

**A Socio-economic analysis of urban agriculture: The Soshanguve project case
study**

By

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Declaration

I Daniel Senkgoa Kekana hereby declare that the thesis/dissertation, which I hereby submit for the degree Magister Institutional Agrariar at the University of Pretoria, is my own work and has not previously been submitted by me for a degree at this University or any other tertiary institution.

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DATE

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A Socio-economic Analysis of Urban Agriculture: The Soshanguve Project Case Study

Abstract

South Africa is experiencing increasing urbanisation and an increase in the number of the poor in urban areas and thus the number of food insecure households in these environments. Formal economic opportunities however often fail to keep pace with increase in urban population and this result in increases in informal but not officially recognised activities. Formal urban planning service provision therefore does not enhance the potential of such opportunities. Urban agriculture (UA) is viewed as one such an opportunity not sufficiently activated in urban development strategies.

Urban population depends largely on cash income to access food and with unemployment increasing more urban households are unable to access food to meet their needs. Alternative ways of accessing food has become necessary. In Soshanguve close to Pretoria, South Africa, some poor families engaged farming within the township to earn a living. This study has investigated the impact of such farming on household's food security and income generation. The study investigated an agricultural project launched in 1996 by the Agricultural Research Council (ARC) in collaboration with Gauteng Provincial Department of Agriculture (GPDA). Forty-eight participants from nine participating groups in Soshanguve were interviewed using a structured questionnaire. Farming in urban environment has been found to benefit poor households through direct saving on food purchases, income generation through sale of produced and provision of a varied range of nutritious foods. The hypothesis adopted by this study was that "urban agriculture is often not considered an "urban land use" activity by urban planning authorities and the potential of this economic rationale strategy to support urban food security is not sufficiently exploited. This result in lack of adequate land use planning for urban agriculture and weak support to urban farmers. Urban agriculture is therefore constrained by lack of integrated development approach.

The theoretical framework for this study includes the following: (i) UA is derived from the rational resource allocation of (poor) urban dwellers who are not in a position to earn sufficient income from non farming to provide a sustainable urban family livelihood;

(ii) UA can be explained by cost saving and reduction in transaction costs from a consumer viewpoint (point of consumption to point of food acquisition); (iii) UA is often a temporary survival strategy to allow a fall back position if sufficient urban income is not generated; (iv) UA is practised mainly to address household food security with surpluses sold in the market.

Major finding of this study includes the findings on approach and operation applied by the farmers. The project has the potential to be successful because the benefits are tangible and direct. Farmers in Soshanguve experienced a host of interlinked problems but the project only addressed the information and input problems. The project lacks monitoring and evaluation framework. The development of small farmers should not only focus on short-term assistance through technical training and input supply. The following recommendations were proposed for the development of a sustainable and viable UA sector. The main recommendation is the need to create an enabling environment through the development of appropriate policies. Such policies should

- Recognize agriculture as a land use activity in urban environments and provide sufficient support services to the urban small-scale agricultural sector.
- Encourage investment on infrastructure and technology development required for UA development
- Co-ordinate agricultural activities within urban and between urban and rural areas
- Involve beneficiaries in the planning and implementation of projects
- Establish permanent structures and institutions that will promote urban agriculture activities and develop measures to counter negative impacts of UA

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List of abbreviation

ARC – Agricultural Research Council

CBA – Cost Benefit Analysis

FAO – Food and Agricultural Organization

GPDA – Gauteng Provincial Department of Agriculture

HSRC – Human Science Research Council

JDAF – Jabulani Agricultural Development Forum

LFA - Logical Framework Analysis

NPMS -Noordelike Pretoria Metropolitanse Substruktuur

PAPP – Participatory Analysis and Planning Procedures

STATSSA – Statistic South Africa

UA – Urban Agriculture

UCF – Unemployment Coordinated Forum

VOPI – Vegetable and Ornamental Plants Institute

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Chapter 1

Introduction

1.1 Introduction

South Africa's food policy has shifted from that of "national self-sufficiency" in the years before 1994 to be refocused and expanded to ensure that food security at household and individual levels are pursued as a goal. It becomes a central tendency to view food security in the South African agricultural policy context to be in terms of distribution and household level access rather than physical adequacy (Food Security Working Group, 1997). Food security is a nutritional issue and in South Africa, food security is also a human right issue. The state is obliged to provide legislation and other measures within available resources to ensure that all citizens are enabled to meet their food demands. The state has increased its public spending on activities related to improving food security among historically disadvantaged citizens.

Food security is defined by the Food and Agricultural Organization (FAO) of the United Nation (UN) as "a situation in which all people at all times have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life" (FAO, 2001). Basic elements of this definition include consistent availability, ability to acquire and nutrition. Major determinants of food security are the ability to produce and or purchase food (National Department of Agriculture, 2002). Key to food security is therefore policies that raise incomes of the poor, accelerate agricultural productivity and enhance the ability to import food (National Department of Agriculture, 2002)

This study focuses on aspects of agriculture in the urban environment of South Africa as it relates to food production, generally known as Urban Agriculture (UA). The study describes urban agriculture and analyses the impact of project directed farming activities on household income and food security as a case study. For purposes of this study, household food security is attained when a household is able to consistently access food quantities of the quality that are needed to meet the household needs.

The food could be accessed through home-based production, purchases or both. The typical problems experienced by small-scale vegetable farmers in the informal sector in urban and peri-urban environments and possible strategies to solve some of these problems are an important focus of this study. Food security and income are considered to be major components of poverty alleviation efforts. In this study, these aspects were attended to through the application of a comprehensive impact assessment methodology on a particular agricultural training initiative launched by the Agricultural Research Council (ARC) in collaboration with the Gauteng Provincial Department of Agriculture (GPDA) in the Soshanguve township close to Pretoria during 1996. This chapter (Chapter 1) gives a brief overview of economic development and food; the food policy development in South Africa; and the food situation and urbanization in South Africa. The chapter attends to a definition of urban agriculture and finally outlines the problem statement, the hypothesis and objectives of the study as well as the layout of the report.

1.2 Economic development and food

The growth in demand for food is viewed as a function of population growth, per capita income growth and income elasticity of demand for food (Mellor, 1990). Non-uniform changes in population growth, increased urbanization, increased per capita income and changing income elasticity of demand for food groups causes asymmetrical expansion and structural changes in domestic demand for food and agricultural products (Van Rooyen, Ngqangweni & Frost, 1996). Urbanization particularly of poor black population is expected to lead to a structural change in the need for food due to different consumption patterns between urban and rural populations.

Urban demand for food will increase with increase in urbanization and much of this will flow through markets. According to Van Rooyen, Mavhandu & Van Schalkwyk (1997) the “battle” to meet the growing demand for food from consumers in the South and Southern Africa will increasingly be situated in urban environment of the region. While South Africa is able to meet its own food requirement with considerable exportation (Republic of South African, 2002/03), about 35% of the population is still food insecure (National Department of Agriculture, 2002).

Some of the general factors affecting food insecurity include low income, high prices, and constrained access to production resources and lack of physical access to available food (FAO, 1998). This equally applies in South Africa (Van Rooyen *et al*, 1997).

Projections as illustrated on table 1.1 show that wheat demand in 2010 will exceed current production by 51% and this suggest that whatever source (production and or imports) must increase at least by that margin to meet the then demand. The difference between current production and expected consumption is largest for wheat and least for maize amongst the listed food commodities. This suggests that wheat may be replacing maize as the stable food. This may be associated with urbanization process in South Africa as urban dwellers generally consume more of wheat than maize.

Table 1.1 Expected requirements for basic food products in South Africa 2000, 2020 and 2020

Product	Per capita consumption (kg)	Expected demand growth %			Expected requirements ('000)			Current production ('000 ton)
		2000	2010	2020	2000	2010	2020	
Fresh milk	28	1.96	1.85	1.65	1192	1345	1665	1082
Maize	174.2	1.74	1.64	1.46	7965	8371	10363	7299
Wheat	55.9	1.34	1.26	1.12	2365	2670	3307	1763
Potatoes	31.4	3.75	3.53	3.14	1360	1533	1895	1218
Beef	18.3	3.26	3.07	2.73	789	889	1099	685
Mutton	5.0	1.96	1.85	1.65	212	240	297	177
Pork	3.2	3.26	3.07	2.73	137	156	192	121
Poultry	19.3	5.00	4.71	4.19	845	953	1176	747
Eggs	5.4	4.71	1.72	1.53	229	258	321	264

Source: Department of Agriculture, 2002 (per capita consumption is average of 1991 to 1993)

The contribution of agriculture to economic development and welfare is generally undervalued and obscured (Van Rooyen, C.J., Sigwele, H., Nqgangweni, S., Van Schalkwyk, H., Kekana, D.S., Mabiletsa, P. and Mayer, N., 1997). Despite this, agriculture plays an important role in the economy of the country. Primary agriculture accounts for 4.5% of the GDP and employs 11% of the total labour in the country (National Department of Agriculture, 2001).

It is estimated that about 40% of the population depend on agriculture and related industries (National Department of Agriculture, 2001). The potential role of agriculture and in particular urban agriculture, to contribute to food security is attended to in this section. The agricultural sector in South Africa is highly dualistic in nature. Large-scale commercial sector producing for the market co-exists with small-scale subsistence sector producing mainly to support household consumption. The efficiency and productivity of both these sectors are important for South African household food security.

Agricultural activities in a country's economy play an important role in the well-being of its citizens, inter alia, by combating poverty and hunger and by creating wealth through commercial activities. The reduction in farming activities could therefore reduce employment and income generating opportunities and thereby impact negatively on economic growth and development prospects (Van Rooyen *et al.*, 1997).

Agricultural development plays an important role in structural transformation. According to Mellor (1990), the size and not the growth of the sector is generally more important for structural changes. Mellor (1990) argues that agriculture may be a slower growing sector but in developing economies it has the mass which implies large output and large economic inputs and participation. Technological changes that increase output per unit input in agriculture can boost national income substantially and therefore hasten economic transformation and shift to the potentially faster growing sectors (Mellor, 1990). On the other hand, technological changes that begin in the small non-agricultural sector will have to proceed at a much faster rate than a given rate in the agricultural sector to achieve as much effect on national income. The impact of agriculture through economy wide employment linkages and income multipliers on economic development and growth patterns in South Africa have been illustrated by Van Rooyen and Machete, (1991). The central question attended to in this study is how important the agricultural activity is in the urban context.

South Africa like most other countries in the world is experiencing a pro-urban shift in population. According to Statistic South Africa, 55% of the population is living in urban areas (Statistic South Africa, 2002).

The additional population growth is expected to be mainly from black groups (Spies, 1998). The increase in urban population increases the pressure to convert higher potential agricultural land into non-agricultural uses such as housing and other infrastructure. It is reported that urbanization takes about 30000ha of farmland each year (Republic of South African, 1995). Employment opportunities in urban areas often fail to keep pace with urban population growth and therefore urban unemployment and poverty increase. With this, the urban poor's quality of life in future cities is bound to be poor. In 1995, Tomlinson (1995), estimated that 55.2% of the urban households lived in poverty. The inflow into urban areas will also contribute to the increase in number of the poor in urban areas. The informal sector is increasingly playing an important role in the economy. According to Statistics South Africa (2001), 18.4% of the 10,4 million employed during October 1999 were in the informal sector (Statistics South Africa, 2001). The informal sector in South Africa provides employment to 19.4% labour force (Devey, Skinner and Valodia, 2002).

Most of the urban poor in South Africa live in informal settlements. Tomlinson (1995), estimated 7 million people of the urban populations to be living in informal settlements during 1995. This figure is expected to increase to 12 million by the year 2010. By 2002 12% of the households in South Africa were living in informal settlements (Gauteng Provincial Government, 2002). The size of the population in informal settlements is expected to increase as poverty and unemployment increases.

Feeding the growing urban population and especially the poor in the informal settlement is a major challenge for the South African economy. Urban areas are more likely to experience persistent hunger than intermittent hunger. This is expected because urban populations depend largely on income to access food and yet employment opportunities are becoming difficult to come by. Due to unemployment, many of the urban poor will have constraint access to food quantities sufficient to satisfy their requirements. The poor tend to purchase in smaller quantities and from a number of sources (Mougeot, 1994; Van Rooyen, Mavhandu and Van Schalkwyk, 1997). Due to this inefficient shopping practice, the poor tend to pay more per unit of consumption (Mougeot, 1994). This kind of behaviour is an adaptation strategy for the poor. Conventionally, urban areas rely largely on food supply from retail sources.

These foods are accessed mainly through the shops, super markets and informal street vendors (Van Rooyen *et al.*, 1997). Eating habits differs between urban and rural dwellers. These differences are a challenge faced by urban food supply system. As a strategy to address urban food problems, agriculture now features as a means to access food without direct buying.

1.3 Urbanization trends and urban agriculture

Urban agriculture in the context of this study is an informal set of activities focusing on farm production in the urban environment. It generally differs from high technological application sophisticated farming ventures in the urban environment. UA is rather a potential socio-economic survival and livelihood enhancing strategy for those operating at the economic margin (Sawio, 1993). Mlozi (1996), regards UA as people's initiative to cope with economic crisis. UA could play an important role in generating income for households. Potentially, UA could play an important role in the provision of food, employment and market for other sectors of the economy. UA recycles goods and makes use of idle resources (Sawio, 1998). Traditionally, UA was practiced mainly by citizens of lower socio-economic status. This is however changing as people from different social classes are engaged in the activity for different social, economic and cultural reasons (Sawio, 1993; Mlozi, 1996).

UA in South Africa is gaining momentum. The government and other institutions are beginning to show support to the activity as a strategy to promote food security at household level in poor, marginalised communities. An increasing number of city and town councils are promoting urban farming. Agricultural projects are now found in townships such as Tembisa, Soweto, Mamelodi, Khayalitshe and in many small towns (Moloto, 1996). This situation is however still relatively new as until recently, farming in urban areas was not considered to be a land use activity in its own right.

1.4 Focus of this study

It was against this background that the need to develop an empirically orientated perspective on UA in South Africa emerged.

Such a perspective will provide important information on current practices and impacts and also provide information needed for future project planning and prioritization. UA will further more be viewed in the context of the strategic objectives towards realizing the goal of eradicating hunger. This study is a contribution to these objectives.

Some investigations have been conducted on this topic, see (Van Rooyen, De Waal, Gouws, Van Zyl, Rust, Kriek, McCrystal & Grobler, 1995; Moloto, 1996, Van Averbeke, 2001) but this topic is still under-researched. Major findings by Van Rooyen *et al*, (1995) include, (i) agriculture in South African urban land use planning is considered a non-land use activity; (ii) no consideration is given to the utilization of high agricultural potential land in urban land use planning; (iii) UA more often shifts to give way to industrial and residential land use activities and (iv) with the inclusion of UA in urban planning through zoning residential and industrial land use could be planned to co-exist with high level agricultural development. Major findings by Moloto (1996) include (i) the main reason for involvement in UA is survival; (ii) cultivation methods are simple and traditional; (iii) UA is practiced as unauthorized under rain fed or as authorized as vegetable gardens and (iv) a variety of open spaces are used for UA. Major findings by Van Averbeke (2001) support these findings and include (i) community garden provide modest material benefits to the participants; (ii) the material benefits are inadequate to make community gardens a sole base of livelihood and (iii) community gardens benefits also include physical and mental health. The focus of this particular study is the Soshanguve project in the Gauteng Province of South Africa. The study describes how agriculture in a poor urban environment operates and gives the characteristics of urban farmers and their constraints and attempts to determine efficiencies and impacts.

1.5 A general problem statement

It is in the interest of the South African society (politically and economically) to ensure that individuals have access to economic opportunities and also sufficient nutritive food to satisfy their needs at all times. This calls for stable and sustainable food production and distribution systems and improving the means to access the food. Assisting the agricultural sector is viewed as one of the effective ways to strengthen food security and income growth.

The development and transfer of appropriate technologies to farmers will improve production. Increased agricultural production is expected to raise incomes of farmers and farm workers and thereby enabling them to purchase inputs, services and consumer goods and access to high value markets.

The increasing urbanization and urban land use planning in South Africa has direct implications for food security particularly in urban areas. Urbanization that is not sensitive or encouraging to UA, poses a challenge to urban food supply systems in South Africa. The number of the urban poor increases with urbanization and agricultural land is allocated to non-agricultural uses. With unemployment also increasing, the number of food insecure households and individuals' increases. Often, urban households have limited and often constrained household food production. The urban dwellers therefore depend largely on income to access food. Poor households spend significant amount of their income on food.

A particular problem identified for this study is that, UA is unable to optimize its contribution to household food security and income generation due to a constrained policy framework and consequently inadequate support systems emanating from planning and budgeting. The performance of this sector is still largely below potential due to these reasons and this creates perceptions that it is not an economically beneficial activity. A more detailed analysis is required to develop appropriate policy and strategies to promote UA.

1.6 Hypothesis

The hypothesis adopted by this study is twofold: "UA as a "land use" activity improves urban household food security and income generation. This potential is not sufficiently exploited yet.

Problems of definitions and policy, inappropriate or the lack of planning guidelines and limited support constrains the contribution of UA.

1.7 Objectives of the study

This study will focus enquiry within the above problem statement and hypothesis. The study focuses on a project in the Soshanguve township close to Pretoria in Gauteng where food crops, particularly vegetables, were promoted by a government agency through training and access to production inputs.

The objectives of this study are to:

Determine the impact of an urban agriculture project launched by the ARC and GPDA in Soshanguve with a general focus on household income and food security.

- Establish and develop a perspective on urban agriculture in South Africa
- Describe production systems common to urban agriculture
- From this analysis extrapolate policy and strategies for UA in the South African context

1.8 Limitations of the study

Only one case study was used to extrapolate to general policy. The study is largely descriptive.

1.9 Layout of the report

This report is composed of 6 chapters. The first chapter gives a general perspective, definition, and problem statement of Urban Agriculture and formulates the hypothesis and objective guiding the study. Chapter Two is a broad literature review on UA. This chapter highlights experiences on UA in other countries and establishes a framework of references for UA. Chapter Three gives a description of the urban agriculture case study project in Soshanguve. The fourth chapter outlines the methodology applied for the analysis in this study. Chapter Five gives the findings and Chapter Six gives conclusions and recommendations.

CHAPTER 2

A literature survey and description of urban agriculture

2.1 Urban agriculture defined

This chapter intends to describe urban agriculture in a general context, making use of a literature survey on aspects impacting and relating to UA. UA is not a recent phenomenon nor is it localized (Webb, 1994). Throughout most of mankind history and different civilizations, urban populations have to variable extents engaged in producing some of their food close to their own residence within or outside the city (Mougeout, 1994; Sawio, 1998). Food production in urban settlements of ancient civilization has always been part and parcel of the urban economy. UA can be defined in a number of ways. Among others, Sawio (1994' 1998), defines UA as a “socio-economic activity that involves crop growing and livestock keeping in intra-urban open spaces and peri-urban areas”. For purposes of this study, UA is defined as “the practice of agricultural activities within urban and peri-urban periphery”. This concept is used to restrict the focus of the study to small scale farming in the urban environments as practiced by the historically disadvantaged groups. This chapter develops a conceptual view of urban agriculture using experiences of other countries practicing the activity.

The formal separation of agriculture from urban activities is a recent phenomenon in the history of urban humanity. Over time, development planning zoned land according to its use. This led to the confinement of agricultural production to certain locations. However, the increase in transaction costs involved in bringing food to urban areas contributed to the stimulation of the need to produce some of the food crops within the urban environment. Poverty and limited access to resources are also stimulants for household production within urban environments. Crops grown in these environments are usually high value crops such as vegetables with high yield per unit area. Urban food production took a variety of forms,

making ingenious use of available resources and opportunities. Although UA was mainly informal, practitioners did apply modern technologies if and when they had required resources. Recent technological breakthrough for UA includes water collection, localized storage and distribution, frost protection, wetlands drainage and slope terracing (Mougeout, 1994).

The spread of poverty and unemployment encouraged the informal sector of the economy to tend to food production as an alternative to money for poor urban dwellers to survive and eke out an existence. It is a common practice to attend to basic immediate needs such as food under crisis situation. The capacity of UA to produce under unfavourable conditions (limited access to resources) is often sustained by the efficient production processes which utilizes the optimum combination of family labour, minimum capital and the most appropriate form of locally learned technology (Sanyal, 1984).

UA is spatially mobile and its scale of operation changes as environmental, technical, socio-cultural and economic forces interact and produce changes (Sawio, 1998). The morbidity is largely the result of the sector being officially marginalized in urban land allocations and planning processes (Van Rooyen *et al*, 1995). To confirm the marginalization of agriculture in urban areas, the sale of government-owned land for agricultural production in Gauteng is said to be considered only when the land in question is not expected to be required for competing uses within five years (Gauteng Provincial Government, 1996). Even though the activity was susceptible to harass by authorities, practitioners continued to take the risk of cultivating because they lacked alternative means to acquire food for survival. This indicates the transaction costs of UA while it effectively rules out the provision of support services such as extension, agricultural infrastructure etc.

Notwithstanding, UA is becoming important in the informal sector in most developing countries. UA grew with the informal settlements and is now being accepted as an urban land use activity. This view has been gaining momentum since the 1970s throughout the world. During the 90s, UA practitioners were estimated to be about 800 million (Sawio, 1998). Indications of a shift to accommodate UA occurred recently in South Africa. Whereas agriculture was historically not viewed as an accepted urban land use activity for planning and

development purposes, present efforts do focus on urban farming and food garden development (Van Rooyen et al, 1995; Spies, 1998).

New urban policy initiatives since 1994 offer opportunities for promoting UA as a policy tool for strengthening the asset base of the urban poor in South Africa (Rogerson, 1998). The provincial department of agriculture in Gauteng is reported to be encouraging the legal informal settlers to cultivate their lands (The Star, 9 June 2004). In broad policy terms, the growing local interest in UA must be located as one new element for managing poverty in South Africa's cities. The promotion of UA is of significant importance in South Africa especially because current economic slump forces many newly urbanized people to seek sustenance from the soil in the absence of alternative income generation options (May, 1994). The concept of UA started to evolve from an informal urban activity to a more regulated urban land use. The potential contribution to poverty alleviation and food security placed UA firmly in the realm of urban development policy and strategy.

UA represents a movement away from sole reliance of urban dwellers on cash income for access to food. It is believed that UA can increase the share of urban produced meat, vegetables, fish and dairy products from 33% to 50% in the next decade (Sawio, 1998). Webb (1994) used the new household economics as an analytical framework to evaluate those participating in urban agriculture. According to the new household economics, the crucial issue considered by a household to participate in a home based activity such as UA, is the value of the time of household members. A household will invest its labour in the activity that will yield higher returns. However the value of time is not the only item considered in deciding whether on not to be involved in a home based activity. The decision to or not to be involved in UA is complex and a number of factors are considered.

2.2 Theoretical considerations

From a literature assessment, generally two main and contrasting theoretical positions on UA are argued. The first position views agriculture in the urban environment as a rural linked activity, with little or no relevance in modern urban environments. UA is therefore rejected as irrelevant in modern urban development. The second position regards agriculture as a rational

economic and socially useful activity within urban development. i.e. scope should be provided for UA to grow in the modern urban environment.

2.2.1 Opinions rejecting UA

The view that agriculture is less or not relevant in modern urban environments, accommodates the “Modernization and Dependency and new Marxist theory (Sanyal, 1984 cited by Mbiba, 1998). According to the modernist theory, UA is a backward, subsistence and rural habit practiced by rural migrants who are new in the urban area until they have embraced the urban “way of life”. This theory finds UA to be damaging the environment and recommend its destruction or elimination without compromise. The theory suggests that UA is a temporary activity. However this contradicts reality as literature indicates that UA has always been part of the urban economy. The new Marxist theory views UA as a means for labour to reproduce itself. This theory argues that UA makes labour to be exploited and therefore need to work twice” that is in the factory and then at home. According to this theory, there is no need for labour to engage in UA if adequately paid at work.

The theory argues that UA reduces the pressure on modern industry to pay workers what they deserve. UA is therefore rejected as exploitative and backward. Table 2.1 summarizes the opinions rejecting UA.

Table 2.1 Views on UA

Issues	Modernization proponents	New Marxist view
The position of the city in economic and social life	City as a symbol of economic advancement to be clean, organized and formal.	City as an arena of exploitative economic relation with local level playing out global capitalist forces and relations. Accumulation by few through exploitation of majority (labour). Rather than pay labour adequately, capitalists shift the burden to the labourers so that they maintain themselves.
Response to UA	UA represents backwardness, a rural culture and lack of integration into systems of urban advancement.	UA is extra market means for labour to reproduce itself. It maintains the industrial capitalist status quo and increases the vulnerability of labour.
Verdict on UA	Reject UA and informal sector generally. Blame the poor and those participating in such activities for destroying the economy, environment and the city.	Reject UA and informal sector activities generally as exploitative to labour and residual.
Action and policy	Destroy UA; eliminate all informal activities including squatter settlements, shebeens, pirate taxis, street hawking, and affirmative shopping etc. no compromise. More recently where destruction fails formalize them.	Mobilize workers to demand their fair share of benefits from the workplace, seek greater equity in the capitalist system of economic industrial relations. The solution for UA and other informal activities is outside rather than within the agricultural sector.

Source: Mbiba, 1998

2.2.2 Views accepting UA

To view agriculture as a backward and exploitative activity only when it is practiced in urban environments is restricting development strategies and options. UA is not always subsistence focused nor an exclusive activity for new and poor migrants from rural areas. Many who derive benefits are involved. With UA, households rationally allocate labour to allow household food security and income generation through production close to urban consumer points. Large numbers of urban households have survived the negative impacts of economic crisis and formal unemployment through engagement in informal sector with UA providing many with the opportunity to survive and improve livelihood (Mbiba, 1998). Based on these, Mbiba (1998) argues that the rejection of UA is unrealistic. This particular position is fundamentally based on the new household economics theory arguing that household labour is used on activities with highest return per labour activity.

The modified version of Von Thunen theory of spatial location (Barlowe, 1978), represents a particular viable framework of the economic analysis of UA in this study. The Von Thunen model gives the economic rationale for land use around a central marketing place. According to this model, the value of land determines its use and the distance from the central market point determines its value (Barlowe, 1978). UA's land use patterns still follow Von Thunen's model. Perishable products such as vegetables and milk are produced closest to the city center as predicted by the model. The model also envisages intensive land uses closest to the market point and this was confirmed by a recent study by Lee-Smith (1998).

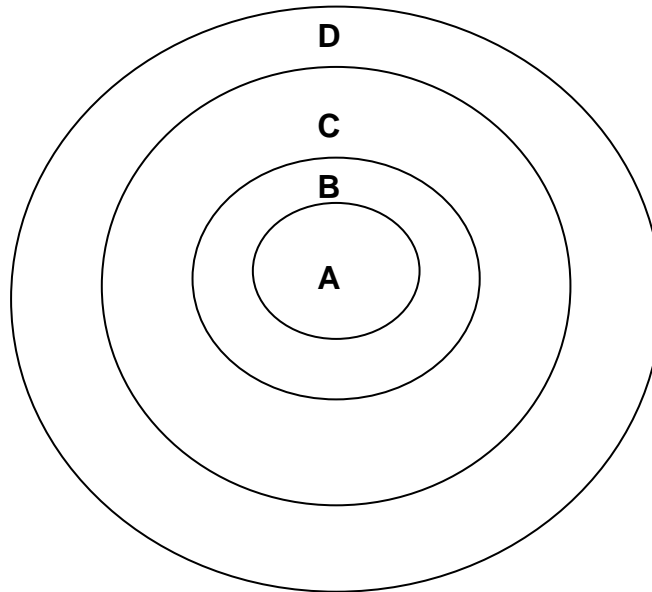


Figure 2.1 Land use pattern
Source: Barlowe (1978: 51)

Following Von Thunen's reasoning, the area closest to city market (a) will be used for production of high value perishable products such as vegetables. The second zone (b) will be used for heavy products such as forest products. These are produced nearer the market to reduce transportation costs. The third zone (c) will be for lower value field crops while the fourth zone (d) will be used for livestock grazing. In reality some ideas of the Von Thunen model do not apply. Institutionally, it is not only the value of the land and its distance from central market that determines its use and value respectively. Political and social motives as well as the physical nature of the land and transaction costs considerations also influence land use patterns.

Burgess (1925) cited in Barlowe (1978), developed a model where urban land is zoned according to land use. The zoning of urban land has also been recommended by Van Rooyen *et al.*, (1995). According to Van Rooyen *et al.*, (1995), zoning should be guided by criteria that allow economic rational land use. Zoning is expected to afford agriculture space to operate and allow production of different agricultural enterprises as determined by the economics, land quality and other resources available. Zoning should consider the economic potential of the land for a specific activity rather than a mere division of land.

Despite the rejectionist theories, UA seem to have flourished and is currently viewed as a legitimate economic development strategy. The official attitude is observed to be changing and currently urban policies are starting to focus on how best to harness the potential of UA sector. This is confirmed by the making available R38.6 million for UA development and support to women farmers in Gauteng. GPDA has indicated that it will focus on developing UA as UA makes significant contribution to stimulation of economic growth and food security (Gauteng Provincial Government, 2005)

Land allocation for agricultural purposes in urban environments should also be viewed from an equity and social point. UA policy cannot be based on the economic theory of optimal land allocation alone because current economic growth is unable to cater for rapidly increasing urban population with employment and public investment to provide economic rational for social and physical infrastructure (Lee-Smith, 1998). It must however account for economic development realities. Many urban households live in inadequately serviced neighbourhoods on incomes that cannot meet their basic needs. Given this, Lee-Smith (1998) argues that urban policies should therefore address objectives of equity and entitlements to food and other resources (Lee-Smith, 1998). The poor should be afforded the opportunity to access land and water to produce food.

2.2.3 Theoretical framework for this study

The basic model of Von Thuneun adapted to city development by Burgess and by the Van Rooyen *et al*, (1995) team¹ provides a theoretical framework for this study with the economic rational for UA. The main features of this framework are the following:

- (i) UA is derived from the rational resource allocation of (poor) urban dwellers whom are not in a position to earn sufficient income from non farming to provide a sustainable urban family livelihood;
- (ii) UA can be explained by cost saving and reduction in transaction costs from a consumer viewpoint (point of consumption to point of food acquisition);

- (iii) UA can be explained by the initial comparative advantage of newly urbanized groups with well-established rural food production skills;
- (iv) UA is often a temporary survival strategy to allow a fall back position if sufficient urban income is not generated;
- (v) UA is a rational response to existing opportunities in terms of the market for produce;
- (vi) UA is practiced mainly to address household food security with surpluses sold in the market
- (vii) UA occurs because of the possibility of free riding on resource use. UA practitioners can utilize land and water without paying (the full price) for these resources.
- (viii) UA could be scaled according to the available resources (land and other inputs) and the market.

2.3 Prospects for and effects of UA

This study, guided by the economic value of production hypothesis, supports the view that UA is a rational and useful economic activity within urban development context. The study argues that it is the activity that produces and not the location and therefore it is irrational to view agriculture as irrational only when practiced in urban environments. UA is an innovative response of the urban poor to deteriorating economic situations and is a potential socio-economic survival and livelihood enhancing strategy for the urban poor.

Most research portrays UA as a household survival strategy with the primary motive being to secure a non-market source of food for the household. UA is also viewed as one of the ways urban families redeployed their labour and other resources in the struggle to survive in an increasingly hostile urban economic environment (Sanyal, 1985; Freeman, 1991; Mvena, Lupanga and Mlozi, 1991 cited by Maxwell, 1996).

Since the 1970s, UA has been growing in many developing countries in terms of space, number of practitioners, contribution to household welfare and the urban economy in general (Mougeot, 1994).

Urban migration, persisting unemployment, population growth and the growing demand for regular and cheap supplies of quality food suggest that UA will continue to feature in evolving urban spatial development pattern (Mougeot, 1994).

UA is a means of stabilizing household food security and prevents massive malnutrition. A variety of nutritious foods, which would be beyond the means of poor households to obtain through the market, can be provided through UA (Mbiba, 1998). UA can also emerge as a response to the nearby market and derives value from its links with urban industries. Structural changes such as poor production of rural farming systems, imbalance trading systems between rural and urban situations and food price inflation could also support UA expansion. Urbanization affects the food demand structure because it affects the type of food and the level of demand. Difference in consumption patterns between rural and urban households including households recently located to urban settings, provides opportunities for commercial growing of food not typically grown in rural areas. Urbanization therefore calls forth more intricate promotion of food production from within as well as from rural areas.

Urbanization has often been putting the practicality of cities 'exclusive reliance on often distant and unreliable rural food production into question. Increases in urban populations render rural food production and distribution systems less reliable for urban population to rely on. Urban hunger is therefore likely to increase with urban population growth. UA responded to this and therefore the activity increased in many countries. Urbanization is challenging the morality and equity of depriving the urban poor access to unbuilt urban land to feed themselves and others. The marginalization of UA in urban planning and resource allocation deprives the poor the opportunity to feed themselves. The poor could earn income and access food through UA.

It has been reported (Tinker, 1994) that 25% of urban households in six major cities of Kenya claimed that they couldn't survive without self produced food. UA can impact positively on the household in economic, social and financial terms. The impact is a combination of three factors namely: income, food security and improved nutritional status.

Strong and statistically significant association between UA and improved child nutrition in the lowest income groups have been reported by a study conducted in Kampala (Maxwell, 1995).

Some urban food vendors grow some of the food used in their food businesses. Household produced food reduces household dependency on handouts and imports. A 70-hectare peri-urban garden in Burnaby (Canada) was responsible for 80% of spinach and Chinese vegetables. The plot accounted for 10% of all vegetables produced in lower Fraser valley district (Mbiba, 1998). UA therefore contributed to household food security. UA promotes solids waste recycling through composting, beautifies the area through floriculture and greening, protect reserve land and abate pollution through greening (Sawio, 1998). Indigenous species can be reintroduced into the market through UA.

2.4 Practitioners of UA

The typology of persons or groups involved in UA is important for strategy development. UA is generally practiced predominantly by those in the low-income bracket. This is also true for South Africa where poor households dominate the sector. This partly explains why the sector lacks support and recognition.

2.4.1 Agricultural or farm producers

Agricultural producers include practitioners that are more or less full time (farm) producers and those that may have irregular and sporadic non-farming employment. Farming however remains the main economic function. Farming by the poorer individuals or groups is generally practiced in a garden context. Two major types of producers identified include; producers who are farming on their own and sometimes on the land they do not own nor have permission to use. Generally, this type does not have access to formal support services. The other type is that of producers in organized projects initiated or managed with the assistance of an institution such as a development agency, Non Government Organization, government etc. these producers are usually organized and have access to formal support.

2.4.2 Other income earning types

Although the poor and marginalised are dominant in UA, studies (Webb, 1996; Chaipa and King, 1998), show that UA is not exclusively for the poor. Various income groups are engaged in UA. According to Chaipa and King (1998), food gardening in Harare (Zimbabwe) is predominantly practiced by house owners with regular other income sources and who are in most cases better off and have better access to resources. In reality urban farmers are from different social strata and the composition varies from place to place. The impact of UA also differs with the social strata as they practice UA for different purposes. i.e. income, hobby, own consumption etc.

2.4.3 Gender aspects and UA

Studies show that women dominate urban farming activities. In Kenya, women constituted 56% of the urban farmers while in Dar es Salaam the figure was 65% (Mougeot, 1994). A similar situation has been found in South Africa (Kekana & Van Rooyen, 1999). For this reason, the promotion of UA could be regarded as a “gender focus “strategy to assist women to protect or supplement their other sources of cash income. This also assists women to assert some control over the source of food which is not dependent on either urban food market or income (Maxwell, 1996). Women are therefore the main beneficiaries of UA and therefore, UA contributes to the reduction of gender inequalities and improvement in wealth distribution. One of the reasons mentioned for women to dominate the UA sector is that farming meshes well with women’s other household activities such as cooking and childcare.

2.5 Economic features of UA

2.5.1 Access to land

In addition to other factors, the ability to access land is an important factor in determining who farms in urban environments. Often those who have been in the area for longer periods are more likely to be involved in farming because they are most likely to access land as they know

procedures (formal and informal) and have networks. However there are also indications that new migrants from rural areas are the ones most likely to practice farming as the legacy of their rural life. In practice UA proves to be a complex action integrated into the urban fabric. In this study, both these groups were observed.

2.5.2 Opportunity cost of labour

According to Webb (1994), the opportunity cost of time is an important factor in determining who participate in UA. According to Webb (1994), those with low opportunity costs of time will participate in UA. The low value of the participants 'time is a function of failing to meet criteria associated with high remuneration. This could be due to age, gender, physical disability, education and skills. Although this may be true, it is important to note that it is applicable to other activities as well. Labour will always be shifted to where higher returns are earned. The ability of the market to provide formal employment may also force people into available and informal alternatives. This labour is therefore used in its next best alternative rather than left to idle.

2.5.3 Spatial dimension of UA

Surveys consistently show that the area effectively under UA is much greater than conventional land use classifications and maps may capture (Mougeot, 1994). Reported areas often exclude forms of UA in residential spaces. Land used for UA is also found adjacent to road and railway lines, rivers and valleys, along power lines and other open spaces within urban boundaries. The sizes of the plots differ according to the availability of space and the ability of the individual to work the area. Land used for UA is not always within the residential site (Van Rooyen *et al.*, 1995; Moloto, 1996).

Plots are in some cases considerable distances away from residential sites. UA practices are spatially spread within urban boundaries. The dispersed pattern results from the mobility of the sector as it constantly shifts from one place to the other giving way to urban developments.

2.5.4 Farming systems in UA

Farming in urban areas takes a variety of forms. The choice of farming system followed is determined by factors such as resources available and the need of the farmer. Table 2.2 illustrates various farming systems observed in urban environments.

Table 2.2: UA farming systems

Farming system description	Expected products	Place location / technique
Aquaculture	Fish, seafood, vegetables and fodder	Ponds, streams, cages, lagoons and wetlands
Horticulture	Vegetables, fruits and compost	Homesteads, parks, containers, rooftops, wetlands, hydroponics and greenhouses
Livestock farming	Milk, meat, eggs, hides and manure	Zero grazing, hillsides, peri-urban areas
Agro-forestry	Wood fuel, fruits, building posts and fodder	Street trees, forest parks, homesteads, steep slopes wetlands and orchards
Other systems	Household plants, medicinal herbs and flowers	Ornamental horticulture, roof tops and container farming

Source: Sawio, 1998

Lack of detailed information on crops planted is a common omission by many UA studies. Literature studies referenced do not provide sufficient details on crops grown and farming systems in UA. No significant attempt to evaluate the relative importance of crops grown and their economic relevance within a particular land use system are made.

Smit (1997) argues that, studies by Wade (1981); Yeung, (1988) and Eberhard, (1989) simply list or prescribe the crops grown. The production of crops should be based on the sustained contribution to consumption levels, the value of the crop consumed, length of harvest and the sale of the crop. Frequency of cultivation and total area planted is not sufficient to determine

crop importance. According to Mougeot, (1994), crop choice by farmers is based on local water supply, soil condition, distance from home, plot size, use of the product and the gardener's control over future use of the plot.

2.5.5 A typology of urban farmers

Urban farmers are not a homogeneous group. It is important to understand the diversity within the group in order to serve them effectively. Developing a typology of urban farming groups will assist planners and guide farmer focus planning to accommodate the diversity of the farming groups. Van Rooyen *et al.*, (1995), identified seven different farmer groups operating in the area south of Johannesburg using the rationale for farming as criterion in grouping farmers. The different farmer groups identified by Van Rooyen *et al.*, (1995) are illustrated on table 2.3

Table 2.3: Typology of farmers south of Johannesburg in Gauteng province

Group	Most important goal	Key support elements
1. Urban agriculturalists i) Supplement household provision ii) Commercial smallholder supplying to markets	<ul style="list-style-type: none"> • Food security • Commercial production for local and wider markets 	<ul style="list-style-type: none"> • Access to land • Legal guidance • Set up support • Market information: demand availability, price and demand, financial support and credit
2. Commercial farmers i) Black farmers in commercial main stream agriculture ii) White commercial farmers	<ul style="list-style-type: none"> • Commercial production • Diversified production systems • Sustainable cash flows 	<ul style="list-style-type: none"> • Individual support attention for major support services • Access to secure and exchangeable land
3 Other groups i) Farm workers ii) Squatters (often employed on nearby farms)	<ul style="list-style-type: none"> • Secure housing • Employment • Supplementary food production • Commercial production 	<ul style="list-style-type: none"> • Financial support • Market support • Traditional

Source Van Rooyen *et al.*, (1995)

2.6 Problems of UA

The literature indicates that UA generally experiences constrained access to production resources and support services. Poor access to basic production factors has contributed to poor performance of UA and these damages the image of the sector as it creates the impression that agriculture in urban environments does not perform adequately. Poor access to resources is largely because policies do not sufficiently accommodate the sector within urban planning.

2.6.1 Planning policies and strategies

A planned urban environment generally considers farming as a non-urban land use activity (Van Rooyen *et al.*, 1995). It is stated in the Gauteng Provincial Government Policy Document (Gauteng Small farmer Settlement Programme Policy Document) that existing land allocation and tenure policies in relation to government –owned agricultural land are viewed inappropriate for agricultural development in Gauteng (Gauteng Provincial Government, 1996). Urban authorities view UA as remnants of rural life interfering with modernization. This attitude denies UA the necessary support and attention. Public sector support to UA was directed to serve large-scale commercial farmers adjacent to urban concentration ignoring small scale and informal operations (Van Rooyen *et al.*, 1995).

Many urban agricultural projects have failed because of inappropriate planning and implementation approaches such as top down and supply led approaches. Other causes of failure include poor and inadequate consultation with relevant stakeholders, political situation and unclear definition of ownership. These problems can to a large extent be identified and analyzed within a farming system research approach to UA. The fundamental value of a farming system research approach to analyze UA is the recognition of the technical economic and social rational of a system within which farming is practiced (Kekana and Van Rooyen 1998). Often urban farmers are neglected and misunderstood by local, regional and provincial governments and rural non-farm neighbours. Uncontrolled subdivision of land causes sporadic distribution of industries, commercial centers, residential sites etc into productive prime

agricultural land and this result in fragmentation of agricultural land and rise in land use conflicts.

2.6.2 Operational problems

Operational problems recorded include long distances between the plot and the residence of the farmer. This often reduces the number of visits to the plot particularly if the farmer is elderly.

This results in plot receiving insufficient attention and less security. Moloto (1996) reported that, with lack of security, the crop is exposed to theft and damage by unauthorized people and animals. In addition to constrained access to land, farmers also experience shortage of implements and equipments. This study investigated problems experienced by UA practitioners within or close to Soshanguve in order to propose problem solving strategies to UA development.

2.7 Key issues in UA

Literature on UA is often based on country or site specific accounts and therefore a generalized theory has not yet emerged. However two major theoretical viewpoints were identified. These include the classical / Marxist approach and economic rational land use models influenced by Von Thuneun theory of development and land use. UA has been practiced for decades even though it was officially ignored or outlawed. UA activities are mobile, sporadically spread, highly fragmented and able to adapt to varying conditions. The scale of UA ranges from small backyard garden to large commercial farms. Basic constraints include limited access to resources such as land, water and other inputs such as fertilizers, seeds etc. From a policy and strategy viewpoint, UA has been under researched and therefore little is understood of its operation. This creates information gap that impedes its promotion and development.

The development of UA requires a focused strategic framework and policy that will provide facilitative and proactive programmes to support UA. Such a framework should afford new (small) farmers focusing on commercial opportunities and food security focused households'

access to input supply systems, marketing systems, research and information, training and extension as well as capital and financial services. UA policy should be situation specific and attempt to address problems as a set rather than as separate issues.

2.8 Strategic considerations for successful UA

As a summary of this chapter, the following general strategic considerations for success derived from this literature review can be proposed for a viable UA system.

- i) Integrated approaches: based on the literature review, it can be argued that UA should not be excluded during urban development planning. To optimize the contribution and functioning of this sector, the link between the activity and the rest of the urban economy must be understood and strengthened. UA should be systematically integrated into the urban system.
- ii) Policy development: The potential role of UA in poverty alleviation and urban economic growth will depend on the strengthening of the asset base of the urban poor as well as on policies relating to UA promotion. Policies are critical for the creation of enabling environment for UA development.
- iii) Planned interventions: Specific agricultural policies supported by the zoning of high potential farming areas and the provision of access to a range of economic and technical support services are required for UA development (Van Rooyen *et al.*, 1995). The public and private sector partnership should be engaged to provide support services.
- iv) Flexibility and innovation: The promotion and development of UA requires flexible and innovative strategies. Innovative and valuable solutions to urban problems are often found in grassroots experiments or small-scale local government pilot projects (Hopkins, 1994). To achieve maximum impact, successful innovations should be up scaled and replicated.
- v) Diversity: Different farmer types should be supported with services relevant to their respective needs. Government efforts should pay particular attention to the

problems experienced by the emerging commercial and small holder household food producers.

- vi) **Participative planning:** Interactive and participative approaches based at community level should be applied to create ownership at community level. This should be supported by co-ordination of services by different stakeholders. A synergistic approach with balanced participation between target group and authorities in policy and decision-making is required.

CHAPTER 3

Methodology for assessing the impact of the Soshanguve Project

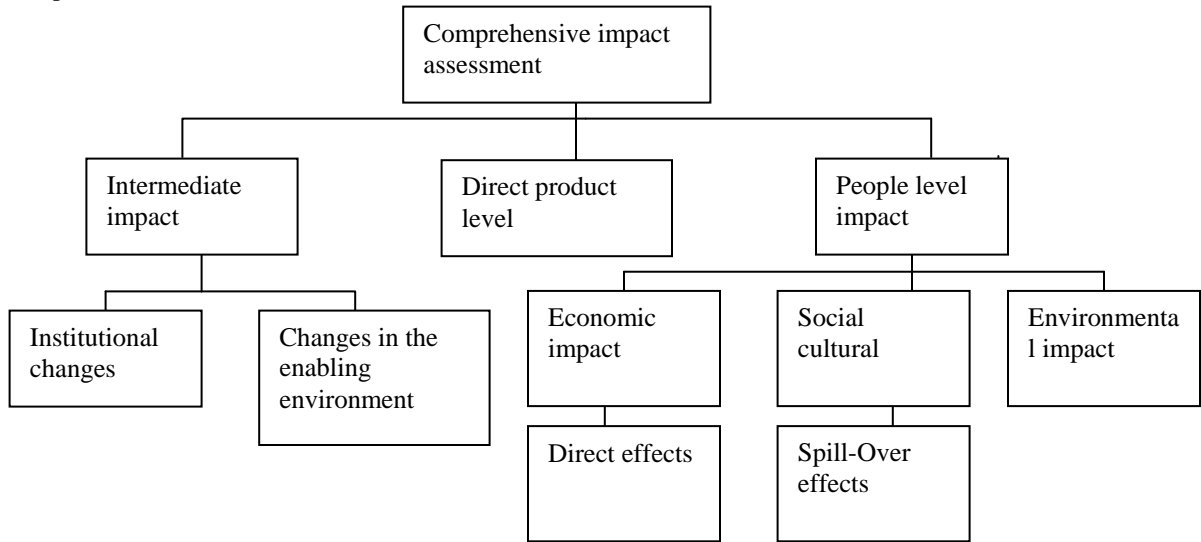
3.1 Introduction

In order to assess the impact of the project, a comprehensive analysis methodology will be applied. This chapter outlines this methodology. The comprehensive Impact assessment framework, which includes the Logical Framework Analysis (LFA) as an assessment tool will be discussed. The chapter also explains the statistical method and procedures followed during data collection.

3.2 Comprehensive impact assessment

Impact assessment is a form of evaluation or appraisal that deals with the effects or output of the project outputs on the target beneficiaries (Anandajayasekeram, Martella and Rukuni, 1996; Van Rooyen, Anandajayasekeram, Rukuni, D’Haese, Marassas and D’Haese, 2002). A comprehensive impact assessment statement considers intended and unintended effects with the aim of establishing whether or not an intervention is producing its intended effects. Impact assessment can be conducted before (*ex-ante*) or after (*ex-post*) the completion of a project. For planning and priority setting, impact assessment is conducted before the implementation of a project to determine the possible effects and *ex-post* impact assessment is conducted to evaluate the project. This study has applied a comprehensive impact assessment framework developed by Van Rooyen, Anandajayasekeram, Rukuni, D’Haese, Marassas and D’Haese, (2002) and Anandajayasekeram *et al.* (1996) and applied in studies by Wessels, Anandajayasekeram, Littlejohn, Martella, Marassas and Coetzee (1997) and Wessels (1998). The framework is illustrated by figure 3.1 and shows different types of impacts within a comprehensive impact assessment framework. These impacts, which include intermediate impact, direct product impact and people level impact are broader and could be desegregated further as illustrated on figure 3.1. Each requires specific methods of analysis.

Figure 3.1 Impact assessment framework



Source: Van Rooyen *et al.*, 2002.

i) Intermediate product impact

This involves tracing changes both in output and institutional aspects over time using trends or comparison using baseline information of the indicators.

ii) Direct product impact

The direct product impact assessment is also known as effectiveness analysis. This involves assessing the degree to which the activity has made changes in the desired direction. Expected outcomes are compared to real outcomes registered. Effective analysis therefore compares the target to the actual performance of the project.

iii) People level impact

This deals with the effect of the direct and intermediate products on the ultimate users of the product. The impact assessed may be economic, social and environmental in nature. On economic aspects, the assessment measures the economic efficiency of the project activities by comparing costs and benefits valued at shadow prices.

On social aspects, the assessment would measure the effects of the project on the distribution of project benefits within the project, its surrounding and within the society. Assessment will determine the impact of the project on aspect such as attitudes, beliefs, resource use pattern and income distribution. The assessment of the environmental impact will cover determining the positive and negative impact of adopted technologies on the physical and natural environment. Full environmental impact assessment requires complex analysis of physical, biological, social and economic process. This study only used qualitative assessment of environmental impact. Various methods are used to study the impacts of development project.

iv) Spillover effects

The impact of a project could be direct or may occur as spillover. The spillover effect could be economic (price effects), technological (technology) etc (Anandajayasekeram *et al*, 1996).

3.3 Logical Framework Analysis (LFA)

The LFA is a methodology used for planning, monitoring and evaluation of project interventions (Anandajayasekeram *et al*, 1996) and for strategic planning (Van Rooyen, Bostyn, Doyer and D’Haese, 2002). It is a problem solving methodology based on logical cause–effect relationships and it is useful for analyzing the components of a project and the logical linkages between causes and effects and concomitantly between means and ends. LFA is useful to establish, analyze and evaluate the strategy and to create a strategic framework for policy, programme or project.

The analytical phase of the LFA has three stages namely problem analysis, objective analysis and strategy analysis. During the problem analysis, the problem is first identified as perceived by various role players and then the effects of the problem are linked to causes of the problem in a logical manner. The linked sequence result in a structure commonly referred to as a “problem tree”. Similarly the objective analysis starts with the identification of actions required to improve the situation.

The negative statements described in the problem tree are converted into positive statements and this result is a structure referred to as the objective tree”.

This study used the LFA to formulate the problem statement and the strategy. The framework was also used to establish the effectiveness of the project. Effectiveness analysis determines whether the real problems were effectively attended to by the particular project intervention.

3.4 Household income generation food security measurement

A primary objective of the study is to determine the impact of the agricultural project on household income and food security. This requires a complex analysis. One of the indicators used to determine food security status is income. The minimum income required for a household to access minimum food quantities required for active livelihood is compared to the income level the household is able to raise. The household is declared food insecure if its level of income is lower than the minimum income required to access minimum food quantities. According to the Mlambo (2001) estimations, an individual required R286.50 per month for active livelihood. The number and ages of the individuals in a household would therefore determine the total needed by the household.

Food security may also be measured by comparing the household food production level and its consumption level. This compares what the household is able to produce to the quantity needed to meet household requirements. If the quantity produced is less than the quantity required, then household is food insecure. A mixed formula where the value of home produced food plus spending on food is compared to the value of the food needs could also be used to measure food security. This study used income and production to assess the impact of the project on food security.

3.5 Participatory analysis and planning procedures (PAPP)

The investigation required open ended interviews and necessitated intensive people interaction. During the initial planning stages of the study, meetings were held where GPDA, ARC, Human Science Research Council (HSRC) and the participants were represented. Nine out of thirteen groups participating in the project were randomly selected and 48 respondents were then randomly selected from the nine groups to participate in the study. The sample constituted 77% females and 23% males. Fifty two percent of the sample was spouses to head of households while only 4% were children of head of household and 44% heads of households. A questionnaire was used during personal interviews with the respondents. Interviews were personal and conducted by the researcher. Many informal discussions were also conducted as respondents were sometimes more forthcoming in their responses during such informal sessions.

Structured participatory procedures were applied during the analytical phase of the LFA. The problem tree, objective tree and strategy proposals were developed by the researcher in close collaboration with participants in a series of meetings. Participants were afforded the opportunity to modify linkages on the problem tree where they did not agree.

3.6 Summary

The study applied a comprehensive impact assessment framework to capture different impacts. The logical framework was applied in order to link causes with effects. This was particularly useful in developing a problem tree and the objective tree.

Table 3.1: Summary of techniques applied by the study

Technique	Purpose
Compressive Impact Assessment Framework	To capture different impacts of the project
Logical Framework Analysis	To link causes and effects of problems
Structured questionnaires	Collect data

CHAPTER 4

A description of urban agriculture in Soshanguve

4.1 Introduction

The chapter starts by giving a brief overview of the Gauteng province and the Soshanguve township. The chapter then attends to a description of the urban agriculture through a case study of a project intervention launched by the Agricultural Research Council (ARC) in the Soshanguve township close to Pretoria in 1996. The description is largely on the structure of the project, profile of the operators and on project activities. Production systems, resources and operational problem experienced by farmers in Soshanguve project are outlined in this section. The chapter also highlights the extent agricultural practices in Gauteng.

4.2 Overview of Gauteng province

Gauteng is geographically the smallest of the nine provinces in South Africa in terms of area size and it occupies only 1.4% of the total area of the country (Statistic South African (STATSSA, 2002). This province is however the second most populous after KwaZulu Natal and is the most urbanized in South Africa. Gauteng account for 26% of the labour employed nationally (Gauteng Provincial Government, 2002). Out of the 3.45 million economically active population in Gauteng, 2.75 million (80%) is employed (Gauteng Provincial Government, 2002). The formal sector has employed 86% of the province labour force while the 14% are employed in the informal sector. For location of the province see annexure 1.

4.2.1 Agriculture in Gauteng

The agricultural sector in Gauteng accounts for 1% of total employment in the province (Gauteng Provincial Government, 2002). Agriculture in Gauteng has been taking 0.2% of the total provincial expenditure since 1999/00 year (National Treasury, 2003). Compared to other provinces this is the lowest figure spent on agriculture.

Agriculture in Gauteng is virtually commercial and developing agriculture insignificant. Agricultural land in Gauteng constitutes 0.8% of the total agricultural land in South Africa. The province is the least beneficiary of the land redistribution program so far with only 0.5% of the total hectares redistributed. UA initiatives have emerged strongly during recent times and the Soshanguve project is one of such initiatives

4.3 The Soshanguve township

Soshanguve is one of the townships around Pretoria in Gauteng Province (See annex 2). It has an estimated population of 600,000. The increase in population has led to the emergence of informal settlements. The informal settlement had an estimated 33900 housing units during 1996 (Noordelike Pretoria Metropolitansie Substruktuur, (NPMS) 1996). The average household size in the informal settlement was 6.5 in 1996 (NPMS, 1996). The informal section lacks much of the basic infrastructure and services required for urban settlements. Lacking services include sewerage systems, electricity, communication systems etc. Eight of the nine groups surveyed for this study are in the informal settlements.

For formal employment most of the residents of Soshanguve are employed in and around Pretoria and nearby towns and cities. Many of them commute daily to and from work using different modes of transport. Within Soshanguve there are 51 light industries and 31 small shops and businesses as well as one large shopping complex (NPMS, 1996). Community members in the area are engaged in a variety of informal activities such as petty sales, shoe repair, motor mechanics' and so forth to earn a living.

4.4 Food and agricultural activities in Soshanguve

Food consumed in this area is mainly bought from supermarkets within Soshanguve and in the shopping malls and other centres outside Soshanguve. Prevailing unemployment contributes to the constrained access to food for most households especially when considering that urban dwellers depend largely on income for access to food. At least 83% of the participants indicated that they do not have sufficient food in their families.

Agriculture as an economic activity is practiced at small-scale subsistence level. The participants indicated that even before the introduction of the project, agriculture has always been part of the local economic activities though it operated as an informal sector and lacked structured support from government and other institutions. Production was mainly under rain fed (dryland) conditions. Basic traditional technology was applied with modern technology such as certified seeds, chemical fertilizers and pesticides used on an ad hoc basis. Knowledge and information on modern production technology was limited. The general mode of farming could be described as scratch–a-path. The major crops planted were maize and a variety of indigenous beans. Yields were considered poor both in terms of quality and quantity. Food production in the area was therefore insignificant and constrained.

The introduction of the agricultural project in the area was aimed at improving and developing the agricultural sector in the area. This was expected to reduce dependency on external supply of food especially vegetables and to reduce dependency on wage employment for access to food. Poor households were observed to apply a variety of strategies to cope with hunger. These included inter alia, reduction in the number of meals, changing the diet and increased consumption of food outside the household.

4.5 The Soshanguve urban agricultural project

Among other options, agriculture was viewed as a potential solution to the food and job problem for the urban poor in Soshanguve. This view activated the GPDA and ARC to collaborate and establish a pilot agricultural project. The project was introduced in 1996 to pilot the “extent” to which food garden farming could reduce hunger and poverty in Soshanguve and other urban areas. The project was used to pilot the “extent” to which training could stimulate increased production. The project introduced a more organized farming system in food garden context, training and access to input. Organized groups established vegetable gardens and some individual backyard gardens were also established. The targeted beneficiaries of the projects include the poor and unemployed particularly women. However there was no discrimination against other interested individuals or groups.

According to table 3.1, between 1996 and 1998 R675490 was spent on the project. The major expenditure was on training and transport (R559000 and R96190 respectively). Training started with 19 people and a total of 156 were involved in the project training by the end of 1997.

Table 4.1: Costs of the project

Year	Training	Transport	Soil sample	Inputs	Irrigation	Training notes	Total
1996	R86000	14800	600	-	-	-	101400
1997	R262000	45120	4000	4000	-	-	315120
1998	R211000	36270	200	8000	3000	500	258970
Total	R559000	96190	4800	12000	3000	500	675490

Source: ARC Soshanguve project report, 1998

4.6 Objectives of the Soshanguve agricultural project

The ARC conducted a need assessment study in Soshanguve and had identified food security as a problem in the area. This led to the introduction of the Soshanguve agricultural project. The overall objective of the project was to improve food security status of poor urban households in Soshanguve. This was to be achieved by encouraging and increasing local household food production in Soshanguve. The project provided training as a strategy to improve production skills and serve as an incentive to encourage household production. Training was conducted in the form of demonstrations of “best practice techniques” coupled with theoretical training. Local production was expected to reduce transaction costs involved in accessing food. Those involved would therefore access food without direct buying. The ARC was contracted to provide training for a period of three years after which it was to reduce its direct involvement thereby leaving the community to continue with the project with assistance from extension officers provided by the GPDA.

4.7 Structure of the project

The project is comprised of groups of participants located in various sections of the informal section of the township and only one group in the formal section of the township. The number of participants in a group varies from group to group and is determined by the size of the available land. Entry and exit to project groups and activities is free. The groups surveyed during this study are listed on table 3.2.

Demonstration sites occupied by the project are typical “fall out” areas in crèche yards, schoolyards, health clinics yards and open municipality spaces. The one group occupied an unused sport stadium. Temporary permission is obtained from landowners although in some cases particularly with regard to open spaces, land was invaded and permission negotiated afterwards.

Table 4.2: Surveyed Project groups

Project group name	Size of area occupied	Number of participants
Kotulo A	1482	8
Kotulo B	2000m	8
Phomolong	800m	12
Itireleng Christian Club	1500m	4
Itireleng	4212m	7
Kutlwano	1250m	16
Unemployment Co-coordinated Forum(UCF)	869m	8
Itsoseng Agricultural Project	3800m	16
Rethabile	317.7m	6

Two basic systems of operation are followed. In the one system, each individual member is allocated an individual plot for which the individual takes full responsibility. The size of the plot per individual is determined by the ability of the individual to work the plot and by the availability of space.

Groups operating along this arrangement include Kotulo B, Kutlwano, Itso seng, Itireleng Christian club, Phomolong and Rethabile.

The second system is a group system where a group is jointly responsible for the project activities. All members report at the project site on agreed times and labour is divided amongst group members for project activities. The produce is sold and the income earned is saved in the group's bank account for future project activities. The group may also divide the money amongst themselves as and when they feel they had accumulated sufficient money for the project. The group occasionally harvest and share produce from the project for household consumption. Groups operating under this system include Kotulo A, UCF and Itireleng Agricultural Project.

The project groups have established a forum namely "Jabulani Agricultural Development Forum (JADF). This forum was established to promote agricultural activities in the area. All project groups are represented with the ARC and the provincial department of health also represented. The GPDA is not directly represented however the ARC liaise with the department on project issues. Ward councilors also attend some of the meetings.

4.8 Stakeholders

The project is a joint venture by the ARC and GPDA and the beneficiary is the poor community in the informal settlement of Soshanguve. The GPDA has provided funds for the development of agriculture in Soshanguve. The ARC was contracted to provide training to project participants. The provincial department of health and the local councilors play a supportive role.

4.9 Demographic information of project participants

Women constitute the largest proportion (77%) of the participants and most of them are from low-income households. Seventy nine percent of the participants are from households with a monthly income of R500 or less.

Eighty three percent claim they do not have adequate food and 63% said a larger proportion of their household income is spent on food. This study did not establish the percentage of these households' incomes that is spent on food. A total of 44% are heads of households, 52% are spouses and 4% children. Women heads of households constitute 25% of women participating in the project. More than 50% of the participants are over the age of 40 years and 19% of this is pensioners.

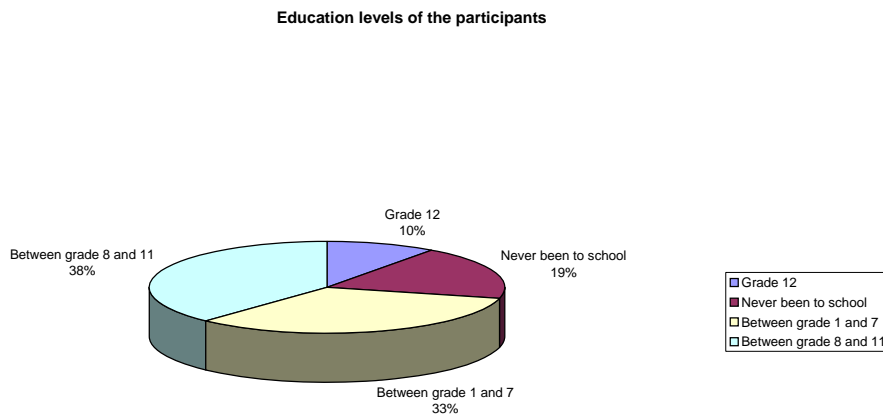


Figure 4.1 education levels of participants

A large proportion of the participants have lower education. As illustrated on figure 4.1 19% of the participants have never been to school while 33% have between grades 1 and grade 7 education. Thirty eight percent have between grade 8 and grade 11 and only 10% of the participants have grade 12. Fifty six percent have migrated from the rural areas while 33% are from within the urban areas and the rest from mines and farms. All participants have been in the area for more than two years. The average household size is 5.8 persons. Out of the 48 respondents only one is working and is self-employed.

4.10 Training activities

The ARC technicians provide training at no direct cost to the participants. Training activities are conducted at each group's project site in the form of demonstration coupled with basic theory. Participants receive ARC certificates upon successful completion of the training. The topics covered range from soil preparation through crop management to harvesting. A 4-hectare demonstration plot has been set up at the Jabulani Rehabilitation Centre. This plot is used for demonstration and trial purposes.

4.11 The production system

The project has shifted the production system from extensive rainfed (dryland) production system, which was producing mainly grain such as maize and a variety of indigenous beans to an intensive irrigated production system focusing on vegetables. The current production system uses modern technology such as certified seeds, chemical fertilizers and pesticides and follows scientific planting and crop management system.

The types of vegetables grown include cabbage, spinach, lettuce, tomatoes, green pepper, beetroot, carrots, potatoes, sweet potatoes and onions. Spinach is the most dominant crop grown and is grown throughout the year. Project records show that spinach is the crop that accounts for the highest proportion of income generated from sales of project produce. The preference of spinach is explained by its use as relish. Cabbage is also popular but is restricted to winter season. Its planting is restricted to winter as it is susceptible to pests and diseases in summer.

Although no records of previous yields are available, the perception is that yields are much higher with the current system than they were with the previous system. Major activities performed by participants include weeding, irrigating, disease and pests control and protection of the crops.

4.12 Resources

The project has restricted access and rights to the major resources particularly land and water. The land used by the project belongs to a variety of institutions and is used with limited permission. Participants cannot invest on the land under such arrangements. The water used in the project is also sourced from the municipality supply system provided for domestic use. The right to use the water for project purposes is closely attached to permission to use the land as the tap providing water is normally in the yard of the landowner or within the vicinity. The project uses treated water, as there is no alternative supply for irrigation purposes. The project does not pay for the use of both the land and water resources.

The ARC provided seeds, fertilizers and pesticides at initial stages of the training as part of the training package. These are bought with the money provided by the GPDA for the development of agriculture in the area. However participants have to purchase their input as they proceed with the project particularly after the withdrawal of the ARC. Some groups within the project had already stated buying their own inputs (UCF and Kotulo A). The project uses family labour provided largely by women. The labour used does not receive cash payment but get in kind payment through access to the produce.

4.13 Interest of the participants

Participants display strong interest in the project. The majority (60%) visits their plot five days or more per week. This is illustrated on table 3. Over and above this 49% spent more than four hours in the project (see table 3.4). Given the sizes of the plots this reflects substantial amount of time.

Table 4.3: Days per week spent in the project

Number of days per week in spent the project	Percentage of participants
1 to 2 days	10.4%
3 to 4 days	29.2%
5 to 6 days	35.4%
7 days	25%

Table 4.4: Hours per day spent in the project

Hours per day spent in the garden	Percentage participants
1 to 2	17
3 to 4	34
5 to 6	19
7 and above	30

4.14 Operational problems

Most of the prominent problems experienced by the Soshanguve farmers are land-related. Requested to mention any four major problems they experience, the land issue appeared in 69% of the combinations. Broadly land related problems centres around availability, access, ownership and quality. Constrained access to water (52%), unemployment (56%), and lack of appropriate infrastructure (38%) and lack of access to credit facilities (35%) also feature strongly as constraints to agricultural development in the area. The problem around water is largely on delivery systems. In some cases, water is carried from the tap to plots in buckets. Except for the ARC, the project lacks institutional support such as extension and financial services.

4.15 Sales and associated income generated in the project

Generally, project groups did not keep records of their activities in the project. However the UCF had kept some records on input expenditures and sales income.

Due to the absence of records from other groups, UCF records are used to illustrate project sales and production expenditures. These are illustrated on the two tables below (table 3.5 and table 3.6).

Table 4.5: Sales records of summer harvest - 1997

Crop	Quantity sold	Price per unit	Total income earned
Spinach	190 bunches	R2/ bunch	R 380
Beetroot	3 bunches	R2/ bunch	R6
Green pepper	119 units	50 cents / unit	R59
Lettuce	24 heads	R1.50 /head	R36
Green beans	38 bunches	R2/ bunch	R76
Leek	10 bunches	R1 / bunch	R10
Tomatoes	3 boxes & 11 packets	R12 / box & R2/pkt	R58
Bambara	66 mugs	R2 / mug	R132
Total			R758.50

Source: Unemployment Coordinated Forum project records, 1997

Table 4.6: Sales records for winter crops - 1997

Crop	Quantity sold	Price per unit	Total income earned
Spinach	931 bunches	R2/ bunch	R 1862.00
Cabbage	291 bunches	R2/ bunch	R 291.00
Beetroot	93 bunches	R2/ bunch	R 186.00
Carrots	25 bunches	R2/ bunch	R 50.00
Tomatoes	15 bunches	R2/ bunch	R 30.00
Onions	5 bunches	R2/ bunch	R 10.00
Total			R 2429.50

Source: Unemployment Coordinated Forum project records, 1997

The two tables illustrate the sales of project produce by the UCF during 1997. The total income generated by this group for the year 1997 is R3188.50. This is obtained by adding winter and summer sales together. This was generated from an area of 869 square meters. Different

methods are used to determine prices for project produce. Largely the number of units and the size are used to determine the price. Prices for project produce are often lower than in local markets and hawkers to attract customers.

4.16 Production costs UCF – 1997

Table 4.7: Direct production costs - 1997

Item	Cost
Seeds, fertilizers and pesticides	281.13
Transport	114.00
Equipments	59.66
Miscellaneous	51.90
Total	506.69

Source Unemployment Coordinated Forum project records, 1997

Table 4.7 illustrates the expenditures of the project in 1997. Labour costs are not reflected as the project uses family labour. Subtracting the total production costs from the income generated the net income for 1997 becomes R2681.31. This amounts to R223 per month.

4.17 Project management system

The main role of the ARC was to provide training and guidance to the farmers. The day to day running of the project was the responsibility of the farmers. Guided by the season and with advice from the ARC, farmers made decision such as what to grow, area size per crop and whether to market the produce or not. The role of the GPDA was indirect. GPDA donated money towards the establishment of the project and contracted the ARC to provide training to the farmers. The ARC however communicates with GPDA on regular basis. JADF also act as a mother body for all project groups of the Soshanguve agricultural project. The Provincial Department of Health and local Councilor play a supportive role and are represented in the JADF forum.

4.18 Summary

Agricultural activities in Gauteng are limited compared to other provinces. The Soshanguve project was launched to improve household food security through household production.

Groups of participants were provided with training and inputs to improve their production skills. The main stakeholders are the ARC, GPDA and the community. Participants are mainly women from low-income households and many with low education levels. The project produces vegetable for household consumption but with some selling surpluses. Participants operate either as a group jointly responsible for project activities or as individuals with each individual responsible for his or her individual plot. Major problems include constraints access to land, water, credit facilities, inputs and output markets.

CHAPTER 5

Analysis results and findings

5.1 Introduction

This chapter reports on the problem analysis of the case study and findings of this study. The chapter starts by giving general findings and proceeds to specific findings from the Soshanguve case study. Reported results include findings on among others, the impact of the agricultural project on food security, household cash incomes, effectiveness of the agricultural intervention and problems experienced by urban farmers. These findings are then extrapolated in to a general strategy development framework for UA.

5.2 General Findings on UA

5.2.1 UA-an informal urban activity

Agriculture and farming activities has always been part of the informal urban economy and operated largely as an informal activity not officially recognized by urban land use policies. This trend is applicable in South Africa and in other countries around the world. Agriculture however is generally not included in formal urban land use policies and allocations and water supply systems. No land (Even land with agricultural potential) is for example currently reserved for agricultural development within the South African urban environment. Urban development interventions clearly do not include UA.

Official attitude is however observed to be changing and authorities are starting to give attention on how best to harness the sector. Governments are now creating agencies to manage UA. This is expected to afford UA the opportunity to feature in urban economies as a recognized urban land use activity integrated into the urban systems. The integration of UA into urban economic activities will lead to the development of appropriate currently missing or

inadequate enabling policies for the sector. However the increase in land values seems to be the future determinant of the extent of UA practices.

5.2.2 Poverty, Gender and UA

Studies show that the poor and particularly women dominate the sector although it is not exclusive. Labour in UA projects is largely provided by women. The dominance of (poor) women has been explained by higher levels of unemployment amongst women and the fact that it meshes well with their other domestic type of duties. Urban farmers mostly use limited resources to produce food needed for households' livelihood. It is observed that these poor farmers display innovativeness and efficiency in the way they use limited resources for survival. Development support (currently limited or absent) should be flexible to accommodate such initiatives. Diversity in terms of needs and interests is also high and should be accommodated when providing assistance. Current limited assistance, where available, is generally directed to groups only.

5.2.3 UA- a survival strategy

The reason for engagement in agriculture differs between the rich and the poor. This study defines UA in context of the need to survive as the main reason for the poor to engage in UA. The mobility of UA, which is largely due to insecure land tenure, makes agriculture in the urban environment to appear as a temporary activity. This temporary notion strengthens the view that UA is a survivalist strategy often abandoned in favour of wage employment. An increasing number of people are trying to produce some of the food they need even if it is not much. It has been reported that some street vendors now sell some of the food produced from their home gardens.

Studies report UA to be playing a significant role in household food security. Through household production, participants are able to access food without direct buying i.e. saving cash outlays. Some practitioners also earn income through sales of household produced goods mostly in informal markets, provides employment and wage incomes although it may not

necessarily be sustainable. Provision of nutritious food, cash saving and income generation are some of the contributions of UA to the well being of poor urban households. It utilises of idle resources to produce goods of economic value.

5.2.4 Farming systems in the urban environment

Crop farming is more acceptable than livestock farming in urban environments due to security consideration and in terms of household food and cash needs. A variety of crops are grown. Crop selection is influenced by factors such as water supply, distance from home, plot size, use of product and farmer's future use of the plot.

5.2.5 Planning and UA in South Africa

Urban areas are generally viewed as points of food consumption and not point of food production. Planning policies thus do not recognize agriculture as a valid land use activity in line with other economic activities. Agriculture is therefore often marginalised in urban land allocations. Because of this agriculture is often practiced as a temporary activity on land not in use by "official" activities. UA is mobile due to this insecure land tenure.

5.3 Findings from the Soshanguve UA project Case study

5.3.1 Production systems

Agriculture in the Soshanguve project is practiced in small-scale food gardening context. Plots are small with average size of 16m² per individual. Production has shifted from rainfed to irrigation production system. The project has also introduced vegetables to replace maize production in the project area. Production activities are labour intensive and are performed by family labour.

Modern technologies such as certified seeds, chemical fertilizers and pesticides were introduced by the project. However traditional technologies such as the use of home made mixtures for pests' control and the use of manure as fertilizers are also practiced.

Production is focused on food crops particularly vegetables such as cabbage, spinach, tomatoes, beetroot, carrots etc. These vegetables are preferred for a number of reasons. The variable uses that a variety of vegetable are subjected to and the shorter growth cycle are some of the reasons for vegetable preferences. As high cash value crops, where sold or savings generated on food purchases, vegetables also have strong business potential and this is strengthened by their differing seasons of growth, which ensure intensive land use availability of food throughout the year.

Production is either for sales, household consumption or both. A large proportion of the participants (62%) in the project consumes a portion and sells a portion of their produce. The proportion consumed within the household differs from household to household and is largely influenced by the household economic status particularly income levels. Some households sell even when the volume produced does not meet the needs of the household. This behaviour is necessitated by the need for cash to access other needs. Project produce is generally sold locally with transactions taking place on the project site. However one project group (UCF) delivers spinach to a local crèche. Prices of produce from the project are generally observed to be lower than surrounding formal markets.

5.3.2 Participants: A Soshanguve UA typology

Operators are based in the informal settlements of Soshanguve. The majority of the participants have lower or no education in the formal sense. It was found that 33% of the participants have grade 7 education or less while 19% have never been to school. A total of 79% have household income of R500 or less per month and this is consistent with NPS finding that 70.6% of Soshanguve's population has an income of between 0 and R4999 per annum. Farmers in Soshanguve fall largely under group 1 (urban agriculturalist) of the classification by Van Rooyen *et al* (1995) (see Chapter 2: 2.5.5).

These farmers mainly produce for household consumption with some selling surpluses. However the others fall under group 3 (Other) of the Van Rooyen *et al* classification. This group is involved for UA employment

- (i) **Reasons for farming:** The primary reason for engaging in UA varies but prioritizes the need to address the food security status of the family. This is confirmed by findings illustrated on table 5.1 where the highest proportion of participants indicated that their initial aim of participating in the project was to produce for home consumption. This could either be through access to self-produced food or through income earned from produce sales.
- (ii) Broadly, participants are involved in the project for three major reasons. First, some became involved to produce for household consumption. In this case, the interest is mainly to access food without direct buying. Secondly, others aimed to produce to sell and earn cash income. In this case the focus is on earning cash income that could be used to purchase food and other consumables. The third reason for participation is to produce for both household consumption and for the market. The study compared the aims of the participants when they started with the project to what they were eventually doing. This is illustrated on table 5.1

Table 5.1: Initial aim versus actual activity

Reason for involvement	Aim at the beginning	Actual situation
Produce for household consumption only	46%	32%
Produce for selling only	10%	0%
Produce for both	44%	62%
Other	0%	6%
Total	100%	100%

Although 46% of the participants had initially aimed to produce for household consumption only, 32% actually consumes all the project produce within the household. This remains a high percentage and indicative of the importance of home based food production in a food security programme. This can be explained by cash shortages and the need for cash to access other

needs. In some cases households sold even when yields were not sufficient to meet households' food requirements. This is because these households needed items such as energy and could only access those through cash earned from sales. This reason was given by 78% of the 32% that consumes all the produce. One individual fed some of produce to the kids at a crèche she owns thereby confirming that businesses could use the produce from UA.

It is also notable from table 5.1 that none of the participants produces solely for marketing whereas 10% had initially aimed to do so. This is because most households were food insecure (83% did not have sufficient food) and therefore could not sell their produce to buy food elsewhere particularly because project produce were sold at lower prices as compared to local markets.

From this analysis, it emerges that production was for both the market and household consumption. This is confirmed by the fact that 62% of the participants consume a proportion and sell a proportion of their produce. However this study did not succeed to measure the quantity sold and the quantity consumed within a household.

From this analysis, it is however concluded that UA in Soshanguve is market driven and will respond on market signals.

ii) **Typology of Soshanguve farmers:** Using reasons for engaging in farming as criteria, this study has found that farmer involved in the Soshanguve project could be classified into four groups. The farming groups in Soshanguve are illustrated in table 5.2

Table 5.2: Typology of Soshanguve farmers

Type	Reason for farming	%
1 household food producers	To access food without direct buying	46
2 commercial producers	To produce for marketing	10
3 multi purpose practitioners	Farming for a combination of reasons	44
Total		100%

Urban Farmers are clearly not a homogeneous group and understanding their diversity is important for planning services to be provided to them.

5.3.3 Impact on household food security

An accurate empirical measurement of food security status is complex and was not included in the study. Due to lack of such quantitative data, the emphasis will rather be on qualitative measurement of impacts and anecdotal evidence. Increased participation of food insecure households in productive activities is recommended by government policy in addressing food insecurity. The promotion of urban agriculture is therefore considered as increasing the participation of the urban poor in productive activities. Gaining access to productive resources contributes to food security and improves income generation and employment opportunities. The project has impacted on household food security in a number of ways.

First, the project has improved household access to food through in-house food production (for participants). Although no empirical records were kept a strong view expressed by participants is that production has increased. Not only food availability has increased in the area, participants are also able to access the food without direct buying. It has been shown that 94% of the participants consume food they produce from the project. The food produce is also accessed while still in its fresh state as the commodities are harvested only when needed. This addresses the nutritive (quality) element of the food security needs. Harvesting the crop as and when needed is possible because production is in the close locality of consumption and sales largely occur on site. On site sales reduces storage, packaging and transportation costs.

The project has improved production skills of the participants and this had improved their efficiency. Although no records were available, the anecdotal evidence from participants was that good production has increased. This is an important contribution to food security. The project has also increased the variety of food commodities found in the area. Participants indicated that crops such as lettuce and green pepper were not common in the area before the project. Wide variety of food is an important element for food security. Consumption of a variety of foods enhances the chances of consuming a variety and increased quantity of

nutrient required by the body. Some of the crops grown in the project are reported to be consumed for medicinal purposes.

Secondly, participating households save directly on food expenditure by consuming food produced within the household. The household saves money that could have been spent on food. According to the anecdotal evidence, a household of five could save up to R21 per week by consuming food from the project garden. This amount was arrived at by adding the value of the produce consumed at their current market prices in the locality. It has been indicated earlier in this study that a significant proportion (79%) of the participants have incomes lower than the R850 declared the minimum required for an urban household to make a living. From an income point of view, these households are food insecure.

A third impact of the project on household food security considered is through income generated from the sales of the produce and wage employment. Cash earned from sales of project produced is used to access other food items not produced in the project and to purchase other non-food consumables such as energy for cooking. The cash generated may not be much but makes a difference on the lives of the poor. Quantification of the income generated was not possible due to lack of records on project sales. However one project group (UCF) had kept records indicating sales and incomes generated. This project group generated R3188.50 from a 869 square metre plot. This has been illustrated in this study (see chapter 3 section 3.15). The project contributes to food security through, income generated from crop sales and to a lesser extent through creation of wage employment. Three individuals were employed in the demonstration plot of project.

The project is furthermore not perceived to be beneficial to participating households only as non-participants benefit from food being produced in their locality although they can only access the food through buying. The non-participants benefit because of reduced transport cost as food is produced in the locality of consumption. Prices of commodities produced in the project have been reported to be lower than prices charged by the market around the project. This is an important spatial based contribution by the project to non-participant and the poor.

5.3.4 Impact on household cash income: the UCF case

The contribution of the project on household cash income is basically in two ways. First cash income is earned from sales of the commodities produced in the project and secondly the consumption food produced in the household saves income. The project also saves households income through price effect. It was indicated that generally the project produce are sold at lower prices than prices paid to hawkers and other markets in the vicinity. For example a head of cabbage would cost R4 in the market and the project would sell the cabbage of the same size at R3. Reduced traveling costs to the market also contribute to household income savings. Kotulo A group had opened a bank account to save money generated through sales of the commodities produced in the project.

The income generated in the Soshanguve project as illustrated by records from Unemployment Co-ordinated Forum (UCF) group is close to findings by Webb (1996) in the Eastern Cape where an area of 445.69 square metres gave an annual return of R1617 (Table 5.3). Calculations by the University of Western Cape found that spinach on a 10 square metre area could yield R252 per annum. This study found that a plot of 869 square metres in the Soshanguve project generated income of R30863 per annum. To illustrate income generated in the Soshanguve project, figures from the UCF in Soshanguve have been used because it was the only group that had kept records in a consistent manner.

Table 5.3: Incomes from UA

Project	Total area	Income	Income per ha
UCF- Soshanguve	869 square metres	R2681.31	R30863
Eastern Cape	445.69 square metres	R1617	R36280
University of Western Cape	10 square metres	R252	R25200

5.3.5 Other impacts

The project has drawn unused or under utilized resources particularly land and labour into production. The land and labour that would otherwise lie idle is now used to produce goods of economic value. The use of idle labour also utilizes the skills and experiences of those involved to produce goods of economic value. In addition to the 156 individuals engaged in the gardening project, three individuals were also employed in the demonstration plot. The project therefore also created wage employment. The efficient utilization of resources is signified by the shift from extensive to intensive production system.

The project has also contributed to the stabilization of food supply in the area. The production of variety of food crops growing in different seasons ensures that food distribution in the year is improved and this reduces seasonal food and nutrients shortages. Local food production is therefore a buffer against various economic shocks.

Following the introduction of the project in Soshanguve, a forum was established to promote agricultural activities in the area. Such institutional arrangements are important for the promotion and development of the sector as they will influence policies and by laws. This institution may also be useful for other programmes not directly related to agriculture. Significant proportions (77%) of the participants are women. The project thus contributes to the empowerment of women and therefore reduction of gender inequalities.

The project has earned the community international links. Students from other countries have visited the projects and the contribution from one of the project participants regarding UA appears on the International Development Research Centre website. The major negative impact associated with UA is environmental impacts.

Often UA is associated with pollution, odours, soil erosion and degradation due inappropriate practices. However in the case of the Soshanguve, none of these were evident. This may be explained by the relatively small size of the project.

5.4 Project effectiveness analysis

5.4.1 General statement

To analyze the effectiveness of the project, the study compared stated objectives of the project and the actual project activities and the output achieved. The study has also evaluated the strategy applied by the project to achieve its objectives. The objective of the project was to improve household food security through household food production. The strategy was the improvement of production skills through training.

The project has succeeded in providing training to improve production skills of the participants. During its inception in 1995, a total of 19 people were given training and by June 1996 they had established 93 gardens. At the time of the study 156 individuals were trained and had also established own vegetable gardens.

The knowledge levels of the participants have improved due to training provided. Participants have acquired new skills and knowledge on agricultural production, variety of crop cultivars and their requirements, crop protection (diseases and pests) soil preparation and irrigation management. It was also noted that the knowledge acquired is applied.

Yields were reported to be higher than before the introduction of the project. The training was therefore effective in that it has managed to improve production levels. The shift from grain production to vegetable production reflects economic considerations as well as the more efficient utilization of resources as vegetable yield more return per unit area compared to grain.

The effectiveness of the project was however constrained because a host of other problems experienced by the participants were not addressed.

These problems include constrained access to land, weak or no credit facilities, weak water supply systems and infrastructure. These and other problems are clearly illustrated by the problem tree analysis (Figure 1) developed through participative procedures using Logical Framework Analysis (LFA).

5.4.2 Problems experienced by participating producers: LFA

An exercise where participants were mobilized to participate in the LFA was used to firstly identify and link the identified problems experienced by the farmers to their causes and effects. These are as illustrated on the problem tree (figure 5.1). The overall problem was food insecurity in the informal settlement due to a complex and interrelated set of causes. Households were food insecure mainly because of (a) low disposable household income, (b) high food expenses and (c) constrained household food production. Low disposable income in households was also linked to unemployment and restricted income sources and income to generating options. Disposable households income was also low because high household expenditures on food. Household food expenditure is high because high food prices. Households also have constrained household production due constrained access to production resources caused by lack of support structures.

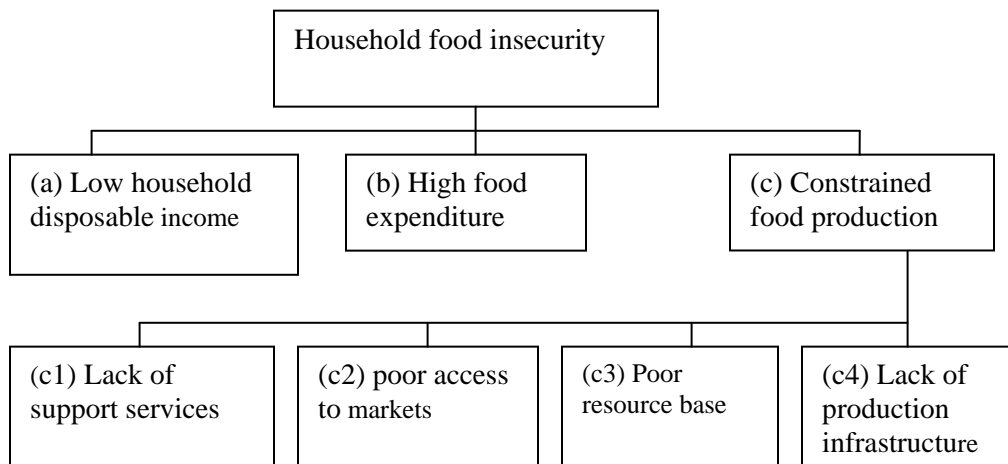


Figure 5.1: Problem; Inadequate quality food

Root cause attended to by this project was identified as a constrained food production capacity (C). This aspect is now analysed through LFA. Lack of support services (C1) refers to lack of financial support, extension and research services. These are illustrated on figure 5.2. Agriculture in urban environments lacks support because agriculture is not included in urban

plans due to lack of appropriate policies emanating from wrong perception about agriculture in urban environments.

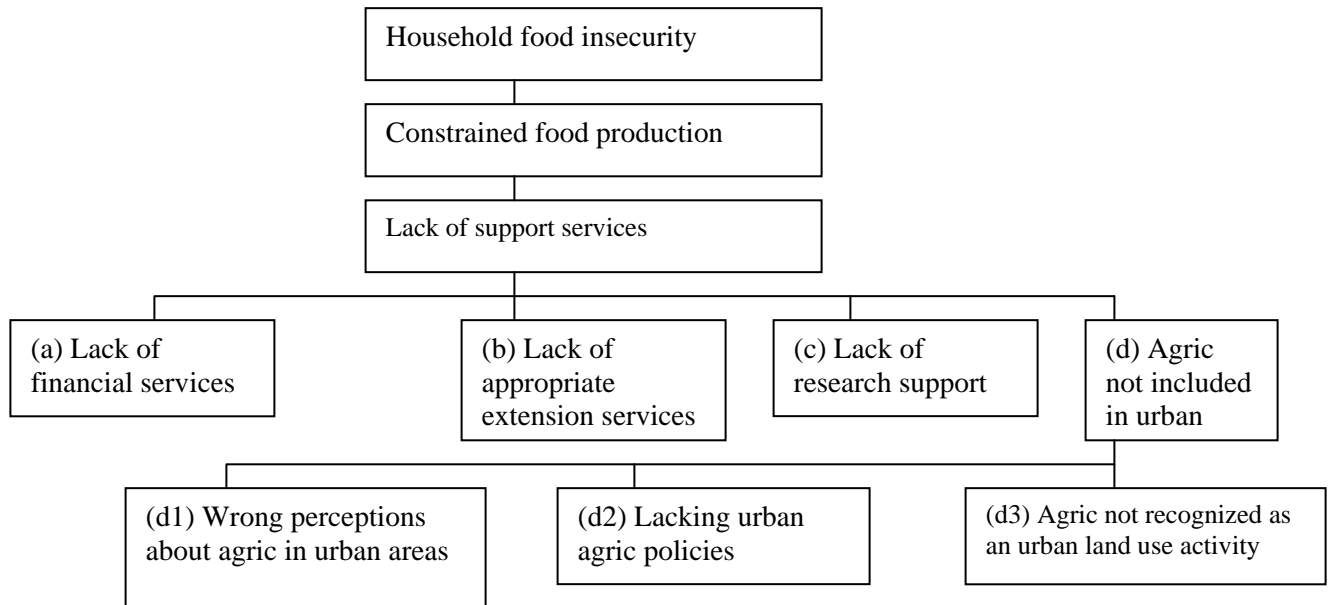


Figure 5.2: Problem: inadequate support services

Household production is further more constrained due to poor access to markets (C2). Participants have constrained access inputs because of lack of purchasing power aggravated by constrained access to credit. Participants also have constrained access to output markets due to lack of information. These relationships are illustrated on figure 5.3.

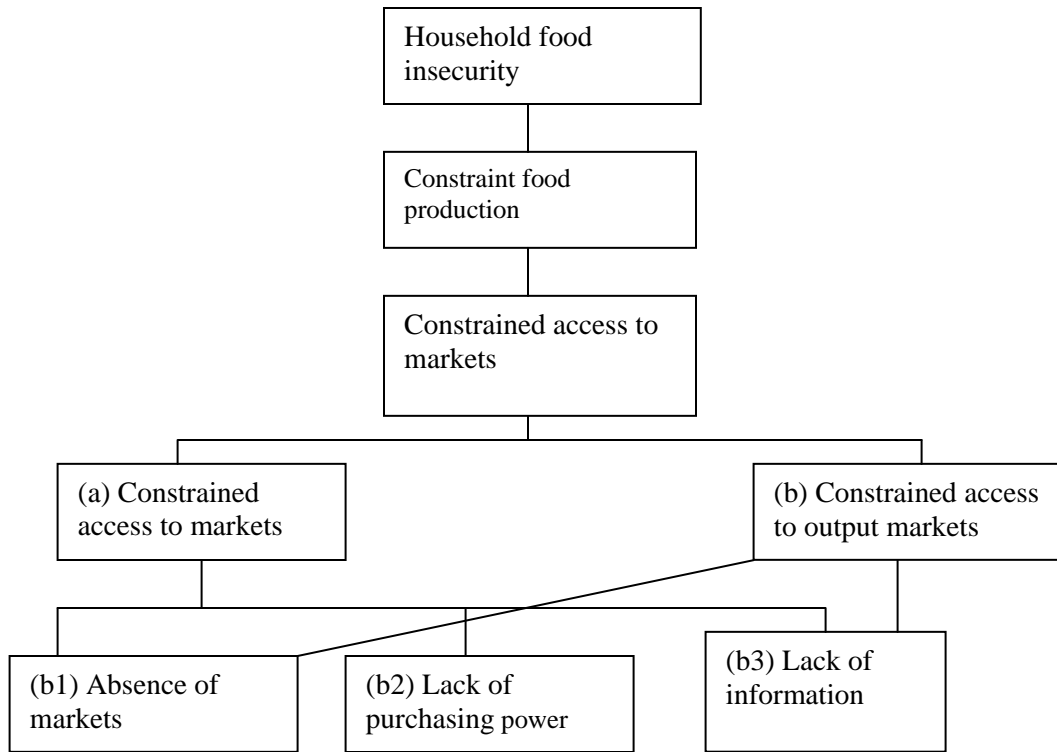


Figure 5.3: problem: access to markets

Household production is further constrained by poor resource base (C3). Participants have constrained access to land, water and lack implements. Urban small-scale farmers in most cases operate on marginal land, as land suitable for agricultural production is not made available for agriculture due urban land allocation policies, which are biased against agriculture. Due to lack of necessary inputs, farmers are not able to improve the fertility of the marginal soils they use for production. These are also explained by lacking policies.

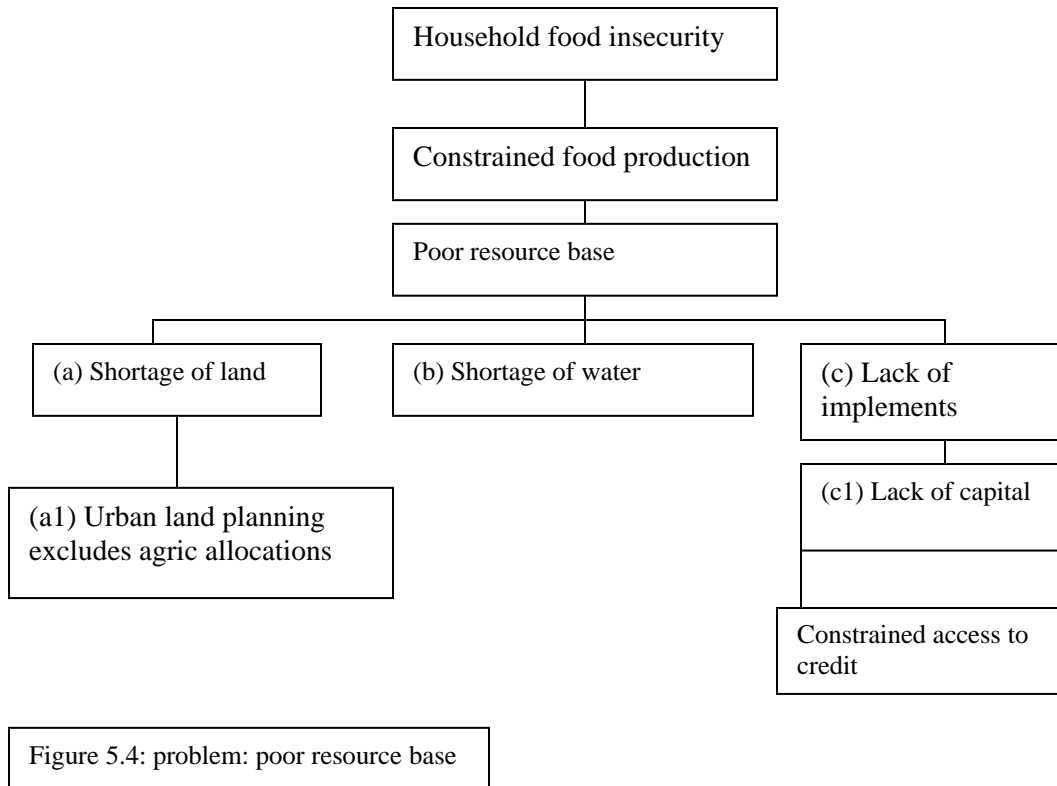


Figure 5.4 illustrates how household production is constrained by poor resource base. Household production is also limited by lack of appropriate production infrastructure (C4). This refers to lack of fencing, irrigation system, on farm electricity and lack of storage and related buildings. Infrastructure lacks because of lack of long term investment establishments. Lack of capital, unclear land property rights and short term planning horizon was found to be accountable to the lack of long term planning. Participants are poor and do not own the land they operate and therefore do not have the capacity and incentive to invest on the land particularly because they are uncertain about their future on such land and therefore in farming. These linkages are illustrated on figure 5.5. On the other hand the government cannot invest in the infrastructure partly because agriculture is not the priority sector in the province. The agricultural sector in Gauteng gets only 0.2% of the provincial budget.

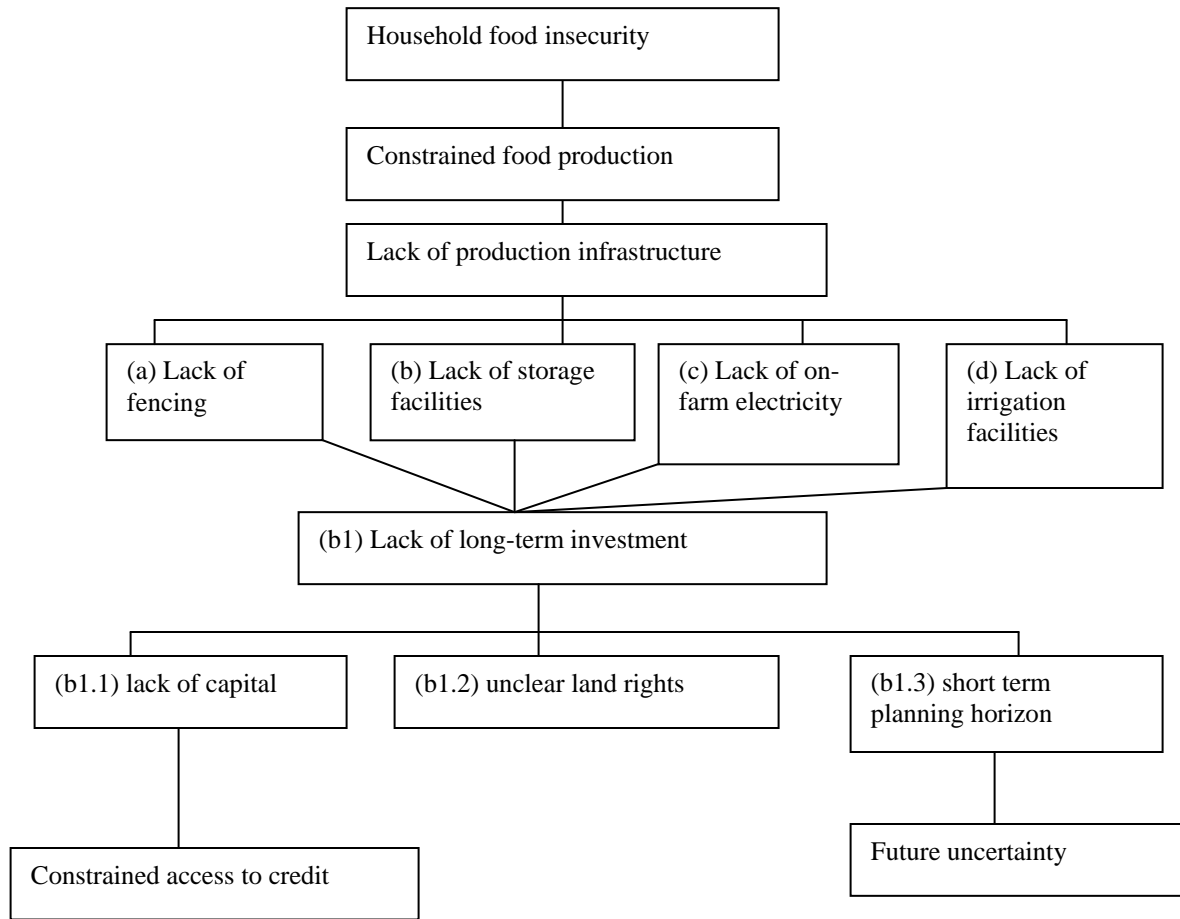


Figure 5.5: Problem; lack of production infrastructure

5.5 Extrapolation of the Soshanguve study findings

The result of one case study has been used to generalize the situation and to guide future strategy for UA. Although only one case study was used, the findings from the case study are supported by literature. The intensity or magnitude of the factors may differ but their identification is in line with other studies in particular the study by Van Rooyen *et al*, 1995 that was conducted for Gauteng.

5.6 Solving problems: Future strategies focusing on the objectives to solve problems

The primary tool used by the ARC/ GPDA project in Soshanguve to reduce food insecurity is training to improve production skills. This was expected to encourage and improve sustainable household food production. However the above analysis show that a more comprehensive, sustainable and cost effective strategy addressing problems and constraints experienced by resource poor farmers in the area is clearly required. Training per se did not activate any sustainable response due to complex and constraining urban environment. The strategy to be followed should attempt to convert the problem statements into positive outcomes. The strategy should also attempt to attend to all the stated problems in order to provide a comprehensive solution to the problem of food security.

(i) Overall strategy

The primary aim of the strategy framework of reference to stimulate UA is to improve household food security status in poor households through improved household income as a goal. Household income could be improved in the Soshanguve project by reducing household expenditure on food. The major focus of UA will thus be to reduce household food expenditures through household food production, the focus or development objective of this project. This requires the removal of constraints that hinders household food production. Household income can also be increased by increasing and diversifying sources of income. Figure 5.7 illustrates the linkages of how improving household income will lead to household food security. Five strategies will be required to achieve this.

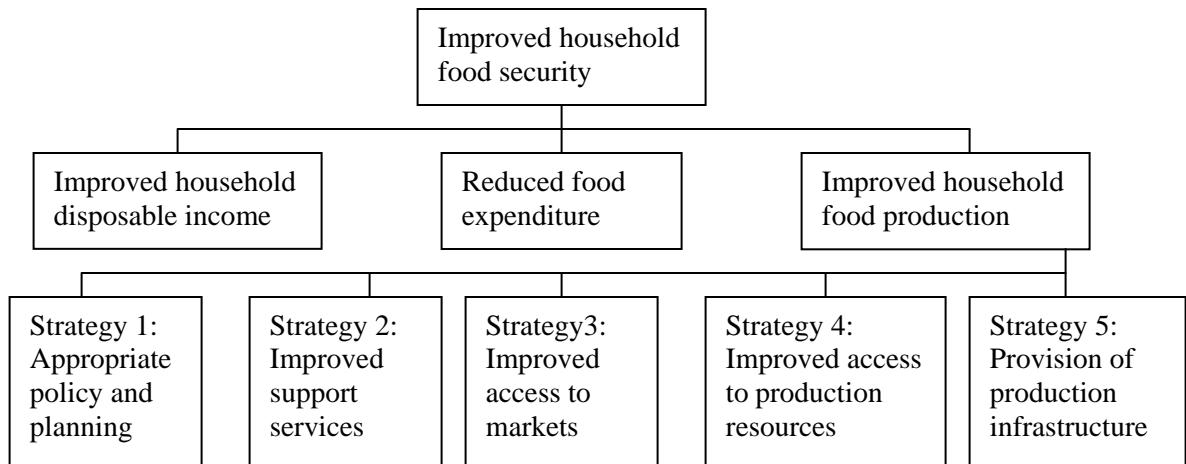
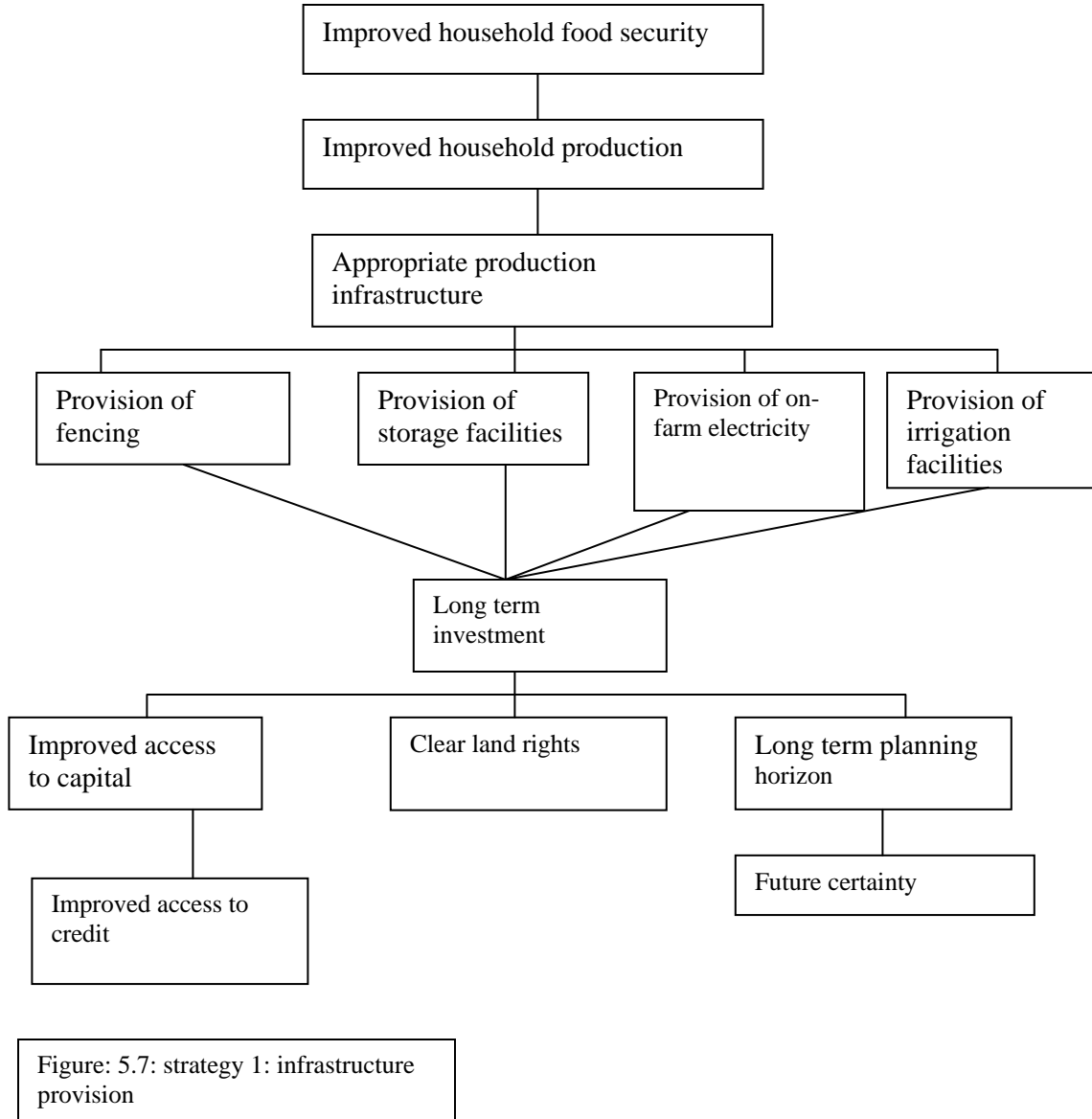


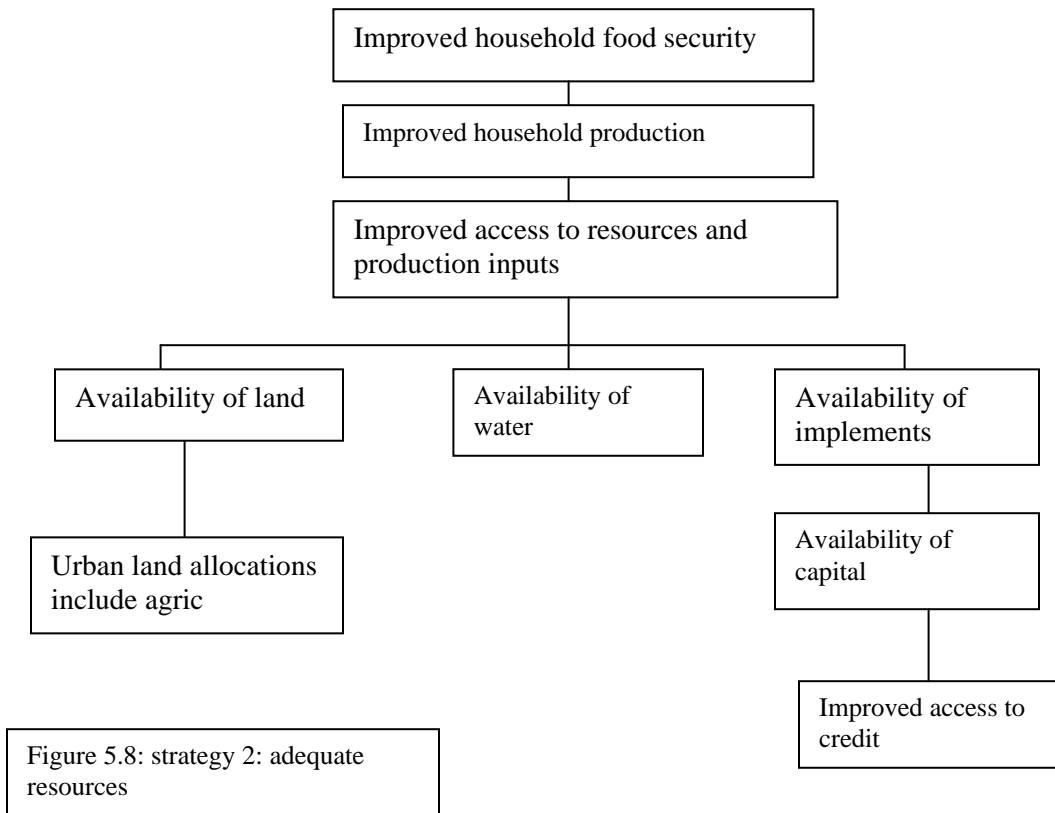
Figure 5.6: strategies to improve household food security

With improved household food production as the major focus area of this study, the following strategies can be developed to achieve this.

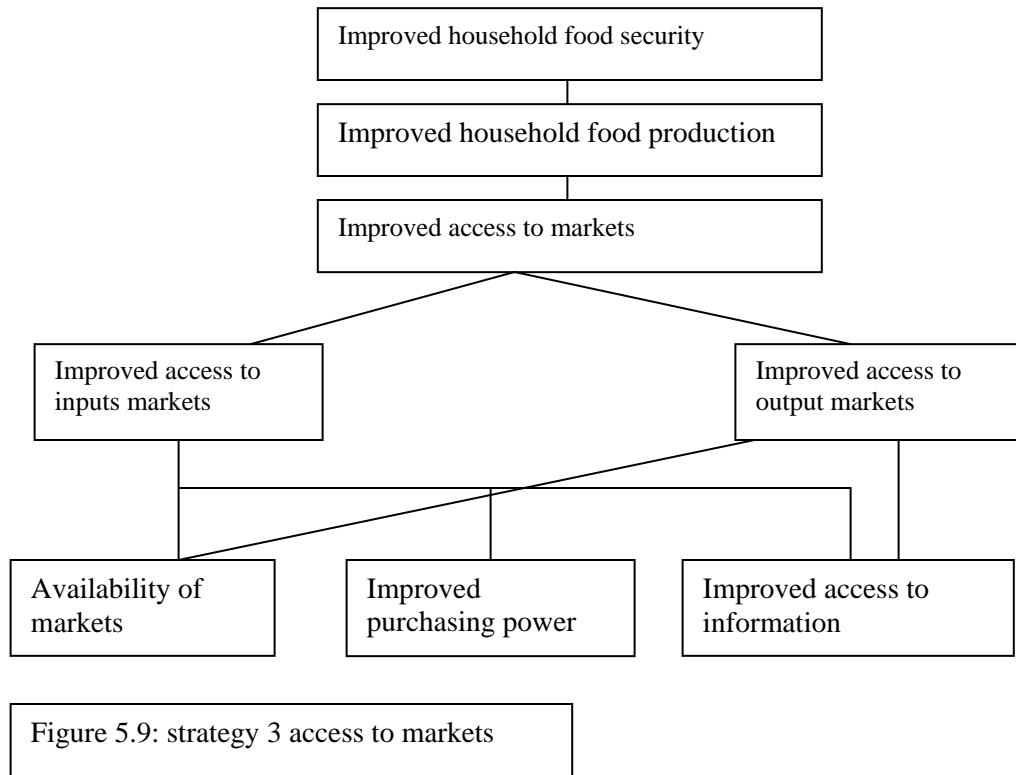
(ii) Strategy 1: Production infrastructure provision: The provision of necessary production infrastructure needs attention. Infrastructure such as fencing, buildings, electricity and irrigation systems is needed to facilitate and improve household food production systems. In turn, the establishment of these infrastructures requires long term investment. To encourage long-term investment, long term planning horizons should be adopted and issues such as property rights need to be clearly spelt out. Improved access to credit will also improve capital base of potential investors. The linkages of this strategy are illustrated on figure 5.8.



(iii) Strategy 2: Access to resources and production inputs. Improved access to production resources is thus critical. This should focus on the improvement of access to land, water, implements and input such as seed and pesticides. Farmers need improved access to fertilizers to improve and restore soil fertility particularly of marginal soils otherwise use of marginal soils should be avoided. Urban land allocation should therefore recognize agriculture as a land use activity and make land suitable for agricultural production available to agricultural practices to avoid use of marginal soils. Figure 5.8 illustrates linkages on strategy 2 of improving urban household food security.



(iv) Strategy 3: Access to markets. Improved access to input and output market is also crucial for improving agricultural production. Access to markets could be improved by increasing the availability of markets and improving the purchasing power of the resource poor farmers. Markets should develop and provide a variety of products to accommodate the diversity of farming communities. It is also important that farmers are also provided with information to improve their knowledge. The linkages of strategy 4 are illustrated on figure 5.9.



(v) Strategy 4: Improved support services. It is also important that necessary support services are provided. This refers to the provision of financial services, relevant, appropriate and adequate extension services as well as research services. Agriculture should therefore be accepted as an urban economic activity for urban policies to provide the necessary support to the activity.

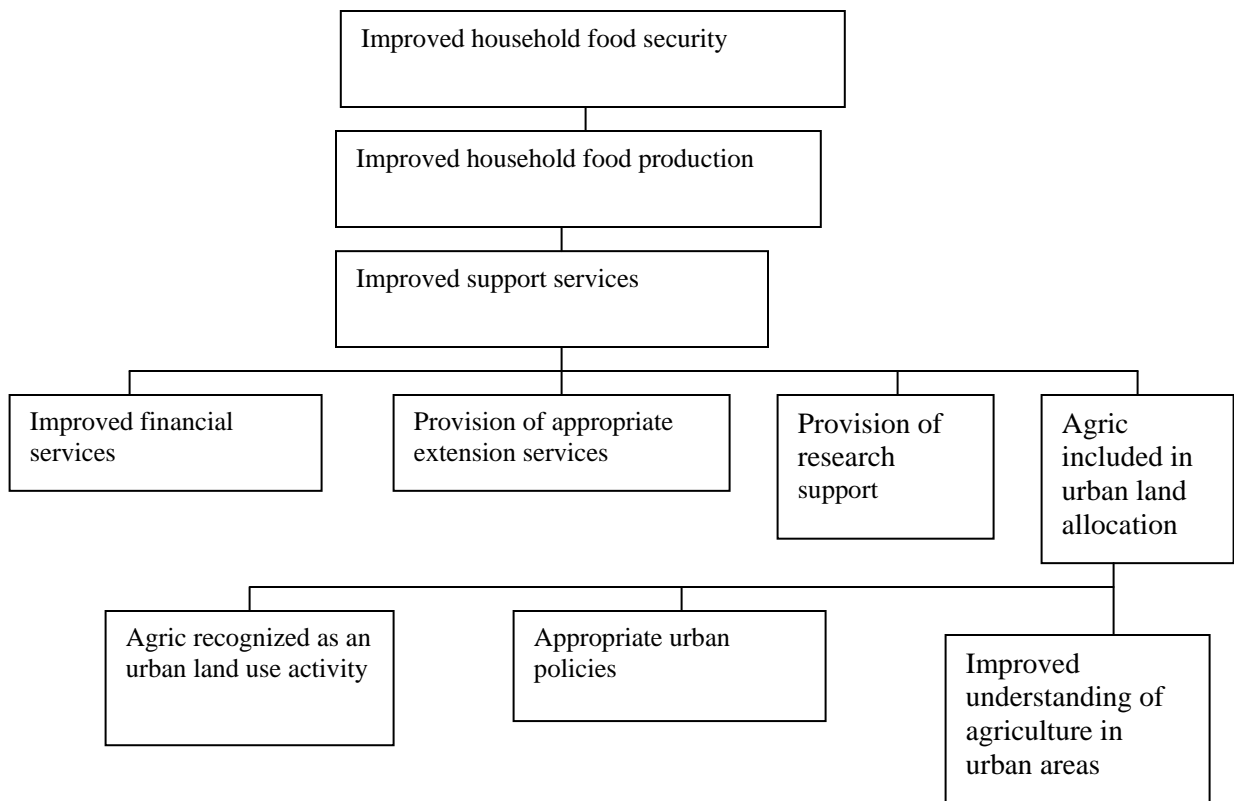


Figure 5.10: strategy 4 support services

(vi) Strategy 5: Policy and planning. The development of UA requires an enabling policy. Urban planning must recognize agriculture as an economic land use activity and therefore ensure improved land tenure security and zone off land with agricultural potential and ensure provision of water for agricultural use within urban environments. All the above strategies are summarized on table 5.4, the planning or logframe matrix.

Table 5. 4: Soshanguve planning matrix

	Summary	Indicator	Verification means	Assumptions
Goal	Improve food security	Reduced prevalence of malnutrition in the project areas	Local clinic records on malnutrition	
Purpose (development objective)	Encourage household food production	Number of trainees and number of gardens established	Project records	Records are kept
Strategy 1: provision of appropriate production infrastructure	1.1 Provide irrigation facilities 1.2 Provide fencing 1.3 Provide storage facilities	Available infrastructure Quality of infrastructure	Surveys in the project area	Households have access to other production resources
Strategy 2: Improved resource base and production inputs	2.1 Improve access to input market 2.2 Improve access to credit Improve access to information	Level of input use Number of farmers accessing credit	Project record	Farmers have access to finance
Strategy 3: Improves access to markets	3.1 Create enabling policy 3.2 Improve access to land 3.3 Improve tenure security	Availability of resources to urban farmers	Project records	Farmers produce quality and quantity required by the market
Strategy 4: Improved support services	4.1 Provide extension services 1.3 Provide research services	Level and type of support given to UA		Farmers access the available support
Strategy 5: appropriate policy and planning	5.1 Recognize agriculture as land use activity in urban environment 5.2 Obtain close interaction between departments of urban planning and agriculture in Gauteng	Performance of the UA sector under prevailing policies	Project survey	Developed policies are accepted

5.7 Concluding remarks

The project proved to be on the right tract but its efficiency was low due to factors identified and analysed through the LFA. A comprehensive approach to UA as a strategic development programme will however if conducted along the planning guidelines proposed in section 5.6 render much more positive results. These include provision of necessary support, improved access to markets and provision of required infrastructure.

CHAPTER 6

Conclusions and recommendations

6.1 Introduction

The investigation of the role and importance of UA is an important issue because of the opportunities it provides for economic development through contributions to household level food security and income generation. Differences in view points between urban authorities and the urban agriculturists are however also apparent. The topic of UA is under-researched in South Africa and therefore not much is known about UA. UA is consequently not viewed as an important development strategy yet.

The theoretical viewpoint that UA does not contribute significantly to economic development is contested by its continued presence in sprawling urban environments. People operating at that level view UA as an economically worthwhile activity in terms of time and their meager resource base. In this study, this viewpoint is substantiated by the analysis of UA in Soshanguve. The analysis showed that UA contribute to household food security through saving on food expenditure and cash income generation. UA also facilitates food distribution at reduced costs. With the number of the poor increasing in urban areas, UA will remain one of the survival strategies within the informal sector used by the urban poor. However to strengthen the potential impacts of UA a more holistic strategic approach that focuses on infrastructure and human resource development will be required.

UA tends to continue under difficult conditions and is able to sustain with the available resource base. This reflect innovative and efficiency of the poor. The poor uncover hidden resources and use them to produce goods of economic value. Proper support to this activity will therefore contribute to improving food security of many poor households in urban areas.

As the number of the urban poor increases with urbanization, the proportion of the poor in urban areas is likely to surpass those living in rural areas. This requires actions to ensure that food is available for these poor.

In general, the Soshanguve project addresses most of the food security concerns. This include increasing the participation of food insecure households in productive activities, providing access to productive resources to the poor, increasing household food production, improving income generation and employment opportunities and providing capacity building. Even though records were not available, the perception is that production has increased with introduction of the project. Access to fresh food crops has improved due to local production and prices are lower than in surrounding markets. Production has shifted from crops such as maize to high value crops such as vegetables.

6.2 Revisiting the hypothesis

The hypothesis adopted by this study is that UA as a land use activity does have the potential to support urban household food security and income generation through savings on food purchases. The potential is not sufficiently exploited. Lack of planning guidelines and limited support to the sector constrains the contribution of the sector. However, even with limited support UA is already making a contribution to poor urban household's livelihoods.

Literature and experiences from the Soshanguve project confirms the hypothesis but also shows that UA is not provided with adequate necessary support. Even where it is not outlawed / prohibited it is not given necessary support and this leads to the UA sector operating largely as an informal and marginalised activity. It is not considered important or relevant in urban land allocations and therefore operates on "reserve" land or land not used for other activities at that point in time. UA constantly shifts from one location to the other as it gives way to other urban land use activity and thus appears to be a temporary activity. Because UA is not taken seriously by urban planners, official statistics on the sector is lacking. Better understanding of the sector will be difficult without information on the sector. Based on this, the hypothesis holds and therefore should be accepted.

In the Soshanguve project, the ARC is the only government agency playing an active role, with the GPDA only indirectly involved the sector. Although the Department of Health and local

Councilor also are involved, their roles are minimal and incidental. It is also important to note that the major support provided is only training and limited supply of inputs. Access to land, credit facilities and infrastructure did not receive attention and yet, they are all major constraints.

The nature of the Soshanguve project indicates lack of adequate planning and inadequate support. In its planning, the project did not involve institutions that could provide support to improve the performance of the sector. This includes financial institution such Land Bank and Development Bank of Southern Africa, Department of Land Affairs, Department of Water Affairs and the Department of Local Government and Planning and extension and marketing support by the provincial department of agriculture. An integrated development approach requires the involvement of a wide range of role players each with a clear role and mandate. Government extension is missing and marketing arrangements are not clearly addressed. Farmers are not assisted to access land, water, and financial services.

Despite all these, urban agriculture makes a contribution to the livelihoods of poor urban households. It has been indicated that households save on food expenditure, earn income from sales, access food without direct buying and consume a variety of food crops in their fresh state.

6.3 Success and failures of the Soshanguve project

The highlights of the Soshanguve project include its initial approach. The project correctly started by conducting the need assessment in the community where the project was to be launched with full participation of the beneficiary community. This is important for it has the potential of ensuring that the project is designed to addresses the need of the community and it also has the potential to create a sense of ownership amongst the community.

The project also opted to equip participants with the knowledge, which will enable them to produce food on their own rather than provide handouts. This has the potential to be sustainable and will go a long way in improving food security of the urban poor. Training was

provided in the form of demonstration and in the locality of the participants. This makes it easier for the participants to learn. Entry and exit in and out of the project is free and this makes it easy for participants to participate as the situation allows.

The project is a partnership between two institutions i.e. ARC and GPDA with the community as the third partner. Other institutions involved are the Department of Health, local councilors and Jabulani Rehabilitation Centre. Partnerships have the potential to overcome operational constraints. A range of skills and resources could be tapped from partnerships. However this particular partnership was insufficient due to unclear mandate and financial contribution. The involvement of more institutions such as financial institutions, local municipality, Department of Water Affairs and the Department of Land Affairs would ease some of the constraints experienced by the participants.

The project has the potential to be successful because the benefits are tangible and direct. Often people prefer to participate in projects that have direct and tangible benefits. The project started as a problem solving strategy that addresses the information and input problem. The project has succeeded in bringing farmers together and led to the establishment of a forum and this has the potential to make service provision to farmers easier. The initial “start up” initiatives however could not be sustained.

However the project proved to have some major weaknesses. Farmers in Soshanguve experienced a host of interlinked problems and yet the project only addressed the information and input problems. Clearly some of the problems were beyond the ARC and GPDA. However the involvement of a wider range of stakeholders could help deal with the problem. Partnership with a wider range of institution will prevent fragmented service provision evident in UA.

Farmers have limited access to land and this manifested itself in constrained access to credit. The project itself did not help participants to access land but only provided training to those who had access to land.

Participants also lacked necessary infrastructure such as irrigation systems, fencing, building and on farm electricity. These are largely due to lack of appropriate support resulting from lack of policy support. It has been indicated that in the previous chapter that, unclear property rights

restrict planning to short term horizons and this has negative impact on the performance of UA.

In addition to the above on “project” problems, other issues which will influence project outcomes have also been noted.

(i) The youth are not reflected in the project. This is an important element that the project has missed. Youth involvement has the potential to ensure sustainability of the project. The involvement of youth both in home gardens and in school gardening would go a long way in sustaining the project and making it have much greater impact. This would stimulate the consideration of agriculture as a subject in urban schools.

(ii) The project also lacks monitoring and evaluation framework. It was notable that not much record keeping was done. Record keeping of all project activities per group, would help track the performance of the project. Proper records are important for project monitoring and evaluation and will therefore guide future projects. During the project planning phase a list of performance indicators should have been developed to measure the performance of the project.

(iii) The project has notably concentrated in the informal settlement of Soshanguve. Surely this is where most of the urban poor households reside but involvement of the formal settlement would increase the impact of the project. Water and land rights in the formal section are clearer, yards are bigger and fenced and therefore less production constraints. The project should therefore expand its services to the formal section.

(iv) The development of small farmers should not only focus on short-term assistance through technical training and input supply. The strategy should also attend to long-term needs of the participants i.e. to assist participants to become part of the commercial main stream. Structured support should therefore also be made available to the small farming sector. The project should have attended to long-term requirements through partnerships with relevant institutions.

(v) The ARC was contracted to provide training for an initial period of three years after which its services were to be withdrawn leaving the community to proceed with the project with

assistance from the GPDA extension technicians. However no departmental extension officer was involved in the project. The project has failed to realize the importance of involving the extension from the beginning of the project. Bringing the extension at the time when the ARC has withdrawn its services may delay progress. The officer would need time to acquaint himself / herself with set up in the project.

(vi) The project supported lower prices for the goods produced. Currently the participants can afford this because labour, water and land are not paid for. This may not be sustained for long as the changes in policy particularly on water may require users to pay for water used. The pricing method should also be reviewed with aims to improve it.

(vii) The analysis shows that a greater proportion of the participating groups prefers an individual plot rather than group sharing responsibility and benefits from a plot. Six out of the nine groups interviewed preferred an individual system. This has policy implications. While tendency is to provide help to groups, individuals must also be considered.

6.4 Recommendations

Based on the findings in this study, a number of recommendations to improve the performance of UA have been highlighted. These include:

6.4.1 Improve support to UA. It is necessary and important to ensure provision of support services to urban farmers. UA farmers need a strong support on a range of issues such as training, extension services and financial support.

6.4.2. Improve access to markets: To improve production, urban farmers need access to inputs markets. This often requires them to have access to credit facilities and therefore financial institutions that accommodates their needs. Access to output market is also necessary to market the produce

6.4.3. Improve access to production resources: This requires enabling policies that will ensure access to land and improved tenure support by access to inputs

6.4.4. Improve provision of infrastructure: the provision of infrastructure involves providing among others irrigation facilities, fencing and storage infrastructure

6.4.5 Focused policy development: The development of a sustainable and viable UA

6.4.6 Sector requires the creation of enabling environment through the development of appropriate policies. Such policies should

- Recognize agriculture as a land use activity in urban environments
- Provide sufficient support services to the urban small scale agricultural sector
- Encourage or introduce the teaching of agriculture as a subject in urban schools
- Encourage investment on infrastructure and technology development required for UA development
- Co-ordinate agricultural activities within urban and between urban and rural areas
- Involve beneficiaries in the planning and implementation of projects
- Assistance should not only focus of groups but should also consider individuals.
- The necessary support should be provided through a holistic multidisciplinary approach with full participation of beneficiary
- Establish permanent structures and institutions that will promote urban agriculture activities
- Develop measures to counter negative impacts of UA

Appropriate policies will ensure secure land tenure, ensure access to affordable credit, include UA activities in national statistics and therefore integrate the activity in urban plans. Such policies must also change land use planning rules to recognize UA as a land-use activity and include it in urban planning.

6.4.7 Improve project cycle management: It is important that all stages of the project cycle

6.4.8 Are properly attended to. These include project identification, design, appraisal, implementation, monitoring and evaluation. All stakeholders have a role to play and these roles need to be clarified.

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