URBAN AGRICULTURE AS A SURVIVAL STRATEGY : IMPLICATIONS FOR PLANNING

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ABSTRACT

Urbanisation is one of the most forceful social and economic trends currently affecting large cities in the developing world and is an important component of national economic development processes. This is despite the general decline of formal urban economies in both developed and developing countries. A mirror-image reflection of the urbanisation process is increasing urban poverty, clearly evident in large cities and metropolitan areas in South Africa. The urban poor, local government, and urban planners have responded to urbanisation and poverty in different ways.

Informal settlement processes take place and consolidate themselves in a climate of isolation and continuous conflict with the rules of the established formal urban economy, with the informal sector providing a safety net for survival. With the barest minimum of resources people living in informal settlements have provided some sort of shelter for themselves in spite of successive and systematic governmental opposition. They have generated many income earning opportunities in the informal sector; and in some cases they have made and effort to supplement household food supplies through direct production within the city. The practice of urban agriculture is guided by the "logic for survival" and it may be equated to squatter housing and street trading in that they are all examples of innovative responses from the urban poor.

In the recent past the general response of local government planning authorities in African cities has been the formulation and implementation of urban management programmes linked to poverty alleviation programmes. It is within this context that various government authorities have responded by repressing the survival strategies of the urban poor, tolerating it if they lacked the capacity to control it, or encouraging it by having had enabling mechanisms in place to support such activities. 'Generally, government authorities have used all of the above strategies simultaneously due to a relatively greater acceptance or tolerance of some informal activities in comparison to others. The practice of urban agriculture has been repressed in certain countries, while tolerated or promoted in others.

For urban planners the connection between food and the land on which it is produced has become increasingly remote and abstract as an issue that directly concerns urban planning and welfare. Food production and distribution is intricately linked to the global economic trade, and it will be difficult to change the terms of trade in an effort to produce subsistence food supplies. People living in urban areas are reliant on the cash purchase of food which in turn is linked to levels of affordability. However in the face of declining real incomes and reduced purchasing power, and as mentioned above, the poor and destitute have resorted to supplementing their household food supplies through direct production within the city. Food relief programmes are an added expense to government's already overburdened coffers.

As such food security is a matter that urban planners and policy makers should consider from now on. Urban agriculture has an important role to play in feeding the ever growing urban population, especially the urban poor. The planning of cities rarely considers the production of urban food supplies since the prevailing attitude is one that consigns food production to the rural areas, with the focus of the city on the pursuit of economic activities. There is an compelling urgency to defeat the ethical, ideological, psychological, attitudinal and practical obstacles to promoting urban agriculture since positive policies in support of urban agriculture are unlikely to emerge from this negative frame of mind.

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GLOSSARY

Home Gardens

Home Gardens are usually small patches or plots used for the production of vegetables and/or fruit to either supplement home consumption, or provide a recreational function, or fulfil a personal interest in gardening.

Allotment Gardens & Community Gardens

Community gardens usually provide for the intensive production of field crops, vegetables and fruit for home consumption and for sale of any surplus produce. These require reliable water supplies and good soil type, depth and slope for maximum benefit. The size of the food lots and community gardens vary depending on the management ability and capacity, and the availability of land and may vary from anything more than a few square metres to 10 hectares. Both would be suitably located adjacent to residential areas occupied by the participants in the project due to the issues of proximity and security.

"Allotment gardens" is a term used in the United Kingdom, the establishment of which dates back to the early 19th century as a local government response to overcrowding and epidemics. During the war years the dependence on allotment gardens for vegetables increased, while in 1965 the emphasis changed from being an economic motive to one of rewarding recreation. In the 1970's a number of community projects working with farm animals and gardening formed a national federation of city farm groups and situated their projects on derelict land in the centre and on the edges of towns and cities.

In Germany allotment gardens are called "kleingarten" and are usually managed by the city garden department being rented out at below the market value of the land. Most of the gardens are grouped together ("anlagen") and fenced with gates that can be locked, and into which is incorporated a childrens playground and common house for relaxation and meetings. Kleingarten associations have organised themselves at the city, state and federal level and their primary function is not to provide food but to provide a link to nature and to foster friendship and community spirit through involvement in common interests.

As like in the UK, in the USA the dependence on allotment gardens for vegetables increased during the war years and then declined. In the 1960's and the 1970's there was a renewed interest in urban gardening due to environmental awareness, the sharp increase in food prices and concern about chemical additives in processed foods. In certain cases it was due to the influx of immigrants with agrarian cultures. Gardening thus provided satisfaction, enjoyment and pleasure, as well as for saving money on food bills. Most gardeners use organic or semi-organic methods avoiding pesticides to try to improve the quality of food. Community gardening is common amongst people older than 55 years of age in the lower and middle income groups who have free time. In New York, the Neighbourhood Open Space Coalition incorporates community gardens into the development of open space systems.

Poultry & Rabbit Production

Small scale intensive poultry and rabbit production, particularly broiler production, on allotments are usually significant income generating projects although it could be practised at a subsistence level as well. Broiler units of 500 birds require a housing unit of approximately 60 square metres, an area for chicken litter disposal, and reliable water supplies (Auerbach, et al, 1989). The need for abattoir facilities on site depends on the demand for live fowls and the proximity to abattoirs.

Livestock Farming

Livestock farming refers to the production of pigs, goats and beef and dairy cattle and associated products , and may be farmed on areas ranging from a minimum of 300 square metres for pigs and goats and to a minimum of 2 hectares for cattle. Adequate water supplies are essential.

Horticulture and Floriculture

Horticulture refers to the cultivation of fruit, herbs, spices and medicinal plants to provide for home consumption as well as for sale. Floriculture refers specifically to the cultivation of fresh cut flowers.

Sylviculture/Urban forests

Sylviculture refers to the production of fuel wood and building timber through the establishment of woodlots, sometimes called social forestry. This is an ideal form of agriculture for steep hillslopes, and assists in soils protection , and could provide some opportunities for recreation e.g. urban forests.

Agroforestry

Agroforestry is a system of land use where woody perennials are deliberately used in the same land management unit as the annual agricultural crops and/or animals either sequentially or simultaneously with the aim of obtaining greater outputs an a sustained basis. It is an intensive, multi-purpose land use which has real potential in an urban agricultural or forestry context where limited land holdings are available to individual entrepreneurs (Auerbach, et al, 1989). Alley farming is an agroforestry practice in which arable crops are planted between rows of fast growing leguminous trees (Francis 1987). The foliage of the trees may be used either as high quality fodder for livestock or nitrogen rich mulch for the maintenance of soil fertility. The system is thus a stable alternative to shifting cultivation and is simultaneously agronimically, economically and ecologically beneficial. This system has many features that are similar to that of permaculture (see below).

Aquaculture

Aquaculture refers to the production of aqautic-based food and products, and is usually associated with pond or dam construction for stormwater management or water storage.

Permaculture

This is an agricultural system based on the philosophy of turning all inputs into products, recognising the multiple uses of inputs and where by-products and waste products in turn also become inputs in an ongoing cycle. It seeks to maximum use of natural systems and resources, and reducing the reliance on chemicals and other artificial inputs. It may be described as the design of the human environment based on ecological principles. In practical terms it integrates organic gardening/farming, animal husbandry, appropriate technologies, recycling, soil and water management, energy efficient dwellings, community development and economics into a system. Permaculture projects are thriving in Brazil, Mexico, Nepal, Lesotho, Botswana, Zimbabwe, India and the Pacific Islands (Jonhs, 1992).

Trench Gardening

The trench method of gardening, as referred to in this dissertation is based on the method espoused by the late Robert Mazibuko of the Africa Tree Centre in Edendale, Pietermaritzburg. Preparation of a typical trench involves digging a hole approximately 36 inches deep that is the length of a foam mattress, then feeding it with nutritious compost, that is rotting organic material (waste foodstuff, newspaper, some tin), and finally topping it with the soil that was dug out. The trench would then be ready to plant a bed of vegetables or any other produce. This method of preparing the soil for cultivation helps to retain water while simultaneously enriching the soil through composting in the preparatory phase.

This method of soil preparation is further enriched by the method of planting. Beans are planted in a jumble next to mealies, shaded by a macadamia nut tree and mango trees. Spinach and madumbes are neighbours, and a sugar cane windbreak competes with cabbage. The logic of planting different types of plants together are multi dimensional. That is to naturally replenish soil nutrients while using it since different plants use different nutrients in various amounts and through natural processes produce other nutrients as by products; on the surface some plants complement each others growth rather than compete with it, etc. For example, marigold flowers and shallots repel insects, while the fragrant white flowers of the mandarin tree attracts bees which help to fertilise many plants. Clover and alfalfa planted at the base of trees helps to fix nitrogen, an important soil nutrient for tree growth. A compost heap helps to replenish soil loss and nutrients, and makes effective use (re-use) of organic waste from the household and the garden. Potatoes may be grown on top of the compost heap. This method of soil preparation and planting displays a close resemblance to the permaculture philosophy described above.

The Concept of Sustainability

The concept of sustainability is flexible, all-encompassing and can be defined to satisfy a wide range of interests (Bhatt, 1990 : 4). It may be defined as the satisfaction of present basic needs without compromising the satisfaction of the same needs on the part of future generations (Garau, 1990 : 13). Sustainable development seeks to go further than arousing public concern over the issues of species survival and conservation. It seeks to direct public concern in the direction of sustainability both in terms of human livelihoods and the impact that human actions have on the natural physical environment based on an interdependent relationship within a single life support system (Redclift, 1987). With specific reference to "urban sustainability" , sustainable policies may be defined as those that maintain and prolong the productive use of urban settings for future generations while providing present generations with basic needs in order to pursue a dignified and equitable living condition (Bhatt, 1990 ; Garau, 1990).

Environment

While the word environment is used quite randomly to mean a variety of things, for the purposes of this dissertation it is used to refer to the totality of objects and their inter-relationships which surrounds and routinely influences the lives of people including natural factors, factors related to the built environment and those related to the quality of life. In many cases this vague meaning has been qualified by the addition of a prefix or suffix, for example the ***natural environment***, the ***built environment***, which are explained below.

Natural environment

The natural environment refers to the environment as consisting of natural factors such as air, water, animal life and vegetation.

Built environment

The built environment refers to the product of a process where human involvement alters the natural physical environment for social use and benefit and includes factors such as physical infrastructural development and the creation of places such as industrial areas, recreational areas, etc. It is that which is consciously planned and developed, and includes informal settlements (which are consciously planned and developed by the residents themselves rather than by professional planners).

Environmental

This is an adjective that is used to indicate that a direct inter-relationship between people and their natural environment is the topic of concern.

Environmental problems

Use of this terminology is used to indicate that an impaired inter-relationship exists people and their natural environment, and that this impaired inter-relationship is a cause for concern.

Environmentalist/environmentalism

Use of these words refer to the concern about the degradation of the natural environment as a result of human impact. The words are usually associated with people or organisations that articulate their concerns stemming from an ecological perspective.

Urban poor

The urban poor refers to a category of people who have little money and few possessions and includes :

- the destitute or indigent - people who are totally impoverished and lack the means to live, even basic necessities such as food;
- low income earners who earn less than the household subsistence level;
- low income earners who earn more than the household subsistence level but who, like the above two sub-categories, are still unable to meet payments for basic needs due to low affordability levels relative to the general cost of living.

The above categorisation is based on "income-poverty" (Chambers, 1995 : 173), that is low per capita income, and though important, it is only one aspect of poverty or deprivation. Implicit in the definition of urban poor, is the concept of "poverty" which refers to the lack of physical necessities, assets and income - it includes, but is more than just being income-poor. Whatever the level of poverty, the urban poor as a group lack the means of adequate social participation and are effectively margenalised from mainstream society, even though they may constitute a majority of the population (Moser, 1995).

Survival strategy

A survival strategy is a response that is guided by the "logic for survival." It is a response to the need to find some means to continue to exist despite the prevailing socio-economic or political circumstances that either yields a low per capita income, or excludes employment in the formal economy. Survival usually depends on a multiplicity of strategies or activities and resources, for example food gardening, petty commodity production (candle making), squatting, hawking, begging. Many of these strategies are usually termed *illegal* and/or *informal*.

Food security

Food security is a term used to describe the relative level of ease or difficulty of accessing food. Food security is a function of the inter-relationship between politics and economics, taking into consideration the aspects of social organisation of the production, exchange, distribution and consumption of food (Bernstein, et al, 1990 : 2).

Urban planning

This term is used to refer to the *discipline* of urban planning and development. It is used in a broad context to refer to the practice of urban planning, that is the entire process ranging from the level of policy formulation to implementation, monitoring and evaluation. Implied in the use of the term is the realm of planning and development professionals in private practice, or as public authority officials, or working in non-governmental organisations.

CHAPTER 1

INTRODUCTION

1.1. FIELD OF STUDY

This study is about the multi-dimensional potential of the practice of urban agriculture as a survival strategy within the context of urbanisation and urban poverty. Urban agriculture refers to the practice of some form of agriculture, the production of food and other commodities, within the urban or metropolitan area either in community gardens, backyards, vacant public or private land, or small/medium holdings.

It has been pointed out by Kelly (1992) that the *urban* and *peri-urban zones* are usually confused with each other, but that they may be defined as two different zones as they differ in a spatial sense as well as in terms of the land use change. Both *urban* and *peri-urban zones* form part of a metropolitan area. In accordance with this, it is interesting to note that in the developed and Asian countries, urban agriculture is usually practised in *peri-urban zones*, and most commonly by the urban middle class. In African cities however, urban agriculture is practised predominantly in *urban zones*, and is an example of one of many *survival strategies* of the urban poor (Drakakis-Smith, 1991).

There is a wide range of forms or types of urban agricultural practices, in some cases linked to specific farming or production systems. These are :

- Home gardens
- Allotment gardens/community gardens/kleingarten
- Poultry and rabbit production
- Livestock farming
- Horticulture and Floriculture
- Sylviculture/urban forests
- Agroforestry
- Aquaculture
- Permaculture
- Trench gardening

These are elaborated on in the *Glossary*.

Planning responses to urban agriculture have differed in the various cases where it has occurred. In some cases it has been supported, while in others it has simply been tolerated or repressed. **However, in all cases, except in some Asian cities, urban planning has rarely considered urban agriculture as an integral aspect of urban planning.** One consequence is that the need and opportunity of food production within urban areas has been ignored.

This introductory chapter, besides establishing the field of study, that is planning responses to urban agriculture as a survival strategy, also provides an outline the research objectives; the development context; the research question and hypothesis. Following this, the statement of the argument reflects the logical reasoning that forms the basis of the study, while the section on research methodology explains the use of primary and secondary information in achieving the objectives of the study and testing the hypothesis. Finally, the structure of the contents of the dissertation is described.

1.2. RESEARCH OBJECTIVES

The inherent **multi-dimensional potential of urban agriculture** is a compelling factor that should warrant it being an **integral aspect of urban planning**. It should be even more compelling in cases where it is practised as a **survival strategy** of the **urban poor**, especially where it continues to be practised despite government repression.

The **objectives** of the study are :

(i) To investigate and evaluate the potential of urban agriculture as a survival strategy of the urban poor in terms of :

- the opportunity to ensure sufficient and /or supplementary affordable food, that is food security;
- the opportunity to create employment opportunities at low cost and supplementing incomes;
- the opportunity to contribute to the sustainability of the city through urban planning.

(ii) To alert planners to the importance of considering the issue of food security as an integral part of urban planning. Furthermore it should contribute to an understanding that the potential solution to many of the urban problems may be found in the survival strategies of the urban poor, and that the positive aspects of the strategies need to be supported and facilitated while efforts at reducing the negative aspects are implemented.

(iii) To identify the major obstacles that prevent urban planning accommodating and promoting the practice of urban agriculture.

The objectives will be achieved through the formulation of a conceptual framework, the analysis of secondary research information, and the use of case studies in Cato Crest and Besters Camp to test the relevance of the findings. The development context within which the study has been conducted is briefly elaborated on.

1.3. Development Context

A) Urbanisation

Notwithstanding the general decline of formal urban economies in both developed and developing countries, urbanisation is by far one of the most powerful social and economic trends currently affecting large cities in the developing world and is an important component of national economic development processes. A mirror-image reflection of the virtually unstoppable urbanisation process is increasing urban poverty, clearly evident in large cities and metropolitan areas in South Africa.

The Urban Foundation (1990) estimates that the number of people living in metropolitan areas will more than double over a twenty year period from 11 million in 1990 to 23.6 million in 2010. Urbanisation and urban growth in South African metropolitan areas has been characterised by the growth of huge informal settlements that can be distinguished socially, spatially, economically, and politically from the elite western-oriented urban core. These areas on the periphery of the metropolitan centres which house nearly half of the metropolitan population have become the focus of present urban management policies. The urban poor, local government, and urban planners have responded to urbanisation and poverty in different ways.

Economic circumstances have forced the urban poor into informal settlement processes that take place and consolidate themselves in a climate of isolation and continuous conflict with the rules of the established formal urban economy, with only the informal support network to aid the residents in their strive for survival. With the barest minimum of resources people living in informal settlements have provided some sort of shelter for themselves in spite of successive and systematic governmental opposition. They have generated many income earning opportunities in the informal sector. In some cases, in response to accessing affordable food, they have made an effort to supplement household food supplies through direct production within the city. The practice of urban agriculture is guided by the "logic for survival" and it may be equated to squatter housing and street trading in that they are all examples of innovative responses from the urban poor.

B) Urban Agriculture

It is within the context of the attempt to alleviate urban poverty in the developing world that recent research alludes to the important role that might be played by urban agriculture. In a study conducted for the International Labour Organisation the fostering of subsistence food production on the urban margins was described as an "unconventional proposal" for addressing issues of poverty and unemployment in developing cities (May, 1993: 17). In cases of extreme poverty the practice of urban agriculture has been a vital source of subsistence food for the urban poor, while some low income families produce enough for personal consumption and for sale. It can become a valuable income-generating activity for the unemployed and under employed. This points to the economic value of urban agriculture.

In addition, urban agriculture has social and ecological values, or "non-economic values" (Eberhard, 1989 a-e). Urban agriculture projects may be aesthetically pleasing and may brighten an otherwise drab environment. In addition the activities may heighten an awareness of nature and natural processes, stimulating an awareness of the natural environment and the effects of pollution, development, etc. on the environment. Involvement in urban agricultural activities may provide points of common interest among members of communities, encouraging social interaction and increasing community cohesiveness. Community gardens in particular can play a role in community development - the processes involved in initiating and running the garden, such as getting to know other members of the community, working together and sharing resources are just as significant as the actual material benefits obtainable from the garden.

A closer analysis of the practice of urban agriculture reveals that it is a strategy usually incorporating minimal financial expenditure, family labour and indigenous technology in order to provide food, a very basic necessity of life. The social efficiency of urban land may be increased in the process, and produce is sometimes of a high nutritional content. In addition it may have a positive effect on the natural physical environment, contributing to the ecological enhancement of the city by improving the micro-climate of the area with pollution from dust being reduced, shade being provided, and wind and rain intercepted.

C) Planning Responses to Urban Agriculture

In the recent past the general response of local government planning authorities in African cities has been the formulation and implementation of urban management programmes linked to poverty alleviation programmes. It is within this context that various government authorities have responded by repressing the survival strategies of the urban poor, tolerating it if they lacked the capacity to control it, or encouraging it by having had enabling mechanisms in place to support such activities. Generally, government authorities have used all of the above strategies simultaneously due to a relatively greater acceptance or tolerance of some informal activities in comparison to others. The practice of urban agriculture has been repressed in certain countries, while tolerated or promoted in others. In most cases the survival strategies of the urban poor seem to be categorised as problems rather than as potential solutions.

Planning responses to urban agriculture within the above context is due to the prevailing attitude that relegates food production to the rural areas, leaving the city to concentrate on the pursuit of other economic activities. While research on food security and the concept of sustainable development have contributed to creating an awareness of urban agriculture, it has not succeeded in promoting and accommodating the practice of urban agriculture as an integral aspect of urban planning.

Research on food security (Drakakis Smith, 1992) shows that food production and distribution is intricately linked to the global economic trade, and it will be difficult to change the terms of trade in an effort to produce subsistence food supplies. People living in urban areas are reliant on the cash purchase of food which in turn is linked to levels of affordability. In the face of declining real incomes and reduced purchasing power, and as mentioned above, the poor and destitute have resorted to supplementing their household

food supplies through direct production within the city. Food relief programmes are an added expense to government's already overburdened coffers.

During the 1980's interest in strategies for sustainable development, and in particular sustainable cities provided the context for the issues of urban agriculture to be put onto the policy agenda. Researchers identified the issue of urban food supplies and urban agriculture as important in terms of managing urban poverty, promoting urban food self-reliance, and ecologically sustainable urbanisation in cities in the developing world. While urban agriculture is a relatively new concept in urban development policy and planning, the practice of cultivation is well established in cities in the developing and developed worlds.

Urban development researchers and practitioners in South Africa have acknowledged urban agriculture as a possible local economic development strategy within the context of urban management (Epstein, 1994; Smit & Todes, 1993; May, 1993; Rogerson, 1993; IPS, 1991; Anderson 1989), and as part of a spatial intervention policy for urban restructuring and a wider concern for accommodating the use of the city's natural resources by the poor in their struggle to meet basic needs (Dewar and Uitenbogaardt, 1991 in May 1993).

Research of a conceptual, theoretical and practical nature, provides compelling reasons for urban planners to consider the value of the production of urban food supplies. Urban agriculture can and should play a major role in feeding the ever growing urban population, both in terms of the general urban population and especially the urban poor. As mentioned above, the prevailing attitude is still one that relegates food production to the rural areas, leaving the city to concentrate on the pursuit of other economic activities. Positive policies in support of urban agriculture cannot flow from this negative frame of mind. There is an urgent need to overcome the ethical, ideological, psychological, attitudinal and practical obstacles to promoting urban agriculture.

1.4. RESEARCH QUESTION

Initial research on the topic of urban agriculture showed that it "varies in extent, nature, role and success in different parts of the world" (Epstein, 1994 : 18), and that different forms of urban agriculture have been practised for a long time but have not been officially

recognised or desired until recently. A notable exception is the planning of some Asian cities where urban agriculture is an aspect that is considered as part of the urban planning process. Given the widespread practice of urban agriculture as a survival strategy in many African cities, and the actual and potential benefits of the activity, the repressive response of urban planning in these cases needed to be questioned. It is within this context that the following research question is proposed.

> **Given the potential benefits of the practice of urban agriculture where it is practised as a survival strategy by the urban poor, what are the major obstacles that prevent urban planning accommodating and promoting the practice of urban agriculture?**

Research on the experience of urban agriculture in many African cities alludes to the potential benefits of providing food security, creating employment opportunities and supplement incomes, and contributing to the sustainability of the city. However, urban planners seem not to have realised this potential and have not considered urban agriculture as a desirable urban activity.

This in turn gives rise to a number of subsidiary questions and assumptions which have been listed below, and elaborated on in subsequent chapters.

1.4.1. Subsidiary Research Questions and Hypothesis

A) *Why does the planning of cities and metropolitan areas rarely consider food security from the aspect of the production of urban food supplies within metropolitan areas?*

The prevailing attitude is one that relegates food production to the rural areas leaving the city to concentrate on the pursuit of other economic activities. Urban planners and the planning profession should not be able to claim that they have a holistic and integrated approach to urban planning and development when in fact the most **basic** of basic needs, that is food, is an issue that urban planners completely ignore. The logical implication is that the planning of urban areas could promote urban agriculture by providing space for the cultivation of at least some urban food supplies.

The lack of a response from planning to the above problem of food security has manifested itself in the practice of urban agriculture in cities that are experiencing economic decline or economic collapse. In such cases, it is practised as a survival strategy of the urban poor.

B) Why is urban agriculture, where it is practised as a survival strategy of the urban poor, usually repressed or ignored rather than supported through the urban planning process?

Urban agriculture is not a unique or unconventional phenomenon or practice. In developing countries it is an example of one of many survival strategies of the urban poor. In some Asian countries it is regarded as urban activity and is an integral part of the urban planning process that is based on an ideology of creating producer cities rather than consumer cities. In some European and American cities it has been incorporated into the open space systems and is practised more for its non-economic benefits rather than as a survival strategy.

In developing countries, the response of urban planning to increasing urbanisation and increasing levels of urban poverty has generally been one of formulating and implementing urban management programmes linked to poverty alleviation strategies with an emphasis on the provision of basic needs. The increasing awareness of urban planners as to the rights of the urban poor to participate in decision-making regarding the allocation of urban resources has resulted in a process-oriented approach to planning. However, this change in approach has not been accompanied by a change in attitude or mindset, which negates participation in a process-oriented approach to planning.

While the nature of urban problems have changed, planning practice at the implementation level has not. It is still one of control through land use planning characterised by an engineering and public health bias. This type of response has tended to ignore the significance and potential of survival strategies in addressing urban poverty. Survival strategies are usually interpreted as illegal and classified as part of the informal sector which is perceived as undesirable. Seldom is there any attempt to support the positive aspects of such activities, while simultaneously trying to manage the negative aspects.

The **hypothesis** is that the survival strategies of the urban poor have some potential to contribute to planning strategies that seek to break the cycle of poverty, or at least to contribute to local economic development strategies that may effect a positive impact on the general quality of life of the urban poor. It is further assumed that urban planning processes could support the positive aspects of such strategies.

1.5. STATEMENT OF THE ARGUMENT

The social consequences of the general decline of formal urban economies and increasing urban poverty is a focal issue of urban management programmes in many developing countries. Within this context, the response of urban planning has been more in terms of addressing the symptoms of urban poverty rather than the causes. In practical terms the response has been one of categorising the survival strategies of the urban poor as *illegal* or as part of the *informal sector*.

The symptoms of poverty, that is the survival strategies or the informal sector, is perceived as the problem. Rarely are the causes of urban poverty identified as the problem. This is the rationale that leads to the repression of survival strategies. Thus where urban agriculture is practised as a survival strategy it is usually repressed, and very seldom supported by urban planning processes. This is reinforced by urban planning practice that disregards the production of food within urban areas as an urban activity.

However, urban agriculture has provided a vital source of food for the urban poor, and in some cases it has also provided employment opportunities. In other words it has had a direct positive impact on the lives of the urban poor. Furthermore it has potential social and ecological values, or non-economic benefits, that may contribute to enhancing the quality of life of urban citizens and increasing the sustainability of the urban form.

The findings of many research studies on the potential of urban agriculture confirm the important and sometimes vital role it plays as a survival strategy of the urban poor in cities throughout Africa. There are some local research studies (Eberhard, 1989 a-e) that allude to the reduced impact of urban agriculture within the South African context. There are yet other studies that have explored the development options of peri-urban agriculture based on current practice in peri-urban areas, and provide compelling arguments in favour of promoting urban agriculture (May 1993).

This study on the potential of urban agriculture as a survival strategy of the urban poor, suggests that urban agriculture should be an integral aspect of urban planning. Furthermore the study tries to assess the major obstacles that prevent urban planning accommodating and promoting the practice of urban agriculture? It is argued that there is an urgent need for urban planners to overcome the ethical, ideological, psychological, attitudinal and practical obstacles to promoting urban agriculture as an integral aspect of urban planning.

1.6. RESEARCH METHODOLOGY

The methodology adopted included both a literature survey and practical experience. Information from secondary sources, that is the literature survey, was used to address the conceptual basis of promoting and accommodating the practice of urban agriculture as an integral aspect of urban planning. Furthermore, it was used to describe the practice of urban agriculture where it had occurred, to gain an understanding of why it occurred, and to clearly define the multi-dimensional potential of urban agriculture.

The use of practical experience, or information from primary sources, helped to assess the extent to which the findings of the secondary research correlated to local circumstances. This formed the basis for suggesting that urban agriculture should be an integral aspect of urban planning. An analysis of both primary and secondary research findings was used to try and assess the major obstacles that prevent urban planning accommodating and promoting the practice of urban agriculture?

1.6.1. Literature survey

The evolution of different and distinct academic disciplines that reflects the separation of the different sectors of the economy is carried through into literature available on the subjects. This required a literature survey of distinct categories or subjects.

The investigation of the practice of urban agriculture for the purpose of this dissertation was explored from the perspectives of urban planning, using theories and concepts of food

security and sustainable development to formulate a conceptual basis for promoting and accommodating the practice of urban agriculture as an integral part of urban planning.

Due to the lack of recognition, or more generally the non-recognition of urban agriculture as a urban planning and development issue, it rarely features in the mainstream planning literature. Classical or conventional planning ideology and practice usually traced back to the industrial era, and the subsequent evolution of planning, made a clear distinction between urban and rural planning with all agricultural production (including urban food supplies) being classified as a rural activity.

Where urban agriculture is recognised, it is usually in urban planning and development literature that stems from an environmentalist perspective, and more recently on sustainable development. Most of the available literature on urban agriculture from an urban planning and development perspective, focuses on studies in Africa where it has been practised as a survival strategy, and in Asia where it formed part of planning ideology and practice. Literature the specific categories of planning for urban open space systems and peri-urban areas often had information on urban agriculture. South African literature and research studies on the subject was found mainly in journals published by non governmental organisations that had a specific focus on environmentalist issues, and some provincial planning reports.

Literature on urbanisation, urban poverty, and the survival strategies of the urban poor was accessible through mainstream planning literature that had as its focus the issue of urban poverty. Literature on issues such as alternative farming systems and practice had to be accessed from the mainstream agricultural or rural development literature and the ideas therein adapted or assessed for the practice of urban agriculture. The issue of food security seldom features in urban planning and development literature. It is usually linked to agricultural and trade policy that forms part of the economic discipline.

1.6.2. Practical Experience

Childhood memories of Sunday visits to agricultural small holdings in La Mercy, approximately 20 minutes drive from Durban along the north coast, to buy fresh vegetables indicates the practice of urban agriculture in peri-urban zones. More recently, personal work experience in informal settlements and townships within the Durban

metropolitan area between 1991 and the present, has drawn attention to the increasing practice of urban agriculture in urban zones. This seems to reflect the experience of cities in other African countries, albeit to a lesser degree.

The two case studies used in this research, namely Cato Crest and Besters Camp, are based on personal involvement in development projects in those areas. The methodology used in both cases was participatory in nature, that is of participant observer. The objective was to provide technical support and advice for the gardening projects as part of an overall development service, rather than specifically on urban agriculture. This was achieved through informal discussions with the participants of the gardening projects rather than through structured questionnaires.

In the case of Cato Crest, a women's sewing club requested the assistance of the Built Environment Support Group to assist in identifying a suitably located piece of land on which to establish a community garden. The intended objective was to provide both food and jobs for the unemployed residents in the area. From initial meetings with the women's club it became apparent that they were most comfortable, and offered the best information, when they were allowed to set the pace and the agenda for meetings to discuss the issues regarding the establishment of the community garden.

Furthermore, taking into account that most of the women were illiterate or had extremely low levels of literacy, structured, rigid and written questionnaires seemed inappropriate. The women were also sceptical of discussions being recorded on tape, so this form of documenting information was not used. The research was conducted over a period from December 1991 to February 1993.

In the case of Besters Camp (also known as the Inanda Community Development Trust - ICDT) in Inanda, involvement in the community gardening initiatives in the area was of an incidental nature. The primary objective was an attempt to assist the civic structures of the area to gain effective control and management of the site-and-service upgrading project in that area. This began in March 1993, and involvement in the project was again of a personal nature as a civic activist. An effort was made to ensure the strengthening and legitimacy of the civic structures to lead and participate in development projects, simultaneously building and establishing institutional and organisational capacity for future benefit through the process of the provision of serviced sites with freehold tenure to the residents.

Over time, the focus of the Besters Camp project expanded to include the co-ordination of all development projects in the area covering the areas of capacity building; training and education; the establishment of a community resource centre with a range of community facilities and services; and issues of health, welfare and the environment. It was during this period of consolidation in late 1993 that involvement in the community gardening projects began.

More recently, from July 1994 to June 1995, participation in the Inanda Development Framework Project enabled interaction with community representatives from other areas in Inanda. The residents of some of the areas in the peri-urban zone expressed an interest in consolidating and formalising the current practice of agricultural production as the main activity of the area within the context of exploring opportunities for local economic development.

The information was gained from a series of local area workshops with ordinary residents of the area that was facilitated by local community development workers who were trained to elicit information for development purposes. This information was then jointly analysed by the local community development workers and development professionals, and used in the process of formulating development strategies for Inanda. Personal involvement in the project was at the level of project co-ordination and management.

1.6.3. Limitations of the Research

The literature survey was constrained by having to use information drawn from a variety of sources, each with underlying differences in ideologies, language and terminology. This led to the need for caution about how the information was interpreted. Although this proved to be very frustrating, the benefits were that one was exposed to different kinds of thinking and different perspectives on subjects that were inter-linked.

The limitations of the primary research methodology employed has been that not enough attention has been given to quantifying the following :

- the extent of the practice of urban agriculture,
- the cost savings in rands and cents of producing and/or supplementing one's own food supply, and

- the employment creation potential and/or potential to supplement incomes in monetary terms.

However, findings from the literature survey seemed to indicate that the most important obstacles in the way of promoting urban agriculture were a combination of an ethical, ideological, psychological, attitudinal and practical nature. As such the emphasis of the research was on the formulation of an acceptable argument in favour of exposing the multi-dimensional potential of the practice of urban agriculture.

Another limitation is the total neglect of canvassing the personal views of urban planners in terms of assessing why they did not consider urban agriculture as an integral aspect of urban planning, and their views and perceptions on the most important obstacles in the way of promoting urban agriculture. However, from informal discussions with some local urban planners during the informational gathering phase of the study, most seemed to accord urban agriculture a relatively low priority in comparison to other aspects. Generally, planners have used it more as an environmentally sensitive approach to development, rather than as an integral aspect of urban planning. Thus it seemed as though there was a greater need to provide information on the subject to create a better understanding, and thereby to begin chipping away the ethical and ideological barriers to effecting a change in attitudes and practice.

1.7. THE STRUCTURE OF THE DISSERTATION

The dissertation proceeds from the statement of the research question and hypothesis in Chapter 1 to consider the theoretical aspects in Chapter 2. The description of the practice of urban agriculture, an assessment of it's multi-dimensional potential, and planning responses in Chapter 3 allows a comparative analysis of various experiences in different cities in the world. The case studies of Chapter 4 provide a contextual setting within which the problem question is addressed. Chapter 5 discusses the implications for urban planning, and Chapter 6 presents the conclusions.

CHAPTER 2

CONCEPTUAL & THEORETICAL FRAMEWORK

2.1. INTRODUCTION

This chapter addresses the **conceptual basis** for promoting and accommodating the practice of urban agriculture as an integral aspect of urban planning, especially in cases where it is practised as a survival strategy of the urban poor. This is achieved through considering the implications of **food security,** and identifying the shifts in development thinking towards **sustainable development.**

The overview of food security is intended to contribute to an understanding of the circumstances that contribute to urban agriculture being practised as a survival strategy of the urban poor. It draws attention to the limitations of classical food relief programmes that are part of urban social welfare policies as an effective response to addressing poverty. Furthermore, it provides a basis from which to argue for urban planning to support urban agriculture where it is practised, and alert urban planners to considering the importance of producing urban food supplies within the metropolitan area.

The argument in favour of **sustainable development** traces the historical shift in development thinking and the implications thereof for urban planning. The focus of urban planning on physical and infrastructural concerns has grown to incorporate economic, social, political and ecological concerns. It also recognises aspects such as human rights, equality and justice and the need for participatory planning procedures.

The concept of sustainable development in relation to urbanisation provides an alternative perspective, definition and understanding of the nature of urban poverty. It is argued that this in turn requires an alternative planning response : it suggests a shift in emphasis from total reliance on economic growth and formal employment to diminishing deprivation and enhancing well being. This is not to argue against promoting economic growth and formal employment, but to complement it.

2.2. FOOD SECURITY

Food security is a term used to describe the relative level of ease or difficulty of accessing food. Food security is a function of the inter-relationship between politics and economics, taking into consideration the aspects of social organisation of the production, exchange, distribution and consumption of food (Bernstein, et al, 1990 : 2).

The focus on food security is intended to provide an understanding of why the urban poor experience difficulty in purchasing food, and how this leads to urban agriculture being practised as a survival strategy. An analysis of the South African situation seeks to evaluate the effectiveness and implications of the common band aid solution of food relief programmes, and alludes to a role for urban planners in addressing the problem of urban food security.

2.2.1. The Global Situation

Whereas in the past many countries were self-sufficient in food production, the ages of industrialisation, colonialism and imperialism, and the beginnings of global trade and transport, have brought with it changes in food production, processing and manufacturing, distribution and consumption. With many of the developing countries forced to produce cash crops for export to the developed countries, the amount of indigenous food produced was reduced. This situation of insufficient agricultural growth to produce food in the developing countries was exacerbated by rapid population growth in the period up to the 1960's causing national food shortages.

Meanwhile, in the 1950's and 1960's developed countries produced agricultural surpluses which were directed to the markets of the developing countries. During the 1960's and 1970's, developed countries were able to increase basic food production through the application of technological initiatives, known as the Green Revolution, that produced high yielding commercial crops or cereals. This contributed to a situation where, by the 1980's, the global food trade had effectively been reversed with developed countries supplying a significant proportion of the developing countries with food. Processed foods and non-perishables that had entered the global trade market were a lucrative option to populations in the developing countries, changing their dietary preferences from indigenously grown food to exotic and processed foods produced in other countries.

With specific reference to *urban* food security in developing countries, all residents within an urban area do not have equal access to food. This is due to a reliance on the cash purchase of food - some of the food is produced in rural areas with the bulk being imported from developed countries as explained above. The reliance on the cash purchase of food is, in turn, linked to levels of affordability. Within the context of urban poverty, the urban poor pay more for less food - in very real terms between 60% to 70% of their total incomes are spent on food (Drakakis-Smith, 1990). This is the reality in many cities in Africa that has given rise to the practice of urban agriculture as a survival strategy of the urban poor.

In comparison to most of Africa, the South African situation differs to the extent that there is much less reliance on food imports. Nevertheless the high levels of urban poverty in South African cities has impacted on the ability of the urban poor to buy sufficient food. This is the reality that has led to the attempts of many poor people to produce their own food within urban areas. A closer examination of this situation is provided.

2.2.2. The South African Situation

South Africa is faced with the crucial task of feeding approximately 40 million people (Paterson, 1994 : 10). The general belief is that hunger in South Africa is not the result of a crisis in production where more than enough food is produced, and where poverty, malnutrition and droughts have been contributing factors for a long time. The problem is affordability : there are millions of people who are unable to afford the food needed for survival, and these same people are forced to forego basic necessities to meet escalating food prices (Munnik, 1992). While the above might be a plausible argument, it nevertheless is one that is based on a demand driven analysis. There is also a supply-side argument that indicates why food is unaffordable to the majority of the population.

When spiralling food prices in 1992 became an issue in South Africa, some people believed that was due to the large profit margins of national wholesalers and retailers, and all the solutions proposed were based on some sort of market intervention (Spence, 1992). Where the link between local production and local distribution was made, those involved in food production and distribution tended to blame each other with accusations, denials and counter accusations that left the consumers little wiser as

why their money bought much less. While one possible reason for this is that food price inflation is estimated to be consistently higher than the average rate of inflation (Dor, 1992), another possible reason is the nature of the South African food industry.

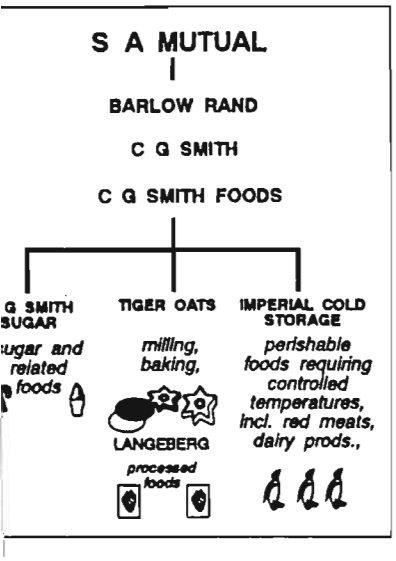
The South African food industry is a highly regulated one with six big monopolies that have horizontal and vertical linkages along the food chain from production to processing, packaging, distribution, marketing and consumption, as well as within the different sectors of the food economy (Diagram 1). At every stage of production and distribution the giant co-operatives and corporations make profits. They maintain and raise prices in periods of economic recession, knowing the public will cut back expenditure on cars, furniture and clothes before decreasing food consumption. This was exacerbated by past government policies which ensured that cheaper food imports did not benefit consumers.

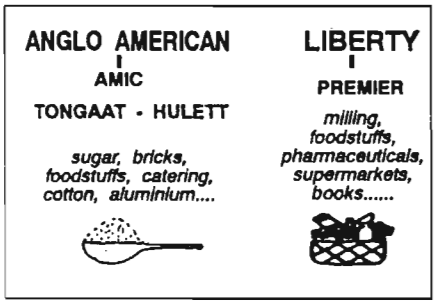
The response of government has been to support food relief programmes for the destitute, that is those people who are totally impoverished and lack the means to live, even basic necessities such as food. Some estimates of quantifying food relief programmes are as follows (Munnik, 1992: 3-4):

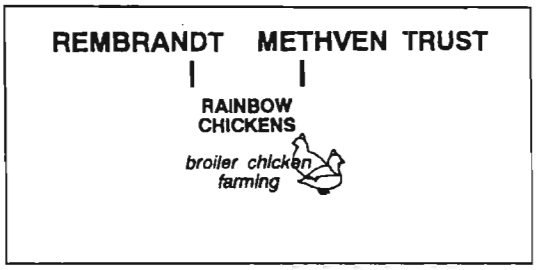
- In 1983 Operation Hunger fed 670 000 people at R200 000 per month/ R2.4. million per annum.
- By 1987 Operation Hunger fed just more than 1 million people at a cost of R18.6 million.
- In 1989 some 1 322 355 people were fed at a cost of R20 million.
- The costs for 1992 were estimated to be approximately R93 million.

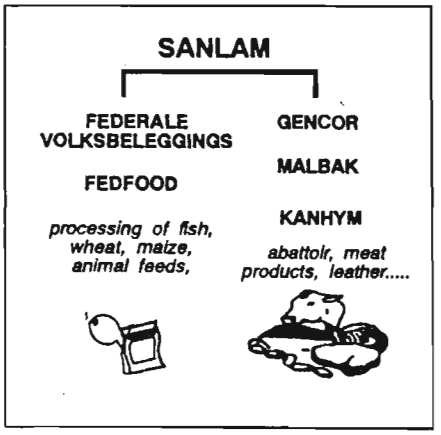
With a focus on the destitute, it is interesting to take note of the findings of an experiment by Operation Hunger that while it may be possible to help set up a garden of 40 families, 9 people each, 360 in total, for a one off outlay of R4 000.00, and they can eat from the garden for years, the same money can feed 360 people a month (Ibid, : 4). The high costs of establishing communal food gardens has been confirmed by Eberhard (1989d : 8). However, setting up development projects such as community gardens based on the belief that development is cheaper than relief in the long term does not take into account that the problem is that hungry destitute people cannot even think about development until they have been fed.

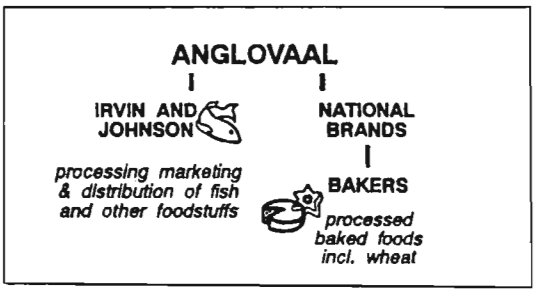
Besides the destitute, who are the poorest of the poor within the larger group referred to as the urban poor, there are other categories of the urban poor. They are the low income earners who earn less than the household subsistence level; and also includes











Company structures in the food sector

Source : New Ground, Winter 1992.

DIAGRAM 1 : THE SOUTH AFRICAN FOOD INDUSTRY

those low income earners who earn more than the household subsistence level but who, like all poor people, are still unable to meet payments for basic needs due to low affordability levels relative to the general cost of living. Being poor means more than just being income-poor: whatever the level of poverty, the urban poor as a group lack the means of adequate social participation and are effectively marginalised from mainstream society, even though they may constitute a majority of the population (Moser, 1995).

The urban poor, as defined above, have formulated survival strategies in response to their needs. A *survival strategy* is a response that is guided by the "logic for survival." It is a response to the need to find some means to continue to exist despite the prevailing socio-economic or political circumstances that either yields a low per capita income, or excludes employment in the formal economy (Chambers, 1995). One such survival strategy has been to cultivate food within the metropolitan area to supplement food supplies, and/or to supplement incomes. In comparison to the destitute this type of response shows the potential of self-help strategies, the innovative response of the urban poor to find solutions to their problems. It may not be some sophisticated technological innovation, but it is a simple and logical response to the increasing difficulty of paying for the high cost of food.

One would assume then that the logical response to addressing poverty within the context outlined above, would be to support such activities where they occur. The potential of supporting such activities could lead to increased food security for the urban poor themselves, but could also progress to the extent that it becomes an economically viable activity that can create employment opportunities (both in terms of direct production and retailing the produce). Increased local production within the metropolitan area would automatically increase food security, and perhaps lead to decreased food prices.

While it is accepted that economic growth is needed in order to address poverty, it is nevertheless a long term strategy, the benefits of which might not be tangible to the poor for many years to come. It is argued that the solution should not restricted to efforts to try and improve the affordability levels of the poor, especially since relying on the *trickle-down* effects of macro economic growth has proved to be ineffective, at least in the immediate, short and medium terms. The effort should be extended to looking at looking at alternatives such as urban agriculture, and at least supporting it where it is practised as a survival strategy.

2.2.3. Food Security and Urban Agriculture - Implications for Urban Planning

The urban poor have tended to look for alternative sources of food in the face of declining real incomes and reduced purchasing power. The response of the urban poor in South Africa has been to supplement household food supplies through direct production within the city. This is similar to the situation in many other African cities and is described in more detail in Chapter 3. However, in comparison to other African cities, this has not progressed to the level where those who practice it as a survival strategy have become small scale entrepreneurs in the informal or formal sector. There are already some low to middle income people who own agricultural small holdings on the periphery of cities (or peri-urban zones) and engage in urban agriculture as an economic activity. This is so due to the relatively stronger formal economy in South Africa in comparison to other African cities, but should not be the reason that urban agricultural activities of this nature are not considered for South African cities, for they do have the potential to create jobs, supplement incomes and contribute to the sustainability of the city.

A macro view of the politics of food production, distribution and consumption, clearly shows that the urban poor are the most marginalised. This is true both at the international level and in South Africa too. It will be difficult to change the terms of trade in an effort to produce subsistence food supplies, and change existing dietary preferences at the international level. It will be just as difficult to ensure access to food at affordable prices at a national level. However, it is at the city level where the forces affecting and changing the process of production and exchange/distribution are easier to deal with, that intervention in terms of increased urban production may be successful.

This could be achieved through thoughtful functional and spatial planning of infrastructural, economic and social services that could support survival strategies such as urban agricultural, where it is considered as part of the informal economy. Within the larger urban planning approach that recognises the potential of the informal economy, Dewar and Watson (1991) identify a range of physical planning policies, two of which directly supports urban agriculture. The first is the promotion of a greater mix of land uses, and the second is the maximisation of access to natural resources.

The implications of this from an urban growth planning and management perspective is that urban agriculture should "be seen as an important land use, a stable relationship - a fixed edge - between dense urban areas and agricultural land" which has the potential

to "allow for urban wastes, such as water run-off and partially treated sewerage, to be returned easily to the land and put to productive use" (Ibid). In other words, the promotion of urban agriculture in peri-urban zones coupled with the approach of integrated resource management.

The planning approach mentioned above represents a shift in developmental thinking in favour of sustainable development. The argument in favour of **sustainable development** traces the historical shift in development thinking and the implications thereof for urban planning. Urban planning as a profession originated from the need and obsession to control the negative aspects of industrialisation and was characterised by an engineering and public health bias. This was followed by the utopian desire for cleanliness and order, and the need to deal with urban growth through land use planning. The 1960's witnessed a shift in the planning emphasis from a physical bias to one that incorporated a concern for the social and economic aspects of urbanisation. The rise of environmentalism influenced the search for environmentally sound planning practices in the subsequent decade. It should be noted that throughout the history of modern planning, the provision of food for urban areas has always been perceived as a rural or non-urban activity.

The recent emphasis on urban poverty and the provision of basic needs has been superseded by the popularisation of sustainable development with a focus on the *quality of life* or *level of well-being*. It recognises that most livelihoods of the urban poor are based on a range of survival strategies that are dependent on "a multiplicity of activities and resources" (Chambers, 1995 : 184). Within this context urban agriculture is defined as an example of a survival strategy, as a source of food and supplementary incomes, and many other social and ecological values. A closer examination of the concept of sustainable development and the implications for urban planning are explored in the next section.

2.3. SUSTAINABLE DEVELOPMENT

This section traces the origins and evolution of the concept of sustainable development, and proceeds to define the approach especially as it relates to the urban context. It seeks to draw attention to the way in which development theorists have changed their definition of development, and the implications that this has for urban planning practitioners.

2.3.1. Origins of Sustainable Development

The 1972 Brundtland Commission on World Development first coined the term "sustainable development." The subsequent Brundtland Report of 1987, also known as "Our Common Future" was instrumental in making the important link between poverty and the environment, and called for a process of sustainable development through economic growth to combat poverty in the developing world. Furthermore, through the World Conservation Strategy (1980) there has been an acknowledgement, at the theoretical level, that natural resource management and development are inter-dependent and can be compatible. However in practice, natural resource management and development are more often than not conflictual, which is due to the practical difficulties of implementation that arise out of an attitudinal problem. This is explained further in the following paragraphs.

2.3.2. The Theoretical Evolution of Sustainable Development

The notion and concept of sustainable development is linked to the widespread growth of environmentalism (concern about the impact on the natural physical environment) since the late 1960's. Theorists such as Redclift (1984;1987) exploring the relationship between the notions of development and environmentalism argued that the environmental problems in the developing countries were the outcome of an economic, structural crisis. This was due, in part, to the fact that the use of natural resources and the resulting impact on the natural physical environment had become divorced from social and economic theory when in fact it should have been a part of both. This line of thinking was reinforced and began to be consolidated at the global level through the Brundtland Report of 1987, also known as "Our Common Future", the World Conservation Strategy (1980), and most recently through programmes such as Agenda 21 (1992).

The manifestation of the problem identified in the preceding paragraph is evident in the failure of the two most dominant paradigms, that is the Marxist and Capitalist paradigms, to effectively integrate environmental concerns within their respective theoretical frameworks. In terms of traditional Marxist analyses, environmental problems had been viewed as a necessary but unfortunate consequence in the development of capitalism. Most Capitalist analyses perceived environmental problems as negative externalities to which a monetary value could be attached.

Development is too closely associated in our minds with what has occurred in capitalist societies. That is, a process of economic growth that has resulted in the accumulation of wealth and vesting of political power in the hands of capitalist elites. It is assumed that the middle and lower income groups can improve their status and living conditions as a result of the *trickle-down* theory of economic growth. However, the failure of the above development strategy is apparent both in terms of growing poverty and the decreasing capacity of our planet's life support system to cope with excessive human demands. This could actually be termed *unsustainable* development. *Sustainable development,* as an alternative therefore implies a radical break.

The concept of sustainable development (Redclift, 1987) questions the appropriateness of defining development principally in terms of economic development and the extent to which economic growth is an adequate measure of development. The concept of sustainability seeks to move away from the conventional methods of measuring development : it rejects GNP (gross national product) as an appropriate measure of development of a nation in itself, while it accepts the use of other social and economic indicators as a supplement to the crude measure of GNP.

Examples of alternative social and economic indicators are average annual rates of inflation; adult literacy; life expectancy at birth; average index of food production; official statistics of sectoral divisions of production (primary, secondary, tertiary); the growth of investment; the production and consumption of energy. Apart from arguing for development along the lines of sustainability from the standpoint of the use of natural resources, the impact of rapid population growth on the natural resource base is also included in the broader definition of sustainable development (Ibid).

The shift in development thinking from one focused on economic growth in the 1950's and 1960's to economic growth with redistribution in the 1970's, and the adoption of a basic needs approach in the late 1970's and the 1980's highlights the continuity of economic determinism that has influenced the thinking. Even with the concept of sustainable development, it has been suggested that the problems in achieving the objectives of sustainable development are related to the overriding structures of the international economic system. The relevance of economic growth is not being disputed, but what needs to be highlighted is that the Neo-classical and Marxist intellectual traditions that have influenced development thinking have both failed to take sufficient account of the ecological aspects of economic growth and have totally discounted the interdependent relationship between human social processes and natural processes.

Environmentalist positions, in comparison, have until now been motivated by the desire to minimise the negative externalities of development, rather than to provide lessons in how development should proceed. At most they have provided vague guidelines for negotiating a more constructive relationship with nature. While environmentalist positions have shifted from a narrow focus on natural environment to one which now incorporates social concerns, there is still much scepticism about the underlying motive. The radicalism of the environmentalists has tended to strengthen due to the norm that where environmental considerations clash with strategic, political or national interests, they are unceremoniously swept under the carpet.

Sustainable development provides common ground for both developmentalist and environmentalist thinking since it is based on interdependent relationship between humans and the natural environment within a single life support system. Having established the origins and theoretical evolution of sustainable development, an attempt is made to define sustainable development, especially in terms of its relation to urbanisation and the implications for urban planning.

2.3.3. Definition of Sustainable Development

It is difficult to be able to give a precise and concise definition of sustainable development - it seems to be an ideal like freedom or liberty that is subject to different interpretations, but it is difficult to imagine someone saying that they are opposed to the idea. In very simple terms sustainable development may be defined as the satisfaction of present basic needs without compromising the satisfaction of the same needs on the part of future generations (Garau, 1990; WCED, 1987). Sustainable development seeks to go further than arousing public concern over the issues of species survival and conservation. It seeks to direct public concern in the direction of sustainability both in terms of human livelihoods and the impact that human actions have on the natural environment based on an interdependent relationship within a single life support system (Redclift, 1987).

The thrust of the argument in favour of sustainable development is that the process of development in developing countries and developed countries needs to be considered from within an international perspective. The perceived differences in the nature of environmental crises in the developed and developing countries cannot be separated from the historical processes which link them. That is, sustainable development

policies, strategies and practices require evaluating the potential impact of such policies, strategies and practices along a continuum from local to global level, while the formulation process itself will be influenced by past and current local to global level trends. "Think global, act local" is the common catch-phrase.

The principles underpinning the approach are:

- Protection, conservation and efficient use of natural resources, that is it should not be allowed to decrease over time.
- Protection, conservation and efficient use of non-natural resources should also be preserved, that is the built environment, social and political institutions, etc.
- The pursuance of intragenerational and intergenerational equity, that is maximum chances for disadvantaged groups now including maximum choice for future generations (which should naturally arise out of the application of the first two principles).

(Source: TCPA : 1990)

As such the definition of sustainable development is broad and all-encompassing and may be related to a general concern for improving the quality of life or well-being. This is in line with development thinking that has as its focus the provision of basic needs intended to improve the livelihoods of the urban poor. The basic needs approach to development evolved out of thinking similar to that of sustainable development - that is economic growth with redistribution, rather than relying on economic growth per se. Since urbanisation, urban poverty and survival strategies forms the development context of this study, the following section concentrates on the interpretation of this context from a sustainable development perspective.

2.3.4. Sustainable Development & Urbanisation

Urban sustainable development requires the urban environment to be improved as a factor contributing to the quality of life, and as factor contributing to the development of the urban economic base in terms of both natural and non-natural resources (TCPA, 1990:). Within this context striving for intragenerational and intergenerational equity implies the achievement of social and economic equity amongst urban citizens by providing equitable access to resources and empowering people to take direction of their own lives because "unless people are allowed to take charge of the development process in as much as it affects their own lives and localities at grassroots level,

development is unlikely to be sustainable" (Auerbach, 1990:45). This requires an understanding of local community dynamics before intervening in any way in local affairs; and by admitting that planners don't necessarily know what people desire, that planners need to spend time asking people and providing them with the opportunity to effectively participate in the development process (Ibid).

As such then, sustainable urban development is not simply a debate concerning only the natural physical environment, both in terms of its degradation and its role as provider of fundamental life-sustaining resources. Rather it is concerned with contributing to the improvement of the general quality of life of urban citizens (social, political and economic equity), as well as contributing to the development of the urban economic base in terms of natural and non-natural resources.

Policies for urban sustainable development may be defined as those that maintain and prolong the productive use of urban settings for future generations while providing present generations with basic needs in order to pursue a dignified and equitable living condition (Bhatt, 1990 ; Garau, 1990). Such policies would require securing reciprocity between the urban way of life and the natural life-web that supports it from a perspective where people are a fundamental part of the inter-relationship and inter-dependence between natural and human-made systems. (Dewar, 1991; Berg, 1987).

An analysis of urbanisation using the definition and principles of, and criteria for, sustainable development provides an alternative perspective, definition and understanding of the consequences of urbanisation. It is generally accepted that urban areas in both developed and developing countries have been plagued by the general decline of formal urban economies. It is further accepted that the social consequences of this has been increasing urban poverty and a deterioration in the absolute quality of living for the majority of urban citizens. Yet, the process of urbanisation continues to be a strong and powerful social and economic process that affects the development of cities. This global trend is characteristic of South African cities too.

In most cases, cities in developing countries are characterised by a *dual* urbanisation process, that is a *formal* and *informal* urbanisation process. Garau (1990) provides a useful distinction between formal and informal urbanisation. Formal urbanisation is associated with urban elites and those urban citizens who make a living from participation within the formal economy of the city. Informal urbanisation on the other hand refers to the bulk of the urbanisation process, and is associated with those who rely on the informal sector to make a living. In other words it is associated with the

urban poor. This is clearly evident in South African cities. An analysis of the sustainability of South African cities would need to view both formal and informal urbanisation processes in relation to each other.

Using Durban as an example, the urbanisation process and the subsequent settlement pattern in the metropolitan area is one which is currently characterised by fragmentation, separation and low density sprawl with residential areas reflecting stark race and class distinctions. At a practical level, this inefficient sprawling urban structure benefits a minority of urban dwellers while the majority of the people living within metropolitan area do not have access to basic services and community facilities, and are forced to incur excessive transport costs in order to go to work or use higher order facilities. The growth in the number and the scale of informal and squatter settlements, the increasing reliance on the informal sector for trade and employment, the declining physical conditions in the formal townships, together with other quality of life indicators reflect the skewed and weak state of the metropolitan economy.

Informal settlement processes have occurred and consolidate themselves despite deliberate political repression and continuous conflict with the rules of the established formal urban economy. People in informal settlements have relied on the informal support network to aid them in their strive for survival. These very people have housed themselves with the barest minimum of resources and in spite of successive and systematic governmental opposition. They have also generated many income earning opportunities in the informal sector.

In some cases they have been successful in producing much of their food through engaging in urban agriculture. Within the above context the practice of urban agriculture is guided by the "logic for survival" similar in nature and function to providing one's own shelter, and engaging in informal trade. These are all examples of innovative responses from the urban poor (Sanyal, 1990). Durban like other metropolitan areas in South Africa, and most cities in the world, with the exception of some Asian cities (See Chapter 3), is reliant on the rural areas and the global food industry for meeting its food demands.

The formal built environment of the city on the other hand is an indication of the formal planning that has guided development. It is one characterised by high engineering standards, relying on orderly development through stringent land use planning and zoning. Where this type of planning was used for some low income groups, that is in the formal African townships, it has failed due to the collapse of the

administrative base as a result of political illegitimacy. These areas have also been overburdened in terms of coping with natural population growth and increased in-migration.

While inequity is clearly evident at the socio-economic level, the current situation also alludes to the injustice of leaving behind an unsustainable urban environment for future generations. The lifestyles of both the rich and the poor across the metropolitan area have had a negative impact on the natural environment, with the rich reaping the benefits of urban conservation while the poor suffer the most from urban environmental degradation. There is much analysis showing how poor people have been forced to degrade their own natural and living environments because they do not have adequate access to basic needs such as water and sanitation (Wulfsohn, et al, 1991). Similar analyses of the lifestyles of the urban rich show that more wealth means more power to degrade the natural environment but the same power keeps degradation at a distance - e.g. water borne sewage systems wastes large amounts of scarce water and the treatment systems concentrates much sewage and pumps it out to sea polluting the offshore ecosystem, the impact of which the rich do not feel themselves (Ibid).

In other words, from the scant analysis of the spatial, socio-economic and environmental situation in the preceding paragraphs, Durban is clearly an unsustainable city. The practical problems outlined above that are reinforced and perpetuated by the spatial structure of the city are likely to take considerable time and effort to redress before any positive impact can be felt. This is the case not withstanding the recently established Durban Transitional Metropolitan Council that reflects a political attempt at redressing the political rights and aspirations of the majority of people who have previously been excluded from participating in city politics and development.

Metropolitan governments need to realise that they cannot develop their areas by any unilateral government initiatives, especially where they feel that the only way to deal with problems is to control or persecute the poor majority due to their perceived "illegal" ways of living. To meet the basic needs and demands for housing, services and jobs they should enter into partnerships with the very people whom they perceive as the problem. These partnerships should be based on government providing an enabling, facilitative and regulatory legislative and administrative framework and a process of infrastructure and service delivery through which poor people may be empowered to use their survival strategies to break the cycle of poverty and improve their basic living conditions.

2.3.5. Sustainable Development and Urban Agriculture - Implications for Urban Planning

Contrary to popular perceptions urbanisation and sustainable development may be compatible. Urbanisation should be viewed as a positive force even with respect to its perceived negative impacts for it is possible through proper planning and management to turn urbanisation into a process that positively contributes to the sustainability of the city.

The potential of the informal sector has to be recognised and supported - the survival activities of the urban poor reflects the relative success of trying to make a living against all odds, and the potential of supporting such activities to the extent that they help to break the cycle of poverty, or at least providing relief in the short to meduim term. If the local initiatives of people are to be multiplied manifold, they need easily accessible institutions to which they can turn. Such an approach not only makes for more sustainable urban development, but also recognises and supports basic human rights. This is the type of sustainable development strategy that tackles big problems by thinking small, and locating the power to effect change in the hands of the people that it affects.

Moreover, working within the framework provided by the sustainable development approach are practices that if supported by appropriate policies, may turn urbanisation into an environmental asset. Urban agriculture is an example of a survival strategy that requires urban policies that will enable positive environmental impacts while contributing to the increasing sustainability of urban areas. That is, if people are to survive or progress economically through engaging in urban agriculture, it is not only agricultural extension that should be supplied, but also economic and social infrastructure to facilitate development of the activity.

The sustainable development debate and approach has created an awareness of the potential of urban agriculture, and placed it on the policy agenda, from a combined ecological and developmentalist perspective. The sustainable development approach has provided an alternative perspective, definition and understanding of the nature of urbanisation and urban poverty, one that goes beyond the concern for physical and infrastructural concerns to include economic, social, political and ecological concerns, as well as aspects such as human rights, equality, justice and the need for participatory planning procedures. Within this context where urban agriculture is practised as a survival strategy of the urban poor, it has been defined as a positive action that

requires positive planning support in order to realise the potential role it may play in terms of managing urban poverty. It should be noted that this does not detract from the need for formal economic growth and employment, but is intended to be complementary.

The root cause of the urban poor's inability to access basic food supplies is the inability of urban areas to provide basic food security for its population, which then necessitates a dependence on rural areas, that are themselves usually underdeveloped. In most cases, most countries do not even enjoy national food security, due to the structure of their economies that are integrally tied to the global economic system. So reforming or revising rural development policies, agricultural policies or economic policies may produce short term positive benefits or more likely will physically locate the problem in another sphere, but urban areas will still not have improved their position on food security for the longer term. This is the imperative for city planners to take into account the issue of urban food security, to support activities such as urban agriculture where they exist, and to consciously plan cities in such a way as to facilitate the local production of basic food supplies.

2.4. CONCLUDING COMMENTS

While the above argument provides the conceptual basis for the promotion and accommodation of urban agriculture as an integral aspect of urban planning, an analysis of the experience in other cities should provide an insight to testing the relevancy of doing so. This is done in Chapter 3, while Chapter 4 uses two local case studies to test the relevance of the findings within the context of Durban.

CHAPTER 3

THE PRACTICE OF URBAN AGRICULTURE

31. INTRODUCTION

Different forms of urban agriculture have been practised for a long time but have not been officially recognised or desired until recently. It has been practised in cities in the developed countries, such as the United States of America, the United Kingdom, Germany, Switzerland and Holland. Intensive market gardening is not uncommon in many Asian cities where there is a specific focus on the cultivation of high value products designed for urban markets. In Africa, during the peak rainfall periods of the year "many urban centres are transformed by armies of urban farmers tilling the open spaces to produce flourishing vegetable gardens and fields of grain and fruit" (Lado, 1990 : 257).

The practice of "urban agriculture varies in extent, nature, role and success in different parts of the world" (Epstein, 1995 : 18). The focus of this chapter is on the practice of urban agriculture at the international, continental (American, Europe and Africa), national (South Africa) and local (Durban) levels. At each level, an attempt is made to investigate and assess the potential of the practice of urban agriculture as a survival strategy in terms of the opportunity to ensure sufficient or supplementary affordable food, that is food security.

A further attempt is made to assess the opportunity to create employment opportunities at low cost and supplementing incomes. Finally an attempt is made to assess the opportunity to contribute to the sustainability of the city through urban planning, that is the potential role of urban agriculture beyond it being a survival strategy. There is a specific focus on the response from governmental authorities and urban planners in all instances.

3.2. THE INTERNATIONAL EXPERIENCE

In 1985 urban agriculture was addressed by the Sao Paulo Conference on Alternative Urban Development Strategies. It was subsequently spurred on by the United Nations' Declaration of International Women's Year as a result of the focus of attention on

women's activities, especially as regards food production in open spaces and public gardens in urban centres in the developing countries.

The International Labour Organisation has acknowledged subsistence food production on urban margins as a potential proposal for addressing issues of poverty and unemployment in cities in the developing world, although it describes it as a rather "unconventional" one (Singh, 1989 : 37). The Food and Agricultural Organisation is of the opinion that "production of food in urban and peri-urban areas, in addition to improving the nutritional quality of the diet, can become a valuable income generating activity for the unemployed and the under-employed and can utilise spare and un-used land available in the cities" (Hussain, 1990 : 189 - 90). The World Commission on Environment and Development has urged all governments in the *developing* countries to "consider supporting urban agriculture," including peri-urban cultivation (WCED, 1987 : 254).

The extent of international support for the practice of urban agriculture, as is evident from the above description, is similar to the extent of international support for sustainable development as described in Chapter 2. There are a variety of reasons for supporting it which range from its perceived potential to address the issues of gender, poverty, nutrition, and the efficient use of urban land, to its income generating potential as an alternative urban development strategy. Yet, from the information available, and as presented further in this chapter, little has been done at the local level to carry through such commitment. Furthermore, it should be something that needs to be considered by city planners in the *developed* countries as well, rather than restricting it to cities in the *developing* countries only. The urban planning profession has yet to incorporate urban agriculture as an aspect into mainstream planning practice.

3.3. THE AMERICAN EXPERIENCE

In the USA the dependence on allotment gardens for vegetables increased during the war years, and thereafter declined. In the 1960's and the 1970's there was a renewed interest in urban gardening due to environmental awareness, the sharp increase in food prices and concern about chemical additives in processed foods (Eberhard, 1989a-e). In certain cases it was due to the influx of immigrants with agrarian cultures. Gardening has thus provided satisfaction, enjoyment and pleasure, as well as saving money on food bills. Most gardeners use organic or semi-organic methods avoiding pesticides to try to improve the nutritional quality of food. Community gardening is

common amongst people older than 55 years of age in the lower and middle income groups who have free time (Ibid). In New York, the Neighbourhood Open Space Coalition incorporates community gardens into the development of open space systems (Hough, 1984).

Except for the war years, the practice of urban agriculture has been more for personal contentment and as part of open space systems. It has not been linked to the matter of urban food security, nor has it been an integral aspect considered in urban planning processes in terms of making spatial provision for such an activity. In short, it is not considered an urban activity worthy of any major significance.

3.4. THE EUROPEAN EXPERIENCE

"Allotment gardens" is a term used in the United Kingdom, the establishment of which dates back to the early 19th century as a local government response to overcrowding and epidemics. This inspired Ebenezer Howard's concepts of the "garden city" and "greenbelts." During the war years the dependence on allotment gardens for vegetables increased, while in 1965 the emphasis changed from being an economic motive to one of rewarding recreation, as was the case in the USA (Ibid). In the 1970's a number of community projects working with farm animals and food gardening formed a national federation of city farm groups and situated their projects on derelict land in the centre and on the edges of towns and cities.

In Germany allotment gardens are called "kleingarten" and are usually managed by the city garden department, being rented out at below the market value of the land (Ibid). Most of the gardens are grouped together ("anlagen") and fenced with gates that can be locked, and into which is incorporated a children's playground and common house for relaxation and meetings. Kleingarten associations have organised themselves at the city, state and federal level and their primary function is not to provide food, but to provide a link to nature and to foster friendship and community spirit through involvement in common interests.

Holland and Switzerland both have integrated urban forests and park systems where commercial agriculture is practised within the city's parks systems, while the system still incorporates conventional uses such as a recreational trail system that provides access through the areas. Farmers have rental lease agreements with city authorities for space on the common lands surrounding the city and use the land for crops,

livestock farming and related agricultural activities on a small scale. The concept of farming on a residential and commercial scale has been integrated as a basic function of the parks system.

In Europe, it is apparent that urban agriculture is an aspect of open space planning rather than being concerned with urban food security. It is not practised as a survival strategy since most city governments have adequate social welfare policies to take care of the unemployed. Food is an issue only in as far as affects the agricultural and trade policies of the European Economic Union. The prevailing attitude is still one that does not consider the production of food as an urban planning issue.

3.5. THE ASIAN EXPERIENCE

With an urban population of 150 million people and limited transportation facilities, Chinese government policy has aimed to create *producer* rather than *consumer* cities. At least 85 percent of the vegetables consumed by urban residents are produced within urban municipalities with Shanghai and Peking self sufficient in vegetables (Ibid : 213). Many Chinese cities also produce large quantities of poultry and pigs and other essential foods.

From a spatial planning perspective, intensive urban agriculture is practised in areas immediately surrounding the built up area of large Chinese cities. These areas are used largely for the cultivation of vegetables, surrounded in turn by further outlying areas devoted to crops such as white onions, garlic, ginger, chilli pepper, carrots and turnips. These areas for cultivation are termed "kotadesasi" zones (May, 1993). Urban agriculture is thus highly structured spatially, and has evolved as part of the traditional ecological complex tied to pig breeding, and recycling of night soil and rubbish produced by the urban population for application to vegetable fields. Modern China has demonstrated the importance of human waste to agricultural development and provides practical approaches to treating them with minimal health hazards. The intensive use of manure in fish farming is standard practice in China (Ibid : 24).

The Philippines, South Korea, Malaysia, Indonesia, Thailand, Sri Lanka and Bangladesh all have programmes to encourage local food production. It should be noted that while some of the most outstanding examples of urban agriculture are evident in some Asian cities, the incorporation of urban agriculture has been uneven

across Asian countries. Some positive experiences have been documented in tabular form in Table 1.

Table 1 : The Asian Experience

Country/City	Description of urban agricultural activities
Shanghai	Shanghai, the largest Chinese city, is self sufficient in vegetables and grains and produces significant proportions of its pork, poultry and other foods
Hong Kong	With an population of 5 million it produces 45 % of its fresh vegetables, 15% of pigs, and 65% of live chickens consumed by its population .
Singapore	Is self sufficient in pork, poultry and eggs with a surplus of eggs and chicken for export, while 25% of the vegetables consumed is produced in the city. It also has a thriving specialised orchid growing industry for export.
Nepal	In Kathmandu approximately one third of the fruit and vegetable needs of the city's population is met by household production.
India	In Bangalore a large number of street trees are grown by the Department of Horticulture, and a quarter of these trees bear fruit, with many providing food for animals at the same time.
Metro Manila	Here a formal policy to encourage food production has been established which obliges land owners to cultivate idle or unused lands; or for landowners to give people the right to cultivate land; or in the absence of the landowner to cultivate the land. This is applicable to both private and public land, and especially to public land that adjoins streets of highways.

Source : Yeung, 1988.

An analysis of the above examples shows that household production can fulfil a substantial proportion of household demand, as is the case in Kathmandu, Nepal. City authorities may be actively involved, for example in Bangalore, or enforce production through legislation as in Metro Manila. In Singapore, Shanghai and Hong Kong, technology and specialisation coupled with central planning and policy intervention, accounts for the relatively high levels of urban self-sufficiency in food production. The above are examples where food is supplied; where the process of urban food cultivation creates jobs and economic opportunities; and where the sustainability of the city is increased as a result.

This is largely due to the prevailing attitude and perception of the role of the city - the city provides for much of its own consumption instead of relying on non-urban areas or imports. The planning and management of Chinese cities distinctly reflect the operationalisation of the principles of integrated resource management, of linking human social and ecological processes which forms the basis for sustainable development as outlined in Chapter 2. The Asian experience demonstrates that the

practice of urban agriculture is not simply to provide for urban food security, but that it is part of an ideology that influences the attitudes of city planners.

3.6. THE AFRICAN EXPERIENCE

It is interesting to note that while *peri-urban* agriculture is the dominant form of agriculture practised in metropolitan areas in the developed countries and Asia, *urban* agriculture is the predominant form of agriculture practised in African cities (Drakakis-Smith, 1991). Furthermore, while it is most commonly practised by the urban middle class in metropolitan areas in the developed countries and Asia, urban agriculture is a *survival strategy of the urban poor* in African cities.

This is evident in Nigeria, Sierra Leone, Egypt, Tanzania, Zaire, Mozambique, Zimbabwe, Kenya and Zambia to mention but a few examples. While Lusaka is known as the *"world capital of urban agriculture"* (Sanyal, 1985 : 5), Nairobi is known as *"the city of farmers"* (Freeman, 1991 : 2). Table 2 provides a brief summary of the experience in some cities in Africa.

Research suggests that the widespread practice of urban agriculture, especially that of a subsistence nature, is symptomatic of economic collapse in some African countries such as Zaire, Uganda, and Tanzania(May, 1993). In Uganda where household survival depends on multiple incomes, one source is that of urban agriculture (Amis, 1992). In Lagos, even the professional classes are involved in urban agriculture, although as part-time farmers (Mustapha, 1991). Home gardens are the vital source of subsistence food for the poorest people in Harare, while some low-income families produce enough for personal consumption and sale (Drakakis-Smith, 1990; 1992).

The vital role of women as major food producers is evident in all African cities. The practice of urban agriculture has not *substantially* addressed issues of gender discrimination, although it has brought to attention that in cases of extreme poverty women are one of the most vulnerable groups within the larger group of the urban poor (Chambers, 1995). As mentioned in Chapter 3.2. this issue has been recognised at the international policy level.

Table 2 : The African Experience

Country	Description of urban agricultural activities
Zambia	Cows are prevalent in Lusaka (Mbiba, 1992) and the financial and economic value of urban agriculture is evident.
Lesotho	In Maseru dairy cows, maize cultivation, sheep and pig rearing, and vegetable and fruit production are conspicuous activities. The authorities have adopted an enabling approach where urban agriculture is accommodated and supported by providing special veterinary services through the Livestock Division of the Ministry of Agriculture (Ibid).
Zimbabwe	Despite the conspicuous maize cultivation in Harare, the authorities have repressed the activity by the periodic slashing crops (Ibid). Even lawns in previously high income residential areas have become mealie patches (Sunday Times, 1994).
Tanzania	Urban agriculture grew within the context of government policies to encourage people to supplement their incomes because few people could live on a single source of income. Livestock farming has proliferated in the less dense areas of the city while crop farming is practised in "literally every open space...and where there were once beautiful rose gardens and green lawns." Although this has led to environmental degradation, it has made a significant impact in food production to the extent that urban-grown spinach satisfied 90% of demand in Dar-es Salaam in 1991 (Mosha, 1991).
Malawi	In Lilongwe goats are prevalent and tree growing is promoted for the production of firewood. The municipal authority's encouragement and planning for the development of an integrated milk and processing scheme on the outskirts of the city has had the effect of increasing the economic viability of the activity of small producers involved in livestock farming.
Mozambique	88% of green spaces in Beira are used for family agriculture, practised in the main by women (Sheldon, 1991).
Kenya	It is estimated that 29% of urban households practice some form of urban agriculture, with 17% keeping livestock (urban livestock value is US$17 million in 1985 currency) (Mbiba, 1992). The city authorities have imposed a prohibition on maize cultivation , backyard farming and especially cash crops such as coffee, but despite this official disapproval informal urban cultivation of open spaces in Nairobi is on the increase.

In depth research in Nairobi, Kenya by Lado (1990) has shown that :

- even where government authorities have supported informal manufacturing or commercial activity with certain conditions, these privileges are not accorded to informal urban agricultural activities since they are not considered bona fide urban land uses;
- most urban cultivators are not necessarily recent migrants to the city who are seeking jobs, but usually people who have lived there for may years;
- most continue farming even when they find jobs;
- that people have a very low capacity to buy tools;
- plot sizes on average are 200 square metres where crops are inter-mixed;
- there is almost no cultivation of non-food crops;
- it is not uncommon to keep livestock;

- most farming is subsistence in nature, with a considerable amount of sharing the produce with friends, neighbours or relatives, but with very little used for bartering for other necessitates;
- a fair amount is sometimes earmarked for cash sale to neighbours, small retail outlets, wholesalers and hawkers;
- where labour is employed it is low paid labour and usually involves family members.

Lado (Ibid) predicts that with increasing poverty and unemployment, the practice of urban agriculture will intensify.

While some governments have provided support for urban agricultural practices, for example in Lesotho, Tanzania and Malawi, others have simply tolerated the practice without any support as in Nairobi, Kenya. Where the official attitude is one of tolerance due to the inability to curb the undesired practice, or because it is considered contrary to "modernisation" or as part of a rural tradition, urban agriculture continues to be a survival strategy, rather than an economic activity. In many cases government support at the policy level is not accompanied by a corresponding commitment at the implementation level, for example in Tanzania.

In comparison to the Asian experience, the general attitude is still one that does not consider the production of food as an urban activity, as an aspect that needs to be considered in urban planning. Positive action in response to urban agriculture is more in terms of trying to manage the problem rather than as part of a strategy to understand the relevance and inter-linkages of the practice to other urban activities. Seldom are the practical problems of land use servicing and zoning dealt with. Other informal sector activities such as petty commodity manufacturing or trade usually receive more attention than urban agriculture.

Not enough acknowledgement has been given to urban agriculture as *one of many* survival strategies that the urban poor engage in. As mentioned in Chapter 2, food gained from the practice of urban agriculture *complements* meagre cash incomes from other informal and formal sector opportunities. The logic of survival is one based on the multiplicity and diversity of activities to make a living which is fundamentally different to the logic of the conventional formal economy that is reliant on a single activity as the source of income (Chambers, 1995).

Although South Africa is part of Africa, the South African experience is explained in the next section as separate to the experience described above. This is due to two reasons : firstly, the extent and nature of urban agriculture is considerably different in South African cities, and secondly it is used to provide a context for the case studies in Chapter 4.

3.7. THE SOUTH AFRICAN EXPERIENCE

3.7.1. Description of the Practice of Urban Agriculture in South Africa

What follows is a short description of the practice of urban agriculture in metropolitan areas in South Africa. The examples have been categorised in terms of the different metropolitan areas in which they are situated.

Gauteng	Cape Town	Durban
• Alexandra • Kliptown • SANSOR Peace Gardens & the Food Gardens Foundation	• Nyanga • Khayalitsha	• Waterloo • Lovu • Marianhill • KwaMashu • Cato Crest • Inanda • North & South Coasts • St. Wendolins • Bayview

A) Gauteng

In the well known township of Alexandra, Johannesburg which has approximately 150 000 inhabitants and which is surrounded by the rich suburbs of Sandton and Bramley, the Ngwenya's drink fresh milk every day because they keep their own cows (Molefe, 1991: 34). They also keep goats and sheep and are part of the Alexandra Livestock Keepers Organisation. The Tshabalala's of Alexandra have kept cattle since 1947, and they earn a living by buying and selling cattle, goats and sheep (Ibid).

The problems faced by people such as the Ngwenya's and the Tshabalala's are that there is not sufficient space for grazing; they have to spend money on buying food and medicine for the livestock; the livestock is susceptible to danger from vehicular traffic and theft if left to roam freely. Despite these problems, many people keep pigs, goats,

cows and sheep - some for cultural reasons, others as a source of food supplies or for business.

A community garden in Kliptown run by 28 women, provide the women with part of their household food needs. In addition the women often sell some of their vegetable produce, while some is used to make food for children and pensioners every Monday, Wednesday and Friday (Johns, 1992). This has inspired the establishment of other community gardens in the area.

It is not uncommon for initiatives such as those in Kliptown to be assisted by non-governmental organisations that have combined the environmental and developmental needs of the urban poor. The South African National Seed Organisation's (Sansor) Peace Gardens idea is based on the Victory Gardens concept developed during World War Two and practised in America and Britain. Where Sansor has established school gardens, this has inspired school children to start their own home gardens, successfully growing cabbages, beetroot, carrots, spinach and Chinese cabbage.

Such efforts, as described above, sometimes receive additional support from organisations such as the Food Gardens Foundation, also a non-governmental organisation that promotes a low-cost, organic approach incorporating trench gardening, and other practical and innovative methods that helps to make gardening more productive and economically viable. For example, the following practice is promoted : when neighbours mow their lawns, the grass is collected and used by some women who have food gardens to make mulch which helps to keep the soil damp and replenish nutrients.

From the above examples, it may be assumed that where urban agriculture is practices within formal or informal settlements, it is a survival strategy that helps to supplement household food requirements. Seldom is it an income generating activity. Most support for such activities comes from non-governmental organisations, with local government planning authorities being rather indifferent to it.

B) Cape Town

The example of urban agriculture described in this part of the chapter is based on research conducted by Eberhard (1989 a-e), and is a summary of his findings. An urban agricultural project called "Farming in the City" was the initiative of the Catholic

Welfare Bureau (CWB) which is committed to the development of people and communities through enabling people to achieve better control over their own lives and improving their quality of life. This was based on the belief that intensive low cost organic vegetable gardening could provide much needed nutritional food for the poor in the Cape Flats through the biodynamic/French Intensive method of organic gardening. The establishment of garden centres were intended to assist in providing information and training on techniques or methods of gardening, and to facilitate access to the use of resources such as gardening tools and seeds. Furthermore, it was hoped that experimental demonstration gardens would eventually be turned into self-sustaining co-operative market gardens.

In an effort to promote home gardening, Garden Centres that had demonstration community gardens as part of a larger service to home gardeners, as described above, were established in Nyanga and Khayalitsha. Research conducted over a period of approximately 6 years, beginning in 1982, shows that besides political instability, especially during 1985 and 1986; harsh natural conditions; and the lack of training, support and motivation for using more intensive methods of gardening, home vegetable gardening could not make a significant economic contribution to a poor household in Cape Town. One of the underlying assumptions of the project when it was begun, that the urban poor would place a high value on low cost vegetable production, thus proved inaccurate in the case of Cape Town.

Although the research documented by Eberhard (Ibid) is one of the most comprehensive studies done in South Africa, it should not automatically discount the potential of urban agriculture in other parts of South Africa, nor the motivation to support it as a survival strategy of the urban poor where it is being practised with relative success. Furthermore, Eberhard does provide an extensive analysis of the potential economic benefits of urban agriculture in terms of other forms of urban agriculture other than home and community gardens such as small holdings in peri-urban zones.

It should be noted that there is a fundamental difference in the underlying assumption made in this dissertation in comparison to that made in the research project described above. The underlying assumption of the "Farming in the City" project was that urban poor would gain an economic benefit from home and communal gardening projects by providing food and jobs. The research undertaken for the purpose of this dissertation is based on the assumption that where urban agriculture is practised as a survival strategy of the urban poor, it provides a complementary benefit in relation to other

survival strategies, and it therefore requires support. Furthermore, it should be noted that the source of the initiative has important implications for the relative success of urban agricultural activities. The initiative for the "Farming in the City" project came from the CWB. The initiatives in the Kliptown and Alexandra, and in cities in Africa came from the urban poor themselves.

C) **Durban**

Development plans for the Waterloo, Marianhill and Lovu Development Projects, located on the periphery of the Durban Metropolitan Area, have specifically incorporated the idea of urban agriculture into the projects (Map 1). This has been done in terms of conceptualising at the structure planning level and/or technical layout design depending on the nature of the project.

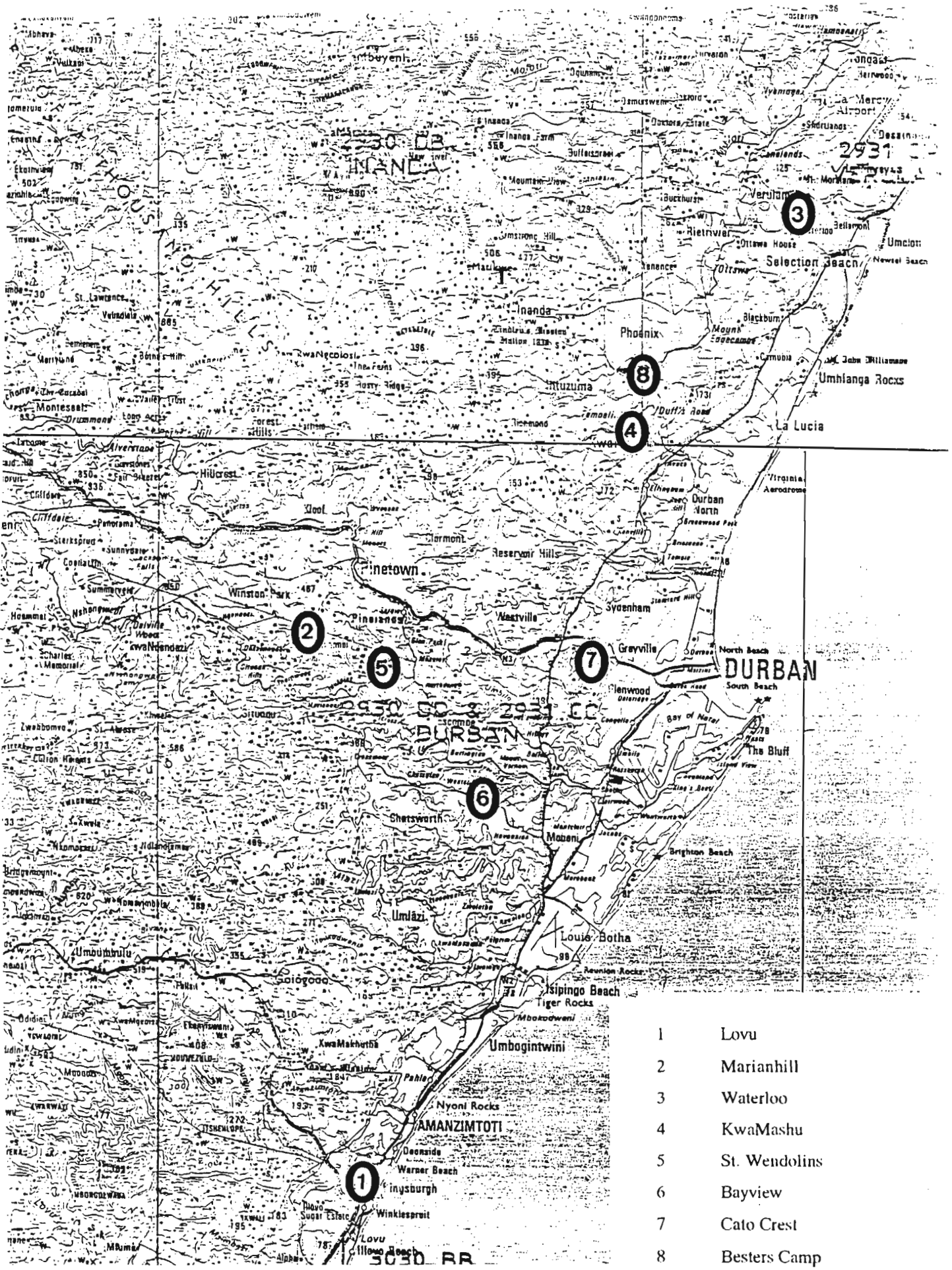
The underlying theoretic concept in the above examples is one of incorporating an environmentally sensitive approach to urban planning specifically within a peri-urban context. Although it takes into account the functional economic linkages of such areas to the metropolitan core, it has neglected to take account of the inter-relationship between the areas in terms of integrated natural resource management to the extent that it has taken place in some cities in Asia.

For example, the projects acknowledge that in the more outlying areas within the metropolitan area, such as Marianhill, greater opportunities for forms or systems of urban agriculture other than vegetable farming exist. For example, cheaper access to greater amounts of space make the following feasible :

- sylviculture
- foodlots
- poultry
- livestock
- horticulture
- agroforestry
- aquaculture

The Glossary provides a description of these examples.

Experience has shown that in such outlying areas, there is usually a very large demand for food supplies, and also for fuelwood and building timber (INR, 1989). May's (1993 : 51) research confirms that agricultural activity in these outlying metropolitan



MAP 1 : URBAN AGRICULTURE IN DURBAN

areas are significant and that they range in form from being survival strategies to formal economic activities providing a variety of produce e.g. coffee, timber, decorative plants, poultry, fruit, fresh vegetables, sugar cane, and even beef and dairy products. Taking into account the above factors, it seems as though the development planning processes mentioned above have taken a rather proactive stance in accommodating for the practice of urban agriculture. However, since these were all relatively greenfield projects, there have been no consultations with the people who would live in these areas, and the success of the project will only be able to be established once the area is inhabited.

Being within the Durban Metropolitan area, the above projects have the potential of incorporating a varied and diversified number of urban agricultural systems in the Durban Metropolitan Open Space System (D'MOSS). This might be a defining characteristic of D'MOSS in the peri-urban zones, while those parts of D'MOSS that are closer to the Durban central business district might be characterised by activities that are more recreational in nature.

Also within the *peri-urban zones* of the metropolitan area, are approximately 3 000 market gardeners currently along the North and South Coasts of Durban, where most of the households engaged in the market gardening initiatives have access to wage incomes other than from farming (Daily News, 26/03/93). Of these 3 000 market gardeners, approximately one third grow sugar cane, 40% grow both cane and vegetables, and the balance grow fruit and vegetables (May, 1993 : 23). The range of crops cultivated include the range of conventional vegetables but is specifically geared towards the Indian consumers and therefore include produce such as brinjal, dhania, curry leaf, bhaji, green chillies, etc. and also flowers such as marigolds and asters that are used in religious ceremonies (Ibid). Although this type of urban agriculture is not the primary focus of this dissertation, it does draw attention to the actual benefit and potential of urban agriculture other than when it is practised as a survival strategy.

The nature of urban agriculture within *urban zones* is different to that described above as will be apparent from the description of the subsequent examples in KwaMashu, St Wendolins and Bayview, including the case studies in Chapter 4 (Map 1). In all of these cases it is more of a survival strategy than an economic activity that provides full time employment.

In KwaMashu a small group of concerned residents have decided to use some of the Township's estimated 26 kilometres of green open space to benefit the community

living around them (Smith, 1995). In K Section they have started clearing plants on the edges of canals; building bridges over waterways and establishing private and communal gardens as part of a township upliftment programme through the KwaMashu Development Association started in 1993. The primary focus of the project is on youth, for example in terms of providing opportunities for unemployed youth to clear land for market gardens and for sport and environment projects. This project recently received a donation of R20 000.00 to start market gardens in the area (Ibid).

The practice of community gardening as a form of urban agriculture in St. Wendolins in Marianhill, and Bayview in Chatsworth is well documented in Epstein (1994) and shows that while more women than men are involved in the activities in St. Wendolins, the opposite was true in Bayview. In both areas a significant proportion of the participants were old age pensioners. Subsistence agriculture was the main farming objective, with very few people producing any excess for sale. Community gardening efforts were supplemented by individual home gardens, with the natural conditions such as soil and climate, and access to water determining the type of produce grown. The problems experienced ranged from access to land, water, security, existing natural conditions, and access to infrastructure and other resources.

3.7.2. Analysis of the Practice of Urban Agriculture in South Africa

While it has been acknowledged that relative to the rest of Africa, very little is known about the current extent and significance of the practice of urban agriculture in South Africa, it is certainly not the case in the rest of the world, as will have been evident from the contents of this chapter. Research in South Africa has tended to focus on assessing the potential role of urban agriculture for meeting the basic needs of the urban poor (Eberhard, 1989a; Kelly, 1992) rather than on the economic potential. An analysis of the practice of urban agriculture from the examples above show that it ranges from being a survival strategy to being an economically viable activity. This has been confirmed by Epstein (1994); May (1993); IPS (1991); and Eberhard (1989a-e).

In the case of extreme poverty, unemployment, as well as underemployment, and critical shortages of food, urban agriculture becomes a means of survival and is practised even in adverse conditions as is the case in many African cities such as Lusaka. Where the urban economy is stronger, like in South Africa and Zimbabwe, the existence of alternative means of survival appear to affect the urban poor's propensity

to cultivate (Eberhard, 1989a-e). That is, where a strong formal urban economy exists, and where there is an acute shortage of metropolitan housing and accommodation, as is the case in South Africa, the opportunity cost for land and labour used for the production of food and other commodities exacerbates the relatively lower returns gained from urban agriculture. In other words :-

- the acute shortage of inner city housing and accommodation for lower income residents cannot be ignored and this has a direct bearing on the opportunity cost of land used for the production of food (confirmed by primary research done by Epstein (1994 : 45) and Eberhard (1989 d : 45);
- the labour expended on urban agriculture could be more profitably used in formal or informal income earning opportunities, any number of which exist within a strong urban economy.

While earnings from urban agricultural activities are relatively unimportant or marginal in comparison with earnings from the formal and informal sectors, the cash value of subsistence crops act as a safety net for the very lowest income households or those households that have persons who are unemployed for long period of times (Kelly , 1992).

However, in such a situation the practice of urban agriculture could be beneficial in any or all of the following ways :

- ensuring sufficient and/or supplementary affordable food, that is food security;
- creating employment opportunities at low cost (relative to industrial and/or commercial employment opportunities) and supplementing incomes.

This is elaborated on below.

The Potential of Urban Agriculture to Ensure Food Security

One of the consequences of the sprawling pattern of urban development is the increasing displacement of food producers on the urban periphery and increasing dislocation between local producers and the main urban market. The result is the centralisation of food production which promotes a centralised monopoly in the food distribution system within urban areas. This in turn forces up the prices to the

detriment of the urban poor and restricts the degree to which the urban poor can purchase adequate food supplies as elaborated on in Chapter 2. Efforts at the practice of urban agriculture aimed at subsistence production, that is as a survival strategy, such as is the case in St. Wendolins, Bayview, KwaMashu etc. is a manifestation of the potential, and indeed the vital role, of urban agriculture to ensure sufficient and/or supplementary food.

The Potential of Urban Agriculture to Create Employment Opportunities and Supplement Incomes

The centralised monopoly on food production and distribution as mentioned above and in Chapter 2, in addition to restricting the degree to which the urban poor can purchase adequate food supplies, also restricts the degree to which the urban poor engaged in the practice of urban agriculture as a survival strategy can use it as a *springboard into more entrepreneurial activities* (Lado 1990; Freeman 1991).

This is further confirmed by research that shows that the cultivation of vegetables in community gardens, that is part time small holder agriculture, is a common occurrence in the peri-urban areas such as Umbumbulu and Mpumalanga, as well as in urban areas such as parts of Umlazi (Brooks, et al, 1991). But these initiatives have been constantly undermined by, amongst other factors, the supermarkets being able to provide vegetables at a cheaper price, from where women then buy such vegetables to sell informally. As a result many of the community gardens have changed in function from that of producing food to being demonstration gardens for small scale farmers.

Furthermore, within the context of unemployment, underemployment, and the rising cost of living and in particular the high cost of food, urban agriculture can contribute by creating a few full-time jobs and many part-time jobs and thereby supplement incomes. In terms of community gardens or gardening co-operatives, it has been established that on average for every one tenth of an hectare set aside for intensive urban farming one full-time job opportunity may be created (Eberhard, 1989a, b, c). This in turn creates the opportunity for part time employment : seasonal labour may be needed for harvesting or other activities; someone has to take care of marketing the produce, and there might be a need for processing and packaging, etc.

It therefore follows that the establishment of a fairly modest one hectare community garden could create full time employment for approximately 7-10 people as well as a

number of part time employment opportunities. These are fairly conservative estimates and exclude the capital and operational costs involved. The figures are probably higher for formal small agricultural holdings that are economically viable in the peripheral metropolitan areas or peri-urban areas (May, 1993), and as outlined above in the case of the Durban North and South Coasts.

Where the production of food through urban agriculture is linked to food processing activities that links it to the distribution chain, the monetary value of the produce increases, thereby increasing the economic returns of urban agricultural production (Auerbach et al, 1989). Besides food production, the demand of fuelwood and timber allude to the potential economic benefit of agro-forestry in urban and peri-urban areas (Ibid). Thus urban agriculture has the potential to create some permanent or full-time employment opportunities as well opportunities to supplement incomes through seasonal employment. The marketing of produce from large scale urban agriculture provides job opportunities, especially in the informal sector.

3.7.3. Other Potential Values of Urban Agriculture

The analysis of the practice of urban agriculture thus far has tended to concentrate on its economic value either as a survival strategy providing adequate or sufficient food supplies, or as economic activity that provides part-time and/or full-time employment opportunities, and supplementary incomes. However, the benefits of urban agriculture are not only of an economic nature. The different values attached to the practice of urban agriculture are as a result of the variety of categories of people who have different motives in engaging in such an activity. A sustainable development perspective requires examination of the potential values of urban agriculture in terms of both its social and ecological values.

*The Potential **Social Value** of practising urban agriculture*

i) Awareness and Education:

Engaging in urban agriculture may heighten an awareness of nature and natural processes, stimulating an awareness of the natural environment and the effects of pollution, development, etc. on the environment (Eberhard, 1989 a-e). It may be a practical example used in terms of promoting environmental education.

ii) Recreation and Pleasure:

An urban garden may be aesthetically pleasing and may brighten an otherwise drab environment. The landscaping of plants that are a source of food can be just as aesthetically pleasing, if not more pleasing than manicured lawns and landscaped decorative plants (Hough, 1984). See for example Chapter 4. for gardens based on the permaculture philosophy and trench method.

iii) Social Cohesiveness and Interaction:

Involvement in urban agricultural activities may provide points of common interest among members of communities, encouraging social interaction and increasing community cohesiveness. Community gardens in particular can play a role in community development - the processes involved in initiating and running the garden, such as getting to know other members of the community, working together and sharing resources are just as significant as the actual material benefits obtainable from the garden. This has been demonstrated by the *peace gardens* and *allotments* in the USA and UK during the war years, and more recently in New York and Germany as mentioned earlier in this Chapter, as well as in the South African examples above.

To some it is a form of relaxation or recreation. To "greenies" and yuppies it is a source of organically grown food, increasing the nutritional content of food. To many ethnic groups it caters for their specific preferences, for example Indian dietary preferences and religious requirements. It may also be a source of medicinal plants used by traditional healers and others who practice alternative medicine, for example the medicinal herb garden at the Silverglen Nature Reserve that specifically conserves species of plants that are most commonly in demand and in danger of becoming extinct.

iv) Gender:

By far the largest number of urban cultivators are women - it is estimated that at least two thirds of urban cultivators in Africa are women (Rakodi, 1988 and Lado, 1990). Unlike past and present Western lifestyles of a nuclear family with the male as a breadwinner, in Africa women have for generations been responsible for food provision. Approximately 60 to 80% of the agricultural work is done by women, not only as food producers and animal husbanders, but also in the processing, storage and marketing of foodstuffs (Mbiba, 1992, Moser 1989).

Rakodi (1988) argues that women cultivators play a multi-functional economic role as "cultivation may be regarded both as a type of farming (productive role) and as an

aspect of daily food preparation (reproductive role). The important contribution that is made by the women in producing a supplementary food supply or supplementary income is usually overlooked, as are other small but important contributions made by women. Urban perceptions (of the majority of urban residents) regarding the practice of agriculture are that it is undesirable, contradictory to an urban way of life, or traditional - this denies women the recognition they deserve for engaging in such an activity and therefore does little to uplift the position of women who constitute a marginalised sector of society.

Women are a margenalised group within a larger group called the urban poor, and urban agriculture is one of many survival strategies of the urban poor. It is one that does not tackle the basic problem of women's access to education, skills, formal wage employment and more lucrative opportunities for self employment. It hardly has a beneficial impact on addressing gender imbalances since it is seen as "women's work" to ensure that there is a sufficient supply of food no matter what the economic or social odds. At best it could be only one part of a strategy designed to improve the position of poor households and of women in particular.

However, at a personal level it does boost the morale of the women who engage in the practice of agriculture for they themselves recognise the benefits. Furthermore, the practice of urban agriculture together with other informal sector activities allows women flexible working times, the opportunity to take their children to work with them (reducing financial and social costs of child care), and the choice to work from home or close to home.

v) Race and Class:

A number of studies recently have begun to investigate the correlation between the negative impacts of environmental degradation and those whom it directly affects in terms of race, class and gender (Meyer, nd; Rees, 1992; Steinhart, nd). In the case of South Africa where, through the implementation of Apartheid policies, there is a direct correlation between race on the one hand, and class, gender and poverty on the other, this is all the more evident. Most Black poverty stricken areas in South Africa are underdeveloped in terms of being able to offer basic needs and services such as water, sanitation and housing. There is much analysis showing how poor people are forced to degrade their own environment because they do not have adequate access to basic environmental needs, such as water and sanitation (Ramphele, 1991; Fincham et al, 1989). The practice of urban agriculture as a survival strategy therefore takes place

within this context and in many cases has the impact of degrading the natural environment to greater or lesser extent.

However, studies showing the comparative environmental impact of the average family in a developed country versus a family in a developing country illustrate clearly that more wealth means more power to degrade the environment but the same power keeps the degradation at a distance. Affordability criteria may force the poor to develop sustainable lifestyles, but by the same token the rich can live as unsustainably as they like as long as they can afford it (Wulfsohn, et al, 1991). The point is where urban agriculture leads to environmental degradation, it can be managed and remedied and turned into an environmental asset - it should not be the rationale for not supporting it.

The Potential Ecological Value of practising urban agriculture

i) Micro-climate:

The practice of urban agriculture may have a positive effect on the natural environment, contributing to the ecological enhancement of the city by improving the micro-climate of the area with pollution from dust being reduced, shade being provided, wind and rain intercepted, and the ecological diversity of urban plant and animal species being increased.

ii) Open Space Systems:

If it were incorporated as part of a metropolitan open space system (MOSS) it has the potential to increase the social relevance of the system which until now has tended to focus more on the ecological relevance. On yet another level, urban agriculture could increase the amount of available green space; contribute to the clearing of garbage dumps and recycling of household waste (potentially an income generating activity), buffer against noise; reduce groundwater pollution.

iii) Integrated Resource Management:

At the municipal level urban agriculture can promote a multi-functional and self-sustaining landscape that provides social, economic and environmental benefits with urban agriculture providing for production to be more specific to local economies as well as supportive of local ecologies (Dewar, 1991; May 1993). In other words, it has the potential to develop more productive and viable human habitats (Wade, 1986) and contribute to greater environmental awareness. Smit and Nasr (1992) show cities can be transformed from being only consumers of food and other agricultural products into

important resource conserving, health improving, sustainable generators of these products. In particular, agriculture in towns, cities and metropolitan areas can convert urban wastes into resources, put vacant and under-utilised areas into productive use, and conserve natural resources outside cities while improving the environment for urban living. Urban agriculture may thus be defined as a common and beneficial land use, helping to alleviate poverty while at the same time creating these benefits.

3.8. CONCLUDING COMMENTS

Having outlined the range of social and ecological benefits in addition to the benefits of providing food security and some level of economic benefit for the urban poor, the multi-dimensional impact of urban agriculture should be apparent. It may contribute to increasing the sustainability of the city since it provides for positive responses to the three principles of the sustainable development approach of protection, conservation and efficient use of natural resources; protection, conservation and efficient use of non-natural resources; and the pursuance of intragenerational and intergenerational equity (See Chapter 2.).

If properly supported and managed urban agriculture has the potential to provide those who presently engage in it with food and other benefits to pursue a dignified and equitable living standard. If established as a permanent urban activity, it may continue to provide future generations with food supplies. The understanding of urban poverty and survival strategies from a sustainable development perspective argues for the support of survival strategies such as urban agriculture in terms of the benefits that it provides to the urban poor, in the absence of opportunities within the formal economy.

The distinct spatial form of Chinese cities that specifically reserve urban land for food cultivation is unique. Many developed countries have urban forests on the metropolitan periphery, and some cities like in Switzerland, Holland and Germany, as mentioned above, do allow the cultivation of food. However, in comparison to Chinese cities, these examples are the exceptions rather than the norm, and stem from imperatives other than that of specifically providing for urban food supplies from within urban areas. In Africa, urban agriculture is mainly practised as a survival strategy of the urban poor, and uses any vacant land or open space that is available - in other words it is not planned for.

This confirms the argument presented in the dissertation that the planning of urban areas rarely takes into consideration the aspect of urban food security in terms of the production of urban food supplies *within* urban areas. This crucial aspect needs to be brought to the attention of urban planners, especially taking into account the general decline of formal urban economies and the difficulty of the urban poor to access affordable food.

If urban agricultural practices are either supported by city governments or planned for, the many potential benefits, other than the economic benefit, could be realised. If people are to progress economically through engaging in urban agriculture, it is not only agricultural extension that should be supplied, but also economic and social infrastructure to facilitate the development of the sector. For example, steep land in the city could be reserved for the cultivation of fast growing trees such as wattle and gum and provide for the urban demand for firewood and/or poles. Livestock farming (poultry pigs, rabbits, dairy) should be a priority land use in peri-urban areas catering for the increasing demand for low cost protein. Non-food production such as fresh cut flowers and decorative indoor and outdoor plants that are likely to be common urban demands need to be investigated.

In terms of agricultural extension, city parks departments, the Parks Recreation and Beaches Department together with the Environmental Department in the case of Durban, could provide this service which would include the promotion of intensive farming methods that are ecologically sensitive. For example, the promotion of agroforestry (see Glossary) which can help small farmers minimise risk by producing diversified and stable farming systems that produces multiple outputs while maintaining soil fertility and distributing the workload over the course of the year, thereby increasing the opportunity for a permanent workforce rather than a seasonal one (Auerbach, et al, 1989).

The next chapter, that is Chapter 4, intends to test the relevance of the findings of Chapter 3 which was based on secondary information against the results of primary research conducted through two local case studies.

CHAPTER 4

CASE STUDIES

4.1. INTRODUCTION

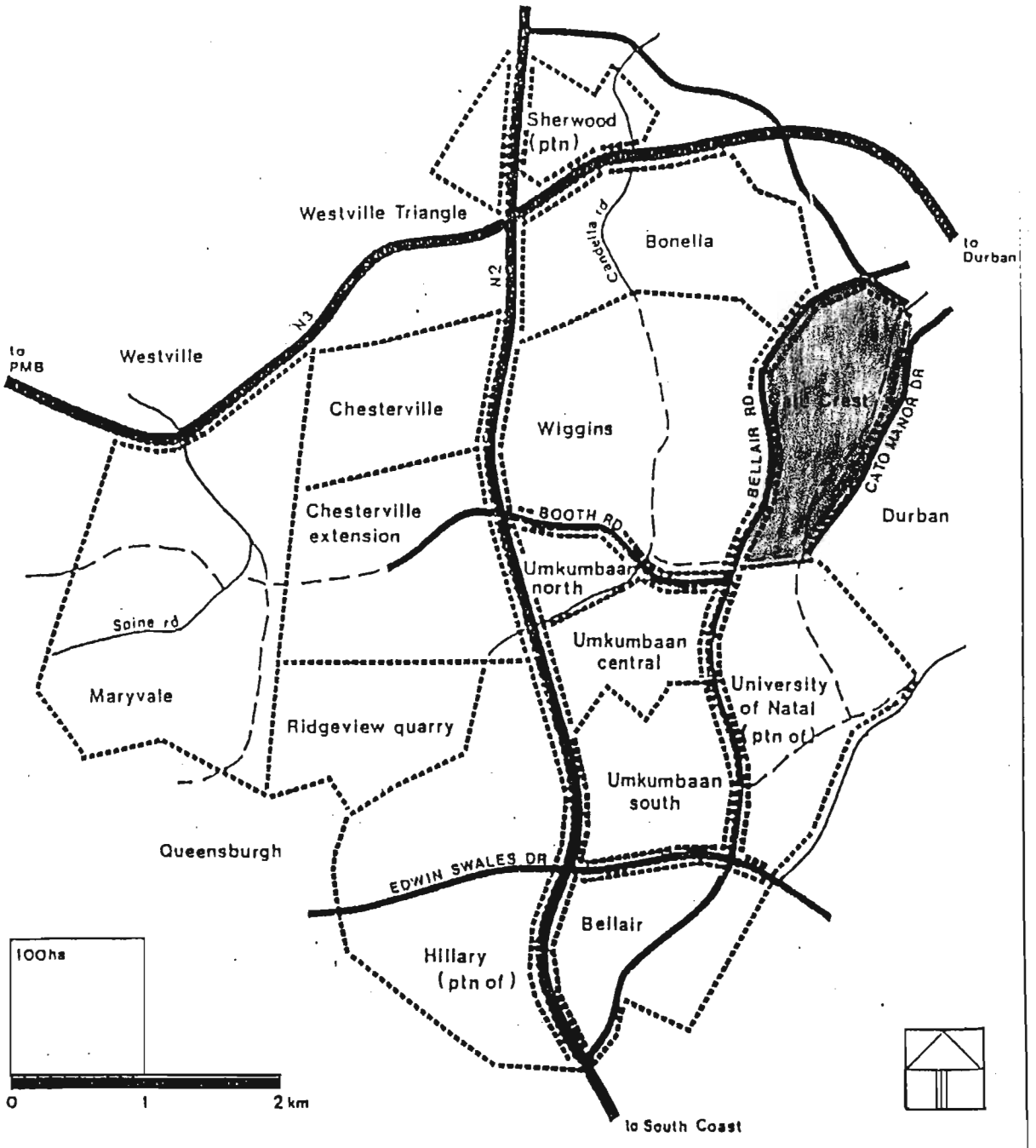
Chapter 3 described the practice of urban agriculture at the international level, the experience in some western developed countries, in Asian and African cities, and in some of the metropolitan areas in South Africa. The analysis of the wide ranging experience sought to assess the potential of the practice of urban agriculture in terms of the opportunity to ensure food security; the opportunity to create employment opportunities at low cost and supplementing incomes where it is practised as a survival strategy; and the potential to contribute to the sustainability of the city. Furthermore, the analysis sought to draw a specific focus on the response from governmental authorities and urban planners in this respect.

This Chapter describes the efforts of two local community gardening projects where urban agriculture is practised as a survival strategy, and analyses the potential of these survival strategies, and the implications thereof for planning, also testing this against the results of the findings of Chapter 3. ,Research of the two local projects were undertaken in Cato Crest which is a part of Cato Manor, and Besters Camp in Inanda, both of which are informal settlements within the Durban Metropolitan Area. In comparison to the general focus on all types and forms of urban agriculture in the preceding chapters, the case studies deal primarily with communal efforts at community gardening.

4.2. CATO CREST, CATO MANOR

4.2.1. Introduction

Cato Crest is one of many informal settlements in Cato Manor, Durban (Map 2). At the time that research was conducted between December 1991 and February 1993, the settlement was home to 347 households, or approximately 2 000 people. Most of the people in the settlement were landless, homeless and unemployed - some were destitute while most tried to make a living by seeking part-time jobs in the absence of formal



Composition of Study Area

KEY:

- Freeway
- Main Route
- Proposed Route
- Others
- Area boundary

Source : Cato Manor Development Association Policy Document, 1992

MAP 2 : LOCALITY MAP - CATO CREST

employment. These residents had successfully negotiated access to land for housing in Cato Crest which was to be delivered within the general process of development that was to take place in Cato Manor. While the development of the area was still in the stages of being planned, the residents had access to water from a number of communal taps in the area. Few other services were provided in the area. In 1993 the area was invaded and became an even more prominent political issue in Durban, with the entire Cato Manor Development Project being declared a Special Presidential Project in 1994.

4.2.2. Method of Research

There were two parts or phases of the Cato Crest case study. The first phase of the study took place between December 1991 and February 1992, and was aimed at producing an initial feasibility study on the potential of establishing a community garden in Cato Crest as part of an employment creation programme. This phase was reliant on making use of secondary research, that is draft development policy documents and personally working with some members of the policy team. The report was commissioned by the Built Environment Support Group, and involved no direct communication with the community of Cato Crest. A copy of the Report may be found in Appendix 1.

The second phase of the study took place between February 1992 and February 1993, with the aim of investigating and assessing the activities of the **Make Peace Women's Group,** who were the ones who had asked for the initial feasibility study. Personal contact was made with the members of the Group, on an individual basis as a voluntary worker, with the members of the Group having a clear understanding that the experience gained from interaction with them would be used for academic purposes.

Interaction was always on an informal basis, with the group members setting the agendas and the pace of the meetings and included assistance to the group on a range of activities such as candle making, sewing and knitting, and not only on community gardening efforts. The research methodology chosen was primarily as participant observer, however there were times when assistance was requested and the fine line between participant observer and external assistant was blurred.

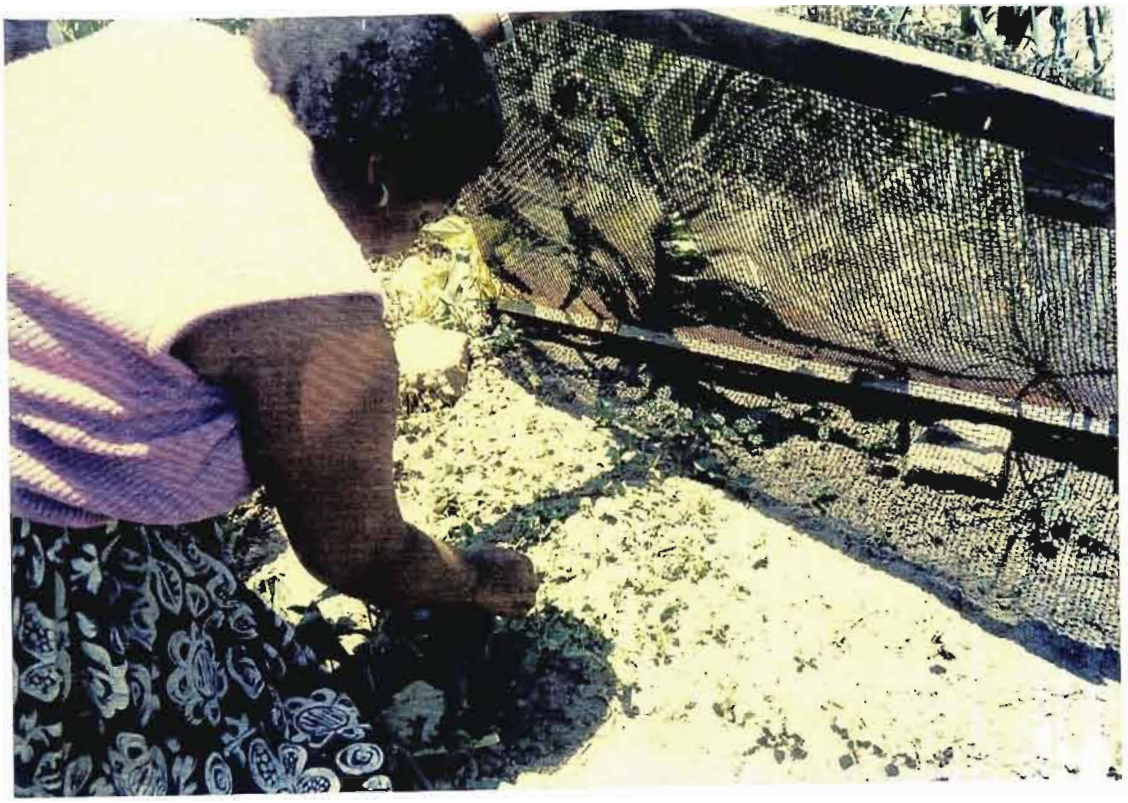
Contact with the group stopped in February 1993 during a time when the Group was experiencing internal organisational problems, which was further compounded later in the year by a massive land invasion in the area that completely changed the community dynamics in Cato Crest forever. Although the research was conducted in two phases, the findings of the study have been synthesised for the purpose of this dissertation. Furthermore, the research methodology has been detailed in Chapter 1 and is summarised here to provide a context for the case study.

4.2.3. Background

The Make Peace Women's Group, a group of 22 women was established in February 1992 by Elizabeth Nhlumayo, a resident of the informal settlement who had previous experience in women's clubs. The group was involved in knitting and sewing projects, a soup kitchen project, a crèche, a candle-making project, and community and individual gardening projects.

Besides the women of the group who engaged in food gardening projects, many other of the 437 households in the area had their own private food gardens (Figure 1). The women who belonged to the group usually established gardens with those who lived next to, or close to them. Where they had private individual gardens, they still assisted each other in gardening activities. On average there were 2-4 women who would form a smaller sub-group and cultivate a piece of land that they could easily monitor from their homes. None of them farmed as far down as the stream, although this was the ideal *natural* location, since it would have been difficult to monitor the gardens, and security was a serious issue. Both animal and human damage to the gardens were commonplace, especially theft by others living in the settlement.

The types of food grown were green chillies, pumpkin, potatoes, maize, imifino (spinach), carrots, beetroot, brinjal, green peppers, lettuce and cabbage. Most of the produce was used for subsistence purposes, with small amounts sometimes "given" to neighbours or friends, and a negligible amount that was sold for cash. This confirms the findings of documented research (see Chapter 3) that points to the practice of urban agriculture as a survival strategy of the urban poor. Flowers and fruit trees, especially paw-paw, were very common in the area. Many residents also kept chicken.



Nursing seedlings

Gardens between homes

Mealie patches

January 1993

FIGURE 1 : FOOD GARDENS IN CATO CREST

Besides the issue of security mentioned above, other problems experienced were lack of soil fertility, lack of adequate flat land for gardening, and difficulty in accessing seeds, fertilisers, water and gardening tools. The high levels of illiteracy of the Group members was a stumbling block to filling out application forms for development aid. The desire to establish a community garden was not only to contribute to local job creation projects, but also to try and overcome the above mentioned problems on a collective basis.

In December 1991, the Make Peace Women's Group together with other residents in Cato Crest requested the assistance of the Built Environment Support Group (BESG) in identifying suitable land for the practice of agriculture in the form of the establishment of *community gardens* within the boundary of Cato Crest. The research study covered the following aspects :

a) Trying to ascertain the potential and applicability of the practice of agriculture taking into account physical, social, economic and environmental aspects;
b) Trying to ascertain, within reason, the economic potential and viability of the practice of agriculture in terms of its proposed contribution towards creating employment opportunities and generating income for members of the community;
c) Trying to assess the potential and applicability of urban agriculture in terms of the development proposals for the Greater Cato Manor Area;
d) Identifying suitable land for the establishment of community gardens in Cato Crest.

4.2.4. Results of the Research

In assessing ***the potential role of urban agriculture***, international and especially African literature, alluded to the role of community gardens within the context of overall community development. It was established that community gardens could play a role in community development through the development of individuals, skills, skills sharing, co-operation amongst members, the production of food, and the raising of income. However, this potential would only be realisable if :

- community gardens were initiated in response to a community's expressed need;

- the community was intimately involved from the early stages in the decision making and planning; and
- the garden was economically viable.

While previous experience in South African small towns and peri-urban areas proved that community gardens were successful, experience in a truly urban context, that is in Cape Town (Eberhard, 1989 a-e), cautioned its ***economic viability***. Research showed that in cases where extreme poverty exists within a strong formal economy, like in South Africa, the labour expended on gardening could be more profitably used in formal or informal income earning opportunities, many of which exist within a strong urban economy.

Furthermore, the need for inner city housing for lower income residents has a direct bearing on the opportunity cost of land used for the production of vegetables. This was confirmed by the women of the Group who said that the practice of urban agriculture would be of a temporary nature until a better paying opportunity would become available. Some of the women said that participation in a community garden would be retained as a supplementary form of food and/or income.

The capital and operational costs of establishing a community garden would need to be weighed against the benefits, and Eberhard's research showed that the potential benefits did not warrant the high costs incurred (Ibid, 1989d : 8). This seemed to be the case in Cato Crest where the residents themselves did not have the financial resources to establish the community garden, and where potential donor agencies showed a preference to contribute to housing projects rather than community gardening since it would result in more value for money spent.

In terms of assessing ***the potential applicability of urban agriculture within the context of the development proposals for Cato Manor***, it was established that community gardens or any form of urban agriculture would best be situated within the D'MOSS system that had been accepted as part of the development proposals for the area. This would serve to highlight the non-economic benefits of urban agriculture such as recreation, education, increased environmental awareness, etc., and also help to stimulate an interest in home gardening by providing education, training and services to community members. A recent report on the open space structure plan for Greater Cato Manor (Roberts, et al, 1995) mentions the opportunities for specific forms of urban agriculture : home gardens, food

walls on steep hillsides, road verges, community gardens, aquaculture and hydroponic systems.

In response to the request to establish a community garden in Cato Crest, the research concluded that, at that time in February 1992, there existed a considerable amount of land within the Cato Crest area that may have been suitable for the establishment of a community garden. The sieving procedure used for this purpose, and the map depicting the possible locations is documented in Section 7 of the Report in Appendix 1. However, a community garden was not established in Cato Crest since in early 1993 internal squabbling amongst the group members, due to financial management of group funds, threatened the continued existence of the group. This was exacerbated by the 1993 land invasion in Cato Crest which not only increased the size and density of the settlement, but left very little space for a communal garden, and brought with it a new set of community dynamics and priorities

The research further established that a one hectare community garden has the potential to provide approximately 7-10 people with full-time jobs, as well as provide a range of other part-time jobs; but that other opportunities in the formal and informal sectors would probably be better paying opportunities. It is interesting to note that the subsequent land invasion in 1993 served to confirm research findings about the opportunity costs of land for gardening bearing in mind the acute need of land for housing.

In addition, the research study concluded that community gardens had the potential to contribute towards ensuring an affordable food supply, as well as stimulating an interest in home gardening. From an environmental perspective it had the potential to increase and improve environmental awareness; and provide a greater understanding of the natural environment and how it may be integrated into the urban environment thereby improving the general quality of life. The procedure involved in establishing and maintaining a community garden could promote social interaction and community cohesiveness, and finally it could also be a form of recreation and relaxation.

4.3. BESTERS CAMP, INANDA

4.3.1. Introduction

Inanda is a large settlement to the north of Durban adjacent to KwaMashu, Ntuzuma and Phoenix (Map3). It is predominantly informal in nature, but does include some formal settlements such as Inanda Newtown. It is an area that is totally underdeveloped, where essential services such as water, health facilities and electricity are lacking. Most people are unable to find employment in the formal sector and make a living through engaging in a number of informal activities in and around the metropolitan area.

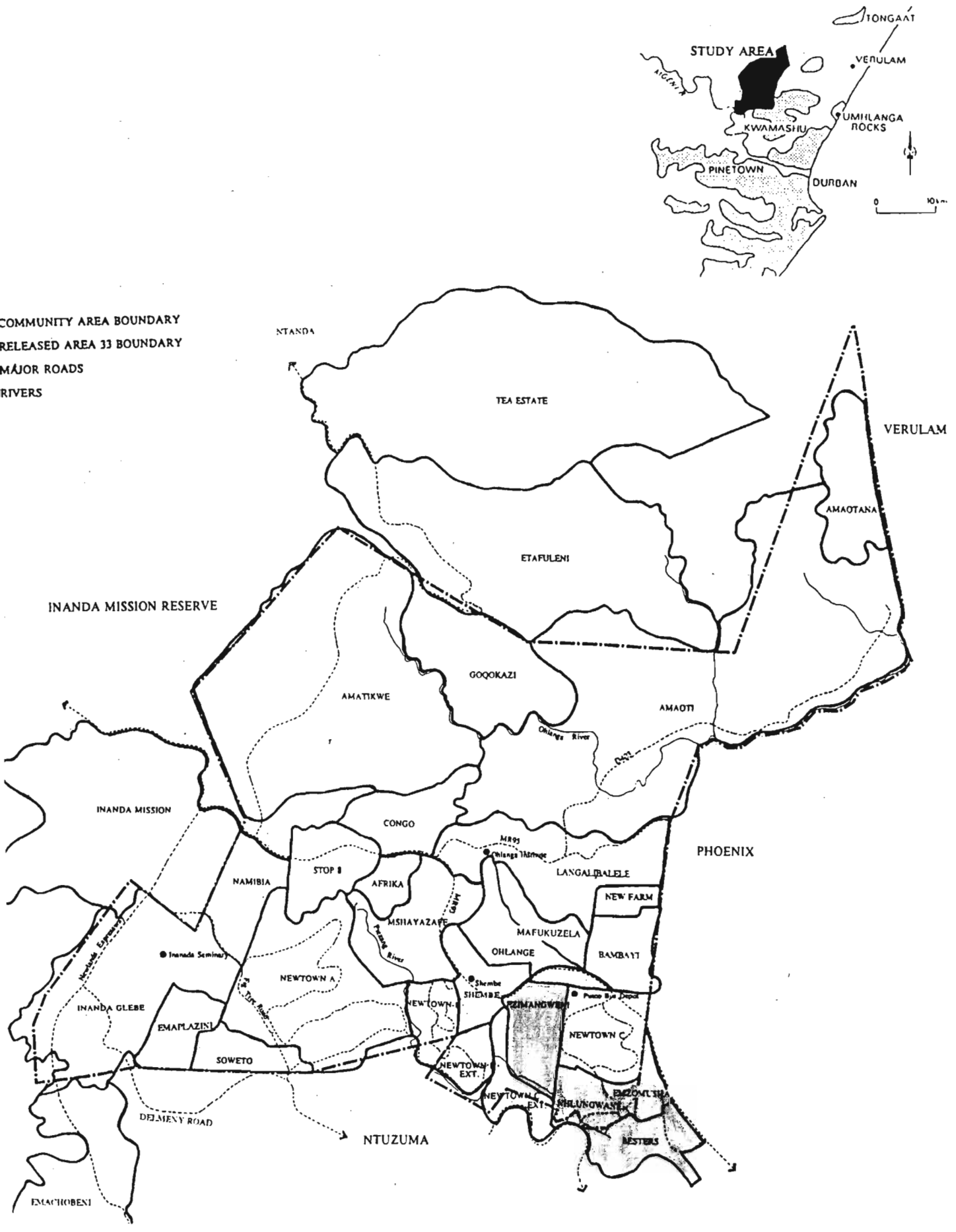
4.3.2. Method of Research

This has been detailed in Chapter 1 and is summarised here to provide a context for the case study. Research on the food gardening projects in Besters Camp otherwise known as the Inanda Community Development Trust - ICDT), was conducted within the context of providing the civic organisations in the area with technical advice and assistance on the site-and-service upgrading project in the area. The involvement in the site-and-service upgrading project began in March 1993 and was of a personal nature as a civic activist.

The aim was to try and ensure the strengthening and legitimacy of the civic structures to lead and participate in development projects, simultaneously building and establishing institutional and organisational capacity in the area for future benefit through the provision of serviced sites. Direct involvement in the community gardening projects only began towards the end of 1993. Most discussions on the gardening projects took place within the context of formal meetings on the site-and-service upgrading project, and have been recorded in minutes of the meetings. The method of research was therefore one of direct active participation the project.

4.3.3. Background

Since the beginnings of the Besters Camp upgrading project which began in the mid 1980's the project has grown to include the areas of Emzomusha, Ezimangweni and Nhlungwane (Map 3). By 1993, the project had become the second largest in-situ upgrading project in



Source : IDF, 1995

MAP 3 : LOCALITY MAP - BESTERS CAMP

the country, and received the financial assistance of the Independent Development Trust to accommodate the provision of serviced sites to the additional areas. In total the project was responsible for the provision of approximately 8 100 sites.

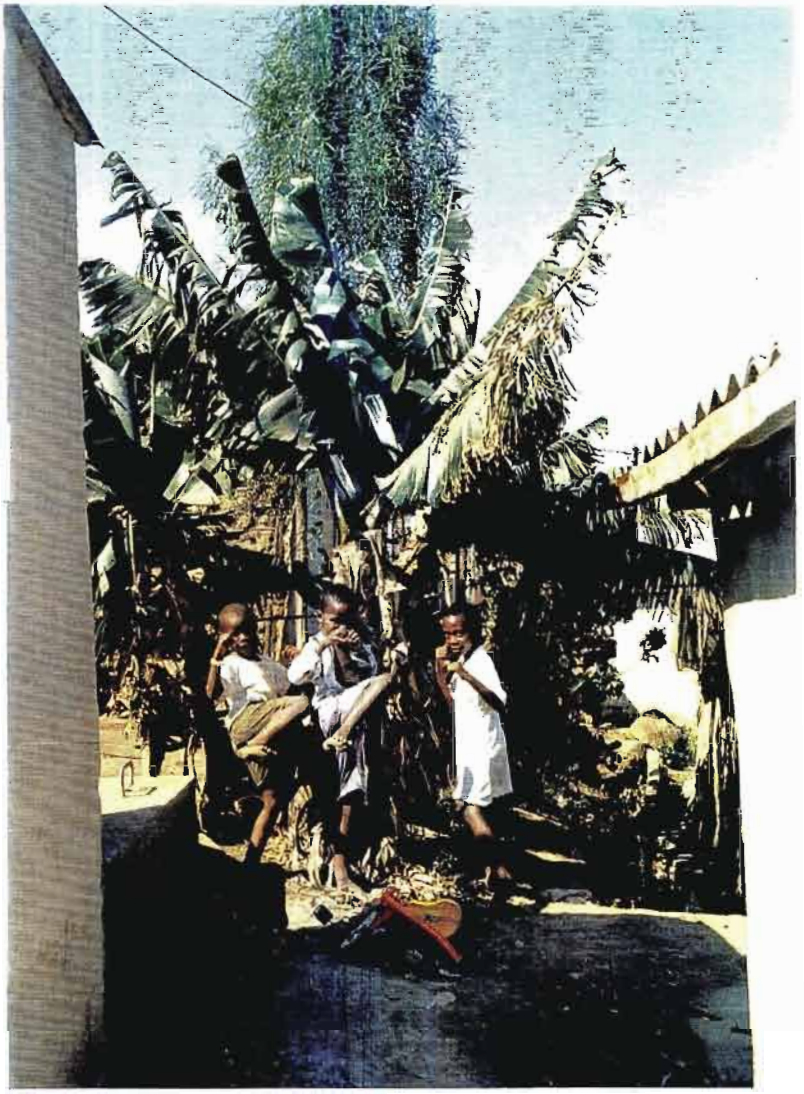
The changes mentioned above manifested itself in the formation of the ICDT, which itself expanded the scope of the project to include the co-ordination of all development projects in the area covering the areas of capacity building, training and education, the establishment of a community resource centre with a range of community facilities and services, and issues of health, welfare and the environment. It was during this period of consolidation that involvement and participation in the community gardening projects occurred, that is from late 1993 to the present.

4.3.4. Results of the Research

Since the establishment of the informal settlement in Besters some residents have been involved in subsistence agricultural activities, that is providing part of their food requirements through the establishment of individual gardens. This occurred notwithstanding the fact that until recently the residents had no security of tenure; that the form of the settlement is such that it one of the highest density settlements in South Africa (theoretically leaving little space for cultivation); and a settlement prone to violence and crime and unhygienic conditions. The proliferation of individual urban food gardens in the area is a survival strategy used by the women to supplement food supplies.

With the beginnings of the site and service upgrading project in Besters in the mid 1980's, the Besters Liaison Committee had been established. The Committee comprised of approximately 20 local women and representatives from outside organisations in the field of environment, health and welfare. Most of the local women on the Committee were women who held leadership positions in their areas, either in civic or political organisations. These women then worked within larger more grassroots-level groupings of women in terms of the implementation of projects. For example, the establishment of gardening clubs of between 4-6 women per communal garden. These gardening clubs have been established in the two community areas known as Besters and Emzomusha (Figure 2).

Banana trees growing along narrow footpaths in the high density settlement



A small communal garden in-between homes

September 1995

FIGURE 2 : COMMUNAL GARDENS BETWEEN HOMES, BESTERS CAMP

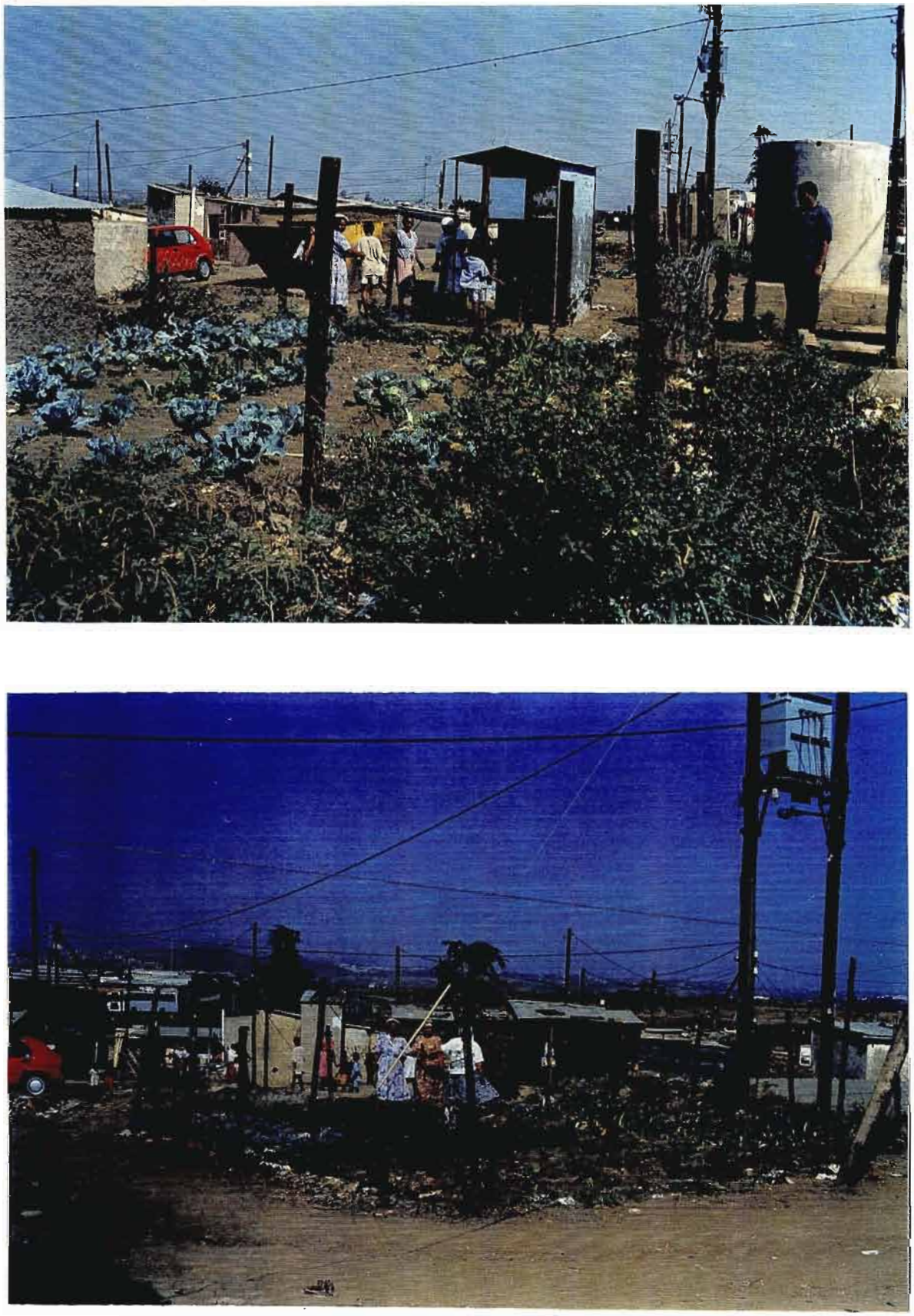
The participants in the gardening clubs are predominantly female, with approximately 10% of participants being male. The women are of the opinion that this is due in part to the traditional role of women to provide food for households (in this case involving supplementing food supplies from gardening) while the men seek formal employment opportunities. However, there is no distinct role definition between the men and women who participate in the gardening projects - both men and women are equally responsible for activities such as fencing, digging trenches, planting or distribution of the products.

The types of produce grown includes carrots, spinach, pumpkin, green chillies, sweet potatoes, paw-paw, beetroot, mealies, and cabbage. The produce is grown for personal consumption with very little ever being sold to people in the area. Water is obtained from the water tanks or communal standpipes in the area (Figure 3). Gardening tools are shared due to the high costs of purchasing such tools.

As mentioned previously, during 1993 and 1994 the upgrading project underwent some structural organisational changes with the establishment of a community development trust, that is the ICDT. The ICDT has established specific *work groups* to co-ordinate all development initiatives in the area. For example, there are specific work groups for, amongst other issues, community facilities, capacity building, water, communications.

The Environment, Health and Welfare Work Group co-ordinates a wide range of activities and projects that include gardening projects. The two resident fieldworkers who co-ordinate this Work Group had been personally involved in gardening projects prior to the establishment of the ICDT. Now, through the formally created structure of the ICDT and the Work Group, they have tried to consolidate and facilitate the improvement of all environmental, health and welfare activities in the area. To date the group has been successful in the following related activities:

- establishing a new clinic in the area during 1995,
- participation in a Primary Health Care Programme as an outreach programme to the community,
- linking to welfare initiatives in Phoenix through the Durban Association of the Aged, establishing a sewing group that has a training and production contract with David Whitehead Products,
- establishing the Siyaphambili Educare Forum, an initiative between National Health, City Health and the ICDT,



September 1995

FIGURE 3 : COMMUNAL GARDENS UNDER ELECTRICITY SERVITUDES & CLOSE TO WATER, BESTERS CAMP

- supporting the women who have established crèches in the area, without any formal training,
- involvement in environmental projects such as waste management and permaculture.

Although the Work Group is not a women's club the participants are predominantly female, as in the case of the gardening clubs. What is clearly evident is that the committee is playing a fundamental role in supporting a range of survival strategies employed by the women in the area by matching it with whatever external assistance is available in order to have a positive impact on human livelihoods in the area. Many of the women who are involved in the sewing project mentioned above are the very same women who are also members of gardening clubs, and who also participate in the primary health care programmes. This is evidence that these activities are part of an overall survival strategy, that they tend to complement or supplement each other. They are the threads that make up the safety net for survival in the informal sector.

The support to individuals and participants of gardening clubs are evident in the number of communal gardens and abundance of food that is visible throughout the year. The gardening activities have received further impetus from the attendance of the co-ordinators at a permaculture course in 1995. The was organised through the South African National Civic Organisation, the mother body to which the local civics are affiliated to, and sponsored by the City of Durban. The result has been the establishment of a demonstration community garden in Besters based on the permaculture philosophy (See Box 1).

The demonstration garden at Besters is still in its initial stages as can be seen from the photographs (Figure 4). A larger demonstration garden, the ideal permaculture garden, is planned next to the new clinic in the Besters Overspill Area on the flood plain. The present demonstration garden is used to teach participants of the gardening clubs the steps involved in establishing a garden based on permaculture principles. That is, from the stages of preparing their own seed beds, including the designing and layout of their own gardens, to the stage of maintaining their gardens.

BOX 1 : PERMACULTURE

The permaculture system adopted by the ICDT advocates a method of gardening that has as its motto ***"pick 'n eat instead of pick 'n pay"*** and is based on a basic design that incorporates the following principles :

- simultaneously growing a variety of food, not only vegetables, but fruit trees;
- maintaining soil fertility;
- promoting tree cultivation;
- promoting a method of planting that recognises the compatibility of different plants in order to replenish soil nutrients;
- making the most efficient and effective use of all natural resources with minimal wastage;
- promoting a self-help approach.

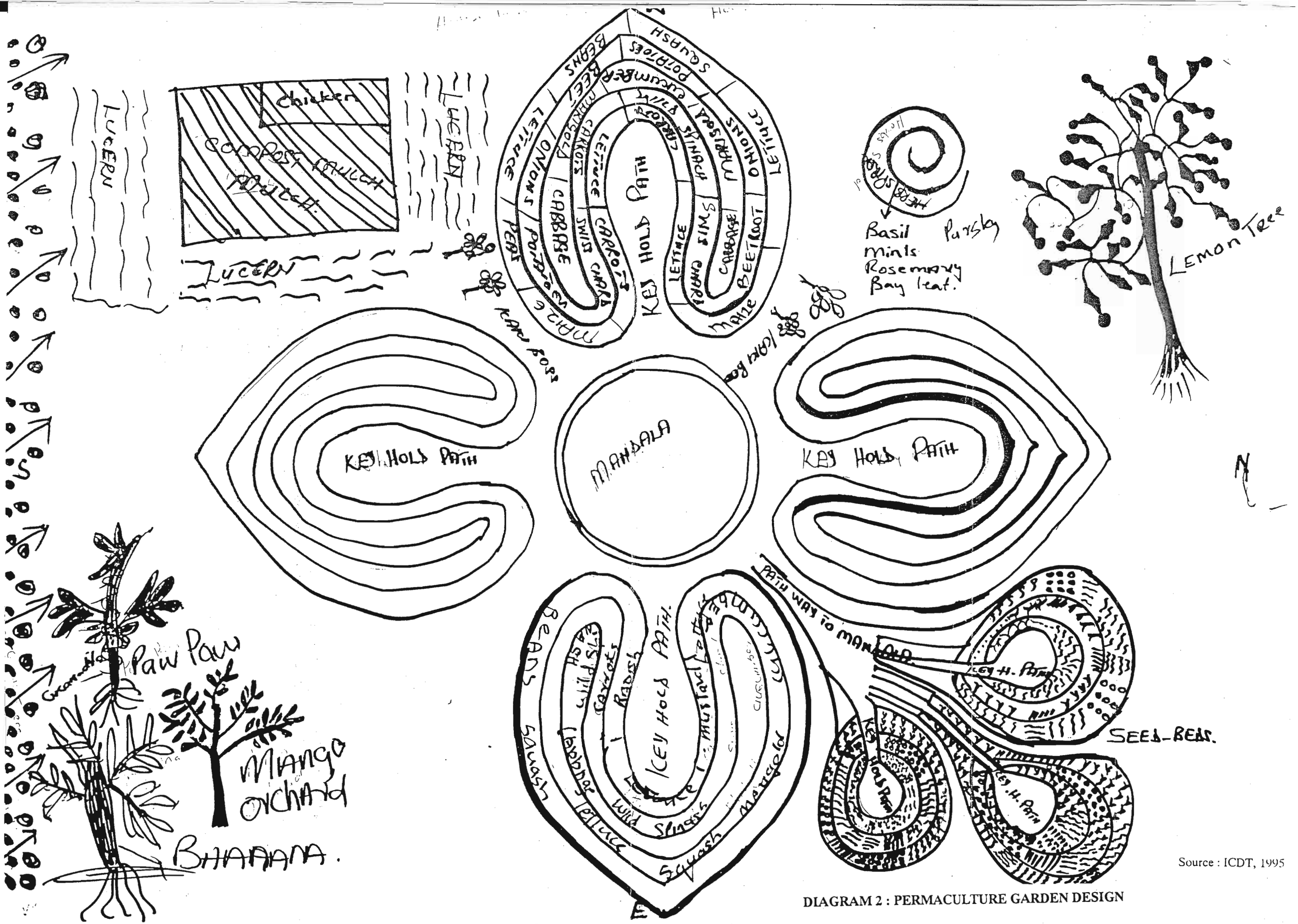
The basic design that may be adapted to local site specifications is depicted in Diagram 2. This is the design that has been used in the establishment of the Besters demonstration garden. The central feature of a permaculture garden is the ***mandala,*** a plastered hole or tank or drum to collect water from natural run-off, which should ideally be located in the centre of the garden or the low lying area of the garden.

Around the mandala would be a number of ***key hole paths*** (so named due to the shape) for the planting of vegetables. The design of the key hole path allows one to walk around it to be able to water the plants, as well as to be able to physically reach all the plants without trampling them. In other words the design is at a human scale with all plants being at arm's reach. Furthermore, the taller plants are planted in the middle with shorter plants on either side to allow for effective air circulation and sunlight. The planting of a variety of vegetables in relation to each other, ***"friendly veggies"*** as they are called, helps to maintain soil fertility as opposed to conventional monoculture which depletes some nutrients more than others. The overall arrangement is actually quite attractive. The rich variety of textures and colours is aesthetically pleasing.

The above practice is one that was promoted by the late Robert Mazibuko of the Africa Tree Centre in Edendale Pietermarizburg. His demonstration garden was not a groomed one with everything in a strict and tidy space. Beans grew in a jumble next to mealies, shaded by a macadamia nut tree and mango trees. Spinach and madumbes were neighbours, with a sugar cane windbreak competing with cabbage. The logic of jumbling different plants together are multi-dimensional, that is to naturally replenish soil nutrients while using it since different plants use different nutrients in various amounts and through natural processes produce other nutrients as by products; on the surface some plants complement each others growth rather than compete with it, etc. For example, marigold flowers and shallots repel insects, while the fragrant white flowers of the mandarin tree attracts bees which help to fertilise many plants. Clover and alfalfa planted at the base of trees helps to fix nitrogen, an important soil nutrient for tree growth.

The key hole path design is used for the ***seed beds*** as well, but at a much smaller scale. Gardeners are encouraged to start their own seed beds to replenish the key hole paths. ***Fruit trees*** are encouraged, especially at the borders of the garden where they act as a natural fence and windbreakers, as well as producing leaves for composting. Where shade is needed, the cultivation of grapes is encouraged, say for example as a veranda in the front of the house.

Another prominent feature is the ***herb spiral*** built in a conical shape from the ground up with stones, which should ideally be located close to the kitchen in an area that does not receive harsh sunlight. A ***lemon tree*** should also be planted near the kitchen, since lemon is a common ingredient used for cooking. Another important part of the permaculture garden is the ***compost or mulch heap***, surrounded by the planting of ***lucerne***. This should be located furthest away from the house due to the unpleasant odour. A chicken run may also be located the compost heap. The compost heap is where organic waste from the house can be used together with chicken droppings to produce natural fertiliser, which is not only cheaper than artificial fertilisers, but is also more ecologically friendly and produces food which has a high nutritional content. Potatoes may be grown on top of the compost heap.



Source : ICDT, 1995

DIAGRAM 2 : PERMACULTURE GARDEN DESIGN

Moving away from conventional rectangular beds (above) to key hole paths (below).

Paw-paw trees on the border.

September 1995

FIGURE 4 : DEMONSTRATION GARDEN, BESTERS CAMP

One way in which the teachings of the permaculture course may be complemented is by adopting the *trench method* of farming that was advocated by the late Robert Mazibuko. His trench method of farming is a front-line attack in the war against poverty, where his "spade and hole revolution employs marigold vigilantes and sugar cane windbreaks to guard his jumbled community of spinach, madumbes, shallots and other green things" (Scott, 1991:12).

Mazibuko's typical trench requires digging a hole in the ground which is approximately 36 inches deep and the length of a foam mattress, and then feeding it with nutritious compost, (rotting organic material from waste foodstuff, newspaper, some tin), topping it with the soil that was dug out and then using it to plant a bed of vegetables. Trenching helps to retain the water content of the soil while simultaneously enriching the soil through composting in the preparatory phase.

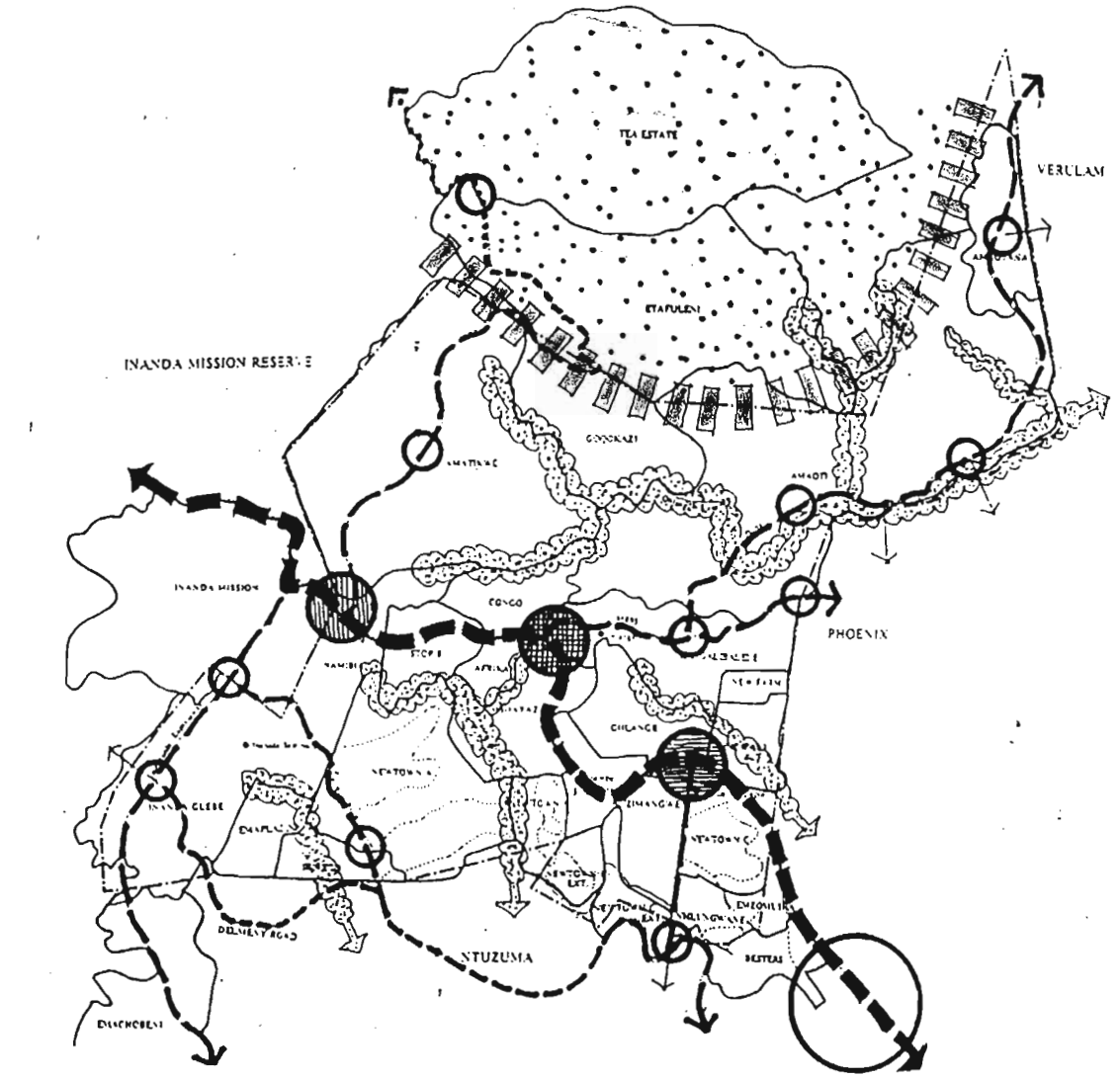
An analysis of the findings reveals that although Besters is a very high density settlement, and one that has been recently upgraded, tiny individual home gardens are common. So too are the number of small communal gardens that are run by gardening clubs comprising 2-4 women, which are supported by the larger co-ordinating Work Group that links such initiatives to the overall development project of the area. This is clearly a survival strategy, a subsistence practice that assists the women to supplement some of their household food needs. It is also one of many survival strategies that collectively make up the safety net that the women of the area rely on to make a living. As in the case of Cato Crest, many women confirmed that when temporary or more formal employment was found, they would retain their participation in the gardening projects due to the excessively high costs of food in comparison to the amounts of money that they would be likely to earn.

However, in comparison to Cato Crest, the demand for land for housing and related activities, is not as intense. A large piece of land, approximately 1 hectare, has been reserved by the ICDT for a demonstration permaculture garden. In addition, the residents of the area do not object to communal gardens being established between existing homes. These gardens more often than not utilises undeveloped land from 2 to 3 adjacent plots, and it is people from these households that make up the gardening club. This arrangement also provides the necessary security for the garden since there is usually someone from one of the households involved at home to monitor the garden.

Those involved in the gardening projects found it very difficult to be able to quantify the amount of produce that they cultivated, or to assess, in terms of rands and cents, to what extent they were supplementing food supplies. Very little was ever sold, and while there were many women who perceived that they could do so if they cultivated enough crops, there seemed to be no effort to put this idea into practice. More effort was put into the sewing projects. The possible reason for this would seem to be the higher returns or value of the products in comparison to the returns that could be gained from fresh produce.

What is clearly evident though, is the value of the support that the gardening projects receive from the ICDT and external organisations. That is, although the activities of the Environment Health and Welfare Work Group, and especially the gardening projects, may not be of a relatively higher economic value, they are not repressed in any way. The support that they receive tends to give the participants motivation to continue, and allows them to have pride in what they produce. For example, the permaculture course has motivated the women to adopt the new method since they are able to understand the benefits of the method in terms of promoting self sufficiency and increasing productivity. The adoption of the method will also be more ecologically friendly and may increase the overall sustainability of the area. The economic potential of urban agriculture is very likely to be realised under such circumstances should a little more effort and support be provided.

Related to this case study is the Inanda Development Framework proposal that identifies urban agriculture as a potential local economic development strategy (IDF, 1995 : 230). Although large scale urban agriculture is not proposed for areas such as Besters because of its proximity to major transport routes that results in the relatively higher value and use of the land for housing, areas such as Tea Estate and Etafuleni have been proposed, that is areas perceived to be beyond the urban fence (Map 4). These are areas that are located in the peri-urban zones of Inanda and have a history of agricultural activity.



Source : IDF, 1995

MAP 4 : URBAN FENCE - INANDA

4.4. CONCLUDING COMMENTS

In comparing the 2 case studies, the findings seem to confirm other South African and international research findings in Chapter 3 that urban agriculture is practised as a survival strategy by the urban poor. Furthermore, the findings from the case studies confirms that the opportunity for the economic potential is somewhat reduced in the more central parts of the metropolitan area, such as Cato Manor, due to better paying alternatives available in the formal urban economy. It is also interesting to note that the nature of the informal sector or economy in Durban and generally in South Africa is one that is based on retailing rather than on manufacturing or production. As such urban agriculture is rarely considered as an informal activity that has economic potential.

What should be clearly evident is that in both cases urban agriculture formed one of many survival strategies that were employed by the women in order to make a living. In other words it was complemented by other survival strategies or activities such a sewing and candle making. The type of support and encouragement, if any, seems to make a substantial difference, as may be seen from the case in Besters.

The identification of urban agriculture as a local economic development strategy for areas beyond the urban fence in Inanda (IDF, 1995) indicates the greater acceptance of this activity as a land use in peri-urban zones rather than in urban zones. However, this has not been established as policy throughout the metropolitan area. It is also perceived as an economic activity with a potential to address unemployment (Epstein, 1994; Smit & Todes, 1993; May 1993; Rogerson, 1993; INR, 1991; Anderson, 1989). It is not perceived as a matter of urban food security, of the need and desirability to produce urban food supplies from within the metropolitan area.

While Chapter 4 has established the local factors that affect the practice of urban agriculture by example of the two case studies, and Chapter 3 has facilitated an understanding of the practice of urban agriculture in other African, Asian and South African cities, Chapter 5 seeks to sum up the findings of the dissertation and motivate why urban agriculture should be an issue that needs consideration by urban planners.

CHAPTER 5

IMPLICATIONS FOR PLANNING

5.1. INTRODUCTION

The objectives of the study, the development context and statement of the argument were presented in Chapter 1. The conceptual basis for promoting and accommodating the practice of urban agriculture as an integral aspect of urban planning and management was explored in Chapter 2. This was done by assessing the extent to which the theoretical frameworks of food security and sustainable development addressed the practice of urban agriculture, especially in cases where it is practised as a survival strategy.

The practical experience of engaging in urban agriculture and the potential of it to ensure food security for the urban poor; to create employment opportunities at low cost and supplement incomes; and to contribute to the sustainability of the city was assessed in Chapter 3. This was achieved through a scan and analysis of the experience in different cities throughout the world, with Chapter 4 specifically focusing on two local case studies, and testing the relevance of the secondary research.

The imperative argument for considering the practice of urban agriculture as an integral aspect of urban planning and urban management programmes in terms of the objectives of this study are summarised below.

5.2. THE MULTI-DIMENSIONAL POTENTIAL OF URBAN AGRICULTURE

Research has shown the inherent **multi-dimensional potential of urban agriculture.** This has been proved by the evidence of cases where it has been practised as a survival strategy thereby providing food security for the urban poor; where it has provided some type of employment and income earning opportunities; and where it has contributed to the sustainability of the city. This is summarised in Chapter 5.2.1.

Chapter 5.2.2. summarises why urban agriculture, especially where it is practised as a survival strategy of the urban poor, is a compelling factor that should warrant it being an **integral aspect of urban planning**. It is argued that this needs to be brought to the urgent attention of urban planning practitioners, and it implies accepting an alternative definition and understanding of the nature of urban poverty, and a change in attitude to role of survival strategies of the urban poor. It is intended to test the hypothesis that the survival strategies of the urban poor have some potential to contribute to planning strategies that seek to break the cycle of poverty, or at least to contribute to local economic strategies that may effect a positive impact on the general quality of life of the urban poor.

Finally, Chapter 5.2.3. attempts to **identify the major obstacles that prevent urban planning accommodating and promoting the practice of urban agriculture**. It is argued that there is an urgent need for urban planning practitioners to overcome the ethical, ideological, psychological, attitudinal and practical obstacles to promoting and accommodating urban agriculture as an integral aspect of urban planning.

5.2.1. Urban Agriculture : Evidence to Provide Food Security, especially for the Urban Poor

It is widely accepted that the causes of urban poverty are structural in nature and that addressing poverty implies addressing its corollary, that is wealth (Moser, 1995; Chambers, 1995). To digress, this is in line with the thinking underlying the sustainable development approach that requires issues to be addressed in their totality, in terms of how seemingly distinct processes actually do relate to each other - this was demonstrated in the analysis of environmental degradation in Durban in Chapter 2. Coming back to the issue of urban poverty, the impact on the majority of urban citizens in developing countries has been a decline in real incomes and reduced purchasing power. The implication is one of reduced affordability to buy food, where the acquisition of food is reliant on cash purchases.

Notwithstanding the issue of urban poverty, there are other factors that affect the ability of the poor to acquire adequate and affordable food supplies. It has been argued, both in theory and in practice, that it will be difficult to buy food at prices which are affordable by the urban poor due to the highly regulated and monopolised nature of the South African food industry, which in turn is linked to national agricultural and economic policies that are influenced by the global food trade. The

impact of this is the tight control over the price and supply of food, where prices are unlikely to be reduced in real terms.

Thus, both urban poverty and the nature of the food industry contribute to the inability of the poor to purchase adequate amounts of food at affordable prices. This is what has resulted in the poor and destitute resorting to direct food production *within* the city. This has been evident in many cities in the developing countries, and in South Africa.

Information from primary and secondary sources have both confirmed the extent to which urban agriculture provides *supplementary food supplies* and/or *supplementary incomes* - that is it is an example of *one* of many survival strategies that collectively provide a safety net for those who have been margenalised from the formal economy. It should be noted that while there are rare cases of being able to provide for the total demand of *one type of food*, say for example vegetables, urban agriculture does not have the potential to provide for the *total food needs of the household*. Where some of the food produced is sold for cash, it provides a supplementary source of income. Where one is employed on a part-time basis for cultivation of products within the urban area, urban agriculture again provides a supplementary source of income.

The non-economic benefits of urban agriculture have been identified in Chapter 3 and may be summarised as follows:

- ***Social*** values
  - awareness and education
  - recreation and pleasure
  - social cohesiveness and interaction
  - addressing gender issues
  - addressing issues of race and class
- ***Ecological*** values
  - influence on micro-climate
  - contribution to open space systems
  - promotion of integrated resource management

In conclusion, the analysis of the practice of urban agriculture has established the potential of urban agriculture to provide sufficient supplementary food supplies and supplementary incomes for the urban poor. It has also highlighted the many non-economic potentials of urban agriculture. Collectively, all of the above make a contribution to increasing the sustainability of urban areas.

5.2.2. Urban Agriculture : Evidence Supporting the Incorporation of Urban Agriculture as an Integral Aspect of Urban Planning

As argued in Chapter 2 and 3, the acceptance of the concept, and adoption of the approach of sustainable development in relation to urbanisation provides urban planners with an alternative perspective, definition and understanding of the nature of urban poverty. This requires a response from urban planning practitioners that recognises the functional inter-relationship of the formal and informal economies, and the need to support informal sector activities to effect a positive impact on the general quality of life of the urban poor.

In other words, to recognise the contribution of survival strategies, for example urban agriculture, as self-help activities and to support the strategies in terms of promoting the positive aspects and managing the negative aspects. The implication of this is that where urban agriculture has received positive support such as in Malawi, it can progress from being a survival strategy to *becoming a springboard into a more entrepreneurial activities* (Lado, 1990; Freeman 1991) thus establishing urban agriculture as an important income generating activity.

In South Africa, the situation differs in terms of the extent to which the practice of urban agriculture may become an economically viable activity for small scale entrepreneurs in the informal sector. Research, both primary and secondary research, show that this is as a result of the availability of an increased number of higher value alternative opportunities due to the relatively stronger formal economy in South Africa in comparison to other African cities. Currently those people from the low to middle income group who own agricultural small holdings on the periphery of cities, such as the Indian market gardeners along the Durban coast, are under real threat from urban expansion and other factors such as being undercut by market forces in the food industry.

The potential solution to both of the above problems lies in proactive urban planning, both in terms of spatial intervention as well as in terms of formulating urban development strategies and urban management. In terms of the former, it would entail the type of spatial planning intervention promoted by Dewar and Watson (1991) as outlined in Chapter 2 - that is fixing an urban edge beyond which urban agriculture may be a predominant activity that will not have to compete with other urban land uses, as demonstrated in the case of Inanda in Chapter 4. In other words, urban agriculture will be a predominant activity in *peri-urban zones*, similar to some Asian

cities. Within *urban zones*, it should be promoted at the individual plot or household level, and within the Durban Metropolitan Open Space System (D'MOSS), as has been suggested in the case of Cato Crest in Chapter 4. The many different forms of urban agriculture, as outlined in the Glossary, may serve to contribute to the diversity and richness of the D'MOSS.

In terms of formulating urban development strategies and urban management, proactive planning would entail perceiving urban agriculture as a survival strategy to supply supplementary food and income to the urban poor, as described in section 5.2.1. above. Furthermore, it would entail perceiving urban agriculture as an economic activity with a potential to address unemployment (Epstein, 1994; Smit & Todes, 1993; May 1993; Rogerson, 1993; INR, 1991; Anderson, 1989) and support its turning from a survival strategy into an entrepreneurial activity.

This would require a focus on improving the livelihoods of the urban poor by ensuring their participation in making decisions regarding the use, location and allocation of urban resources. In other words, urban planners and metropolitan governments should enter into partnerships with the very people whom they perceive as the problem. Rather than trying to control or persecute their perceived illegal activities, urban planners and metropolitan governments should provide a development framework which is enabling; legislation which is facilitative; and an administration which is regulatory. This will need to be accompanied by a process of providing basic needs through which poor people may be empowered to use their survival strategies to break the cycle of poverty and improve their basic living conditions. Such an approach not only makes for more sustainable urban development, but also recognises and supports basic human rights. This is the type of sustainable development strategy that tackles big problems by thinking small, and locating the power to effect change in the hands of the people that it affects.

Where urban agriculture is practised as a survival strategy by the urban poor in order to provide and supplement food supplies, urban planners and metropolitan governments should support and facilitate such activities. This might be achieved through, amongst other practical actions, working on the basis of integrated resource management; promoting urban agriculture on servitudes and undevelopable land and within the open space system. Furthermore, in terms of taking care of future needs, that is intergenerational equity, urban planners need to consciously plan cities in such a way as to facilitate the local production of basic food supplies.

While the above is a summary of the possible positive aspects of urban agriculture, it also has some possible negative aspects that need to be considered. Where the practice of urban agriculture may have a negative impact on the use of natural resources or the state of the natural environment, urban planners and metropolitan governments will need to formulate strategies to minimise such impacts and turn it into a positive feature of the built environment. The possible negative aspects are resulting health hazards, pollution (waste from animals - breeding areas for flies and bacteria-impact on people's health), traffic problems, and general degradation of the natural physical environment. As mentioned above, the positive aspects need to be promoted while the negative aspects are capable of being managed and controlled.

An analysis of the Asian Experience, as outlined in Chapter 3, is proof enough of the benefits of urban agriculture, and more importantly it demonstrates the positive role of urban planning in realising these benefits. This positive example begs the question : **why, notwithstanding urban poverty, have urban planners completely ignored formulating means for providing the most *basic* of basic needs, that is food, from within urban areas?**- *Why is the production of urban food supplies totally reliant on rural areas?* The answer to these questions lie in the identification of the obstacles to promoting and accommodating urban agriculture as an integral aspect of urban planning, which is explained in the next section.

5.2.3. Urban Agriculture : Identification of Major Obstacles Preventing Urban Planning Accommodating and Promoting Urban Agriculture

If one accepts the general notion that urban planners are trained and educated to look ahead and foresee future problems, and to devise ways and means of meeting them (Anderson, 1989), in addition to dealing with current problems, one wonders why the issue of urban food security has been more an issue of agricultural and economic trade policies, and less an issue that concerns urban planners. This is especially in light of current urban planning policies and urban management programmes that are concerned with, amongst other aspects, providing basic needs - and where f*ood is the most **basic** of basic needs.*

In European countries it is common practice to incorporate some forms of urban agriculture into the urban open space system. However, Hough (1984) notes that such open space systems are still predominantly conventional public open spaces such as parks, gardens and civic spaces that are dependent on energy and horticultural

technology (which is expensive) for its survival and produces no energy return for the amount of energy invested, except to be aesthetically pleasing - albeit the monotony of manicured lawns and landscaped vegetation.

In comparison, in many cities in developing countries as outlined in Chapter 3, and in low income areas of some cities in developed countries, flourishing productive vegetable gardens, grapevine covered trellises, chickens, ducks, goats and other livestock kept for food rather than as pets are evident (Ibid). This generally reflects the economic need to engage in such activities, and the relative tolerance of such unplanned activities in some areas more than others, or the incapacity of planning authorities to repress such activities under certain circumstances.

The theoretical significance and conceptual basis for promoting urban agriculture in Chapter 2 reinforces the arguments based on practical experience in Chapters 3 and 4. However, the adoption of the sustainable development approach alone seems not to have had a positive change in the attitudes of urban planning practitioners. While they speak a politically correct language enshrining *sustainability* in its widest possible meaning, planning practice at the implementation level is still characterised by conventional planning principles that seek to control development, and compartmentalise different land use activities, rather than looking at the way in which different urban processes are inter-related and ultimately work as a single urban system. It also neglects the inter-relationship of urban and rural processes and areas.

Where sustainable development policies have been adopted and implemented, it has been done simply in terms of squeezing it in-between other policies that are based on different ideologies which then tend to work against it. Furthermore, the institutions that are responsible for planning such as local and provincial government authorities, are structured in a way that prevents them from working in the integrated and multi-disciplinary way that is required to effect change.

Sustainable development is based on a fundamentally different way of thinking, and a fundamentally different way in which it defines problems and proposes solutions, in comparison to the Capitalist paradigm that has formed the ideological basis for urban planning. This was elaborated on in Chapter 2. It is therefore argued that planning ideology needs to be revisited due to changing circumstances. What might have been relevant and applicable in the past is not necessarily so now - nearly a century has passed since the origins and acceptance of British planning principles and standards. Planning practitioners need to be brave enough to question the applicability of

conventional concepts to address current realities, and explore and embrace in total the newly emerging paradigm of sustainable development, thereby adopting a new professionalism (Chambers, 1995).

The challenge is to reverse the normal view and understanding, to look at issues from alternative perspectives, to see things the other way around, to adopt a downward accountability, to identify and implement a new agenda that stresses reversals, decentralisation, empowerment, and local diversity and complexity (Ibid). In many ways Chambers (1995) argues that it requires reversing the chain of logic that we are so accustomed to.

This leads to the conclusion that there is an urgent need for urban planners to overcome the ethical, ideological, psychological, attitudinal and practical obstacles to promoting and accommodating urban agriculture as an integral aspect of urban planning. The way to overcome such obstacles is to simultaneously engage in ideological and academic debate, as well as to allow practice to be guided by reality, not only by a planners interpretation of reality, but by the interpretation of reality of the people's whose lives we seek to improve.

5.3. CONCLUDING COMMENTS

The cities in Asia where a considerable amount of the food consumed is grown within the boundaries of the city are examples of cases where the production of food has been an integral aspect of urban planning. It is reflective of planning being positively reactive to a logical need to provide urban citizens with some of the food that they require. It is further reflective of the understanding that is prevalent in terms of looking at the urban system in totality, that is the inter-relationship between social and ecological processes where integrated resource management converts the output from one process into an input for another process. There seems to be a greater understanding of how different urban processes work in relation to each other, and an effort to maximise the uses and functions of ecological and human processes to complement each other.

This is vastly different to the western or modern concept of urban development that seeks to categorise processes under different disciplines or areas of specialisation. While this has its merits, it tends to loose sight of how different processes interact. It sets up mental barriers that prevents lateral and alternative thinking. It has prevented

urban planners from thinking of producing food within urban areas, because it is categorised as a rural activity.

It has influenced the notion of urban development to restrict itself to pursuing economic benefits that is measured in terms of the accumulation of material wealth. This very same notion categorises urban poverty as a problem, rather than recognising it as a symptom of concentrating wealth in the hands of minority of the population. Where the poor are classified as the problem, their survival strategies are also classified as problems that need to be eradicated, rather than as the ability to survive against all odds.

The way for urban planners to overcome this, is to allow the urban poor to define their own problems and solutions for they have a different perception of reality, and therefore different means to achieve their development objectives. The role of the planner in this case is to support and facilitate, to enable and empower rather than to control.

The main objective of this study was to alert planners to the importance of accommodating and promoting urban agriculture as an integral aspect of urban planning, especially where it is practised as a survival strategy of the urban poor. While it is believed that this objective has been fulfilled, the process of achieving the objective has identified the need for further research. The results of this study might be thought provoking to some urban planners, while it will be considered to be irrelevant to others. Whatever the case, this study has neglected to canvass the opinions of urban planners on this subject - this needs to be identified as an area for future research. Similarly, the opinions of those who practice urban agriculture as a survival strategy needs to be canvassed.

The final chapter, that is Chapter 6 provides a general concluding comment.

CHAPTER 6

CONCLUDING COMMENTS

Urban agriculture can and should play a major role in feeding the ever growing urban population, both in terms of the general urban population and especially the urban poor. There should be large scale and systematic planning for food production **within** urban areas. In most countries food production is considered a rural activity. There is an urgent need to overcome the practical and psychological obstacles to promoting urban agriculture, especially where it is practised as a survival strategy of the urban poor. Survival strategies are reflective of the ability of people - whom the system has failed, rather than them being identified as the failures - to make a living against all odds.

Feeding the masses is a matter that urban administrators and policy makers can ill afford to take lightly from now on. This takes into account a country's changing comparative advantage from agriculture to industrialisation as it moves up the economic ladder, but this should not be the imperative reason for not trying to plan cities such that they produce most of their own food. The prevailing attitude is still one that relegates food production to the rural areas, leaving the city to concentrate on the pursuit of other economic activities. Positive policies in support of urban agriculture cannot flow from this negative frame of mind.

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PERSONAL COMMUNICATION

February 1992 - Febraury 1993. Meetings with the Make Peace Woman's Group

March 1993 - September 1995. Joint Civic Caucus : Besters, Ezimagweni, Nhlungwane, Emzomusha & Meetings of the Inanda Community Development Trust

December 1992 - Interview with Robert Mazibuko, Africa Tree Centre, Edendale, Pietermaritzburg.

APPENDIX 1

NB: The maps that form part of this report were drawn at A0 size due to the fine grain analysis that was required. The maps have been reduced, and may thus be slightly off scale. Furthermore, the originals were transparent film produced in colour with an orthophoto as a base map. The reproductions at a reduced scale are not very clear as a result.

AN INVESTIGATION INTO THE POTENTIAL OF URBAN AGRICULTURE IN CATO CREST, CATO MANOR, DURBAN

A WORKING DOCUMENT

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SUPPORT GROUP

FEBRUARY 1992

1. THE BRIEF

The residents of the informal settlement in Cato Crest have requested the assistance of The Built Environment Support Group (B.E.S.G.) in identifying suitable land for the practice of agriculture within the boundary of Cato Crest, Cato Manor, Durban.

2. THE CONTEXT

The practice of agriculture is but one aspect/part of the community's effort and attempt to address unemployment - the community members have taken matters into their own hands and are trying to establish whether employment opportunities exist or could be created. Many organisations and individuals are at present involved in the general employment programme, all working independently. There has been an attempt at co-ordination but this is still in the initial stages.

3. THE AIMS OF THIS REPORT

This report summarizes the primary investigation on the potential of `urban' agriculture in contributing toward an employment-creation programme for the residents of the informal settlement of Cato Crest, Cato Manor, Durban. The report is by no means a comprehensive report. Rather it should be viewed more as a working paper.

The investigation was initiated at the request of the community. That is, the initiative for investigating the potential of urban agriculture as a possible contribution towards an employment-creation programme came from the community members themselves. The significance of this becomes evident later in the report.

The aims of this investigation have been identified as follows :

a) To try and ascertain the potential and applicability of the practice of agriculture taking into account physical, social, economic and environmental aspects;
b) To try and ascertain, within reason, the economic potential and viability of the practice of agriculture in terms of its proposed contribution towards creating employment oppotunities and generating income for members of the community;
c) To allude to the potential and applicability of `urban' agriculture in terms of the development proposals for the Greater Cato Manor Area;
d) To identify suitable land for the practice of agriculture (establishment of community gardens) in the Cato Crest area.

The format of the report is structured according the aims outlined above, but first a clarification of terminology.

4. TERMINOLOGY

URBAN AGRICULTURE : For the purposes of this study urban agriculture has been defined as any activity that produces food within an urban area - more specifically the cultivation of fruit or vegetable crops, *excluding livestock farming*, within the city boundary (in contrast to the metropolitan region as a whole). This report is concerned with the practice of urban agriculture in terms of establishing community gardens rather than promoting `backyard gardening.'

COMMUNITY GARDENS : Community gardens are gardens where groups of people work together to intensively produce food close to where they live for themselves and their community, for subsistence, commercial and/or other purposes. This is in contrast to what may be termed `backyard gardening' - the cultivation of food within the boundary of ones private garden.

ENVIRONMENT : Refers to the ~`quality of life' taking into consideration natural factors such as air, water and vegetation; factors related to the built environment such as health, aesthetics and recreation; as well as other factors related to the quality of life such as economic development, education, public safety and welfare. In other words it refers to the totality of objects and their interrelationships which surrounds and routinely influences the lives of people.

ENVIRONMENTAL : The adjective environmental is used to indicate that a direct relationship between people and their physical habitat is the topic of concern. Reference to *environmental problems* indicates that impaired interrelationships between people and their physical surroundings are the central concern.

5. THE POTENTIAL ROLE OF URBAN AGRICULTURE

Literature shows that where there is extreme poverty and critical shortages of food (e.g. Lusaka) urban agriculture may become a means of survival and make an important economic contribution to the household budget.

The benefits of gardening, however, do not only relate to its economic significance. A garden may be aesthetically pleasing and may brighten an otherwise drab environment. Gardening may heighten an awareness of nature and natural processes, stimulating an awareness of the natural environment and the effects of pollution, development, e.t.c. on the environment. Involvement in gardening may provide points of common interest among members of communities, encouraging social interaction and increasing community cohesiveness.

Community gardens in particular can play a role in community development. The processes involved in initiating and running the garden, such as getting to know other members of the community, working together and sharing resources are just as significant as the actual material benefits obtainable from the garden.

Community gardens are gardens where groups of people work together to intensively produce food close to where they live for themselves and their community, for subsistence, commercial and other purposes. These gardens can play a role in community development through the development of individuals, skills, skill sharing, cooperation amongst members, the production of food and the raising of income. However, this potential is only realisable if :

- community gardens are initiated in response to a community's expressed need;
- the community is intimately involved from the early stages in the decision making and planning; and
- the garden is economically viable.

In the case of Cato Crest the first condition has already been satisfied. Whether he third condition may be satisfied is debatable and it is the intention of this report to bring this issue up for discussion with the community. At present all we can offer in this respect is techinical information regarding the selection of a suitable site, and a review and comparison of other established community gardens in South Africa. Whether we will proceed with a more detailed investigation depends on the decision that will be taken by the community.

Though evidence exists to testify to the considerable success of community gardens (in terms of its potential as outlined above) in small town and peri-urban contexts in South Africa (Montagu, Ashton and Botha's Hill) it is unsure whether such conditions may be met in a city location such as Cato Crest.

No matter how compelling the benefits may appear in theory, they are only real if they are appreciated by the gardeners themselves. Moreover it is only when potential gardeners perceive these to be real and desirable that they will engage in gardening activities.

Where strong gardening traditions exist such as in the United Kingdom and the United States of America (the allotment system) market gardening and green house agriculture has always been practiced in urban areas. It is most often a form of recreation, although other motivations such as the desire to grow vegetables organically and economic considerations are also important.

This report is however more concerned with the economic potential of urban agriculture in terms of contributing towards an employment creation programme for the benefit of the Cato Crest Community.

6. THE ECONOMIC POTENTIAL OF URBAN AGRICULTURE

The most important determinants of economic viability of urban agriculture are the economic circumstances of the urban community and the availability and affordability of food. In the case of extreme poverty and critical shortages of food urban agriculture becomes a means of survival and is practised even in adverse conditions (eg Lusaka). Where the urban economy is stronger, like in South Africa and Zimbabwe, the existence of alternative means of survival appear to affect the urban poor's propensity to garden.

Literature on international experience in this respect shows that where a strong formal urban economy exists, and where there is an acute shortage of metropolitan housing and accommodation, as is the situation in Cato Manor, the opportunity cost for land and labour used for the production of vegetables exacerbates the relatively lower returns gained from vegetable gardening.

In other words :-

* the acute shortage of inner city housing and accommodation for Durban's lower income residents cannot be ignored and this has a direct bearing on the opportunity cost of land used for the production of vegetables;
* the labour expended on gardening could be more profitably used in formal or informal income earning opportunities, any number of which exist within a strong urban economy

In such a situation the practice of urban agriculture/vegetable gardening could be beneficial in any or all of the following 3 ways :

a) ensuring sufficient affordable food;
b) creating employment opportunities at low cost (relative to industrial and/or commercial employment opportunities) and supplementing incomes; and
c) contributing to environmental quality.

This is further elaborated on below.

a) ENSURING SUFFICIENT AFFORDABLE FOOD

One of the consequences of the sprawling pattern of urban development is the increasing displacement of food producers on the urban periphery and increasing dislocation between local producers and the main urban market. The result is the centralization of food production which promotes a centralized monopoly in the food distribution system within urban areas.

This in turn forces up the prices to the detriment of the urban poor and restricts the degree to which the urban poor can engage in food production and distribution, traditionally a main survival sector in cities in all developing countries. The history of Cato Manor is a good example to illustrate this point.

If this is taken into account in planning for the Greater Cato Manor Area in terms of integrating urban growth and small scale food production to complement each other, the potential exists to ensure a sufficient affordable food supply for the poor in the area.

b)CREATING EMPLOYMENT OPPORTUNITIES AND SUPPLEMENTING INCOMES

This is in response high unemployment rates as well as to insufficient earnings and the rising cost of food. It has been established that on average for every one tenth of an hectare set aside for intensive urban farming one job will be created (that is full time employment. This in turn creates the opportunity for part time employment : seasonal labour may be needed for harvesting or other activities; someone has to take care of marketing the produce, and there might be a need for processing and packaging, e.t.c.

It therefore follows that the establishment of a fairly modest one hectare community garden could create full time employment for approximately 7-10 people as well as a number of part time employment opportunities. These are fairly conservative estimates.

However this would have to be weighed against the total cost of establishment which could well be in the region of R113 000 net expenditure for a three year period (this would include capital costs, start up costs and operating costs, as well as the project co-ordinators fees, but excludes donations and contributions). This is the figure quoted for the establishment of the Nyanga Community Garden in Cape Town. The budget for the next phase (the following three years) was estimated to be approximately R90 000 p.a.

c) CONTRIBUTING TO ENVIRONMENTAL QUALITY

The implementation of the Durban Metropolitan Open Space System (D'MOSS) project has commenced and it is hoped that over the next five years the entire city will be connected into a system consisting of nine parks that will all be linked to each other by means of hiking trails along the urban river system and coastline.

An attempt will be made to join all outdoor leisure activities into the system. D'MOSS is also an attempt to rebuild the natural environment and protect the ecology of Durban by implementation of the latest urban nature conservation theory. Not only will it bring nature back to the heart of the city, but it will enhance the city environment through the landscaping of parks and the the management of conservation areas.

Urban agriculture (establishment of community gardens) could be incorporated into the D'MOSS proposals as indicated on the D'MOSS Proposals Map. This would serve to highlight the non-economic benefits of urban agriculture such as recreation, education, increased environmental awareness, e.t.c. The establishment of community gardens could also help to stimulate an interest in home gardening by providing education, training and services to community members.

7. IDENTIFICATION OF A SUITABLE SITE

The location and quality of the land will play a large role in determining the overall viability of a community garden. The following factors were taken into account in trying to identify a suitable site in the Cato Crest area :

1. Location : Ideally the site should be close to home and between home and workplace. In this respect the search for suitable land was restricted to Cato Crest, for the short term at least. However, taking into account that Cato Crest is an integral part of Greater Cato Manor, and that planning and development in the area needs to proceed in a co-ordinated fashion in order to realise the full potential of this prime area so close to the Durban C.B.D., suitable sites within the Greater Cato Manor Area have also been identified. This is shown on Plate 1.

2. Sun : As far as possible the site needs adequate exposure to sunlight. Besides the informal settlement, the two schools, the electricity sub-station, the reservoir and the telephone exchange there is no other development in the area that would obstruct the passage of sunlight. Only natural obstructions such as topography need to be considered.

Slope orientation in terms of sunlight has an impact on the type of crop that may be cultivated. In this respect all west facing slopes, that is those that receive the hot afternoon sun, have been mapped on the Site Assessment Plan.

3. Soil : Ideally the site should have a type of soil that is naturally good agricultural soil to minimize the use of artificial fertilizers, or the use of other costly methods to improve soil condition. The type of soil ultimately determines the type of crop that may be grown.

As there was no available data in terms of agricultural soil types for this area, the selection of suitable sites in this case was based on geological surveys that were undertaken in terms of obtaining geo-technical information for development purposes. Geologically suspect areas (unsuitable for development) were the areas identified as being most suitable for the practice of agriculture. This is mapped on the Site Assessment Plan.

The benefit of having identified suitable land in the manner mentioned above is as follows :-

> Land that is geotechnically unsuitable for development, or where development costs would be exorbitantly high, may now take on a new use value that may be potentially higher than if it were to become some form of Open Space (as is usually the case).
>
> This takes into consideration the goals and objectives of the Proposed Greater Cato Manor Development Plan that seeks to maximize metropolitan housing and

economic benefit from the land in terms of maximizing housing and employment opportunities for low income people.

In this respect the contesting/competing land uses (housing, construction, service, manufacturing, educational, commercial, e.t.c.) are not in any way compromised. Rather, land set aside for the practice of agriculture may then be assessed in terms of its complementarity - the significant income generating potential of urban agriculture together with its non-economic benefits should be viewed as *complementing*, and not *competing* with other economic activities or land uses.

A soil suitability test for agricultural purposes will have to be carried out before commencement of any planting of crops.

4. Wind : Ideally the land should be sheltered from the prevailing winds. Where this is not possible, space will have to be allocated for wind breaks.

5. Cost : The cost of establishing and sustaining and economically viable community garden must be within reason and affordable. Where financial assistance is necessary care must be taken to ensure that the financiers will not pull out in the middle of the project. As far as possible the project should be self-sustaining. This is a most crucial aspect, but one that has not as yet been tackled. However possible sources of financial and practical assistance have been identified, e.g. Farmer Support Group.

6. Vulnerability : Ideally the garden should not be close to a major thoroughfare nor too remote. It is best to be situated close to the place of residence and preferable to have a resident caretaker. The land that has been identified as suitable for agriculture in Cato Crest is along Bellair Road, which runs more or less parallel to the Umkumbaan River. This is shown in concept form on the Land Suitability Map.

Although not shown on the map, it is intended that where a site abuts the road there will be a strip of natural vegetation separating the road from the cultivated plot. Furthermore in the case where the river runs through the site selected it is intended that the river course be protected by natural vegetation on either bank - this would retain the integrity of river systems and aid in flood control and soil erosion.

7. Gradient/Slope : Flat land is easier to farm than steep land. The Site Assessment Plan includes a slope analysis. Land identified as suitable for agriculture consists of a mix of both steep and flat land. The final selection of a site will need to take greater account of slope - identifying steep land may necessitate terracing and this requires a considerable amount of skill.

8. Water Availability and Cost : The Umkumbaan River flows through the area and is a potential source for irrigation. Data on the quality and quantity of water (or water flow) appears in Appendix 1. The water in the river seems not to be polluted and good enough for agricultural purposes. The Cato Crest community is at present adequately serviced in terms of domestic water supply. other services such as garbage disposal and sewerage disposal are available - this has had a beneficial impact on maintaining a relatively pollution free river to date. The Land Suitability Map illustrates land selected for immediate use as well as land that is suitable for future use in terms of practising urban agriculture.

8. COMMENTS

The need for, and the desirability of establishing a community garden in Cato Crest was expressed by the community and this report is a response to the community's request for assistance in this respect.

Section 5 provided an general outline of the potential of urban agriculture while section 6 made reference to the economic potential of urban agriculture. Section 7 provided an outline of the technical feasibility of establishing a community garden in Cato Crest.

What has been established is that there exists a considerable amount of land within the Cato Crest area that may be suitable for the establishment of a community garden. Furthermore it has been established that a one hectare community garden has the potential to provide approximately 7-10 people with full time jobs, as well as provide a range of other part time jobs.

Besides the economic benefit, it has the potential to contribute towards ensuring an affordable food supply, as well as stimulating an interest in home gardening. From an environmental perspective it has the potential to increase and improve environmental awareness; and provide a greater understanding of the natural environment and how it may be integrated into the urban environment thereby improving the general quality of life.

The procedure involved in establishing and maintaining a community garden promotes social interaction and community cohesiveness, and finally it also a form of recreation and relaxation.

DATA BANK

1. ORTHOPHOTOGRAPHS

* *CATO MANOR AND SURROUNDINGS*
  1:10 000 orthophoto, 1985, purchased from Surveyor Generals Department, Pietermaritzburg.
* *CATO CREST*
  1:2 000 orthophoto, purchased from Durban City Engineers, Surveying and Mapping, 4th floor. Contact Anand.

2. AERIAL PHOTOGRAPHS

* *CATO MANOR AND SURROUNDINGS*
  1:30 000 aerial photograph, 27/4/91 No. 15658, Durban City Engineers, Aerial Photography, 4th floor. Contact Mr. Ross.
* *CATO CREST*
  1:10 000 aerial photograph, 27/4/91, enlargement from No. 15658, Durban City Engineers, Aerial Photography, 4th floor. Contact Mr. Ross.

3. GEO-TECHNICAL INFORMATION

* *CATO CREST*
  1:2 000 overlay, Soil Laboratory, Durban City Engineers. Contact Eric Lathlieff.
* *CATO CREST*
  1:2 000 geology overlay, from Department of Community Development, care of Vincent Leggo Associates, 491 Ridge Road, Durban. Contact John Forbes, ph. 288166.
* *CATO CREST*
  1:2 000 Concept Plan, No. 102100.2; 2a; 2b.
  1:2 000 Site Assessment Plan, No. 102100.1.
  March 1991 Proposals prepared for National Investment Corporation, Vincent Leggo Associates, 491 Ridge Road, Durban. Contact John Forbes, ph. 288166.

4. OTHER

* Greater Cato Manor Status Plan - Shows who administers different parcels of land in the area as well as D'MOSS Proposals in concept form. Vincent Leggo Associates.

* A variety of literature on urban agriculture, the most useful in terms of practice being the Eberhard Report :
EBERHARD, R. (1989). **URBAN AGRICULTURE : THE POTENTIAL IN CAPE TOWN.** CITY OF CAPE TOWN, CITY PLANNERS DEPARTMENT.

GLOSSARY AND WORKING NOTES

ALLOTMENT GARDENS - UK - Local government initiative ito public necessity in the late 19th century due to overcrowding and epedemics(Eber..53..7159h/2). In 1965 the emphasis changes from being an economic motive to one of rewarding recreation. average size of allotments 300 square metres. New phenomenon in britain in the 1970s is the growth of city farm groups (a national federation) - these are community projects which work with farm animals and gardening, situated on areas of derelict land in the centre and on the edges of towns and cities (environmentally sound as well as socio-economic benefits).

Allotment gardens germany called kleingarten. In municipal areas they are managed by the city garden department. Groups of allotments secured by locked gate and fence. Rented out at below market value of the land. Group of allotments = anlagen into which is incorporated a children's playgroun and common house for relaxation and meetings. Rules and director for each anlagen and representatives sent to city, state and federal kleingarten associations. Primary function is not to provide food but to provide a link to nature, to foster friendship and community spirit through involvement in common interest.

COMMUNITY GARDENS - USA - Main reasons for gardening are "for satisfaction, enjoyment and pleasure, and for saving money on food bills." Most popular among households in lower and middle income ranges, who own houses, who have older members (> 55), and whose members have available free time. Most home gardeners use organic or semi-organic methods avoiding pesticides. History of rise and decline of urban agriculture since World War I. 1960's and 1970's renewal due to environmental awareness and sharp increase in food prices, and concern about chemical additives in processed foods. Also influx of immigrants with agrarian cultures. Community garden = number of allotments. New York : community gardens and the development of open space systems - Neighbourhood Open Space Coalition. A lot of passive open space from which to sit and view gardens. Organic methods - compost (kitchen and market waste), sifted building rubble or imported soil, and water obtained from local fire hydrant. Also case study of greenhouse.

Investigation to ascertain the potential of urban agriculture to help alleviate poverty in Cape Town. Investigation revealed that it could not make a significant contribution to the alleviation of poverty in Cape Town; that is it was economically insignificant due to increasing poverty and inflationary food prices. However there were numerous non-economic benefits such as recreation, aesthetic appreciation, increased environmental awareness and improved social interaction - but interest in these aspects amongst low-income households in the Cape is limited. The development of a gardening culture will therefore require an approach that will minimize the factors that have given rise to the limited interest mentioned above; as well as an approach that gives attention to urban structure , the facilitation of easy access to cheap resources needed for gardening

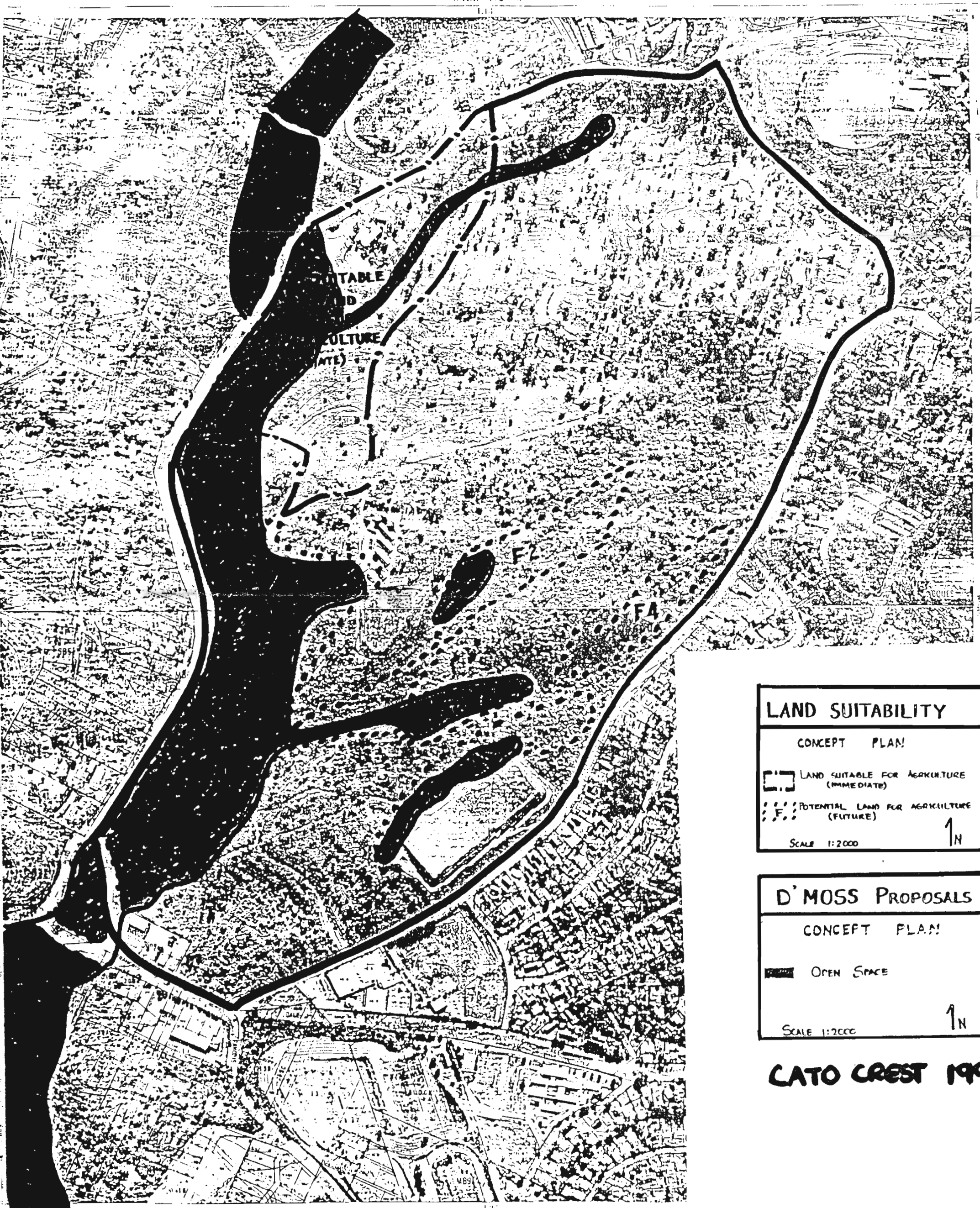
(especially organic matter), the popularisation of the benefits of gardening, and involvement of the communities in these processes.

Scope for local government : should plan for the prevention of dislocation between local producers and the urban market to meet basic food requirements of the urban poor. Also ensure efficient food marketing systems, maximising the recycling of organic wastes, developing appropriate environmental policies and designing low income plot layouts with urban agriculture in mind. Also need to facilitate access to resources needed by urban agriculture, that is land, water, seeds, plants, expertise, compost.

Scope for NGO's : urban agriculture projects as part of community development work. Impartial broker between government and community.

CITY OF DURBAN

SCALE 1:2000



LAND SUITABILITY

CONCEPT PLAN

LAND SUITABLE FOR AGRICULTURE (IMMEDIATE)

F POTENTIAL LAND FOR AGRICULTURE (FUTURE)

SCALE 1:2000

N

D'MOSS PROPOSALS

CONCEPT PLAN

OPEN SPACE

SCALE 1:2000

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CATO CREST 1992

CITY OF DURBAN

ORTHOPHOTO MAP

SCALE 1:2 000

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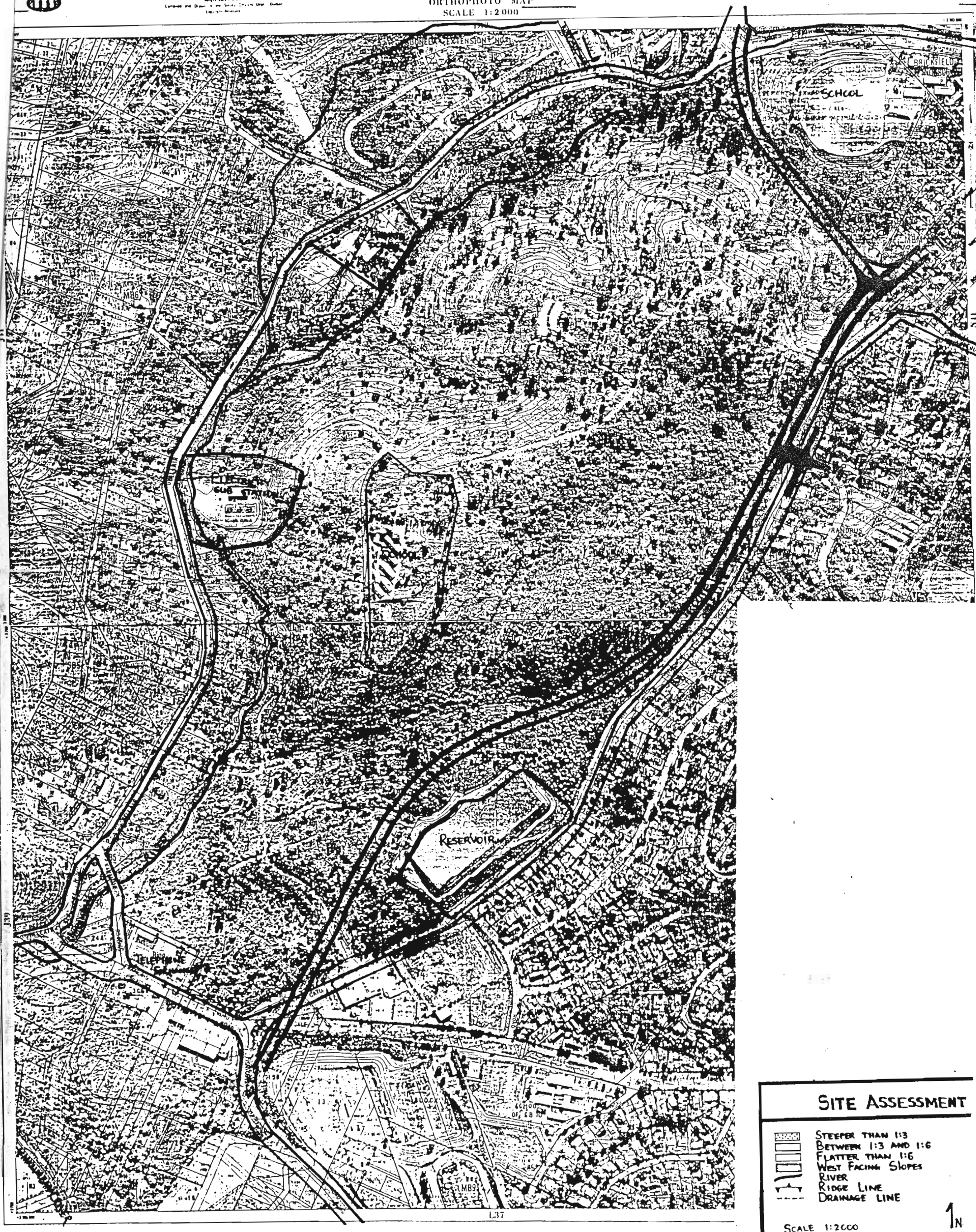


SITE ASSESSMENT

- STEEPER THAN 1:3
- BETWEEN 1:3 AND 1:6
- FLATTER THAN 1:6
- WEST FACING SLOPES
- RIVER
- RIDGE LINE
- DRAINAGE LINE

SCALE 1:2000

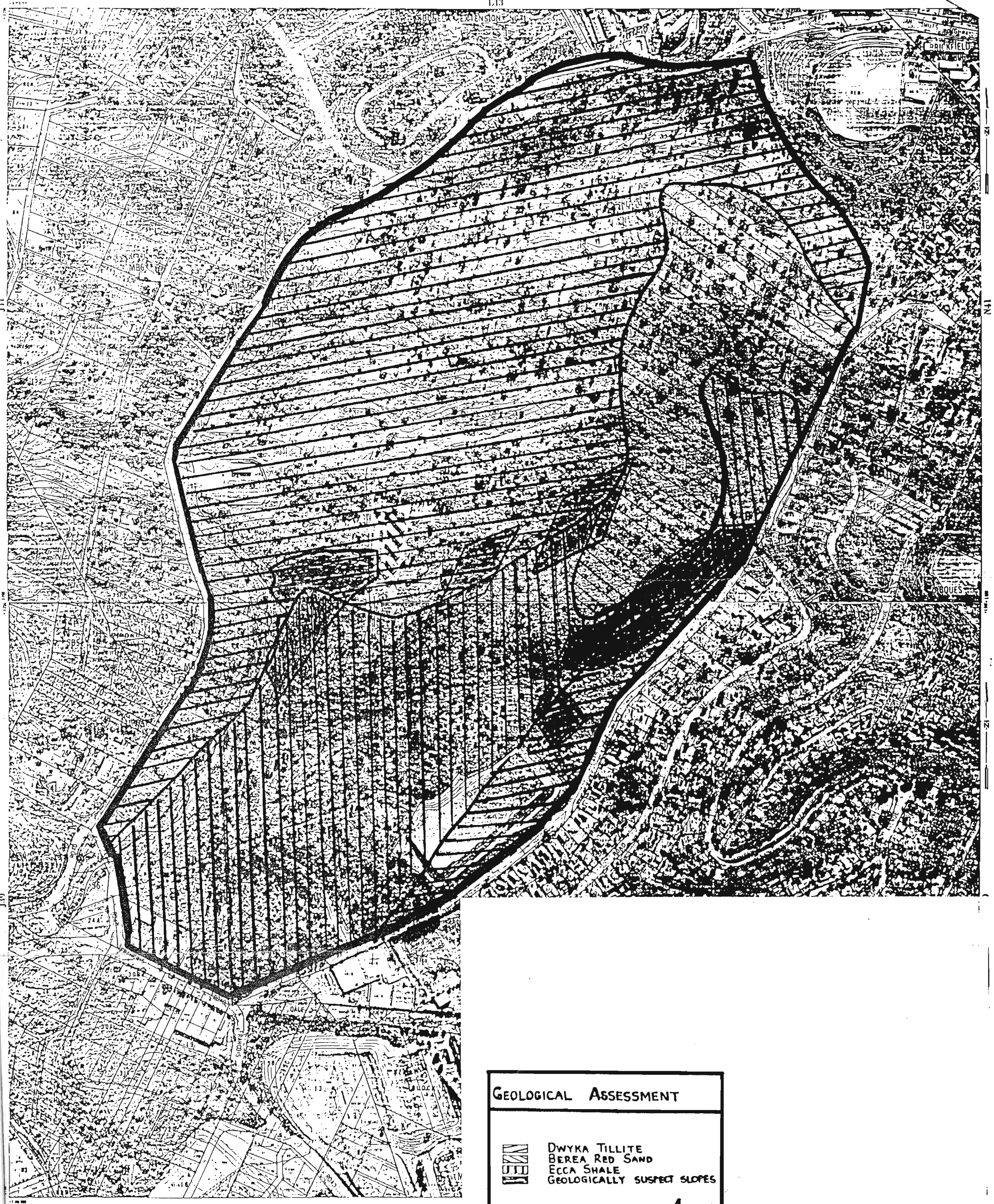
1N

CATO CREST 199

CITY OF DURBAN

ORTHOPHOTO MAP

SCALE 1:2000



GEOLOGICAL ASSESSMENT

- DWYKA TILLITE
- BEREA RED SAND
- ECCA SHALE
- GEOLOGICALLY SUSPECT SLOPES

SCALE 1:2000

1N

CATO CREST 1992