

CASE STUDY 1

Creating a model of urban agriculture for food resilience in Johannesburg



How the Food Resilience Programme addresses urban poverty alleviation in the City



Project Summary

A city is measured by how it treats its poorest citizens. In 2013, the Food Resilience Unit was developed to help food-insecure urban residents in Johannesburg’s seven regions grow their own food. The programme has achieved remarkable success in a short number of years. Today, the unit provides 37 000 homesteads, 50+ co-operatives, four farms and one urban agri-zone with an enabling environment for urban farmers to grow and sell their own food. In addition to feeding the poorest citizens, the programme has shifted the landscape from one dominated by food–parcel donation to one of greater self-reliance. There are multiple additional benefits: access to improved nutrition and subsequent health benefits; individual self-reliance; and economic opportunities for a new breed of urban farmers in a model of urban agriculture that addresses poverty alleviation.

Eikenhof Agri-Park hydroponic tunnel

Background and Introduction



Eikenhof Agri-Park offices

One out of every four people goes without one meal a day in Johannesburg. The statistics are worse in the poorest neighbourhoods: nearly one of every two people goes without one meal a day. As one of the most prosperous cities on the African continent, Johannesburg must face this as a serious challenge. Yet, a new Food Resilience Programme offers hope by leveraging urban agriculture to develop access to fresh vegetables and livestock for poorer residents. And in the process, the programme is building a new model of urban agriculture.

IT IS ESTIMATED THAT THE LEVEL OF FOOD INSECURITY IN JOHANNESBURG, MEASURED BY THE NUMBER OF PEOPLE WHO GO WITHOUT AT LEAST ONE MEAL BETWEEN THREE AND TEN DAYS IN A MONTH, IS AT



The ability both to access and to pay for food affects the levels of urban food insecurity. Moreover, the food quality of those who are food insecure is poor, resulting in poorer health. Yet, only 3% of Johannesburg households grow their own food.

It was clear that there needed to be an intervention that not only addressed the issue of food security but also provided food resilience for the City's more vulnerable inhabitants. The City of Johannesburg has delivered food parcels to its poorest citizens since 1996. However, food parcels, while alleviating hunger in the short-term, are not a long-term

strategy to enable the poor to achieve self-reliance. The focus has thus shifted towards food resilience over food parcels.

Food resilience is defined as the ability of a household to keep within a certain level of well-being by being food secure – any intervention considered was not just about access to food, but also about access to 'well-being'. The aim was to achieve the provision of quality, affordable food that addressed secondary issues such as health, but that also encouraged both self-reliance and self-sustainability.

"We had to respond to that [hunger] in terms of maybe providing some food parcels to such families but we felt that we could also introduce agriculture to them whereby the beneficiaries of the food parcels [could] also start doing what we call backyard gardens, in their yards. They can get fresher vegetables [to deal with] with the issue of nutrition, because poverty affects people's health."

Simon Motsusi, Deputy Director, Value-Add Processing, Food Resilience Unit

Critical areas identified for intervention were: the identification of food insecurity 'pockets'; the potential for the growing and selling of food; affordable, healthy food availability; community education on food security and food resilience; and the promotion of healthy eating. The Food Resilience Unit accordingly began their programme with the introduction of backyard gardens – an urban agriculture concept that encouraged self-sustainability by growing food with limited resources.

Challenges Facing Food Security in the City of Johannesburg

Johannesburg faces a number of challenges with regard to hunger and under-nutrition among the urban poor. Food insecurity in the most deprived areas is standing at 41%. Disparities in food security are linked strongly to inequality in terms of geography, gender and race. Johannesburg, like the rest of the country, has seen inequality deepened over the past decade, making it one of the most unequal societies in the world, with Gini coefficient measured at 0.63 in 2010.

Linked to rapid urbanisation are the diseases of lifestyle which are the fastest-growing causes of death among both the poor and middle class. The City of Johannesburg, has identified a healthy-living and -eating initiative as a key instrument for addressing one aspect of the burden of diseases affecting Joburg, namely non-communicable diseases (high blood pressure, diabetes, and obesity, among others). In this regard the City launched the GO JOZI (Get Healthy, Get Active, and Feel Good) initiative to mobilise all people and sectors of society to embrace a healthier lifestyle. In this regard, the City has been working with civil society and the private sector to facilitate community-based interventions to encourage healthy living and eating among residents across the City.

The Joburg Food Insecurity Index is divided into five quintiles, with Quintile 1 being least food insecure, Quintile 2 the second-least food insecure, Quintile 3 at an average level of food insecurity, Quintile 4 at a moderate to high level of food insecurity, and Quintile 5 at the highest level of food insecurity. The focus of the interventions is on Quintile 1.

Moving beyond the broad data and looking at food distribution and food access systems in Johannesburg, it becomes clear that food insecurity, though it tracks city-wide with income deprivation, is also geographically concentrated in areas such as the southern urban fringe where the price, quality and availability of food are all challenges that keep citizens food insecure.

The problem can be split into macro and micro questions. The micro question is about what interventions would get food-insecure individuals access to quality, affordable food most rapidly – be that by means of a food parcel, a food package, a backyard garden or an economic opportunity that allows them to buy food for themselves. The macro question is about how food-insecure areas that could produce food directly, but are not enabled to become food -producing.

Source: 2015/2016 Department SDBIP and ME Business Plans, City of Johannesburg Social Development Department



GO JOZI Healthy Street Fairs promoting wellness in communities that need it most.

Objectives

The City's priority is to address challenges of food security and food resilience, as well as related challenges such as creating entrepreneurial opportunities, skill building, and nutritional/health concerns. Therefore, the key objectives of the programme are to:

1. **Improve food security and ensure food resilience of the urban poor** to reduce the high level of poverty in Johannesburg. This programme would contribute to other efforts towards the eradication of national poverty, and the achievement of Millennium Development Goals (MDGs). This means promoting regular access to food of the necessary quantity and quality for people who are facing nutritional and food insecurity.
2. **Increase access to healthy and nutritious food through agricultural production, income generation, and agro-processing initiatives** by providing support for people interested in farming through small-scale agricultural activities and linking small-farm produce to markets and communities.

3. **Leverage the development of urban agriculture**, with a focus on providing nutrition for the poor, to contribute significantly towards stimulation of local economic growth and job creation as well as regional gross domestic product (GDP), by the following:

- Stimulating local economic development in deprived areas by incentives and setting up sustainable local supply networks through small farmers in local areas;
- Assisting with the facilitation of entry into formal markets through removal of barriers for small farmers, infrastructure development (storage, processing, cold-storage facilities and transportation), and capacity building to meet quality and safety requirements; and
- Enhancing partnerships with retailers and other buyers which provide opportunities for small farmers and enforce affordable food pricing.

4. **Create an enabling environment that promotes healthy lifestyles** to assist society's most disadvantaged, and take reasonable steps to ensure legal compliance (access to food, food safety).



In the relatively short time since the programme began, there have been a number of key accomplishments, all developing new, innovative models for the City of Johannesburg.

Eikenhof Agri-Park hydroponic tunnels

Key Accomplishments

Foremost is the creation of a model of urban agriculture in Johannesburg that draws on local and provincial government partnerships, together with community involvement, to address urban poverty. For a few, this has meant elevation from living below poverty levels to becoming self-sufficient and self-reliant skilled farmers, using modern technology, who are able to scale their own level of involvement in the project. They have been provided with critical, usable, and necessary skills to farm crops effectively – they have become micro-farmers.

“A farmer from a backyard garden, moving to a communal garden, who is now a potential commercial farmer – currently, they qualify to be called emerging farmers.”

Zandile Zwane, Urban Agriculture Manager, Food Resilience Unit, Eikenhof

This change of mindset – from indigent to farmer – signals the basis of a model for changing poverty. For the individual, there is the choice to have their individual garden, be part of a communal garden, or join together with others to form a co-operative in the farm empowerment zones. Not only do they have choices, but they have acquired skill-sets that will allow them to scale upwards, if they wish to. They can start their own business, or join with others, and explore other

opportunities for economic expansion.

The power dichotomy has shifted away from a hand-to-mouth mentality and from food parcels to one of self-reliance.

“It's life-changing. Thinking of unemployment, you just sit at home and don't know where the next meal will come from. But thanks to the City, which has gathered us as co-operatives...every week there's something. We deliver every week, so you know there's something in your pocket you are taking home, at least there is something as a mother you can do.”

Rose Mkhize, Eikenhof co-operative farmer

Lastly, for the farmers, from subsistence backyard/homestead/roof gardens to the co-operatives, there is a model of sustainable growth – the urban farmers can feed themselves, and their families, with nutritious, fresh produce. Well-being comes from knowing where the next meal is coming from. For the communal gardens and the food empowerment zones, produce can be sold at local markets, or on to bigger retailers, creating a new industry with economic opportunities.

About the Department of Social Development

The City of Johannesburg's Department of Social Development is positioned to focus on the empowerment of the poor as the crucial requirement for a sustainable solution to poverty and hunger. The targeted intervention focuses on poverty reduction, food security, developmental initiatives that enable self-sustainability, and social inclusivity. It responds to the conditions of both individual and household poverty by providing a broad variety of programmes and support services.

One of the critical enabling milestones in addressing the intergenerational poverty confronting many poor households is ensuring household food and nutrition security, and growing the small-scale farmers or household agricultural producers to contribute significantly to the food-trade surplus. The departmental service offering can be briefly summarised as follows:

- i. **Livelihood and skills development:** Facilitation and development of livelihood opportunities linked to food resilience and income-generating opportunities so as to develop skills to improve quality of life.
- ii. **Social protection:** Benefits flowing from Expanded Social Package enrolment: rebates on city services; food support; social burial.

iii. **Re-integration of the socially excluded:** Social support in integrating or re-integrating ex-offenders, ex-combatants, migrants, people with disabilities (PWDs), street people, and substance abusers or addicts into community life to play a positive role.

iv. **Provision of grants and non-financial assistance (for NGOs):** Funding, non-financial assistance and capacity building for non-governmental organisations.

v. **Advocacy and community mobilisation:** Conducting outreach to educate the community about ways in which the vulnerable and marginalised may be included in opportunities.

vi. **Regulatory action:** Monitoring and ensuring compliance with policy and legislation, and progressive enforcement of standards.

The Department, through the adoption of co-production principles in the conceptualisation and delivery of services, is committed to the notion of developmental local government.

Source: 2015/2016 Department SDBIP and ME Business Plans, City of Johannesburg Social Development Department

As a result of a 2011 study that reflected the levels of food insecurity in the City, the Department decided to create the Food Resilience Unit to focus on addressing urban food insecurity in accordance with its empowerment mandate.

“Our programme aims to deal with poverty and capacitate the emerging farmers to be job creators in that space and to have income for themselves as well.”

Simon Motsusi, Deputy Director, Value-Add Processing, Food Resilience Unit, City of Johannesburg

As part of the City's 2013-16 Integrated Development Plan (IDP), the interventions decided upon to tackle urban food insecurity were: small-scale initiatives targeting food shortage in specific areas, small-scale household-level



The main custodians of the programme are the City of Johannesburg through the Department of Social Development, which developed the Food Resilience Unit.

As a successful example of integrated government, the programme has been supported by provincial government, sister government departments, and other government-led institutions:

- **The Expanded Public Works Programme (EPWP)** went door-to-door to tell people about the project and hand out seeds and tools, contributing significantly to kick-starting this programme, and generating interest and awareness.
- **The Gauteng Agricultural Rural Department (GARD)** contributed R7 million for the establishment of an agri-park in Eikenhof, which encompasses an office block, ablution facilities, and 20 tunnels or greenhouses.
- **The Gauteng Department of Agriculture (GDA)** sponsored hydroponic tunnels, water tanks, and the irrigation system, and is involved setting up and supporting Agri-Resource Centres.

initiatives, large-scale farming, market access, and food processing – all of which have culminated in the Food Resilience Programme.

Key Strategic Partners

One of the key success factors in the Food Resilience Programme is the quality of its relationships with the various strategic partners. The investment is dual: quantitative, in terms of product or tools, but largely qualitative in terms of training and skills building. The other key factor has been the communities themselves.

Below is a diagrammatical representation of the key strategic partners in the programme, and their contribution.

- Joburg City Parks and Zoo invested R6 million for the construction of a pack house in Eikenhof.
- In terms of accessing the land, the Johannesburg Property Company helps with the land rights – it assists with lease agreements for the rights to operate on the land, and then the land gets transferred to the Department, so that the farmers can come in and operate.
- **The Joburg Market** has been responsible for training farmers, especially on the requirements in terms of taking the produce to market, which include grading, sorting, packing, and labelling.

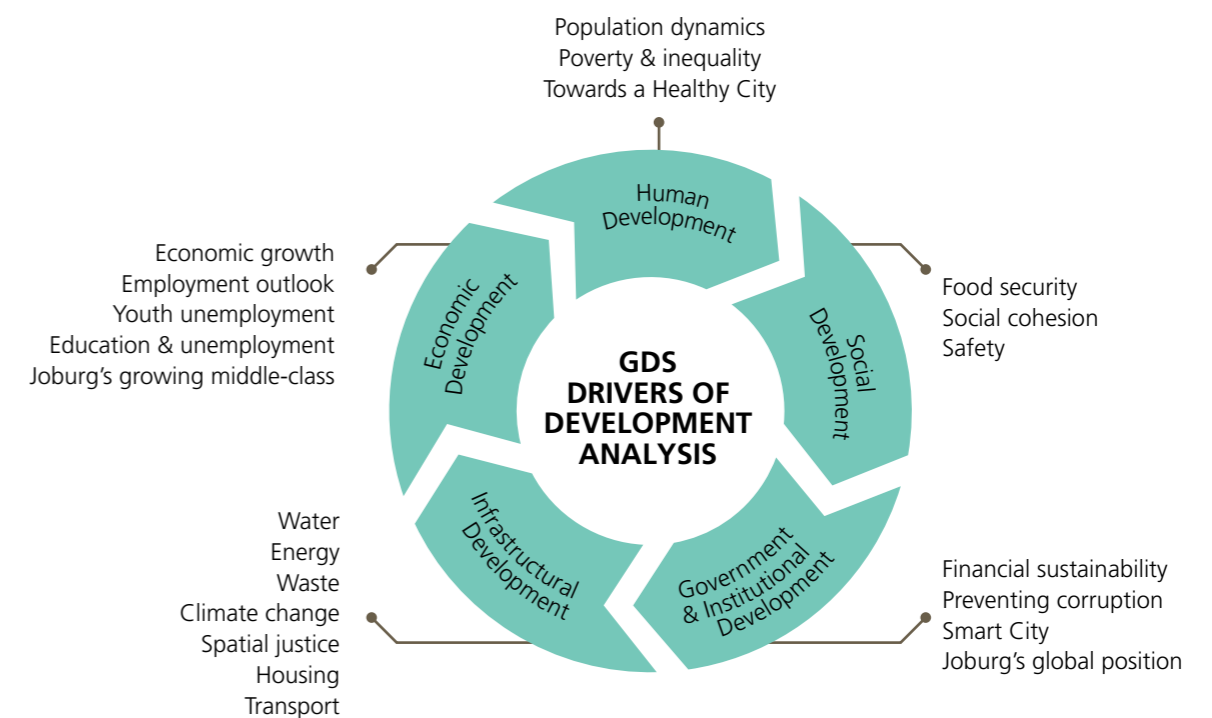
Private sector and NGO involvement has been smaller, but no less significant:

- **Sataka**, a Japanese company, supplies seeds, and also helps train farmers in hydroponics.
- **UnitedWay**, a South African NGO, assisted with training, financial management, and business management for farmers.

Policy and Strategy Drivers

The City of Johannesburg Growth and Development Strategy (Joburg 2040 GDS) identifies as an outcome the creation of caring, safe, and secure communities for the City. In this connection it states that “support from the City will enable people to make independent decisions and take care of themselves and their households”. Food security that is both improved and safeguarded is the related output to this strategic outcome. The aim of any related programme is to ensure that ‘independence’, and the ability to ‘take care of themselves’ is inculcated in any beneficiaries of the food-security process.

Further to the Joburg 2040 GDS food-security outcome, the City of Johannesburg developed the Food Resilience Policy: A City where no one goes hungry. The policy outlines key directives of assisting those who wish to grow food, providing food to the hungry via food parcels and food banks, creating food empowerment zones, and promoting healthier eating. The key questions informing the policy were how to create access to food for those who were food insecure, and how those areas of food insecurity could be enabled to produce food.



The policy aims to address food resilience by providing those who wish to grow their own food with the means to do so; and doing the same for those micro-farmers and/or co-operatives who wish to farm for the public. It also aims to provide those micro-farmers and/or co-operatives with the capability of selling their produce in the same way as a large farm might do. It is intended both to provide cheaper, basic food to those food insecure areas and help people understand how to eat more healthily.

The City of Johannesburg's policies link with the country's policy framework, which incorporates various strategies to realise the right to food. The latter include the Integrated Food Security Strategy (2002), the Zero Hunger Strategy (2009), and the Gauteng 20-Year Food Security Strategy. The strategies seek to eradicate malnutrition, food insecurity and hunger in South Africa through increasing domestic food production and trading; improving the generation of

income and job creation in agriculture; and improving food safety and nutrition.

In addition, the Department of Agriculture's Integrated Food Security Strategy (IFSS), a cross-departmental programme tying together the various efforts to ensure food security, including the Comprehensive Agriculture Support Programme (CASP) and the National Schools Nutrition Programme, looks at food security through the national and provincial lens. For the City of Johannesburg, there was an opportunity to draw on these policies and strategies to develop its response to the same issues at a local government level.

The food-security interventions outlined in the City's 2013/16 Integrated Development Plan (IDP) (as mentioned above) directly informed the Department of Social Development's mandate in forming the Food Resilience Unit.

The Food Resilience Programme Scope

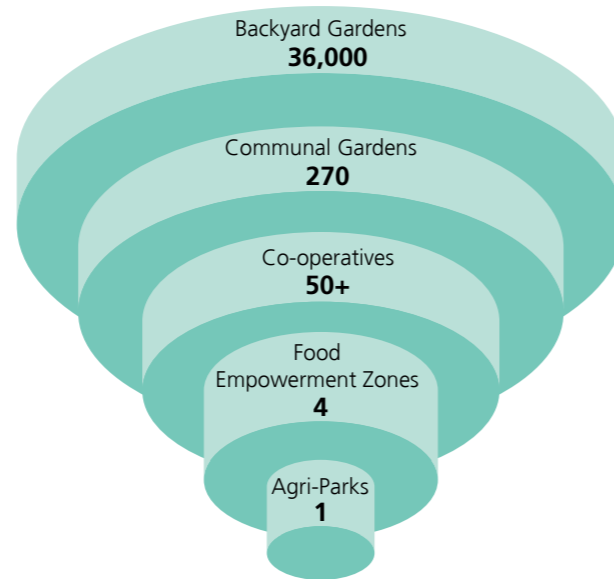
Since its 2013 inception, the Food Resilience Unit evolved organically. The programme began across all seven regions, with the Department lending tools and handing out seeds, so that individuals could establish homestead/backyard gardens. The idea was that when one individual had finished setting up his garden, he or she would then loan the tools to another person in the community.

At first, the unit advertised and the farmers responded, but then people started grouping themselves together to form communal gardens.

Essentially, the programme has evolved from providing food parcels to establishing homestead/backyard gardens and then to the creation of communal gardens from where urban farmers formalised to register as co-operatives so that they could produce and then sell. From communal gardens, the programme further evolved to today's food empowerment zones, and the Eikenhof Agri-Park.

This new model is illustrated here. Today the City has 36 000 homestead or backyard gardens, 270 communal gardens, 50+ co-operatives, four food empowerment zones and one agri-park, in Eikenhof.

City of Johannesburg's Model of Urban Agriculture Development



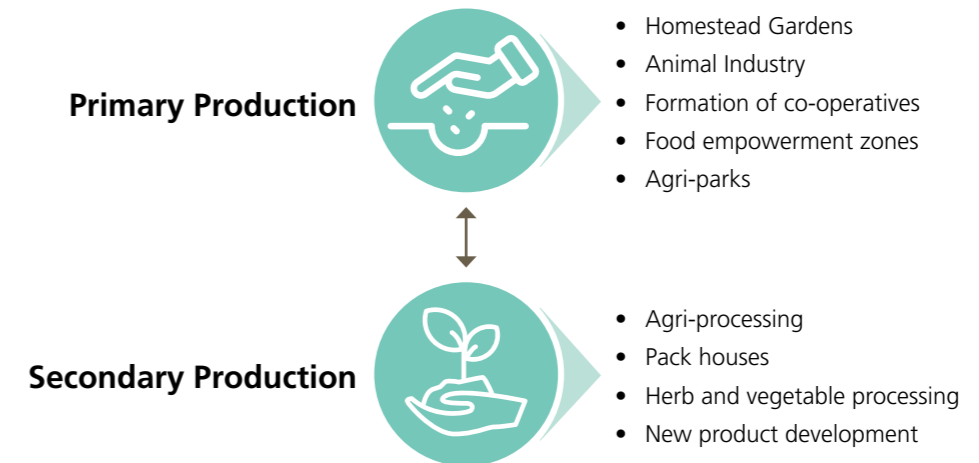
The Food Resilience Programme offers the urban farmer a choice of urban agricultural options from a homestead/backyard garden to being part of a co-operative, with each option characterised by support, training, and assistance.

Strategically, Johannesburg's Model of Urban Agriculture has two major thrusts; the first is in urban agriculture primary

production; the second in secondary production, including agri-processing, with pack houses, herb and vegetable processing, and new product development.

In terms of primary production there are five methodologies: homestead or backyard gardens, communal gardens, co-operatives, food empowerment zones, and agri-parks.

Model of Urban Agriculture's Key Strategic Thrusts



Why Urban Agriculture is Important

Urban agriculture has been recognised as having a potentially important role to play in improving food security in urban areas and providing a basic safety net for urban populations. The majority of households involved in small-scale subsistence farming undertake it predominantly as an activity complementing other types of income sources, such as social grants. The small-scale newly established black

farmers have poor access to markets, a lack of marketing skills, and a weaker bargaining position in the food chains. The aim is to provide a sustainable model to empower communities to grow their own food, to stimulate local economic development and to facilitate access to the markets.



Community garden in Alexandra township

I. Urban Agriculture – Primary Production

1. Homestead/backyard gardens

A homestead garden is a space within a yard that can be used to produce vegetables for yourself and your family. Typical crops would be kale, spinach, cabbage, carrots, potatoes, tomatoes, and beetroot.

Since the inception of the programme, more than 36 000 homestead/backyard gardens have been established. Already, the City has reached 9 000 of its 2017 target of 11 000. The City donates 100g of seeds per crop, for five different crops.

Expanded Public Works Programme (EPWP) workers go door-to-door in communities to assist people to start homestead gardens. This provides skills transfer, and they also leave seeds so that produce planting can continue.

Rooftop gardens

In addition to homestead gardens, in 2016, the rooftop garden pilot project was initiated. In collaboration with Johannesburg Social Housing Company (JOSHCO) and the Johannesburg Property Company (JPC), suitable buildings are identified to replicate the establishment of these gardens. The central business district (CBD) and surrounding areas lend themselves to rooftop gardens, which are popular in major cities throughout the world. The City has

several productive urban and rooftop gardens in Bertrams, Alexandra, Braamfontein, Orange Farm and Riverlea, among others. Further, JPC and JOSHCO have provided space, funding and support for two more rooftop gardens that will be launched this year in the inner City. Crops include cabbage, rape, morogo, basil, dill, cauliflower, broccoli and lettuce. The project's main aim is to produce fresh foods for the local community, generate some income for participants, and donate some of the produce to a homeless shelter.

Rooftop gardens are attractive options for high-density CBD areas, especially in the central suburbs undergoing urban renewal. It is a system that saves water, saves energy, and uses hydroponics. The yields are quite high, especially for high-value crops. There is much interest in this programme, even though the pilot is still in its early stages.

2. Communal gardens

By taking advantage of vacant spaces, schools, clinics, and dumping sites, more than 250 communal gardens have been established. These are run by registered co-operatives, which sell their produce to the immediate communities and informal markets.

Communal gardens are the next step for urban farmers to 'graduate' their businesses to another level. What

separates homesteads from communal gardens lies in how many people they can feed: a homestead feeds one family and its members, a communal garden begins to feed a neighbourhood.

3. Co-operatives

As urban farmers grow in size, their ability to form co-operatives determines how much support they can access in becoming commercially viable. Once co-operatives are formed, the City and its related partners are better able to provide training, capital funding and other resources.

The Department of Social Development currently has four farms which house a number of co-operatives situated throughout the City. The programme started to register co-operatives to begin the process of creating small-scale emerging farmers, who would eventually progress to becoming full commercial farmers.

The Companies and Intellectual Property Commission (CIPC) defines a co-operative as a group of people of five or more individual members who provide services, provide employment to one another, and promote community development. To qualify as such in the Food Resilience Programme, a co-operative must have five members or more, and all the relevant documentation must be in place, including a constitution, tax clearance, business plan, records, and proof of sales, which are submitted to the office as evidence of their operation and production. The unit also assists the co-operatives with registration with the CIPC, and other supporting documentation.

The structure of the co-operative works well among farmers. Many find that they were not aware of certain beneficial skills that they need as a team, rather than as individuals. Also, as a team, certain strengths emerge. The co-operatives allow for individual strengths to be nurtured and upskilled to the benefit of the co-operative.

4. Food empowerment zones

A food empowerment zone consists of a large farm, established via a competitive proposal call with private sector partners, with plots of a minimum of one to two hectares allocated to emerging farmers via the Agri-Resource Centres (see below). The zones also contain a hub-and-spoke site, a people's restaurant, a subsidised linear market, and a food-for-waste exchange site.

“We call them large empowerment zones, the reason being that they are bigger in size as compared to a homestead or a communal garden, and in terms of the way forward, the people that are placed there, we want them to be more entrepreneurial in approach, and we want to change their mindset to be more businesslike.”

Zandile Zwane, Urban Agriculture Manager, Food Resilience Unit, Eikenhof

There are four food empowerment zones in Johannesburg (see table below). Eikenhof Farm is the biggest at 270ha with 32 co-operatives working the land.

Farm	Size	No. of co-operatives	Investment	Business Activity
Eikenhof Farm	270ha	32	R12 million	Piggery, poultry, crops
Fleurhof Farm	11ha	3	2.3	Crops
Nancefield Farm	5ha	1	1.5	Crops
Northern Farm	38ha	8	7	Crops

Source: IGR Working Group Meeting, 19 April 2017, Sedibeng District Office 5

5. Eikenhof Agri-Park

At the top of the City of Johannesburg's Model of Urban Agriculture, the Eikenhof Agri-Park is the largest and most successful example of how the City can move small homestead farmers, communal gardens and co-operatives to another level. Eikenhof is a potential model for replication elsewhere, starting with the other three food empowerment zones.

Financial investment in Eikenhof has been substantial. The Gauteng Department of Agricultural Rural Development has invested over R7 million in the Eikenhof Agri-Park,

which covered fencing, tunnels, an office block with a boardroom, and ablution services. Their contribution also included four tractors as part of the mechanisation programme. Joburg City Parks and Zoo contributed R6 million for a pack house, and the City of Johannesburg's Department of Social Development contributed a further R6.5 million that has been invested in land development, co-operative registrations, seeds, tools and training, as well as operational costs such as water, electricity, and security services.

Urban farmers from communal gardens have come to the Eikenhof Agri-Park and been upskilled, and have developed

their own farming micro-businesses. As not all members of co-operatives can always be (literally) on the ground, there has been opportunity to employ others, spurring local job creation.

It is possible for a number of the 32 co-operatives to form a secondary co-operative, grouping together to ship their

produce to various market destinations, and sharing the proceeds.

The opportunity is there for similar investment in the other food empowerment zones, such as Northern Farm in Diepsloot, to further grow urban farmers in those regions.



Communal farmers load truck with fresh produce at Eikenhof Farm

II. Urban Agriculture – Secondary Production

1. Agro-processing

Eikenhof presently has an established pack house. This is a key facility in taking urban agriculture from where farmers can only sell fresh produce on a small scale to creating commercially viable businesses. The pack house benefits farmers who, after harvesting their produce, take it through to the pack house to wash and to pack, and also to store overnight, as it is a refrigerated facility. This provides them with a more marketable product, with a longer shelf life.

The other benefit is that farmers can combine their produce to sell in larger volumes, according to the customers' needs. Then they can deliver the produce as a collective, and share the benefits.

A pack house is currently under construction in Region A (Diepsloot).

2. Herbs and vegetable processing

Primary production takes place when the farmers produce fresh crops, harvest them, and send them to market. However, there is also a secondary level in terms of adding value to these crops by, for instance, processing and food drying, so that the farmers can get maximum benefit from what they are producing.

When it comes to processing, produce is sorted into first, second, and third grade, and those vegetables that cannot be taken to market, because of their shape or because they don't fit a particular grade, are diverted to a value-adding process, such as the making of sauces, pickles, and jams.

Making the Models Work: Support for Urban Farmers

Agri-Resource Centres

Individuals interested in urban agriculture who want a space to farm should enquire at an Agri-Resource Centre. These are information centres where members of the community may also request tools and seeds, find out about training that has been arranged, and get assistance with regard to requests for land – whether they are working on an individual or co-operative basis.

The seven centres and satellite offices cover all the City's regions, providing tractor services, access to land, co-operative registrations, training and workshops, and advisory services, as well as agricultural inputs. Every region has an agricultural manager who assists the farmers in that particular region.



Communal farmer, Brian Sibisi in Eikenhof Farm Co-op Piggyery

Business Development Centres

"I've got management skills," says Eikenhof co-operative farmer Rose Mkhize. Not only was she given training in the many skills she needed to start planting, but she was also taught how to manage her own business.

Agriculture is one part of the City's model, the other is entrepreneurship. The role of the Business Development Centres is to impart those entrepreneurial and business-management skills that empower the co-operatives to become economically self-sustainable.

The Business Development Centres assist households with CIPC co-operative registration – more than 300 have registered since the inception of the programme. The centres then help the co-operatives with legislative compliance, e.g. tax returns and annual returns to the CIPC. They also assist with drafting business plans, securing external funding, referrals for business management training, and linking farmers to various markets.

Hubs and spokes

The City has created two hubs which serve as central points linking small farms in regions A and G, in the north and south of the City respectively. Each hub includes a range of services that support all the small farms linked to it and enable them to operate as if they were one large farm.

The hubs and spokes are used as processing and market day centres for smallholder farmers, and for selling various vegetables to the communities. More than 30 smallholder farmers are linked to the region A hub for cleaning, packing, grading, and distribution to both formal and informal markets, such as hawkers.

Formal markets linked to the hubs are retailers such as Fruit & Veg City, Spar, and Pick n Pay.

The Food Resilience Programme's Impact

The Food Resilience Programme has had a variety of positive impacts on issues of food security, food resilience, economic participation, and health benefits.

1. The unit has shown significant growth over a short time span (four years to date):



36 000
homestead gardens



270
communal gardens



4
food empowerment zones with



50
co-operatives working over



300
hectares

This translates into a significant number of previously food insecure people with access to nutritious food.

2. Those who grow and sell their own food experience an immediate difference to themselves and their families –

they reap the benefits of fresh, nutritious, and plentiful food. They have moved from a food insecure state to that of food resilience, and its accompanying self-reliance.

3. Urban farmers are also sharing their new skills with siblings, children, and grandchildren, creating awareness of and interest in the farming lifestyle.

4. Quality produce is sold at local informal markets. The regions host market days, where the farmers sell their produce to community members. People now know where their vegetables come from, and can choose to visit those gardens as well.

5. Individuals are engaging in economic activity – making money. Impact assessments have compared farmers' proof of sales submitted from when they were working a smaller piece of land, to those submitted as a co-operative, and they have grown. For urban farmers, this is an opportunity for them to start their own micro-farming business, and become economically active. They now have business bank accounts, and, in some instances, have employed others to help run the farm, thereby creating jobs. "I never thought I'd own my own business," says Mkhize.

6. Additional health benefits of access to nutritional food, beyond avoiding hunger, include increased nutritional uptake as well as increased physical activity out in the field. Many people who experienced health problems including high blood pressure and diabetes have reported an improvement in their conditions since working on their farms.



"In some instances, people actually walk to the garden to buy spinach or [other] produce. For instance, in Region E, Alex, just near the garden by Lennon Drive, is the Lennon Drive Project. We have members of the community working just opposite Alex Mall, they just pick fresh vegetables from the ground. In the regions as well, it is to mobilise, to make the community aware in terms of where they can source these vegetables. So, the regions conduct or host these market days from time to time."

Simon Motsusi, Deputy Director, Value-Add Processing, Food Resilience Unit

Critical Success Factors



Communal Farmer, Bhekifa Motshenja's chicken business at the Eikenhof Agri-Park

For any project to be built upon for a brighter future, one must understand the critical factors that made it successful. The following were identified as contributing to the Food Resilience Programme's success:

The commitment of the communities and the passion of urban farmers themselves. The success of any programme lies in the passion of the people behind it. The concept of urban agriculture resonates with residents. The project's organic evolution over four years, starting with subsistence homestead/backyard farming through to food empowerment zones, strongly demonstrates the enthusiasm of the communities to take part in their own empowerment. It is a strong example of bottom-up empowerment.

Urban agriculture as a concept. Historically in South Africa, agriculture was considered only applicable to rural environments. However, urban agricultural developments such as rooftop gardens, for example in New York, are

becoming a viable addition to traditional rural agriculture to address urban food security issues. As Rose Mkhize states, "I never thought of farming, because I was born in the city."

Collaborative and engaged partnership. This has been the driving force of the Food Resilience Unit resulting in a successful programme – it is not sufficient to hand out tools without providing guidance on how to use them. The unit is not just about growing food. That is the reason for the programme, but the unit's mandate stretches throughout the entire food cycle and food chain, to empower individuals who remain dedicated to this mandate.

The programme has relied on significant financial investment, as well as substantial ongoing training and support, from its key partners. Endorsement and buy-in from governmental sister departments have been crucial to this process, as has their commitment to empowering these micro-farmers in their growth to success.

"There is passion, there is a farmer, and there is a passionate farmer. What we have learned is you cannot just take anyone and put them on a piece of land and expect them to produce according to the markets. You need to walk the walk with the individual. You cannot just start a programme and leave the people there and say that, okay they have been farming from the little spaces, then let them farm [the bigger ones] and expect them to be successful. You have to walk each and every step with them. When we fail, we fail together, then we learn from that. And we stand up and continue along the way."

Zandile Zwane, Urban Agriculture Manager, Food Resilience Unit, Eikenhof

Agricultural support structures. The Agri-Resource Centres provide ongoing support and training in both agriculture and entrepreneurship. The programme is run along the lines of an incubation programme that encompasses sufficient training for the farmers, so that they are skilled enough to exit the programme at some point. The farmers will be able to walk out with certified skills enabling them to operate from their own space within the private sector.

The programme's timing and political will. There was strong political will with the City of Johannesburg as well as the provincial government, enabling departments to drive the success of this project, and it continues to carry strong support. Today there are new technologies and efficiencies in agriculture that allow for farming in small spaces and with limited water, which brings new possibilities to urban agriculture.

Key Learnings

1. **Food resilience is about creating models and systems that allow people to move beyond dependence on food parcels and into greater self-sustainability.** The most critical aspect of the Food Resilience Programme is addressing the need for the City's role to move beyond food parcels. By seeking new ways for people to become self-reliant, the Department of Social Development has created a bottom-up programme in homestead gardens, communal gardens and co-operatives that has given way to a new industry in urban agriculture. The development of food gardens in various formats allows poorer citizens access to fresh vegetables and herbs that assist with food security, lower prices of food and better nutrition. In addition, the move towards food empowerment zones and agri-parks has redefined the department's role to providing greater economic empowerment by helping new urban farmers create businesses and jobs.

2. **A model in urban agriculture presents possibilities in addressing food security and new farming methodologies for a new breed of urban farmer.** There seems to be a gap between traditional agricultural practices and more modern developments. Most of the farmers had knowledge of growing on ground like open veld, not hydroponic tunnels. Vertical farming, for instance, would negate the need for additional land tracts. Similarly, the rooftop project addresses the available land issue with its use of suitable roofing as a farming surface. Also, in winter, no crops survive in an open field, but they do survive in a tunnel. Shifting mindsets towards other agricultural planting options can enable the scalability of this programme without being constrained by 'traditional' farming techniques.

3. **The creation of food empowerment zones and agri-parks is capital-intensive.** There has been significant investment in the Eikenhof Agri-Park, but further investment will be necessary to develop the other food empowerment zones into similar agri-parks. There are also designs for irrigation that require a further R3 million, and the pack house is not yet complete, requiring additional funds. Budgetary constraints could well stall these developments.

Pack houses, wind tunnels, hydroponics and agro-processing facilities are capital-intensive and require matching investment in ensuring that urban farmers are upskilled to work with more sophisticated equipment and technology.

3. **The programme is now reaching greater maturity and achieving efficiencies.** As the programme is playing out, certain efficiencies have been identified.

From communal gardens, it's now easier to identify who would benefit from upskilling and transferral to the food empowerment zone's farm. Because of this referral, the unit does not have to train from scratch as often as it previously did, and is able to identify talent.

4. **The programme needs to attract more youth to ensure long-term sustainability.** The urban farmers tend to fit an older demographic and traditional farming is not appealing to the youth. With the recent digitisation of many industries, including agriculture, this could be a potential opportunity to engage with the more techno-savvy youth. For example, drone-based agriculture assessments, advanced hydroponics and roof-top gardens might be of greater interest to young people, as they link to their interests in new technology.

5. **Success of urban agriculture is linked to access to water.** Water availability and water storage are critical, particularly as South Africa is a water-scarce country that has recently suffered extreme drought. For communal gardens, tap water could not be used for irrigation as a result of recent restrictions. There have been some different ideas about how to store water at the farms, in particular the use of water tanks. Similarly, hydroponics relies less on water than traditional agricultural practices.

6. **Access to markets and planning will determine success.** Proximity to larger populations also makes smaller-scale agricultural farming a reality. Johannesburg has a high population ratio per square kilometre compared to other urban centres. For urban farmers, market planning will determine their future success. Prior to planting, the farmers need to identify the gaps in the market, and plant according to the market's needs. This ensures a ready, viable market for their produce. Developing urban farmers' ability to assess market needs will be important to their sustainability.

7. **Creating markets for small-scale farmers or opportunities for them to sell their produce will continue to be a priority going forward.** Although there are agro-processing facilities, there are potential opportunities to expand these efforts to spark additional entrepreneurial solutions, particularly as the pack house is set for further expansion. "When you pack, when you label, when you process, that is secondary and you often buy fresh cut vegetables from Woolies or maybe from Pick n Pay – that is what we want to do," says Deputy Director Motsusi. The success of these markets will also help the department migrate urban farmers to become sustainable businesses.

Next Phase and Conclusion

The Food Resilience Programme is a remarkable success story. It will continue to expand as more residents participate. There are numerous opportunities for expansion. The Food Resilience Unit could engage with young technology entrepreneurs, for instance, to devise innovative ways in which agriculture can benefit from digitisation, including the value-add processing part of the chain.

The more immediate challenge is establishing

market opportunities for micro-farmers to sell their produce. Issues such as cold-storage facilities and distribution are important. Currently only Eikenhof is involved with husbandry, but other opportunities to diversify produce offer opportunities in scalability. For all the challenges faced, it is evident that with committed buy-in, endorsement, and will, a simple backyard solution has evolved in a relatively short space of time into a model of urban agriculture that is alleviating food insecurity among the urban poor.

Interview and References

Interviews

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