ventures. Urban agriculture can serve as an entry point for projects that could expand to different sectors such as day care centres, food kitchens and social groups.

Building material, wood and crafts

Agro-forestry holds the potential to provide wood for basic use (fuel) as well as other uses such as building material and shelter. Wood and other plant materials (e.g. bamboo and cane) could be applied for craft purposes. Small gardens can be used to cultivate plants of medicinal value.

2.6.2 What influences the decision-making process of urban farmers?

Food insecurity and the perceived risk of food insecurity is a common concern among urban farmers. Urban agriculture is seen as a type of investment (in terms of money and time) for the urban resident. A decision to farm does not solely rely on the need to provide basic food requirements. The supply factors are more instrumental in the final decision-making process. Sanyal (1985) argues that the supply factors are the logic of investment. Several factors influence the decision-making process of a household to participate in urban farming.

▪ Access to space

South African cities are characterised by low-density residential developments. The irony is that residents that can afford low-density plots have higher incomes and do not need to cultivate food for their survival. Most low income households are concentrated in high-density residential areas and informal settlements, characterised by small plots.

Another aspect of the land issue is insecure tenure. Households tend to withhold investments where the tenure of the plot is insecure as they face the threat of eviction and removal. Additionally, tenure security is a prerequisite for support from the national and provincial agriculture departments for any urban agriculture venture (Austin & Visser, 2002).

▪ Access to markets

Ease of access to markets is important for the urban farmer. If the urban farmer ends up with a surplus of food that cannot be sold, the income is lost; though the food will have some social value if it can be given away.

▪ Access to services

Access to services is crucial for the growth and maintenance of agriculture in the urban setting. The provision of appropriate technical advice ensures that the urban ecology is enhanced and protected while cultivating the soil. The provision of seeds and implements brings relief to low-income households with little or no income. It equips the poor with the resources to participate in food

production. Training programmes in schools and communities are important for informing the urban residents of appropriate methods for maximizing yields.

- **Availability of labour**

Urban agriculture is labour-intensive and draws on semi-skilled or unskilled labour. South Africa is faced with increasing unemployment, and urban agriculture can create opportunities and jobs for people who can not be accommodated in the formal economic sector.

- **Availability of time**

Urban agriculture requires a lot of time and commitment of the urban farmer. This activity holds the potential to be a positive investment for urban households. Planners and role-players should learn how urban households manage their time and incorporate effective ways of improving food growing activities. Planners and role-players should work in partnership with urban households to make sure that the time and effort spent on food growing is effective.

- **Cultural factors**

Urbanisation generally takes place from the rural areas into the surrounding urban areas. Migrants from the rural areas bring certain cultural traditions with them that they want to continue in the urban centres. Urban agriculture can offer the migrants an opportunity to continue practising their cultural activities and traditions.

2.7 FACTORS CONSTRAINING URBAN AGRICULTURE

The identification of constraints and challenges is fundamental to a sensible approach towards structured planning of urban agriculture. This section refers to some general constraints, but planners should evaluate each area for its own unique challenges and problems.

- **Economic constraints**

There are many economic constraints that threaten the success of urban agriculture in the urban setting, one being the lack of adequate credit facilities. Many urban dwellers do not have sufficient money to invest in the necessary tools and equipment needed to start an urban garden. Theft of crops in open spaces and along roadsides, places additional pressure on urban farmers.

▪ **Physical constraints**

The lack of land and insecure tenure often prohibit farming and investments in agricultural ventures (Austin & Visser, 2002). Farmers face the possibility of losing the investment that they make in their food gardens, if evicted. Water, when available, incurs the risk of being polluted and thus posing a health hazard to farmers and consumers of produce.

Incorrect farming techniques could lead to environmental problems such as soil erosion, destruction of vegetation, depletion of water bodies and visual untidiness of urban environments (Mougeot, 2000). The unregulated use of chemical fertilisers and insecticides can pollute water bodies and pose risks to human health (Fermont, 1998). Some argue that urban agriculture produce could be contaminated from lead poisoning due to the cultivation along roadsides. Due to poor support structures for urban agriculture, bad odours, pests and flies could result from incorrect disposal methods. A final constraint of urban agriculture in a physical sense, is the increasing risk of car accidents due to livestock that is unattended and wandering around in urban centres.

▪ **Social constraints**

Social aspects affecting urban agriculture, such as theft and political differences, for example, often pose unexpected problems. Since these aspects cannot always be identified in advance, they are often difficult to manage (Austin & Visser, 2002). The commitment of participants is another constraint.

Urban agriculture is seen as a temporary activity for urban dwellers (Austin & Visser, 2002). It is often used by many people as an interim employment opportunity. Urban agriculture is therefore easily abandoned in favour of a more reliable source of income when other opportunities arise. The skills level of participants has a great influence on the sustainability of urban agriculture. This does not only apply to agricultural skills, but also to other aspects such as bookkeeping, business management and risk management (De Necker, 1996).

▪ **Organisational/Institutional constraints**

The success of urban agriculture in contributing both negatively and positively to the everyday lives of urban residents is often reliant on institutional decisions and processes. The increased co-ordination of authorities at all levels is needed to avoid duplication of efforts and repetition of past mistakes/failures. Also at local level, increased co-ordination between authorities and other role-players is crucial for the promotion and support of urban agriculture.

We must improve our understanding of the function of urban food systems if we want to comprehensively assess and promote urban agriculture's role and impact on the welfare of particular urban communities. The subsequent section looks in more detail to the connection between urban agriculture and food security. This relationship seems like a key opportunity in urban centres to ensure the access of basic foods to urban households.

2.8 URBAN AGRICULTURE AND FOOD SECURITY

Development management, food supply and distribution policies can not be implemented effectively at the rapid rate at which cities in many countries are growing. This mainly affects the poor. City regulations governing trade are often outdated and discourage the informal trade on which many urban livelihoods now depend (Hubbard & Onumah, 2001). The increasing food demand provides particular challenges for a city's capacity to supply sufficient food to households. Together with the amount of food available, there is also reason to be concerned about the sustainability of urban food systems. Urban residents are mostly reliant on produce from rural areas and, in many cases, imports from neighbouring countries for their food needs (Austin & Visser, 2002). Urban food supply is increasingly dependent on longer food supply lines. This leads to a greater use of fossil fuels and the depletion of land and water resources in an effort to feed growing cities. Macro-economists assure us it will all work out well if the urban residents have enough money to pay for it. In African cities, as in many other regions, half of the total economy is informal or non-monetised (Smith, 1996). Urban food production appears in many parts of the urban food system – including market gardening and subsistence gardening. By producing food closer to home – within urban centres – cities can move towards more sustainable forms.

Food production in urban areas has always taken place. Prior to the development of transport systems, people inevitably had to grow food close to where they lived. It was only during the industrial revolution that the close relationship between urban populations and food production began to diminish (Howe & Wheeler, 1999). The reversal of a hundred-year trend, separating abode and food production, has slowly begun to gain the support of government. In South Africa, it is recognised that urban agriculture is a reality in the daily life of many urban dwellers, and that it shows potential for improved household food security depending on the nature of support extended (Austin & Visser, 2002).

2.8.1 The concept of food security

The concept of food security has been on the international agenda as far back as 1948, when the Universal Declaration of Human Rights affirmed: *'Everyone has the right to a standard of living*

adequate for the health and well-being of himself and his family, including food' (cited in Deveroux & Maxwell, 2001: 3). Today, the definitions have changed: a combination of local food production, the availability of food on the table and access to resources are in the forefront. The United Nations Food and Agriculture Organisation (FAO) defines food security as a condition in which *'all people at all times have both physical and economic access to the basic food they need'* (cited in Deveroux & Maxwell, 2001: 4). It is access, above all, to natural resources; land; education; water; credit; seed supplies; technology and inputs; and, access for women and children, which features in current policies for food security (Amalu, 2002). The definition used in this document is adopted from the discussion document on Food Security Policy for South Africa (Department of Agriculture and Land Affairs, 1997); namely, *food security⁹ is access by all people at all times to adequate, safe and nutritious food for a healthy and productive life.*

Planners are usually concerned with the sustainability of the development of cities - as well as with the level of segregation and equity - but are often less concerned with urban food security. We tend to think of cities in terms of housing, transport, infrastructure, security and social spaces. Food security should be part of our pre-occupations. Urban development will probably be more sustainable when public investment in market infrastructure makes a contribution to local economic and social development.

The issue of food security should be addressed on several fronts simultaneously, being recognised by planners and role-players as a structural issue. According to Gellen (1994), the basic elements of ensuring food security range from household nutrition to national grain stocks. This document focuses on the household level of food security; i.e. securing a family's ability to grow and buy enough food for a healthy life, while addressing inequalities that hamper access to food within the family.

2.8.2 The South African context

▪ Policies

Until 1985, food policies pursued self-sufficiency goals. Domestic commercial farm production was protected at the cost/expense of the consumer, resulting in a total welfare loss to the country as a whole (Hubbard & Onumah, 2001). The decade following the late 1980s, the South African government accepted most of the agricultural policy advice fed to it by agricultural economists from

⁹ The right of access to sufficient food is enshrined in section 27 of the South African Constitution (1996). The Reconstruction and Development Programme (RDP) (adopted in 1994) identified food as a basic need that should be met. The Growth, Employment and Redistribution Strategy (GEAR) of the Government provided the strategic framework for action to achieve food security (FSWG, 1997).

South Africa, Britain and the United States. Until recently, most of the effects of the market-based agriculture reform have been upbeat.

South Africa is a successful pioneer in agricultural deregulation. The market rules in almost every sector; from maize, to wheat to fruit. Market control, not state control, unambiguously best serves farmers, consumers, and the economy at large (Watkinson, 2002: 23).

According to Watkinson (2002), the South African experiment has even been held up as a model that the rest of southern and eastern Africa should replicate. However, now that the region has experienced drought conditions and the exchange rate has been given a shock, the behaviour of South Africa's market-based food production is becoming more transparent. It is patently clear that in periods of adverse weather and exchange rate depreciations '*food prices rise well beyond the point which they are affordable for the working poor and destitute*' (Watkinson, 2002: 23).

In the past, government absorbed a large measure of the price risk resulting from unfavourable weather, adverse macro-economic conditions and export losses. It used taxes to maintain producer prices and wrote off debts incurred by the control boards and the co-operatives (the boards' sole agents). In the new marketing system, the private sector must manage the risks without government interference or risk guarantees. If 'managing price risk' resulted in increased consumer prices, the government envisaged that it would deliver adequate social security support to the households. In the absence of a robust social security system and implementation of any available mechanisms to keep food affordable, levels of hunger and malnutrition have undoubtedly increased since 1994 (Watkinson & Makgetla, 2002).

Current policy in South Africa is not against urban agriculture as such - it can be said to be accommodative - but no definite guidelines for urban agriculture exists in any policy (Austin & Visser, 2002). The White Paper on Agriculture (Department of Agriculture, 1995) emphasises that agriculture production systems and practices in South Africa should be organised in a manner that improves national as well as household food security.

▪ **The current situation**

South Africa faces a crisis of rising food insecurity. The food price index rose 16.7% in the year to June 2002 as compared to non-food inflation of 7.2% (Watkinson & Makgetla, 2002: 1). Most households in South Africa depend on food industries and food retailers for their food supplies. However, more than 600 000 households engage in farming to produce the main source of food for the family. In addition, over a million households farm to supplement what they purchase (Watkinson & Makgetla, 2002). Table 2.1 indicates the percentage of households that farm to supply food for the household. Only 5% of households in South Africa farm to supply food for the households. This

reflects the dependence that households have on food produced in areas not close to their homes. This is an unsustainable food supply system and role-players should embark on increasing the number of households that contribute to their own food needs.

Table 2.1: The percentage of households that farm in order to supply food for the household

(Source: Watkinson & Makgetla, 2002: 2)

<i>Province¹⁰</i>	<i>Total number of households</i>	<i>Number of households farming for main source of food</i>	<i>% of households farming for main source of food</i>	<i>Number of households farming for supplementary food</i>	<i>% of households farming for supplementary food</i>
Western Cape	1 067 117	3 241	0%	12 900	1 %
Gauteng	3 082 113	17 338	1%	51 329	2%
Northern Cape	191 287	4 569	2%	8 291	4%
North West	784 633	14 591	2%	52 544	7%
Free State	693 196	30 219	4%	65 450	9%
KwaZulu-Natal	2 047 498	111 249	5%	315 062	15%
Mpumalanga	643 221	54 511	8%	85 550	13%
Eastern Cape	1 434 280	169 765	12%	277 322	19%
Limpopo	1 001 423	195 402	20%	272 568	27%
Total	10 944 786	600 885	5%	1 141 016	10%

For the urban poor, it is the dominance of the cash economy over access to food that links urban food systems to poverty and vulnerability to food insecurity. Wage employment and monetary income are the main prerequisites for achieving food security. However, the majority of urban dwellers, especially those in developing countries, are highly disadvantaged with limited purchasing power as most are engaged in very low-paying employment in the informal sector. During the period 1995 to 2000, the income share of the poorest 50% of households dropped from 11.3% to 9.7%; the income share of the poorest 20% of households dropped from 1.9% to 1.6% of the national income (Watkinson & Makgetla, 2002: 3; People's Budget 2004-2005: 2). In contrast, the share of the richest 20% of households remained basically unchanged at 65% of the national income. To make matters worse, food prices have increased dramatically over the last few years, which places added pressure on meagre income and nutritional intake.

The main sources of food insecurity are vulnerability to changes in food prices and wages. Food and maize meal price increases are devastating for the working class. Workers typically spend more than a third of their income on food. The ultra-poor spend over 50% of their income on food (Watkinson &

¹⁰ This is the provincial statistics

Makgetla, 2002). Table 2.2 indicates the annual increases - during the period between May 2002 and May 2003 - in the price indices for vegetables (+ 14.9%); milk, cheese and eggs (+ 14.8%); fruit and nuts (+12.1%); meat (+11.5%); fish and other seafood (+9.9%); fats and oils (+9.6%); coffee, tea and cocoa (+9.4%); sugar (+9.1%); and, grain products (+7.4) (Statistics South Africa, 2003).

Table 2.2: Consumer Price Index (CPI) percentage change in food prices for South Africa

(Source: Statistics South Africa, 2003: 18)

<i>Group/Product</i>	<i>% change between April 2003 and May 2003</i>	<i>% change between May 2002 and May 2003</i>
Processed	+ 0,7	+ 12,1
Unprocessed	+ 0, 3	+ 11,0
Grain products	- 0,6	+ 7,4
Meat	- 0,7	+ 11,5
Fish and other seafood	+ 0,2	+ 9,9
Milk, cheese and eggs	+ 0,5	+ 14,8
Fats and oils	- 0,7	+ 9,6
Fruit and nuts	- 0,5	+ 12,1
Vegetables	+ 4,5	+ 14,9
Sugar	+ 2,0	+ 9,1
Coffee, tea and cocoa	+ 0,2	+ 9,4

There are several other factors contributing to food insecurity. The subsequent section looks at the main factors that determine the urban household's access to food.

▪ **Macro-economic policies**

Poor economic performances and the cost to the urban poor of macro-economic adjustment policies (including the removal of consumer subsidies) have contributed to declining per capita urban incomes. Even in a relatively well-off city like Johannesburg, per capita income fell by more than 10% between 1970 and 1991 (Hubbard & Onumah, 2001). As cities grow, urban expansion policies should protect and enhance the food growing areas in and around urban centres. Rising land prices and the competition of different land-uses for space seems to make it impossible for urban agriculture to maintain a foothold in urban centres.

▪ **Employment and cash income**

When the poor migrate to urban areas many have to buy food instead of growing their own (Hubbard & Onumah, 2001). As a result, the main strategy of urban households for ensuring food security is to secure an income large and consistent enough to feed the household. Food security is sought

through wage labour (including women and children), but underemployment and low wages in the formal and informal economy limits the ability of poor households to guarantee food security. Other employment constraints are the lack of job opportunities, precarious working conditions and insecure job tenure. Unemployment remains lamentably high in South Africa, and has risen rapidly in the past decade. The official unemployment rate increased from 16% in 1995 to 29% in 2002 (Watkinson & Makgetla, 2002). Another concern is that the quality of work has declined, with particularly large job losses in the mining, agriculture, the public and manufacturing sectors (Makgetla & van Meelis, 2002).

▪ **Markets and food prices**

Poor food distribution systems are a significant source of vulnerability for urban consumers. Many urban households do not have access to urban food markets due to the lack of public transport facilities to and from the markets. Where public transport networks exist, households may not be in a financial position to meet transport costs. Time is also a constraint that prohibits a household from accessing the market.

▪ **Urban agriculture**

Urban agriculture can play a primary role in adding to the food security of a household. There are several countries in Africa which demonstrates the role that farming can play in enhancing a household's food source.

2.8.3 Urban food security initiatives

Despite the dramatic changes in South Africa during the 1990s, many of the distortions of the past continue to perpetuate conditions of food insecurity. The broad scope of food security calls for a comprehensive and multi-sectoral approach. To address poverty and inequality, a new comprehensive social security system must be accompanied by an increased role of the state in regulating the food industry. The correct identification of these forces and the introduction of remedial policies is a complex task, and requires careful conceptualisation. A new food policy needs to focus on the individual and household food security – addressing the availability, accessibility and utilisation of food at macro and micro levels.

The Integrated Nutrition Programme (INP) was developed from the recommendations of the Nutrition Committee. This Committee was appointed in 1994 by the Minister of Health to develop a nutrition strategy for South Africa (Department of Health, 1998). The Committee recommended an integrated approach to nutrition to replace the fragmented food-based approach of the past (cited in Austin &

Visser 2002). The INP commenced in September 1994.¹¹ The Department of Housing regards urban agriculture as an important activity closely related to its 'environmentally sound housing programme', which partly focuses on the greening of the housing environment. The significance of improving food security in human settlements is also recognised by this Department as a priority that should be addressed by government (Austin & Visser, 2002). At present, the Department of Agriculture is involved with a Special Programme for Food Security (SPFS) in collaboration with the FAO.

The fragmentation of programmes affecting food security led the national Department of Agriculture to propose that the activities of different government departments be integrated. The first draft of the Food Security Bill (Watkinson, 2002) attempts to achieve a greater degree of integration between government departments on the issue of food security through:

- Reporting of food security related activities to a lead department (Department of Agriculture and Land Affairs)
- Establishing a food security proposal, evaluation and disbursement system.

Urban food production is viewed by certain government departments as a strategy for reducing insecurity among the urbanised population of South Africa, but the focus of the Agriculture Department is at present very much on the rural population (Austin & Visser, 2002). However, the Department recognises the importance of development of cost-effective ways of practising urban agriculture.

2.9 CONCLUSION

Food is a basic need that is essential for the survival of human beings. In order to move towards a more sustainable urban form, cities can not any longer depend on food production systems that increase in distance from the urban centres as the urban populations grow larger.

Planners need to investigate the possibility of including urban agriculture into the current policy documents and zoning schemes of urban centres. To be effective, such policies will probably need to include measures that enhance equity and entitlement to food and other resources; improve urban environmental and sanitation systems, managed by the poor in their own neighbourhoods; and, actively involve urban producers in ranking their problems, developing workable solutions, and self-regulating their activities and the quality of their products.

¹¹ According to Watkinson (2002), the number of learners reached by the program has been declining since its inception. The frequency and the quality of the meals have also become increasingly problematic. A main constraint of the program is a lack of adequate funding. On average R117 per learner per year is allocated, which translates to R0.71 per day

The following chapter discusses some case studies of different food producing urban centres in Africa, Asia and Latin America. Asia is seen as a leader in development and integration of urban agriculture into the food distribution networks. The Central American case reflects the influence that government support holds for the development of urban agriculture. It is important to study the different approaches towards urban agriculture in order to identify the strengths of each approach. Planners and role-players should then process and translate these strengths into policies and plans that are applicable to the South African context.

CHAPTER THREE

Case Studies

3.1 INTRODUCTION

In the arena of urban land-use systems the term 'sustainability' has come to feature very prominently in the development discourse, but less so in practice. Ideally, this implies that city authorities should plan for urban land-uses that benefit the economy of the city and contribute to the establishment of sustainable systems within cities so as to enhance the quality of life of urban residents in the long term (Austin & Visser, 2001). Urban food systems are mostly not sustainable and urban residents are reliant on rural produce or imports, to satisfy their needs. The occurrence of urban agriculture (food production) is seen as one of the coping strategies of urban residents, changing the way people in cities feed themselves (Stevenson, 1996).

Urban dwellers across the world are participating daily in different forms of urban agriculture. The reasons for production often vary - some farm for survival and others for markets. The farming methods also differ, usually being influenced by the objective of the farmers and/or the topographical and climatic concerns of the specific area. The Chinese for example are well known for their intensive cropping mechanisms and high levels of food self-sufficiency. They are at the forefront of the integration of urban agriculture into a city's ecology.

The different case studies reminds one that urban agriculture is context dependent and a city or government can not simply adopt a single 'blue print' strategy for the promotion and the inclusion of the urban agriculture into its network. Cities with similar challenges (food insecurity) can contribute to each others' success in guiding and supporting each other in the formation of practical policy interventions. This relationship should have a long-term focus, forcing the different cities to measure the development and success of the different agricultural projects.

In the subsequent section I refer to case studies from East Africa (Dar es Salaam, Tanzania), Central America (Havana, Cuba) and the East (Cagayan de Oro, Philippines). Cuba and the Philippines are seen as lower middle countries; South Africa as a middle income country; and Tanzania as a low income country.

Table 3.1: Population size, urban population and GDP growth for Cuba, Philippines, South Africa and Tanzania

(Source: World Bank, 2002: 67)

	<i>Cuba</i>	<i>Philippines</i>	<i>South Africa</i>	<i>Tanzania</i>
<i>Population (millions)</i>	11,2	77	43,2	34,5
<i>Urban population (% of total population)</i>	75,5	59,3	57,6	33,2
<i>GDP growth (period 1995-2001)</i>	4,2	3,2	2,4	4,1

3.2 DAR ES SALAAM, TANZANIA

3.2.1 Introduction

Dar es Salaam is located 800km south of the equator on the East African coast. The capital accounts for about 35% (3 million) of Tanzania's population. To date, about 70% of the population live in unplanned settlements with marginal access to tap water, sewage systems, infrastructure or basic social services (Jacobi et al, 1997). The formal economy is in decline, and informal activities have become a necessary strategy for survival. Urban agriculture seems to be a direct response to local needs, and is favoured by a fairly low-density urban pattern and open areas available in town.

During the 1970s, Dar es Salaam experienced an economic crisis during which the government encouraged people in the city to cultivate every available piece of land. Due to this request both private and public land, residential plots, industrial and institutional areas came under cultivation. A decline in purchasing power and the absence of formal employment motivated urban residents to turn to farming. Urban food production is aimed at generating income and reducing the costs of purchasing food, thereby supplementing the household's food supply or budget.

The coastal plain and climate of Dar es Salaam do not offer very favourable conditions for intensive agriculture (Sawio, 1998). Water is scarce in the dry season, which results in many farmers producing from rain fed plots. Commercial production is usually carried out in areas close to water surfaces – rivers, canals and open drains. Crop cultivation, especially leafy vegetables, is dominant in Dar es Salaam (Jacobi et al, 1997) due to its contribution to a large part of the traditional diets. The farmers use basic tools for cultivation – hoes, bush knives (pangas) and watering cans. Hardly any mechanisation or advanced irrigation is found in the peri-urban areas of the city.

The farmers make use of organic fertiliser and there is an exchange relationship between cultivators and poultry keepers. Livestock (cattle, goats and chickens) is kept in close vicinity to urban

settlements. The cattle are owned by high-income households, while chickens and goats are affordable to all income levels.

3.2.2 Production systems

According to Jacobi et al (1999), Stevenson et al (1996) and Sawio (1998), Dar es Salaam rarely faces food shortages. The urban food supply system follows classic patterns – perishables (milk, leafy vegetables, sweet and hot pepper, eggplant, okra) are produced in urban and peri-urban areas and the major staples (maize, rice, cooking bananas and cassava) are grown in the rural areas. The temperate vegetables and fruits are supplied from up-country.

There are several types of production systems present in Dar es Salaam. Home garden production (backyard farming) is the most important type of farming in the city. Gardens occur all over the city; among all the income groups. The plots are usually cultivated by one or more individuals of the same household, and the produce is mainly for household consumption.

Gardens¹² in high-density areas tend to be bigger than home gardens, with the produce mainly for household consumption. Gardening in high-density areas or unplanned settlements is mostly subsistence-orientated and a clear survival strategy of the poorer households (Jacobi et al, 1999; Stevenson et al, 1996). The gardens consist of a variety of leafy vegetables that ensures continuous picking over prolonged periods of time, serving as a low, but steady, food supply. Besides consumption, the surplus can be given to family or neighbours or sold to nearby retail shops.

Gardens in low-density settlements are mainly used for household consumption. These gardens provide a source of additional income to medium-income groups; i.e. government employees using government plots (allocated to them), to supplement their salaries. Some of the low-density households reported keeping livestock (cattle, goats, chickens).

Community gardens are usually found in high- and medium-density areas on public land, normally close to the farmers' homesteads. The plot sizes appear larger than home gardens. The farmers work in groups producing more diverse products than home gardens – the bulk being produced for consumption. These groups experience material benefits (access to extension and input services) as well as social benefits (Jacobi et al, 1999; Stevenson et al, 1996). The groups can act as a security system, providing savings and loan services to each other.

¹² The backyard gardens are on average 40m² – 80m²

The open spaces in an urban area consist of areas around residential, industrial and institutional spaces. These spaces are mainly used for market-oriented crop production.¹³ The land can be public (hazardous land not suitable for construction, road reserves and community land), as well as private (residential, industrial or institutional plots underutilised or awaiting development). Stevenson et al (1996) state that the open spaces that are cultivated generally vary from 700m² to 950m². Production is focused on market-oriented leafy vegetables, which contributes towards a significant part of the diets. The plots are usually adjacent to rivers and open drains for water supplies. The farmers that cultivate these plots usually come from low- and medium-income groups. The farmers do not function as groups, even though they work in the same space.

Home gardening and open-space production systems are by far the most important sources of providing food for urban poor households (Jacobi et al, 1999). More than 90% of leafy vegetables come from open spaces and home gardens (Stevenson et al, 1996), while 60% of the milk is produced in urban and peri-urban areas.

3.3 HAVANA, CUBA

3.3.1 Introduction

The city of Havana covers an area of 721km², of which 299km² is used for agricultural production (Jacobi et al, 1999). The city has a tropical coastline climate with a mean annual temperature of 25°C and an annual rainfall of 1,400mm.

From the revolution in 1959 to the mid 1980s, the government actively took part in creating access to food for all Cubans. The government secured access to food by using a distribution system that guaranteed basic food packages at subsidised prices. Imports were made possible by favourable terms of trade of the socialist bloc, as well as cheap fossil fuels. When the socialist bloc disintegrated, Cuba lost access to cheap fossil fuels, direct food imports and the agricultural inputs on which it so heavily depended for its export production (Murphy & Novo, 1999). Conditions were further exacerbated by a severe storm that destroyed much of the country's sugar crop in 1993 (Moskow, 1999).

Before 1989, urban agriculture was almost non-existent in Havana (Murphy & Novo, 1999). The state was responsible for distributing food. However, due to the food crisis, President Fidel Castro instructed every piece of land to be turned and cultivated. The government focused on decentralised

¹³ Constraining this type of cultivation are insecure land tenure, followed by fluctuating markets, insecurity of water supply and poor knowledge of disease management

production – linking production directly to transportation and consumption patterns of the country. The objective of the plan was to increase food self-sufficiency by reducing the need of resource-demanding activities.

Urban agriculture is strongly supported by government, and their institutions play an important role in the organisational structure of urban agriculture. The first priority related to the development of urban agriculture was access to land for food growing, therefore land-use rights for farmers had to be secured. Citizens that wanted to garden could request a plot from the local council, and the government would assist them by giving them land-use rights. However, if the garden was unproductive for 6 months, their land-rights would be revoked and returned to the legal owner.

3.3.2 Production system

The Cuban case is celebrated as being the world's first co-ordinated urban agriculture programme, integrating access to land, extension services, research and technological development, new supply stores for small farmers and new marketing schemes for urban producers (Murphy & Novo, 1999).

According to Murphy and Novo (1999), by 1998, over 8000 officially recognised agriculture production units were operational, providing employment for more than 30 000 people. Table 3.2 indicates the urban agriculture production per production system.

Table 3.2 : Urban agriculture production in Cuba per production system

(Source: Jacobi et al, 1999: 270)

<i>Sector</i>	<i>Production (tons)</i>
Popular gardens	28 385
State co-operative supply units	23 389
Organoponics	47 651
Individual farms	44 480
Mixed-crop corporation (state farms)	16 095
TOTAL	160 000

Popular gardens seem to be the most common form of gardening in Havana. The location of the gardens varies from backyards and balconies to patios and rooftops. These gardens not only succeeded in overcoming the monotony of established consumption patterns, but (re-)introduced traditional crops (passion fruit, sesame, custard apple) and new crops such as spinach (Murphy & Novo, 1999). Many of these farmers also raise small livestock for meat, milk and eggs. Initially the

produce was for home consumption but as this produce increased, it allowed gardeners to make small economic gains. Most of the farmers have primary employment and farm in their spare time. There are voluntary organisations supporting farmers that cultivate within the same neighbourhood.

Until recently, most of Cuba's agricultural practices were carried out on state farms scattered throughout the country. The basic co-operative units are a result of the splitting of the state farms. These units usually consist of 5-10 members, and the produce differs from unit to unit, ranging from vegetables and fruits to dairy production. Most of these farms are on idle factory or institutional (hospitals and school grounds) sites that were made productive after the food crisis started. Most of the factories in the country have a cafeteria where workers enjoy a daily meal sourced from the farms. When a surplus is produced, the produce is sold to the workers at low prices.

There are some individual farms within the city limits of Havana. The farms mainly produce milk and cut flowers which are sold in Havana. There are two state enterprises in Havana. The Mixed-Crop Company is found on the periphery of the city, and the enterprise is organised into 21 municipal farms. The majority of these farms focus on fruit production, with the produce mainly being distributed through the state distribution system. The Metropolitan Vegetable Company is formed by a group of 20 organoponic farms.

Organoponics or intensive farms, consist of raised container beds with a high ratio of compost (50%) to hydroponics fibres or soil (50%). These systems are used for intensive vegetable production. This system works well in the urban setting, e.g. on paved vacant lots or plots with poor soils. The role of the units is to produce foods that residents cannot obtain from the ration, and which is best bought daily. The produce includes tomato, lettuce, green onions, green beans and other vegetables.

The initiative of the government to promote urban agriculture effected dramatic changes to the food provisioning of Havana. Although urban production is not enough to provide for all food needs in Havana, it has positively contributed to the amount of food available. A study by Moskow (1999) on 'Havana's self-provision gardens', states that the gardens contribute to the local communities by enhancing the food supply. The gardens also increased economic security for the gardeners and their households through the savings accrued from growing food. Urban agriculture not only influenced the availability of food resources, but created many new employment opportunities. According to Jacobi et al (1999), the government estimates that 117 000 people work in urban agriculture and 27 000 workers are employed in jobs related to urban agriculture.

3.4 CAGAYAN DE ORO, PHILIPPINES

3.4.1 Introduction

Cagayan de Oro is a city located on the central coast of Northern Mindanao in the Southern Philippines. The city covers 489km², with a population density of approximately 1 022 people/km². The largest part of the city covers coastal land, with smaller parts covering hilly and mountainous land as well as riparian land. The annual mean temperature is 27°C and the annual rainfall is 1600mm per year. In Cagayan approximately 79% of the land is peri-urban and 21% urban. According to Potutan et al (2000), 22 000ha of city land is allocated to agriculture, of which only 2 276ha is used for crop production. Most of the urban agriculture is set in the peri-urban areas.

The city's prospects for urban agriculture are good, due mainly to the availability of appropriate land. However, agricultural activities are still very fragmented. The development of policies for urban agriculture is regarded as crucial for Cagayan de Oro. The city is currently using the peri-urban vegetable project to implement farm trials. The project is aimed at streamlining some of the urban agriculture activities. It is the findings of this project that convinced the government to support urban agriculture.

Other efforts include building partnerships between local NGOs, local government units and farmers organisations to promote urban agriculture. The city has issued an ordinance to allow some urban farmers to use parts of the idle land and open spaces. This legalisation process is necessary to create a platform for sustainable urban agricultural developments.

3.4.2 Production systems

Cagayan de Oro is a coastal city where marine fishing is dominant. The fishermen of the city provide approximately 70% of their dietary requirements. At the moment, the market-orientated aquaculture production is at a small-scale involving 18 urban farmers. This production system has great potential to be developed to involve additional urban farmers.

There are some 13 000 small-scale farmers in the peri-urban areas of the city (Potutan et al, 2000). The purpose of urban agriculture is for home consumption as well as market sales. The produce includes rice, maize, bananas, coffee, root crops, fruits and vegetables. Factors constraining urban crop production include problems with pest control; a lack of knowledge of appropriate inputs; poor infrastructure; a lack of capital; and, adverse climatic conditions such as excessive temperatures. The systems are characterised by mono-cropping.

Peri-urban production focuses on vegetable production. Eggplant, squash, string beans, tomatoes, bell pepper and bitter melon are the main produce of the farms. Potutan et al (2000) mentions that some of the crops (bell pepper, tomatoes and eggplant) do not adjust well in the climatic conditions of the lowlands. The water for farming is mostly obtained from rivers or streams, deep wells and irrigation canals. This system is entirely dependent on rainfall.

Backyard gardening is common in Cagayan de Oro. According to Potutan et al (2000), an estimated 40% of all households maintain backyard gardens. The produce is mainly leafy vegetables and fruits (for household consumption) as well as ornamental plants. This type of gardening signifies the importance of urban agriculture at household level. In addition, most households own domesticated animals.

In Cagayan de Oro, vegetables are considered a 'poor man's food' rather than a 'luxury food' (Potutan et al, 2000: 430). There are two factors associated with this perception. Firstly, vegetables are cheaper than meat or fish. Secondly, vegetables are grown in backyards and other parts of the city. The daily consumption of vegetables in Cagayan de Oro is the highest amongst farmers (85%), and the lowest amongst consumers in the higher socio-economic classes (64%). The households in higher socio-economic or income categories have a higher consumption of meats (78%) compared to the low intake (7%) by urban farmers (Potutan et al, 2000: 430).

The livestock – including poultry – industry in the city can be categorised into commercial and domestic production. The infrastructure for this sector is not adequate – until 1995 there was only one abattoir in the whole city. The animals are generally reared at the farmer's abode and slaughtered there for their own needs.

Potutan et al (2000: 429) states that 96% of public elementary schools in Cagayan de Oro maintain school gardens. Agriculture and gardening are pursued by the pupils as part of their curriculum. The gardens involve the pupils, teachers, as well as some of the parents, and serve as a positive means of establishing socially productive relationships. There are reforestation projects (production of mahogany) in the hilly lands surrounding Cagayan de Oro. The projects have created areas for subsistence farmers to plant some leafy vegetables and fruits under the trees. Plant nurseries focus on the production of fruit-tree saplings or ornamental plants, mainly for parks and plazas.

CHAPTER FOUR
The South African Context

4.1 INTRODUCTION

South Africa is a middle income country, but despite this wealth (relative to much of Africa), the experience of many South African households is vulnerability and poverty, manifested in food insecurity,¹⁴ unemployment and ill health (Meadows, 2000). The Western Cape is a critically important agricultural area, producing 23% of the total monetary value of South African agriculture (Austin & Visser, 2002).

There is a debate in the literature and practices of urban agriculture in Cape Town regarding the economic significance of food production at the household level (Meadows, 2000). Eberhard (1989: 4) conducted a seminal study on urban agriculture in Cape Town, wherein he concluded that *'the value of food that can be produced by an average home gardener in Cape Town is economically insignificant'*. By contrast, Rob Small (as cited in Meadows, 2000), Director of the NGO Abalimi Bezekhaya, believes that *'the role that urban agriculture has to play in the CMA is significant in terms of creating a supply of food for the family which procures household savings'*.¹⁵

Current policy in South Africa is not unsupportive of urban agriculture as such, but no definite guideline for urban agriculture exists. A discussion document on Food Security Policy for South Africa (Department of Agriculture and Land Affairs, 1997) emphasises the constraint posed by a lack of institutional capacity for targeting and effective delivery of food security initiatives. At present, the Department of Agriculture is involved in a Special Programme for Food Security (SPFS) in collaboration with the FAO. In part, this programme examines ways to provide support for urban agriculture projects (Austin & Visser, 2000)

4.2 URBAN AGRICULTURE, LAND-USE PLANNING AND POLICIES

▪ National and Provincial policies

The Constitution (South Africa, 1996) defines agriculture as a functional area of concurrent national and provincial competency, as set out in Part A of Schedule 5. Thus, both provincial and national government departments are responsible for formulation and implementation of agricultural policy. The duties of the local government include the provision of services in a sustainable manner, and the

¹⁴ The Food and Agricultural Organisation does not view South Africa as food insecure (1999: 2). But there are stark contrasts between various households resulting in food security being very uneven

¹⁵ The difference in opinion may be explained by contrasting experiences and approaches with respect to the subject matter. Eberhard (1989) conducted a short-term academic investigation, while Small is highly experienced in the real/actual social dynamics of urban gardeners

promotion of a safe and healthy environment. Thus, the development of urban agriculture is affected by decision-making at national, provincial and local level, although to varying degrees.

The White Paper on Agriculture (Department of Agriculture, 1995) addressed both national and household food security, with the Reconstruction and Development Plan (RDP) and the Growth, Employment, and Redistribution (GEAR) strategy providing a strategic framework to achieve food security (FSWG - Agricultural Policy Unit, 1997). The White Paper on Agriculture (Department of Agriculture, 1995) emphasises food security and states that agricultural production systems in South Africa should be organised in a manner that improves national as well as household food security. In 1995, the Government advocated a policy of self-help known as *Masakhane* (Working Together). By 1997, *Masakhane* was judged to be floundering (FSWG - Agricultural Policy Unit, 1997), but in some urban areas the spirit of *Masakhane* was manifested in small scale urban agriculture projects (Meadows, 2000).

The Western Cape Department of Economic Affairs, Agriculture and Tourism is the most important in the sphere of urban agriculture. The Department of Social Services is also an important player in social improvement projects that contributes to household food security and urban agriculture. Some of the initiatives of the latter include the provision of food parcels, coupled with agricultural starter-packs (*Daily Business News*, 28 May 2003). The food parcels are a short term intervention; and the Department is working on a medium and long term intervention to support food security in the area. The Provincial Administration (2000) has drafted a policy with respect to land-use for agricultural purposes. The policy¹⁶ refers primarily to peri-urban environments, but may also be applied to urban areas. It makes mention of the grants for agricultural purposes, and suggests that the Department should be approached to assist local authorities in planning, developing and managing of municipal commonage.

National power to legislate with respect to provincial planning is circumscribed; whilst municipal planning and regulation of land development and management, are areas of concurrent legislative competence. The Development Facilitation Act (Act 67 of 1995) (DFA) sets out the principles for spatial planning and development and also introduced the concept of land-use objectives.¹⁷ The Local Government Transition Act (Act 97 of 1996) requires that municipalities develop Integrated Development Plans.

¹⁶ The focus of the policy is on the poor as well as commercial and corporate ventures

¹⁷ In the Western Cape, no provincial legislation was necessary to implement the DFA. The Province decided not to set up Tribunals. Instead, the province opted for implementing, as contained in the Western Cape Planning and Development Act (Act 7 of 1999), its own planning model.

In terms of land policy, the National Department of Land Affairs¹⁸ is a key institution. It has been proactive in developing land development and reform policies geared to facilitate access of poor communities. Services provided by the Department include facilitation, dispute resolution training and capacity building. As part of land reform, and in line with its policy of facilitating access to land for low income groups, the Department disburses various grants¹⁹ and services schemes, which provide financial assistance to groups wishing to acquire land. Of particular interest, for the purpose of the study of urban agriculture, is the Department's municipal commonage policy. The Department believes that a re-allocation of commonage property to poor residents, who wish to supplement their incomes via agricultural activities, can help address local economic development while simultaneously providing an inexpensive land reform option (DLA, 1997).

▪ Land-use planning in the CMA

The Metropolitan Spatial Development Framework (MSDF) is a guide for co-ordinating and directing spatial development within the CMA (City of Cape Town, 1999). This document makes reference to agricultural land but does not address urban agriculture. It states that development should generally be excluded from agriculture areas, as well as that urban development should be excluded from horticultural areas. Another feature of the MSDF is the Metropolitan Open Space System (MOSS), which recognises the importance of open space in the urban area.

4.3 URBAN AGRICULTURE IN CAPE TOWN

Urban agriculture has been taking place for some time in the City of Cape Town, due largely to the efforts of NGOs such as Abalimi Bezekhaya and Food Gardens Foundation. Cultivation often takes place under difficult conditions, with very sandy soil posing a major challenge in many areas.

The City of Cape Town's commitment to urban agriculture is evidenced by the Urban Agriculture Summit²⁰ organised by the municipality in May 2002. The summit created a platform that brought together various role-players from different organisations in the Cape Town area to work on the formulation of an appropriate policy for the city. The main objectives of the summit were:

- Build a better understanding of the concept and scope of urban agriculture within the CMA
- Identify and understand the challenges and opportunities presented by urban agriculture
- Promote networking and information exchange
- Establish a vision for urban agriculture for the CMA (Visser, 2002)

¹⁸ The roles, responsibilities and duties are discussed in the White Paper on South African Land Policy (DLA, 1998)

¹⁹ A settlement/land acquisition grant; a grant for the acquisition of land for municipal commonage; a settlement planning grant; a grant for the purpose of determining land development objectives; and, a restitution discretionary grant

²⁰ Initiated by the Portfolio Committee for Economic Development, Tourism and Property Management

As a platform for urban agriculture role-players in the CMA, the Urban Agricultural Summit presented an opportunity for sharing experiences and knowledge, and in so doing revealed the relevant issues needing consideration and emphasis. These could help to guide decision-makers in the process of establishing policies, strategies and projects, and ensuring the urgent needs regarding urban agriculture are addressed.

There are a number of organisations in and around Cape Town that are involved in supporting urban agriculture initiatives. Those that directly support grassroots urban agricultural projects, and in particular vegetable gardening, include:

- Soil for Life²¹
- Abalimi Bezekhaya
- The Land Development Unit (LDU)
- The Quaker Peace Centre
- Food Garden Foundation

Abalimi Bezekhaya, “the people who plant”, is an NGO that actively promotes and supports vegetable growing in urban greening in Khayelitsha and Nyanga (Abalimi Bezekhaya, 1999). This NGO incorporates two greening organisations in the region, namely Abalimi Bezekhaya and The Cape Flats Tree Project. Spurred on by the belief that urban agriculture and greening promotes food security, self-help initiatives, job creation, environmental renewal and conservation, the NGO supports individuals from the poor communities of Khayelitsha and Nyanga to initiate and sustain food gardening and ‘greening’ projects (Austin & Visser, 2002). Schools are increasingly handing over unused land to the poor for the purpose of food production (Abalimi Bezekhaya, 2001 as cited in Austin & Visser, 2002). The Abalimi Bezekhaya experience has proven that urban agriculture can, at the very least, provide opportunities to enhance household food security for participating community members, and also generate incomes for cultivators.

The Land Development Unit was established in 1992 as an independent organisation to support disadvantaged smallholder farmers and growers in the Western Cape. It is based at the University of the Western Cape and is actively involved in supporting and promoting urban agriculture and environmental awareness, particularly in schools (Meadows, 2000). The Quaker Peace Centre is an NGO concerned with peacemaking and community development. The NGO does not wish to see itself as a major service provider managing lots of gardens. Rather it would like to assist others (such as churches) to run gardens on their own.

²¹ Soil for Life was started by the Western Cape unit of the Food Garden Foundation

4.4 A FOCUS ON SOIL FOR LIFE

Soil for Life is a non-governmental organisation registered under Section 21 of the Companies Act (Act 61 of 1973) (South Africa, 1973). The vision of the NGO is to make a significant and positive contribution to people-centred sustainable development in the Western Cape. The NGO aims to help the very poor to provide essential food themselves, following the motto 'Maximum production in minimum space with minimum water'.

The NGO believes their work is important because they encourage and train people to put safe, fresh and nutritious food 'on the table' every night. By raising living standards and generating local trade, income circulates within communities and pays for education and social services. Urban food growing holds the potential to create jobs within communities that encourages the re-use of organic wastes. Gardening creates environmental awareness and encourages communities to move towards greater sustainability. The recycling and re-use of waste by community gardeners reduce the burden on the local authorities for land-fill sites. The most important benefit of the work of Soil for Life within the CMA communities resides in creating an opportunity for the communities to help themselves.

4.4.1 The aims of Soil for Life

The NGO works at three different levels:

- To improve the nutritional and economic status of individuals and communities in urban and rural areas
- To develop human potential and self-esteem
- To balance human needs with nature's capacity to sustain life for present and future generations

There are different strategies that the NGO uses to achieve these aims. The NGO provides on-going support to projects through mentorship and advisory services for the gardeners (Interview, Edwards, 2003). The Soil for Life team also emphasises the importance of forming partnerships with related NGOs and other organisations involved in urban agriculture. There are various educational and training courses for small-scale organic food production systems, with a particular emphasis on household food security and urban agriculture (Soil for Life, 2002). Other training courses include:

- Soil improvement methods
- Green technologies (e.g. waste re-use and recycling, food processing and tunnel growing)
- Health and nutrition
- Composting techniques

- Plant propagation and nursery skills
- Working with money, entrepreneurial skills, marketing of produce

An ideal that the NGO is aiming at, is to provide local Resource Centres for the distribution of educational material; and, the purchase of basic gardening equipment, low-cost seeds, seedlings and compost.

4.4.2 The Soil for Life method

The Soil for Life food gardening method is a special method of growing vegetables, especially in cases where there is a shortage of land, water or money (Interview, Edwards, 2003). Briefly, the method involves digging a trench, which is then half-filled with organic waste and topped up with the dugout soil. Seeds or seedlings are planted immediately on top of this 'compost heap'.

▪ The Trench

The size of the trench is 2 meters by 1 meter (2 spades by 1 spade). The trench-bed is approximately 50cm (knee-) deep (Soil for Life, 2002). The size of the bed enables the gardener to reach every part of the bed without standing on the soil in the bed. The bed is easy to water and easy to check for pests, diseases and weeds.

Rubbish²² (organic matter) is placed at the bottom of the trench. The coarser rubbish (sticks, maize cobs and stalks) is placed at the bottom of the trench, followed by the rusty tins and the torn newspapers and other rubbish. The rubbish attracts beneficial bacteria and earthworms that make the soil more fertile by breaking down the organic matter. Another purpose of the rubbish is that it acts as a sponge, which retains the water so that it does not drain away quickly. The rubbish must be covered with subsoil, and the subsoil covered by the topsoil. A final layer of mulch,²³ such as dry grass, dead leaves or wood chips is placed on top of the topsoil to act as a protective covering for the soil (Interview, Edwards, 2003). The filled trench (see Picture 1 in Appendix 1) is 15cm higher than ground level, because the level of the bed will drop as the rubbish decomposes. Once of the trench beds have been made they will last for about five years (Interview, Featherstone, 2003).

▪ Planting for maximum production in minimum space

It is important to plant the right seed for each season as well as the right seeds for the region. A variety of vegetables should be planted in each trench. In areas which have cold winters, it is possible

²² Food scraps, fruit and vegetable peelings, mealie cobs and leaves, dead flowers and plants, leaves, grass clippings, dead veld grass and weeds, crushed bones, egg shell, torn up newspaper and cardboard, and a few small rusty tins

²³ Mulch conserves water; reduces the growth of weeds; helps sandy soil to hold water; prevents soil erosion; and, helps low-growing vegetables

to start the food growing by planting seeds in containers instead of the open trench. Warmth is required for germination and this is why seeds should not be planted in cold soil. An advantage of seeding in containers is that young plants can be protected from wind, weather and birds.

As soon as the first leaves appear on plants they are thinned. When the true leaves appear the gardener gently removes the unwanted plants from the ground, leaving 10-15cm between remaining plants. This prevents the roots competing with one another for light and water (Soil for Life, 2002).

Succession planting refers to planting beds one after the other with an interval of three to four weeks between each planting – so that while some of the crops are maturing or have already matured, other crops will be in different stages of the growth process (Interview, Edwards, 2003). Succession planting results in a continuous supply of a variety of fresh vegetables throughout the year (Interview, Featherstone, 2003). In addition to succession planting, many gardeners use the technique of inter-planting (or intercropping) – the growing of two or more different crops – to maximise the yields of small spaces.

Crop rotation ensures that plants belonging to the same family do not grow in exactly the same place season after season (Soil for Life, 2002). When one kind of vegetable occupies the same space from one planting to the next, there is an undue strain on the soil resources, which are especially limited in a very small garden. An important note is that some members of the same vegetable group should not follow one another in the same garden space.

Companion planting (see Picture 3 in Appendix 1) refers to the fact that some plants grow well together. This type of planting is a good way of utilising a small space for maximum production; improving the soil; reducing pests and diseases; and, growing healthy plants. An example of companion planting is lettuce and spinach that are naturally good companions for tall plants like beans and tomatoes as they grow well in the shade cast by their neighbours.

▪ How to water

A tin with small holes at the bottom makes a good watering device for newly planted seeds and seedlings – and so does a plastic bottle with some holes punched at the bottom. When watering the plants, move gardeners backwards and forward over the rows so the water falls gently on the plants. In hot weather, germinating seeds and young plants should be watered twice a day for the first ten days. After that, watering once a day is sufficient.

Liquid manures are used for young plants during the first 4 – 6 weeks of growth. Different organic manures are prepared to use in the food garden, e.g. manure tea, compost tea, seaweed tea, comfrey tea, stinging nettle tea.

4.4.3 Projects supported by Soil for Life

There are a number of successful Soil for Life projects/developments. This report focuses on the projects within the Cape Flats area of the Western Cape (Table 4.1). The projects range from small home gardens to large community projects (Interview, Featherstone, 2003). For the purpose of the study, the projects identified are situated in community centres or on school grounds to ascertain whether these areas could be successfully used as productive units. A problem in many poor areas of the CMA is a lack of space to grow food. The vacant spaces in public areas such as schools and community centres present themselves as potential solutions.

After a project has been started, the Soil for Life team establishes a relationship with the gardeners involved. A field worker visits the projects weekly to ascertain how the urban farmers are coping with the vegetable cultivation. Advice and training is given on sight to ensure that the basic food gardening skills are applied correctly (Interview, Featherstone, 2003). An ideal that the NGO strives towards is to identify a field worker in each area that a project is operating. This is the start of establishing a platform through which training can take place as well as establishing a resource centre for each area. The NGO constantly guards against unsustainable gardening practices, where everything will come to a halt if NGOs support is withdrawn. The focus of the training is to teach individuals basic food growing skills to enable them to become self-sufficient in their vegetable production.

Table 4.1 Soil for Life projects in the Western Cape

(Source: Soil for Life (2002) and field visits in 2003)

	PROJECT	AREA	STARTED	INPUT BY TEAM	NO OF PARTICIPANTS	SIZE OF PROJECT	REASON FOR GARDENING
1	<i>Umfuleni Community Centre</i> ²⁴	Driftsands	1999	Training and Mentorship	17	250m ²	Own consumption Spinach for market
2	<i>Masizame Womens' Group</i> ²⁵	Driftsands	1999	Training and Mentorship	18	250m ²	Own consumption Excess sold from garden
3	<i>Nolungile Primary School</i> ²⁶	Khayelitsha	2002	Training and Mentorship	25	400m ²	Own consumption
4	<i>Bancedani Child Welfare Group</i>	Khayelitsha	2002	Training and Mentorship	30	300m ²	Own consumption
5	<i>Encothseni Primary School</i>	Khayelitsha	2002	Training and Mentorship	8	200m ²	Own consumption
6	<i>Siseko Educare Centre</i>	Gugulethu	2000	Training and Mentorship	25	500m ²	Own consumption Soup kitchen
7	<i>Eastville Primary School</i>	Mitchells Plain	2001	Training and Mentorship	6	2000m ²	Own consumption Peninsula School Feeding Scheme Organic markets ²⁷
8	<i>Eastridge/Beacon Valley Community Development</i>	Mitchells Plain	1998	Training and Mentorship	2	9000m ²	Own consumption Take-away restaurant Soup kitchen
9	<i>Soil for Life Centre Constantia</i>	Constantia	1996	Resource and Training centre	2	300m ²	Own consumption Organic markets

²⁴ See Picture 2 in Appendix 1²⁵ See Picture 4 in Appendix 1²⁶ See Picture 5 in Appendix 1²⁷ Picnic Basket (Fish Hoek), Waldarf School Co-op, Oude Molen

4.4.4 General findings relating to the Soil for Life projects

This section focuses on the urban agriculture at household level. It is based on walks and interviews that were conducted in certain parts of the Cape Flats (Driftsands, Khayelitsha, Gugulethu, Mitchells Plain). The aims and objectives of the walks and interviews were to establish the nature of the gardening activities in the areas, as well as the relationship between gardening and household food security.

Assistance in gathering information was provided by a fieldworker from Soil for Life. Eleven leaders of the Soil for Life projects (listed in Table 4.1), as well as two of the NGOs permanent staff members, were interviewed. The information gleaned from interviews were combined with information from Soil for Life on the various projects. The results are discussed below.

▪ The Profiles of the urban gardeners

A total of 154 urban farmers participate in the projects visited. Of this group, 77% (119) are female and 23% (35) are male farmers. Of the females, 39% (47) are the head of their household.²⁸ The average age of the gardeners is 45 years. Of the respondents, 59,7% (92) are unemployed with the remaining 40,3% (62) of the respondents working in the formal employment, informal employment and casual labour sectors.

A total of 26% (40) of the respondents had previous experience in gardening. Experience in gardening was usually acquired in the rural areas where the respondents previously resided. Of the respondents, 35,7% (55) were trained by the NGO and the remaining 38,3 % (59) were introduced to gardening by either family and friends or by 'word-of-mouth' in the areas surrounding the agricultural plots.

▪ Reasons for gardening

Among those involved in the different projects, the highest-ranking reason for undertaking urban vegetable growing was for consumption, and being able to re-direct their money to purchase other commodities/services. Other, less frequently mentioned, reasons for gardening included gardening for the enjoyment and relaxation, learning self-help skills, exercise and area beautification.

The Eastridge/Beacon Valley Community Development, The Soil for Life Centre and the Eastville Primary School projects produce vegetables for consumption and for three of the organic markets in

²⁸ South Africa's townships have amongst the highest number of female headed households in the world (Meadows, 1998)

Cape Town. The Eastville project is funded by the Peninsula School Feeding Scheme – an initiative that started in 1958. The Department of Health strongly supports the scheme. The food garden has been developed at Acacia Primary School by the Food Gardens Foundation and the support of the Peninsula School Feeding Scheme. Soil for Life is currently overseeing the gardening activities of this project.

▪ **Cultivation methods**

The trench bed method that Soil for Life promotes is used in all the projects, along with the use of organic matter. Basic gardening equipment such as spades, forks, rakes, and food cans are used for digging and working in the gardens.

▪ **Crops**

Crops are planted and harvested on a continual basis. The most appropriate crop varieties are selected for planting during the summer and winter months. The vegetables that are grown by the urban farmers include beetroot, broad beans, broccoli, chinese cabbage, cauliflower, cabbage, lettuce, leaks, onions, spinach, spring onions and turnips.

▪ **Expenditure on vegetables**

In general, 64% (100) of the respondents mentioned that their expenditure on vegetables has dropped in the times that they produce their own. Meadows (2000) compared the vegetable expenditure of gardeners to that of non-gardeners in the Cape Flats area. Non-gardener's weekly expenditure on vegetables was R27.28 compared to R18.60 spent by the gardeners.

▪ **General problems experienced by the different garden projects**

There were a range of problems experienced by the respondents. Problems with the trench beds included pests (particularly caterpillars and snails); although these do not appear overly problematic and are quickly dealt with by using organic pesticides and treatments. Some participants complained about school children and others vandalising their beds. Most of the gardens are now fenced, with access restricted to cultivators.

This issue of access to land is a complex one which will require the action of different role-players. It seems that schools are increasingly handing over underutilised spaces on their grounds to parents for the purpose of vegetable production (Abalimi Bezekhaya 1999 as cited in Austin & Visser, 2002). This trend should be supported and encouraged by the local authorities by creating a support structure for schools that makes some of their space available.

Some of the project leaders reported a lack of enthusiasm for food gardening (Interview, Featherstone, 2003). This problem is addressed by the following strategy. If any of the respondents fail to use the space allocated to them for growing food over a period of 3 months, they are replaced by a different urban farmer. This strategy seems to work due to the scarcity of land for food growing.

Finally, a problem that arises is that of weak organisational structures at the ground level. Soil for Life is attempting to move away from a dependency relationship towards one of self-support by the urban farmers.

CHAPTER FIVE

Conclusion

5.1 INTRODUCTION

The Directorate: Regional Planning of the Provincial Administration of the Western Cape (PAWC, 2003) is in the process of completing a draft 'Green Paper on a Settlement Framework for the Western Cape Province'. The Vision of the Green Paper is to create urban settlements that are environmentally sustainable; economically robust; socially equitable; and, responsive to the needs of the present generation without undermining the ability of future generations to meet their needs (Provincial Administration of Western Cape, 2000). Urban agriculture has become a familiar activity in many urban areas of South Africa. The fact that urban agriculture exists in the townships on the Cape Flats, and that there are NGOs dedicated to providing support services for vegetable gardeners, suggests that there is a significant support for the practice of urban agriculture in the CMA.

The increasing food demand provides particular challenges to the capacity of the CMA to supply sufficient food to households. A new food security policy needs to focus on individual and household level food security. According to the FSWG (1997), the role of agriculture in household food security is three-fold: to provide food directly (subsistence), generate income (through commercialisation) and create jobs. It is essential to create circumstances that would enhance urban agriculture, and consequently increase household food security levels. It includes addressing the availability, accessibility and utilisation of food at the household level.

This chapter contains recommendations for the future development of urban agriculture policies and projects, focussing on the main objectives of enhancing household food security.

5.2 URBAN AGRICULTURE AND PLANNING

The vision of the Provincial Government of the Western Cape is that access to land on the fringe of urban areas and rural towns, and its utilisation, will contribute to sustainable agricultural and urban development. Agricultural holdings should be spatially integrated with other urban fringe land-uses, and new farmers' establishment should be strategically incorporated into IDPs. The CMA must revise existing structure plans to identify areas suitable for agricultural holdings on the urban fringe. Crucial here is to ensure that previously disadvantaged groups and the poor have access to land on the urban fringe.

Although some forms of urban agriculture are based on the temporary use of vacant lands, urban agriculture is a permanent feature of many cities in developing and in developed countries and is thus an important component for sustainable city development (Mwalukasa, 1999). Commonages, as a public land resource, offer opportunities for the accommodation of new entrants to the farming sector. Existing commonages should not be alienated or fragmented. Those not suitable for farming should be allocated for other public uses such as active or passive recreation. Since the city is expanding quickly along the major road arteries, efforts must be made to co-ordinate with developers and road-construction companies to allow enough space for road reserves, installation of utilities, planting trees and the growing of vegetables and fruit.

The CMA is an important role-player in assisting urban agriculture project preparation through assessing the proposal's conformity to the policy for the establishment of agricultural holdings on the urban fringe. Detailed planning requirements include the preparation of a Development Plan for the agriculture holdings as well as the drafting of a Business Plan (see Appendix 2 for requirements) for land reform projects.

The issues related to food security are more a matter of inadequate access to resources rather than just the availability of certain food products. Food security in an urban context should be seen in the context of food crises (which can be temporal or chronic) and at different levels (community, household, individual). Planners should facilitate the economic development of an area by expanding retail markets to new urbanised areas. There are several ways in which local food market systems could be improved. The network of existing market spaces and facilities should be expanded to incorporate small food traders that occupy roads around markets.

A positive development initiative in the CMA is the fresh produce market in Phillipi, which will serve as a distribution point for new vegetable farmers. The provincial government is committed to establish 500 new farmers per year for the next five years. Further support towards the farmers will be an approximate 50% shareholding in the market. There are other opportunities such as sorting, handling, packaging and the manufacturing of processed foods at the market. These will contribute to approximately 2500 new employment opportunities (*Die Burger*, 22 July 2003). Fertilisers and pesticides will also be distributed at the market.

The Department of Housing regards urban agriculture as an important activity closely related to its 'environmentally sound housing programme', which partly focuses on the greening of the housing environment (Austin & Visser, 2002). Local and provincial government should incorporate such

standards in new housing schemes to accommodate and encourage urban agriculture within developments.

5.3 POLICY RECOMMENDATIONS FOR DEVELOPING URBAN AGRICULTURE

According to Watkinson and Makgetla (2002), the most important step towards food security remains the provision of productive employment opportunities through land reform, employment programmes and the re-organisation of the economy. Overall, government should develop a clearer vision for the role of agriculture and the food industry in the economy. Urban agriculture should be developed as a strategy to improve household food security and support urban economic development.²⁹

The overall objective of the policy should be to increase the production of vegetables to meet city demand and to improve the economic and nutritional status of the urban households. The initiative of the Cuban government to promote urban agriculture is instructive as it effected dramatic changes to food provisioning. Short-term interventions should support nutrition education, stable, low-cost supply of staple foods combined with carefully targeted food subsidies. While economic empowerment is central to achieve food security on a sustainable basis, it is recognised in policy circles that there are vulnerable households and individuals who will continue to need direct assistance to meet their basic needs.³⁰

There are a number of policy guidelines that can be considered. Firstly, the improvement of subsistence orientated urban agriculture, with the main objective of securing food security of urban households, should be facilitated. In this case, the main policy issues would include access of the urban poor to public and private land and water; tenure security; and, human capacity building and development of farmer networks and organisations. Secondly, the positive effects of urban agriculture on the with respect to the improvement of the urban environment can be enhanced by decentralised recycling of organic solid wastes and waste water; and, integration of urban agriculture in urban zoning and city development plans.

▪ Access to land

Food accessibility refers to the ability of households to obtain sufficient food for all members at all times, either through production for own consumption, or through exchange. Unfortunately, the

²⁹ In other African countries, policy on urban agriculture proved to benefit only commercial farmers, while neglecting to address the needs of the poor (Austin & Visser, 2002)

³⁰ The elderly, women, children and individuals with HIV

household level distribution systems have been eroded during the course of time. A strategy is needed for facilitating access to land for urban agriculture. The different options that exist should be further explored.

Vacant public and private lands are valuable for urban food growing. The municipal government of Cagayan de Oro (Philippines) issued an ordinance to allow some urban farmers to use parts of the idle land and open spaces for food production. Schools and community centres should be encouraged to make land available for cultivation by the local communities. Participating institutions benefit by reduced maintenance of the grounds, as well as possible contributions to feeding programmes (e.g. factories/school/hospital projects in Havana, Eastville Primary School and Siseko Educare Centre). In return, the local community will benefit from the space provided to grow food (as noted in Dar es Salaam, Havana and Cagayan de Oro), as well as creating a more pleasant environment through greening.

The accessibility of land is also an important aspect for urban farmers. The distance to be travelled from their homes and the availability of public transport contributes to the effectiveness of the farmers' effort. The location of the site can also be critical in terms of security. Urban agriculture sites within communities have the benefit of community presence.

Security of tenure plays an important role in the sustainability of the urban agriculture venture. Urban farmers may be cautious about investing in land without security of tenure. The efforts of the Cuban government to ensure secured access to land for food growing contributed greatly to the success of the initiative. The increased co-ordination between the different departments at a local level is important to speed up the land-use application process.

An aspect that planners and developers should consider is the plot sizes of residential developments. The layout should be of such nature that the household has the option of developing a food garden.

▪ **Water**

A reliable source of water is needed for any sustainable farming venture. Planners and local authorities should be aware of the various options regarding water for this purpose. Rainwater harvesting is a cost-effective method for obtaining water for farming. This method requires an initial payment for infrastructure (gutters and tanks), but thereafter functions well as a back-up source when conventional methods of water supply fail. Another advantage of this system is that the water obtained is free. Rainwater harvesting and other alternatives to conventional methods of water provision can play a crucial role in the sustainability of urban agriculture.

▪ Information exchange and skills development

The challenge is to learn from and build on the experience gained so far with regards to urban food growing projects. NGOs need to document their experiences and methodologies and to develop more formal links with government departments. There should be an ongoing feedback of information about circumstances of the urban farmers, their constraints and the potentials for productivity improvements so as to influence decisions on investments in research and small farmers' support programmes.

The establishment of a resource base can contribute to the future research and development of urban agriculture. Duplication of efforts and repetition of past mistakes must be prevented. The indigenous knowledge of the local communities must be used for the design of appropriate programmes and policies.

Skills training forms a part of the extension services provided by authorities and NGOs. The training should have a dual purpose of exchanging expertise between local community members as well as other role-players involved in the urban agriculture projects. Technical advice and training of farmers, fieldworkers and planners by agricultural extension officers should be offered and sustained (e.g. Soil for Life, Abalimi Bezekhaya and Havana projects).

▪ Institutional considerations

Local NGOs (Soil for Life, Abalimi Bezekhaya, Quaker Peace Gardens) should continue to provide the support that they currently offer to urban agriculture on the Cape Flats. These NGOs have the advantage of years of experience and can therefore make a vital contribution to a future urban agriculture strategy. The employees of NGOs tend to have a better understanding of the needs and the priorities of the farmers in context of specific production environments.

Increased co-ordination between authorities, organisations and local communities for the development of a sustainable urban agriculture industry in Cape Town should be pursued. The Cuban government, for example, strongly supports urban agriculture and plays an important role in the providing the necessary organisational infrastructure to support food production.

Policy formulation should be shared between different urban agriculture stakeholders and interest groups. This is particularly relevant for local government and NGOs; where there is a significant potential for co-operation in the cultivation of open spaces and vacant or underutilised land (Abalimi Bezekhaya, 1999). The policy agenda needs to focus on improving the planning and management of urban agriculture to sustain urban households.

▪ **Public participation**

Public participation is a key issue of any urban agriculture venture. Ideally, urban agriculture should be a community initiative supported by authorities and NGOs. It is important to ensure public participation from the outset. The involvement of the community increases the sense of ownership of a project for participants and may address many social factors constraining urban agriculture (Interview, Featherstone, 2003; Austin & Visser, 2002). The main aim of sustainable projects is to move away from a culture of dependency, but rather focus on partnerships where the functions of the different role-players complement each other.

Reliable project co-ordinators must be chosen from the communities to provide the community efforts with local leadership (Interview, Featherstone, 2003). Soil for Life strives towards identifying a field worker (community leader) in each area that a project is operating. The community leader can play an important role in facilitating public participation and in the representation of the needs of the community involved.

▪ **Resource conservation**

Sustainability in food production is not merely a matter of conserving natural resources. Rather, it is a matter of finding ways and means to meet rapidly changing and increasing food demands without compromising the ability of the total stock of resources to meet the even larger demands of future generations. The potential trade-offs between alleviation of current poverty and the needs for future generations must be considered, and attempts must be made to identify strategies to achieve both goals. The potential impacts and public health risk of urban agriculture on natural resources should be addressed in a policy.

Early action to prevent degradation will usually be much cheaper than attempting to reverse it later (Interview, Featherstone, 2003; De Necker et al, 1996). Agricultural activities should not be permitted on stream banks or near watercourses as these the activities may be detrimental to water quality, and increased erosion on the stream banks may cause siltation of streams.

There is a need to develop and promote technologies that not only improves household food security, but at the same time maintains or enhances the quality of the environment and conserves the natural resource base. Potential environmental benefits of urban agriculture include the recycling of urban waste products, the greening of vacant plots, and the production of vegetables for urban consumption, without incurring the congestion and pollution of long-distance transportation.

5.4 CONCLUSION

The sustainable integration of agriculture into the urban areas is a complex task that requires the commitment of multiple role-players. Despite the many challenges, it holds the potential to contribute towards the sustainability of these centres through increasing the food security of urban households.

Urban planners should combine their efforts with those of urban communities to ensure the effective integration of urban agriculture into the immediate environment and wider urban system. All efforts and projects should lead to the greater purpose of establishing urban agriculture as a productive land-use within the urban areas. The current objectives should tie in with the future vision of creating food secure households in the urban areas. Spatial strategies should be combined with economic and environmental intervention to form an integrated approach towards development. The recognition of urban agriculture in urban spaces can act as a doorway leading to broader developmental processes such as local economic development whereby disadvantaged communities secure the benefits of employment and improve food security.

BIBLIOGRAPHY

Abalimi Bezekhaya and the Cape Flats Tree Project (1997), *Newsletter no. 19*, Spring & Summer

Abalimi Bezekhaya and the Cape Flats Tree Project (1998a), *Newsletter no. 20*, Autumn & Winter

Abalimi Bezekhaya and the Cape Flats Tree Project (1998b), *Newsletter no. 21*, Spring & Summer

Abalimi Bezekhaya and the Cape Flats Tree Project (1999), *Newsletter no. 22*, Autumn & Winter

Adlington, T. (1997), "Urban and Peri-Urban Agriculture: Some Thoughts on the Issue", *Land Reform and Co-operatives*, vol. 2, pp 43-44

Amalu, U.C. (2002), "Food security: sustainable food production in Sub-Saharan Africa", *Outlook on Agriculture*, vol. 31, no. 3, pp.177-185

Atukunda, G. & Maxwell, D. (1996), "Farming in the City of Kampala: Issues of Urban Management", *African Urban Quarterly*, Vol. 11, no. 2&3, pp.264-276

Austin, A. & Visser, A. (2002), *Study Report: Urban Agriculture in South Africa*, The Council for Scientific and Industrial Research, Pretoria

Baker, J. & Pedersen, P.O. (eds) (1992), *The Rural-Urban Interface in Africa*, Seminar Proceedings no. 27, The Scandinavian Institute of African Studies, Uppsala

Bryant, C.R & Johnston, T.R.R. (1992), *Agriculture in the City's Countryside*, Belhaven Press, London

Daily Business News, Edition of Wednesday 28 May 2003

City of Cape Town (1999), *Municipal Spatial Development Framework*, Planning and Development Directorate, Cape Town

Cockram, M. & Feldman, S. (1996), "The Beautiful City: Gardens in the Third World Countries", *African Urban Quarterly*, vol. 11, no.2&3, pp.202-209

Cox, H. & Stamp, D. (1996), *Ubumo: A Social-Economical and Nutritional Survey of a Rural Community in Eastern Nigeria*, Geographical Publications Limited, Cornwall

Deelstra, T. & Giradet, H. (2000), Urban Agriculture and Sustainable Cities, in: Smith, J. & Nasr, J. (eds) *Urban Agriculture: Food, Jobs and Sustainable Cities*, United Nations Development Programme, New York, pp.43-66

De Necker, P.H., Uys, J.J., Van der Merwe, J.H. (1996), *Urban and Peri-Urban Farming in the Western-Cape: Feasibility of a Development Mechanism for the Private Sector*, Publication No. 35/1996, Institute of Geographical Analysis and Department of Geography and Environmental Studies, University of Stellenbosch

Department of Agriculture (1995), *White Paper on Agriculture*, Government Printer, Pretoria

Department of Agriculture and Land Affairs (1997), *Food Security Policy for South Africa: A Discussion Document*, Government Printer, Pretoria

Department of Agriculture (1998), *Agricultural Policy in South Africa: A Discussion Document*, Government Printer, Pretoria

Department of Health (1998), *The Integrated Nutrition Programme (INP)*, Government Printer, Pretoria

Department of Land Affairs (1997), *Municipal Commonage: User Guide, Policy and Procedures*, Government Printer, Pretoria

Department of Land Affairs (1998), *White Paper on South African Land Policy*, Government Printer, Pretoria

Department of Land Affairs (1999), *Green Paper on Development and Planning*, Government Printer, Pretoria

Deveroux, S. & Maxwell, S. (eds) (2001), *Food Security in Sub-Saharan Africa*, ITDG Publishing, London

Die Burger, 5 June 2003 & 22 July 2003

- Drescher, A.W. (1996), "Urban Micro-Farming in Central Southern Africa: A Case Study of Lusaka, Zimbabwe", *African Urban Quarterly*, vol. 11, no. 2&3, pp.229-249
- Eberhard, R. (1989), 'Urban Agriculture: The Potential in Cape Town', Working Paper 89/E1, City Planner's Department, Cape Town
- Egziabher, A.G., Lee-Smith, D., Maxwell, D.G., Memon, P.A., Mougeot, L.J.A. & Sawio, C. (1994), Introducing Urban Agriculture in: Mougeot, L.J.A. (ed.), *Cities Feeding People: An Examination of Urban Agriculture in East Africa*, International Development Research Centre, Ottawa, pp.1-15
- Food and Agricultural Organisation (1999), 'Urban and Peri-Urban Agriculture', *Proceedings of the 15th session of the Food and Agricultural Organisation*, Rome, 25-29 January 1999
- Fermont, A., Van Asten, P., Keet, J. & Van Boom, E. (1998), *Urban Vegetable Production in Khayelitsha*, University of the Western Cape
- Food Security Working Group (FSWG) (Agriculture Policy Unit) (1997), *Food Security Policy for South Africa: A Discussion Document*, Department of Agriculture and Land Affairs
- Gellen, K. (1994), "Filling Africa's Granaries: Continent Confronts Challenges of Production", *African Farmer*, vol. 12, pp.2-41
- Gumbo, D.J & Ndiripo, T.W. (1996), "Open Space Cultivation in Zimbabwe: A Case Study of Greater Harare, Zimbabwe", *African Urban Quarterly*, vol. 11, no. 2&3, pp.210-217
- Heyns, S. (ed) (2001), *Guidelines for the Integration of Environmental Planning into Land Reform and Land Development*, Government Printer, Pretoria
- Howe, J. & Wheeler, P. (1999), "Urban Food Growing: The Experience of Two United Kingdom Cities", *Sustainable Development*, vol. 7, pp.13-24
- Hubbard, M. & Onumah, G. (2001), "Improving Urban Food Supply and Distribution in Developing Countries: The Role of City Authorities", *Habitat International*, vol. 25, pp.431-446
- Jacobi, P. & Amend, J. (1997), "Vegetable Farming in Dar es Salaam: An Important Source of Income, and not only to the Poor", *Agriculture and Rural Development*, vol. 4, pp.52-54

Jacobi, P., Amend, J., Kiango, S. (1999), Urban Agriculture in Dar es Salaam: Providing an Indispensable Part of the Diet, in: Smith, J. & Nasr, J. (eds), *Urban Agriculture: Food, Jobs and Sustainable Cities*, United Nations Development Programme, New York, pp.265-292

Koc, R.M., MacRae, R., Mougeot, L.J.A., Welsch, J. (1999), Introduction: Food Security is a Global Concern, in: Koc, R.M., MacRae, R., Mougeot, L.J.A., Welsch, J. (eds), *Hunger Proof Cities: Sustainable Urban Food Systems*, International Development Research Centre, Ottawa, pp.1-29

Lourenqo-Lindell, I. (1995), 'Food for the Poor, Food for the City: The Role of Urban Agriculture in Bissau', Paper presented at workshop on *The Social and Environmental Implications of Urban Agriculture*, University of Zimbabwe, Harare, 30-31 August 1995

Maddock, N. & Wilson, F.A. (eds) (1994), *Project Design for Agriculture Development*, Avebury England

Makgetla, N. & van Meelis, T. (2002), 'Unpacking Unemployment', Paper presented at *Development Policy Research Unit Conference*, University of Cape Town

Martin, R. & Marsden, T. (1999), "Food for Urban Spaces: The Development of Urban Food Production in England and Wales", *International Planning Studies*, vol. 4, no. 3, pp.389-413

Maxwell, D. & Armar-Klemesu, M. (1998), *Urban Agriculture: Introduction and Review of Literature*, Noguchi Memorial Institute of Medical Research, Accra

Maxwell, D., Odame Larbi, W., Lamptey, G.M., Zakariah, S., Armar-Klemesu, M. (1998), Farming in the Shadow of the City: Changes in Land Rights and Livelihoods in Peri-Urban Accra, in: Mougeot, L.J.A. (ed), *Cities Feeding People Report No 23*, International Development Research Centre, Ottawa

Mbiba, B. (1994), "Institutional Responses to Uncontrolled Urban Cultivation in Harare: Prohibitive or Accommodative?", *Environment and Urbanisation*, vol. 6, no. 1, pp.188-202

Meadows, K. (2000), *The Social and Institutional Aspects of Urban Agriculture in the Cape Flats, Western Cape, South Africa*, Natural Resources Institute, United Kingdom

- Mougeot, L.J.A. (1996), "Introduction: An Improving Domestic and International Environment for African Urban Agriculture", *African Urban Quarterly*, vol.11, no. 2&3, pp.137-153
- Moskow, A. (1999), "Havana's self-provision gardens", *Environment and Urbanisation*, vol. 11, no. 2, pp.127-133
- Murphy, C. & Novo M.G. (1999), Urban Agriculture in the City of Havana: a Popular Response to a Crisis, in: Smith, J. & Nasr, J. (eds), *Urban Agriculture: Food, Jobs and Sustainable Cities*, United Nations Development Programme, New York, pp.337-354
- Murray, S. (1997), *Urban and Peri-Urban Forestry in Quito, Ecuador: A Case Study*, Food and Agriculture Organisation Forestry Department, Rome
- Mvena, Z.S.K., NnKya, T. & Kofi Doe, B. (1991), *Urban Agriculture in Tanzania: A Study of Six Towns*, Sokoine University of Agriculture, Morogoro
- Mwalukasa, M. (1999), Institutional Aspects of Urban Agriculture in the City of Dar es Salaam, in: Smith, J. & Nasr, J. (eds), *Urban Agriculture: Food, Jobs and Sustainable Cities*, United Nations Development Programme, New York, pp.265-288
- Mwangi, M.M (ed) (1998), 'Urban Food Production: A Survival Strategy of Urban Households', Report of *Workshop on East and Southern Africa*, The Regional Land Management Unit, Nairobi
- Nasr, J. (2000), "Urban Agriculture, Progress and Prospect 1975-2005", Available: <http://www.ruaf.org> (Accessed: 2003, May 20)
- Obosu-Mensah, K. (1999), *Food Production in Urban Areas. A Study of Urban Agriculture in Accra, Ghana*, Ashgate Publishing Limited, England
- People's Budget 2004-2005, Available: <http://www.naledi.org.za> (Accessed: 2003, August 4)
- Potutan, G.E., Schnitzler, W.H., Amado, J.M., Janubas, L.G., Holmer, R.J. (2000), Urban Agriculture in Cagayan de Oro: A Favourable Response of City Government and NGOs, in: Smith, J. & Nasr, J. (eds), *Urban Agriculture: Food, Jobs and Sustainable Cities*, United Nations Development Programme, New York, pp.425-442

Provincial Administration of Western Cape (PAWC) (2000), *Policy for the establishment of Agricultural Holdings on the Urban Fringe*, Provincial Gazette Extraordinary.

Provincial Administration of Western Cape (PAWC) (2003), *Draft Green Paper on the Settlement Framework for the Western Cape Province*, Available: <http://www.pawc.wcape.za> (Accessed: 2003, August 3)

Radoki, C. (1995), "Poverty Lines or Household Strategies? A Review of Conceptual Issues in the Study of Urban Poverty", *Habitat International*, vol. 19, no. 4, pp.407-426

Ratta, A. & Nasr, J. (1996), "Urban Agriculture and the African Food Supply System", *African Urban Quarterly*, vol. 11, no. 2&3, pp.218-228

Sanyal, B. (1985), "Urban Agriculture: Who Cultivates and Why? A case-study of Lusaka, Zambia", *Food and Nutrition Bulletin*, vol. 7, no. 3, pp.15-24

Sawio, C.J. (1998), *Managing Urban Agriculture in Dar es Salaam*, in: Mougeot, L.J.A. (ed), *Cities Feeding People*, International Development Research Centre, Ottawa, pp.23-34

Schutte, W. (1996), *Stedelike Landbou en Gemeenskapontwikkeling: Die Potensiaal van Gemeenskapstuine*, Unpublished Masters Thesis, University of Stellenbosch Press

Smith, J. (1996), 'Urban Agriculture: Green and Healthy Cities', Available: <http://www.ruaf.org> (Accessed: 2003, May 20)

Smith, J. & Nasr, J. (eds) (1996), *Urban Agriculture: Food, Jobs and Sustainable Cities*, United Nations Development Programme, New York

Snowman, M. & Urquhart, P. (eds) (1998), *A Place called Home: Low Cost Housing and Environmental Issues*, University of Cape Town Press, Cape Town

Soil for Life (2002), *Trench Garden Vegetables: A Simple Guide to Small-Scale Organic Vegetable Production and Self-Sufficiency*, Cape Town

South Africa (Republic) (1973), *The Companies Act, No 61*, Government Printer, Pretoria

South Africa (Republic) (1996), *Constitution of the Republic of South Africa, No 108*, Government Printer, Pretoria

South Africa (Republic) (1995), *The Development and Facilitation Act, No 67*, Government Printer, Pretoria

South Africa (Republic) (1996), *The Local Government Transition Act, No 97*, Government Printer, Pretoria

Statistics South Africa (1999), *Population Census 1996*, Available: <http://www.statsa.gov.za/census96> (Accessed: 2003, June 7)

Statistics South Africa (2001), *Population Census 2001*, Available: <http://www.statsa.gov.za/census01> (Accessed: 2003: June 7)

Statistics South Africa (2002), *Consumer Price Index for Metropolitan Areas*, Release No P0141.1, Statistics South Africa, Pretoria

Statistics South Africa (2003) 'Discussion Paper: Consumer Price Index – Rural Areas and Total Country', Available: <http://www.statssa.gov.za> (Accessed: 2003: July 12)

Stevenson, C., Kinabo, J., Nyange, D. (1996), *Urban Horticulture in Tanzania*. Dar es Salaam: Urban Vegetable Promotion Project, Unpublished Report.

Tevera, D.S. (1996), "Urban Agriculture in Africa: a Comparative Analysis of Findings in Zimbabwe, Kenya and Zambia", *African Urban Quarterly*, vol. 11, no. 2&3, pp.181-188

The Regional Land Management Unit (RELMA) (1998), *Urban Food Production: A Survival Strategy of Urban Households*, Report of *Workshop on East and Southern Africa*, 3 – 5 May, 1998, Nairobi, The Regional Land Management Unit

Van der Bliet, & Waters-Bayer, J. A. (1996), "Farming in the City: From Analysis to Action", *African Urban Quarterly*, vol. 11, no. 2&3, pp.259-263

Visser, S. (2002), 'Purpose of the Summit', Documentation of *Urban Agricultural Summit*, Cape Town 8-9 May

Watkinson, E. (2002), "Food security: Overcoming the Crisis", *Indicator SA*, vol. 19, no. 3, pp.23-34

Watkinson, E. & Makgetla, N. (2002), *South Africa's Food Security Crisis*, Report for the National Labour and Economic Development Institute, Available: <http://www.naledi.org.za> (Accessed: 2003, August 3)

Watson, V. (2002), *Change and Continuity in Spatial Planning: Metropolitan Planning in Cape Town under Political Transition*, Routledge, London

World Bank (2002), *World Development Report*, World Bank, Washington DC

INTERVIEWS CONDUCTED

- Featherstone, P. 2003. Director, Soil for Life. Personal Interview. 21 July, Constantia
- Edwards, S. 2003. Field worker, Soil for Life. Personal Interview. 23 July, Constantia
- Zenani, M. 2003. Umfuleni Community Centre. Personal Interview. 23 July, Driftsands
- Yonkwana, V. 2003. Masizame Women's Group. Personal Interview. 23 July, Driftsands
- Mcutshenge, P. 2003. Nolungile Primary School. Personal Interview. 23 July, Khayelitsha
- Dilima, N. 2003. Bancedani Child Welfare Group. Personal Interview. 24 July, Khayelitsha
- Plaatjies, J. 2003. Encothseni Primary School. Personal Interview. 24 July, Khayelitsha
- Mahuza, N. 2003. Siseko Educare Centre. Personal Interview. 24 July, Gugulethu
- Rhode, F. 2003. Eastville Primary School. Personal Interview. 25 July, Mitchells Plain
- Molaoa, J. 2003. Eastridge/Beacon Valley Community Development. Personal Interview. 25 July, Mitchells Plain
- Mbabane, C. 2003. Eastridge/Beacon Valley Community Development. Personal Interview. 25 July, Mitchells Plain
- Bebeza, C. 2003. Field worker, Soil for Life. Personal Interview. 25 July, Constantia

APPENDIX 1



Picture 1: An example of the 'raised' beds



Picture 2: The Umfuleni Community Centre garden



Picture 3: Companion planting



Picture 4: The Masizame Women's Group



Picture 5: Vegetable gardens at Nolungile Primary - Khayelitsha

APPENDIX 2

The Guidelines for Drafting of a Business Plan, as compiled by the Department of Land Affairs and the provincial Department of Agriculture (DLA, 1997), encompass the following:

1. Determine the purpose of the project
2. Provide the economic perspective of the agriculture sector relevant to this project
3. Describe the overall project and regulations for project control, inclusive of:
 - a. Long term sustainability and economic viability
 - b. Strategy for food security and combating poverty
 - c. Main and other sources of financing
 - d. Institutional and technical assistance (e.g. Department of Agriculture, co-operatives)
 - e. Institutional framework
 - f. Participation of women
 - g. Participation of the wider community
 - h. Consultation with role players and parties involved
 - i. Technical guidelines (e.g. maintenance of infrastructure, training)
 - j. Financial and economic guidelines
 - k. Guidelines for project prioritization