EXECUTIVE SUMMARY

1. INTRODUCTION

1.1 General

Food systems in urban areas are often not sustainable. Urban residents are mostly reliant on produce from rural areas and, in many cases, imports from neighbouring countries for their food needs. In southern African countries, various factors have resulted in deteriorating food security situations in urban areas. Many poor urban households are not able to afford the most basic foodstuffs needed for an adequate level of nutrition. Unemployment is a major dilemma, with the formal sector of the economy in many instances not being able to fulfil the need for secure employment. This has led urban dwellers to consider alternative means of earning a livelihood. The informal sector offers some alternatives, even though many of these activities can be viewed as survival strategies rather than sustainable livelihoods. The significance of these activities is their potential for providing the basic needs of urban households. Urban agriculture (UA) has emerged as a key activity in the informal sector in most southern African countries such as Tanzania, Zimbabwe and Malawi. It has been noted that UA is the response of urban residents to the decline of formal urban economies. Urban food production can be seen as a new coping strategy for urban residents, changing the way people in cities feed themselves.

Urban agriculture can be defined as “the production of vegetables, crops and small livestock by urban households for household consumption and for the urban market”. More simply, it can be described as “agriculture located within or on the fringe of a town or city”. Urban agricultural systems include horticulture, floriculture, forestry, aquaculture, and livestock production.

With the acceptance of UA as a reality in the cities of developing countries, the discussion has recently moved away from being simply a debate on the advantages and disadvantages of this activity. Focus in the UA arena is now shifting to the implementation of this practice. Management of UA should advance its sustainability and mitigate its impacts on the natural environment. It is becoming increasingly clear that policy is needed to guide role-players in decision-making and implementation of UA.

1.2 Benefits of urban agriculture

The benefits of UA are often associated with poverty alleviation, and the practice has emerged as an important element for managing poverty in African cities. UA supplies one of the basic needs of any household, namely food. Further benefits for households participating in UA are increased levels of nutrition, income-generation and employment.

Farmland is being lost all over the world due to rapid urbanisation and the subsequent expansion of urban areas. In the process, however, the amount of urban land is increasing. This resource should be capitalised on to supply the food needs of urban populations.

UA makes a significant contribution to urban food security and should therefore be understood as an essential rather than marginal land use. UA is the basis of local food systems in urban areas. Local food systems offer long-term sustainable solutions, not only for the environment but also for local and regional economic development.

UA can contribute to the restoration of urbanising areas suffering from environmental degradation. It can revegetate denuded areas, restore hydrologic regimes and conserve topsoil.

Urban farming can contribute to more efficient urban management because its benefits can help city managers overcome some of their most vexing problems. UA can help clean and maintain urban open spaces by using them for food production, greening them to improve the quality of the environment and helping free them of anti-social behaviour.

UA is intensive and therefore food is produced on a fraction of the land needed for rural production. UA is also relatively efficient in its use of water. Thus both land and water are conserved.

1.3 Criticism of existing urban agriculture research

The validity of existing research on UA and assumptions often made regarding this activity, have been questioned. There are arguments for a greater emphasis on UA as an **activity** rather than a **development path**. This places cultivators at the centre of the debate. Recent studies on UA, focusing on policy and best-practice methods for implementation, aim at addressing this gap between grassroots activities and the development discourse.

A reality of UA that has been mentioned is the fact that urban farmers are often **not the poorest of the poor**. Incorrect assumptions are often made in this regard. The urban farmers of southern African cities seem to vary from the urban poor to small-scale commercial farmers.

However, the expansion of UA is a reality in many cities of southern Africa such as Harare, Dar es Salaam, Lusaka, Lilongwe and Nairobi. This is proof that UA contributes to the lives of urban residents of the sub-continent, whether the poor or those merely seeking to supplement a limited income. The shortage of regular employment opportunities and increased levels of inflation also have a major impact.

1.4 Implementing urban agriculture as a sustainable land use

The implementation of UA in an effective and productive way at a **local level** is a challenge for role-players. Certain constraints limit the success of urban farmers and local officials attempting to establish sustainable UA ventures. The various benefits of UA advocated in the literature should be felt at a local level. However, frustration often arises when every effort is put into urban farming ventures only to be confronted with numerous constraints. An UA policy that underpins best-practice methods for implementing and sustaining urban farming projects, or supports existing farmers, is needed. Such a policy should be based on sound research into effective methods for sustainable UA.

As seen above, it should be taken into consideration that policy support for UA will not necessarily benefit the urban poor. The challenge in facilitating UA is to decide whether it should be brought into the formal sector or left as a survival strategy. By supporting UA only as a formal activity, mainly commercial farmers, and not the poor, will benefit. A study in Dar es Salaam revealed that policy support benefited mainly commercial farmers and those with political connections. Therefore, policy should be shaped in such a way as to benefit all parties involved.

2. THE CURRENT SITUATION IN SOUTH AFRICA

2.1 General

The study reveals that authorities in South Africa, especially at a local level, are showing an increasing interest in UA. It is recognised that UA is a day-to-day reality for many urban dwellers in the country, and that it holds great potential for the cities and their residents. This informal sector activity is also considered to show good potential for local economic development (LED). Many initiatives and projects have either been established, or are still being planned, for a number of South African cities. This can be ascribed to the growing acceptance of UA as a legitimate land use and as a sector providing for the daily needs of urban dwellers. Various role-players, from grassroots participants to government departments, initiate UA projects. In this regard it should be recognised that numerous difficulties confront role-players when setting up and managing these projects. The activity of producing food is not new, however, and many urban residents have been practising it without external support for a long time.

2.2 Current policy

Lack of a clear policy to guide the implementation and management of UA is currently limiting the sustainability of this activity in South Africa. Existing policy in South Africa is not against UA as such (it can even be said to be accommodative) but no definite guidelines are available.

The White Paper on Agriculture emphasises food security. According to this document, national government should "support the full spectrum of production systems and practices, from urban food gardens and small-scale production for household income and food security to large-scale production systems which can add considerably to national food security". The White Paper recognises urban food production as a strategy for reducing insecurity within South Africa's increasingly urbanised population. However, the focus of the Department of Agriculture regarding food security is on the **rural poor**, who are prioritised for funds and support. In South Africa, 72 percent of the poor live in rural areas and 70 percent of rural people are poor.

Support for UA projects from the Department of Agriculture is given at a provincial level. Provincial government is in charge of UA projects, and the national department will only intervene when necessary. Agriculture in informal settlements does not receive support from the department, as it views housing as the first priority in terms of support for informal dwellers. Also, tenure security is a prerequisite for departmental support, and most informal dwellers therefore do not meet the required criteria.

The **Department of Housing** views UA as an important activity in relation to its "environmentally sound housing programme", which, in part, focuses on greening of the housing environment. The significance of improving food security in human settlements is also recognised as a crucial issue to be addressed by government. The Integrated Food Security Strategy in South Africa requires input from various levels of government. National Government can promote food security by developing guidelines for UA and permaculture gardening. Such a guideline should also aim to increase collaboration between government departments at various levels.

2.3 Urban agriculture in Gauteng

UA is a particularly relevant activity in Gauteng, the most urbanised province in South Africa. Discussions with various role-players revealed a largely accommodative attitude towards this practice. A key role-player in this arena is the Household Food Security & Poverty Alleviation sub-Directorate of the Gauteng Department of Agriculture, Conservation, Environment & Land Affairs (DACEL). This sub-Directorate targets the most poor and the unemployed, women and the elderly, as well as people with HIV/AIDS, especially children. The main focus here is to assist the poor of Gauteng to produce their own food and generate some income. DACEL projects are therefore aimed at improving household food security for participants, but a number of projects have gone beyond this envisioned focus to provide a sustainable source of income. In February 2002, this sub-Directorate was managing 60 projects, of which 20 were outsourced to NGOs and other organisations. This left 40 projects under the direct control of the sub-Directorate with 40 more under consideration at that stage. However, insufficient capacity is a critical issue that prolongs the application process, even though cooperation with NGOs has relieved some of the pressure involved in the managing of projects.

DACEL projects are established over a period of three years. Support is in the form of extension services with some funds, implements and seed being provided. Skills development is managed by NGOs, such as Food Gardens Foundation, for example, who are usually actively involved in the implementation phase of projects. Grants as such are not provided, but rather the **means** to establish and maintain a food garden. A crucial prerequisite for support is a piece of land with security of tenure. **Access to land**, however, is a major hindrance encountered by DACEL and potential urban farmers. Although DACEL has the expertise in place to manage projects, nothing can be achieved without land. In this regard, the benefits of vegetable gardens on school grounds are evident.

2.4 Urban agriculture in Tshwane

In Tshwane, UA is viewed as an accepted land use. Furthermore, the promotion of UA is considered a local economic development (LED) strategy. However, UA in Tshwane is currently a "social activity" with limited sustainability. Guidelines will assist in developing UA into a sustainable, income-generating activity for the city. The current temporary nature of this activity, often seen as a source of transitional job opportunities, complicates lease agreements.

An April 2002 meeting between various UA role-players in Tshwane revealed some crucial issues. The key objective for UA that emerged from this meeting was the creation of an **enabling environment** whilst **mitigating the negative impacts** of this

activity. Increased coordination between various levels of government and other stakeholders was emphasised as being a critical issue. Access to land with tenure security was also mentioned as a limiting factor. A further issue raised was the question of which sector within UA should be prioritised for support: UA as a subsistence activity or UA as a purely economic activity. Infrastructure for UA and insufficient institutional capacity subsequently emerged as restrictions on UA development within Tshwane. Once again, the need for an UA policy was emphasised.

Some initiatives originating from the municipality are an UA project in Atteridgeville that is still under development and hydroponic production units located at various sites. These projects form part of the Mabopane Centurion Development Corridor (MCDC), a Tshwane initiative aimed at revitalising the western region of the city. UA was included in the development framework of the MCDC, given that 95 percent of Tshwane's poor live in this region.

2.5 Urban agriculture in Cape Town

Mostly due to the efforts of NGOs such as Abalimi and Food Gardens Foundation, UA has been a reality in Cape Town for some time. Recently, the commitment of the City of Cape Town to UA was evidenced by an Urban Agricultural Summit organised by the municipality in May 2002.

Abalimi, "the people who plant", is an NGO actively promoting and supporting vegetable growing and urban greening in Khayelitsha and Nyanga. Individuals from these communities are supported in initiating and sustaining food gardening and greening activities, viewed by Abalimi as a doorway to broader developmental processes. Low-cost manure, seed, seedlings, tools and pest control remedies are supplied to individual gardeners and organisations from two township garden centres. Abalimi also aims to deliver model projects on UA and environments that are community based and sustainable. A key feature of Abalimi's initiatives is school vegetable gardens. Schools are encouraged to hand over unused land to the poor for cultivation. In many instances, schools benefit from these vegetable gardens by receiving free vegetables for their school-feeding schemes. Abalimi projects have proved that UA can increase the level of household food security for participants and even generate some income for these cultivators.

In Mitchell's Plain, the Eastridge – Beacon Valley Community Development Project is contributing to the lives of community members in more than one way. This project was established in 1999 with the support of the Food Gardens Foundation. Initially only a vegetable garden, the project has expanded to include a take-away kitchen and plant nursery. The vegetable garden remains the focus of this project, however. Currently, 22 community members are employed here.

In Philippi, an innovative idea saw the establishment of an urban floriculture project. The land for the Peace Lily Project is situated within a Homeless People's Federation housing development, Hazeldean, and involves the cultivation of Arum lilies (*Zantedeschia aethiopica*). The project coordinator felt that an opportunity existed to combine the production of Arum cut flowers with various additional spin-offs. These include job creation, providing a source of income generation for the community, retaining an agricultural or green space within an urban environment, and reducing the impact of the illegal picking of lilies in their natural environments by supplying cultivated

flowers to the marketplace. Job opportunities created by the Peace Lily Project benefit homeowners of the Hazeldean community.

The Atlantis Urban Farmers Project was established on land allocated by the City of Cape Town for agriculture. This project operates under the auspices of the City. The allocated 12 ha of land was subdivided into 0,5 ha plots for either cultivation or poultry farming by Atlantis residents. The municipality provided extensive infrastructure to assist participants in cultivation. However, in spite of the infrastructure provided and lease agreements signed, would-be participants seem to lack dedication. At the time of the authors' visit to the site in May 2002, the project had been running for one year. At that stage only five farmers out of seventeen were using their plots productively. Various social factors within the community exert a negative influence on the project. Also, the lack of commitment from the residents can be traced to the project implementation methodology, with the community not being empowered or sufficiently involved in the process.

The City of Cape Town organised an Urban Agricultural Summit in May 2002. This summit brought together UA role-players from various organisations within the Cape Town municipal area and elsewhere. It is currently recognised in Cape Town that numerous groups and organisations are already involved with urban agricultural projects in the city. A lack of coordination and integration between the various role-players motivated the municipality's Portfolio Committee for Economic Development, Tourism & Property Management to instigate this summit. In the process of formulating an appropriate Urban Agriculture Policy and Development Framework, the summit served as a key aspect of the public participation and consultation strategy. As a platform for UA role-players in Cape Town, the Summit presented an opportunity for sharing of experiences and knowledge. In doing so, relevant issues needing consideration and emphasis were revealed. These will guide decision-makers in Cape Town in the process of establishing policies, strategies and projects to ensure that urgent needs regarding UA in the city are addressed.

2.6 Other regions

In Buffalo City, Eastern Cape Province, a pro-active step was taken towards establishing UA as a pertinent part of the greening of a new housing development. In the Haven Hills South housing project, specific allotments have been established for cultivation, thereby providing communal land where residents can produce their own food. Apart from the allotment gardens, residents have also begun cultivating on their individual housing plots.

3. URBAN AGRICULTURE, PUBLIC HEALTH AND ENVIRONMENTAL CONSERVATION

3.1 General

UA can be responsible for health hazards that are unique to city farming or that are intensified by urban conditions. This may result in health transition diseases, or facilitate the spread of these diseases and health risks among the densely populated areas. Health transitions refer to the increases of typically rural zoonoses in urban areas, e.g. brucellosis, bovine tuberculosis, anthrax, leptospirosis and echinococcosis.

Authorities have usually responded to these problems by prohibiting UA activities, rather than trying to resolve them. It is, however, vital for supporters of UA to face these potential problems pro-actively because they can have the effect of reinforcing the socio-cultural biases against UA. The first step is to understand what these problems are, how and why they can occur, and what effect they can have. Genuine concerns must be resolved, but mere attitudinal biases and mistaken beliefs should be discarded.

The main problems that can result from urban farming occur because of its close proximity to densely populated areas sharing the same air, water and soil resources. The population concentration in cities exacerbates the impacts of problems resulting from urban farming. Many problems are also caused by poor practice through lack of information and extension assistance.

3.2 Water, soil, crop and environmental contamination

Rapid urbanisation is expected to occur in the next few years, especially in developing countries, with the majority of people expected to live in informal settlements. Worldwide urbanisation will result in the major portion of the planet's population being consumers rather than primary food producers. In South Africa, the provision, operation and maintenance of urban water supply and sanitation services, for all municipal activities, will be a challenging task.

Access to sufficient water is fundamental for agriculture, whether urban, peri-urban or rural. It is therefore also critical for food security. All uses of water put something back into the water that degrades it for other users. Therefore, a decision on land use automatically implies a decision on water use, water runoff and, ultimately, water quality. Poor sanitation, drainage and solid waste management frequently accompany conditions in low-income urban areas, often characterised by high densities and location on land unsuitable for residential purposes. These factors all contribute to the pollution of surface- and groundwater resources.

The contamination of crops, water and soil through industrial and chemical by-products can pose serious health risks to the urban food system.

3.3 Agriculture and the environment

Agriculture contributes to **diffuse pollution**, mainly through irrigation practices, animal feedlots, and the use of fertilisers, pesticides and herbicides.

Continuous use of land for crop production eventually strips the soil of essential plant nutrients, which are often conveniently replaced by the application of commercial inorganic fertilisers. However, this practice, particularly the application of nitrogen fertiliser, has been identified as having significant potential to contaminate groundwater through diffuse pollution.

The application of **sewage sludge** to land also has significant potential to contaminate groundwater. Certain health hazards are also associated with this practice. However, beneficial application within the regulatory limits provides a source of major plant nutrients and essential micronutrients. It also improves the physical properties of the

soil, in particular its water retention capacity, which, in turn, reduces soil erosion and prevents nutrient leaching.

Pesticides are found in water resources due to surface runoff and/or leaching from the land. Residues of insecticides and other chemicals in crops are harmful to human health, causing problems such as cancer, respiratory diseases, sterility, contamination of mothers' milk, and a variety of intestinal diseases.

3.4 Urban livestock production and urban zoonoses

Livestock farming is a reality in many urban areas. According to the Food and Agriculture Organisation (FAO) of the United Nations, the commercial peri-urban production of livestock represents 34 percent of total meat production and nearly 70 percent of egg production worldwide. Research on UA practices highlights the detrimental effect that livestock farming may have on the natural environment and on public health in urban areas. Therefore, sustainable urban livestock farming requires strict control measures, and effective mechanisms to ensure the application of these measures.

Urban livestock farming is often a cause of **noise and odours** within an urban area. The potential health hazards of livestock keeping, especially within urban boundaries, are exacerbated by the intense, close interaction between humans and animals in densely populated areas. The relationship between UA and **health transitions** in zoonotic diseases is a serious public health risk that has been largely neglected in studies. In many cases, zero-grazing practices are promoted for urban livestock farming. However, not much research has been conducted into the health implications of this activity, especially with regard to the disposal of animal waste. Zero-grazing practices might not be as safe as what is normally assumed, especially with regard to the disposal of animal waste.

If urban livestock production is not carefully controlled, it can become a health hazard with disastrous effects. It can expose urban dwellers to zoonotic diseases such as tuberculosis, leptospirosis, anthrax, salmonellosis and brucellosis. Animal dung attracts flies and serves as breeding ground for bacteria. Inadequate infrastructure and the high cost of animal treatment in developing countries result in livestock farmers ignoring animal diseases. Also, in places where the sanitation system is poorly operated and maintained, and sewage flows freely, pigs and cattle eat human waste.

Overgrazing by livestock leads to increased erosion and subsequent silting of waterways. Loose animals can, furthermore, cause traffic problems and result in accidents.

Urban livestock farming cannot be safely practised without strict regulations. The risks posed to the health of urban residents and to the natural environment necessitate active control measures.

3.5 Inefficient use of resources

A significant percentage of urban farming is conducted informally or illegally. Where the use of land is not regulated and an economic rent is not paid, urban farming may be an economically or environmentally inefficient use of such land.

If farmers are not charged a fee for water usage, they may use water designated for other purposes or follow inefficient irrigation practices that may reduce the city's water supply. Regulation and pricing of land and water ensure efficient use of resources, but may drive poor, less efficient farmers from the market. A system of subsidised land and water allocation may enable poor farmers to continue growing crops for family food security.

3.6 Aesthetic impacts

UA is exposed to public view and therefore it may be appropriate to place it under greater control for its aesthetic impact. Agriculture in the city need not be ugly if it is well managed and in appropriate places.

3.7 Managing and reducing the health risks

Despite the reluctance of many city authorities to accept UA because of perceived health risks, in most cities in developing countries (as well as in many eastern European countries in transition) UA is practised on a substantial scale, despite prohibitive laws and regulations. Rather than general laws prohibiting UA, which are largely ineffective, policies are needed that **actively manage** the health risks related to this practice. In the formulation of such policies, it will be necessary to look at how the risks of UA can be **minimised** and the benefits **increased**. Certain solutions are already available.

3.8 Positive environmental impacts of urban agriculture

UA can contribute to the restoration of urbanised areas suffering from environmental degradation, revegetate denuded areas, restore hydrologic regimes and conserve topsoil.

UA contributes to the sustainability of cities by

- enhancing the environment;
- improving urban management;
- contributing to waste management; and
- conserving resources.

<u>Environmental enhancement</u>:

In most low-income countries, rapid population growth and unmanaged expansion are degrading the environment, not only in cities but also in their surrounding bioregions. Farming in low-income communities has the potential to improve environmental health. It can turn unsightly lots into neatly cultivated areas, improve the hygiene of the area through using treated wastewater in farming, and reduce air pollution through greening. Farming and trees in slums also reduce the vulnerability of the community to disasters such as floods and landslides.

Efficient urban management:

Urban farming can contribute to more efficient urban management because its benefits can help city managers overcome some of their most vexing problems. In most low-income neighbourhoods, open spaces by roadsides, stream banks, utility servitudes, sites reserved for future schools and other vacant lots attract refuse, provide hiding places for criminals, and are unhealthy. UA can help to clean them and maintain them in an orderly pattern, use them for food production, green them to improve the quality of the environment and help free them of anti-social behaviour – all at very little cost to the municipality. The improved appearance of these sites is invariably a source of community pride.

Waste management benefits:

Most cities today face acute problems in managing their waste, which results in air, water and land pollution in the cities and their bioregions. Wastewater and solid waste collection systems are costly for the city administration, and they may not currently have the capacity to serve the entire city. A sustainable future for cities would require a move towards technologies that transform waste into useful products rather than dump it. Urban farming can contribute to this process in several ways: by producing crops for human and livestock consumption, by composting, and by processing wastewater for direct production and irrigation. Community-managed systems can improve the city's waste management and increase the service in more parts of the city, while at the same time reducing or avoiding municipal costs.

Conservation of resources:

Urban farming assists the conservation of bioregions and their resources by reducing the pressures to convert mountain slopes and forested areas into cropland and to cut woodlands for fuel. Because UA methods are intensive, food is produced on a fraction of the land needed for rural production. UA is also relatively efficient in its use of water. Thus both land and water are conserved.

4. CONSTRAINTS AND CHALLENGES

4.1 General

The identification of constraints and challenges is fundamental to a sensible approach toward structured planning of UA. For this study report, several sites in South Africa were visited and various role-players interviewed in order to identify these constraints. It became evident that UA practitioners throughout the country experience similar constraints and challenges in their attempts to establish sustainable projects. Certain areas, however, are confronted with unique complications. Social aspects of UA often present unexpected problems that critically affect UA initiatives. UA also poses risks to the natural environment, which can often be mitigated through implementation of effective control measures. For the purpose of this report, constraints are placed into three categories: social constraints, institutional constraints and resource constraints.

4.2 Social constraints

Social aspects affecting UA, such as theft and political undercurrents, often pose unexpected problems and are therefore difficult to manage. Every community presents its own social complexities. The effects of specific social dynamics of a community can be mitigated through proper public participation from the onset of a project. Public participation will also serve to increase the sense of ownership of a project within the community. The "social dimension" of UA is often considered to be its most challenging aspect.

Commitment of participants:

The social status gained by "owning" land often attracts participants who are not necessarily committed to UA. Once a piece of land is secured, enthusiasm for farming may quickly fade.

Culture of dependency:

Extension services are provided to participants of UA projects with the aim of establishing sustainable ventures. Often, however, participants continue to rely on support from local authorities or other organisations and fail to use their own initiatives for solving problems and fulfilling their needs.

The payment of allowances to participants seems to be detrimental to the sustainability of UA projects. In a few instances, participants have refused to continue cultivating after payments ceased. Authorities cannot afford to pay allowances for an unlimited period of time, and therefore terminate payment when a project is considered well established.

The issue of so-called "handouts" was raised at the Urban Agricultural Summit in Cape Town in May 2002. Some participants questioned the role of handouts in contributing to the sustainability of UA. It was also argued, however, that there is a place for this type of assistance in UA. It seems that the way in which handouts are distributed determines the outcome of the process. The word "assist" seems to be key in this regard. Community members should receive support and assistance for **their own gardening initiatives**, thereby firmly establishing a sense of ownership.

A "top-down" approach, where authorities or organisations initiate a project without much community participation, is not conducive to sustainable UA. This limits the sense of ownership for participants and therefore also their commitment to the project.

Temporary nature of urban agriculture:

In Tshwane, UA is often only a temporary activity for many urban dwellers. When other employment opportunities arise, UA is abandoned in favour of them, thus complicating lease agreements with the municipality. Authorities are also cautious of investing in activities of a temporary nature.

Politics and urban agriculture:

The **political situation** in a community can be to the detriment of UA. Once again, community participation is crucial from the onset of a project, due to the fact that the community has the best understanding of the political and social structure of its area.

Political differences **within** a group of participants should also be taken into consideration.

Theft:

Theft is a serious problem for many urban farmers, and this reality should be taken into consideration when establishing an UA project. Fences are costly, and donor funding is often essential to cover this expense. However, in many instances theft still remains a problem since land used for UA is often not ideally situated. Projects located in close proximity to a residential area may experience less crime, because a greater community presence in an area increases the level of passive surveillance.

Skills of participants:

The **skills** level of participants has a great influence on the sustainability of UA. "Skills" do not refer only to agricultural skills but also to aspects such as bookkeeping and business management. Many urban dwellers do not have the necessary experience or knowledge to establish and manage a vegetable garden or similar venture. In this regard, initiatives from organisations such as the Food Gardens Foundation and Abalimi are invaluable.

The project coordinator:

A capable project coordinator **approved by the community** can contribute greatly to the success of communal UA ventures. Such a person should not only mobilise community support, but also effectively manage the project for the benefit of participants. An unstructured group with no form of leadership is less likely to succeed than a group steered by a motivated community member.

4.3 Institutional constraints

The success of an UA project is often reliant on institutional decisions and processes, and certainly benefits from accommodative attitudes on the part of authorities. However, UA is still a rather new concept for many municipalities and therefore some mechanism should be in place to guide these role-players in decision-making. Three main aspects are currently limiting institutional support of UA in South Africa: inadequate coordination, insufficient institutional capacity, and lack of an UA policy.

Inadequate coordination:

Increased **coordination** between authorities at all levels is needed for UA in South Africa. This is essential not only to avoid the duplication of efforts, but also the repetition of past mistakes and failures. Various government departments at a national level have initiatives in support of UA or household food security, and these departments are able to supply some expertise. With combined efforts, UA will benefit from these shared experiences.

At a **local level**, increased coordination between authorities and other role-players, such as NGOs, is crucial for the support and promotion of UA.

Insufficient institutional capacity:

In South Africa, institutional **capacity** for the management of UA is often lacking. Slow bureaucratic procedures can often be attributed to insufficient capacity. Increased coordination between the relevant role-players will ensure a more effective process and require less manpower.

Lack of an UA policy:

Role-players consider a **lack of policy** as limiting the effective management and support of UA. Some mechanism is needed to guide role-players in their efforts.

A key question in this regard is whether UA should be promoted as a **household food security** activity, or rather as an **economic activity**. These two sectors require different approaches and support structures, and both should be addressed in guidelines. In this regard, the **careful targeting** of policy is crucial. Policy support for UA in southern Africa has in the past often proved to benefit only commercial farmers and those with political connections, rather than the poor.

4.4 Resource constraints

Access to resources is mentioned time and again as a limiting factor. This mainly refers to land and water. Authorities are often cautious of UA due to the anticipated impacts of this activity on the natural environment.

Access to land:

Access to land is understandably a crucial aspect of UA. The value of UA to urban residents is evidenced by the cultivation of marginal pieces of land in urban areas, such as land under power lines, for example.

Many urban residents are confronted with a dilemma when attempting to secure a piece of land for UA. Schoolyards often serve as a source of land for cultivation. Both the cultivators and the school can benefit from such an arrangement: cultivators obtain a piece of land on which to grow food for their families, and the school saves on maintenance costs, school grounds become safer, and school-feeding schemes benefit.

Local authorities are responsible for the provision of land for UA. However, many urban residents do not have the financial means to lease land from local authorities. A possible solution in this regard is flexible, short-term lease agreements between the municipality and farmers in order to address the urgent need for land. Otherwise, lease amounts can be negotiated if public open space is utilised productively. The farmers concerned here can be given the first option on land with extension of the lease period; alternatively, municipalities may waive the lease payment because of the benefits they accrue in terms of reduced maintenance and increased security.

A shortage of urban land for agricultural purposes results in urban residents utilising land that is unsuitable for agriculture, such as watercourses. This impacts negatively on the natural environment.

Access to water:

No UA venture can be successful without ready access to water. However, the provision of water often implies costly infrastructure and expenses on maintenance. Furthermore, infrastructure, such as a fully equipped borehole, does not necessarily guarantee continuous access to water. Malfunctioning infrastructure implies non-availability of water. UA therefore calls for alternative approaches to water provision, such as rainwater harvesting, greywater re-use, etc. Urban watercourses may be a source of water, but urban farmers utilising this source risk applying polluted water to their produce. Water pollution from industrial and chemical by-products can pose serious health risks within the urban food system.

Some authorities are opposed to the utilisation of treated municipal water for UA. Nevertheless, the utilisation of municipal water for UA is standard practice in many instances, as it is a reliable, albeit costly, source. The regulation and pricing of land and water is advised in order to ensure that these scarce resources are used efficiently and allocated optimally. On the other hand, in order to enable poor farmers to continue farming, a system of subsidised land and water allocation may be necessary.

5. CONCLUSIONS

Certain aspects have emerged as the most important factors influencing the beneficial and safe practice of UA in South Africa:

5.1 Lack of a clear policy

A lack of clear **policy** or **guidelines** for the effective management of UA is hindering progress. There is an urgent need for a common guiding policy for proper regulation and management of this activity. Policy on UA should, furthermore, be carefully targeted to address the needs of all parties involved, in order to ensure that the poor are taken into account.

5.2 Institutional considerations

Insufficient institutional **capacity** is hindering the progress of UA in South Africa. Improved coordination and cooperation between relevant role-players is required in order to address the capacity problem. This will ensure a more effective process and require less institutional resources.

5.3 Access to land

At a local level, some strategy is needed for facilitating **access to land** for UA. Local authorities should recognise the value of vacant land being used productively. In terms of reduced maintenance costs and improved security in an area, agriculture on vacant land can benefit municipalities. **Security of tenure** also plays an important role.

5.4 Suitability of sites

The **location** of a site for UA is crucial due to a number of factors. Many areas are environmentally sensitive, and serious problems such as water pollution, crop contamination, erosion of stream banks, etc, can occur. **Accessibility** of land is also important for urban farmers.

5.5 Water

Water is a crucial element of UA. In cities, as in rural areas, a **reliable source of water** is needed for any sustainable farming venture. Authorities should be aware of the various options regarding water provision. For Integrated Development Planning (IDP) purposes, it is also necessary, in terms of the National Water Act, to ensure that water use for UA purposes is authorised.

5.6 Resource conservation

The potential impacts and public health risks of UA on natural resources should be addressed in a policy. It will be necessary to examine how the risks of UA can be minimised and the benefits increased. Health risks and environmental impacts should be **actively managed**, with an effective policy serving to guide role-players in this regard. Cities should undertake the research and cost-benefit analyses necessary to decide which types of UA are appropriate in which parts of the city.

5.7 Public participation

Public participation is a key issue for any UA venture. Ideally, UA should be a community initiative supported by authorities or NGOs. It is crucial to ensure public participation from the outset. Public participation increases the **sense of ownership** of a project for participants and circumvents the negative impacts of a “top down” approach. The latter approach often leads to a **culture of dependency**.

5.8 Allowances and “handouts”

The payment of allowances and giving of “handouts” to project participants, as opposed to extension services in the form of advice and training, should be carefully considered. When allowances are paid to participants, a sense of ownership is not established, but rather a culture of dependency. The focus should rather be on **assisting** urban farmers with their own initiatives.

5.9 Skills training

Skills training should form a part of extension services provided by authorities and NGOs. Many urban residents lack the skills to establish and sustain an efficient income-generating UA project. Skills such as **bookkeeping** and **business management** should be taught in addition to **agricultural skills**.

5.10 Project coordinators

A capable project coordinator, **chosen by the community**, will usually benefit communal UA projects. An unstructured group with no form of leadership is less likely to succeed than a group steered by a motivated community member.

5.11 Livestock keeping.

Urban livestock production cannot be safely practised within the urban environment without **strict regulations** governing the activity. Ideally, this type of farming should be limited to peri-urban areas. If allowed in higher density areas, city officials should strictly regulate the practice. This will require sufficient capacity to impose and enforce regulations.

6. RECOMMENDATIONS

Urban agriculture is already a *de facto* activity in many cities and towns of South Africa, as it is in most developing countries of the world. This study has highlighted the positive and negative impacts, and concluded that the practice should be actively promoted in order to fully harness its substantial social and economic benefits. The challenge, however, will be to address the regulatory aspects in a logical and constructive manner, in order to enhance the positive features of UA while limiting the potentially negative environmental and public health impacts. In order to create such an **enabling environment**, comprehensive guidelines should be developed to facilitate policy formulation and expedite the regulation and management of the industry.