



Supporting Socio-Economic Resilience in the City of Cape Town through Sustainable Urban Agriculture

Case study: Nazeer Sondag's personal journey

1 Cape Town's Resilience Strategy

PILLAR 1:

People

Compassionate,
holistically healthy city

PILLAR 2:

Place & Space

Connected, climate
adaptive city

PILLAR 3:

Economy

Capable, job
creating city

PILLAR 4:

Disaster readiness

Collectively,
shock-ready city

PILLAR 5:

Governance

Collaborative,
forward-looking city

What is resilience?

In human terms, resilience refers to “the ability of an individual to recover from setbacks, adapt well to change and to keep going even when facing difficult circumstances”. A resilient Cape Town is a compassionate, connected, and capable City, where Capetonians collaborate across households, communities and institutions, to build collective responses to the current and future social, environmental and economic challenges.



2 Purpose

This case study demonstrates how cities that support the growth of urban agriculture can realise a number of social and economic benefits, particularly within vulnerable communities. This is seen through the transition of a small-scale commercial urban farmer into a sustainable agriculture enterprise through the implementation of practices such as no-till, mulching, crop rotation and intercropping. These practices not only improved soil health (thus cutting the use of inputs such as fertiliser, compost and water), but also offered better protection from the economic shocks of price fluctuations and market saturation of certain crops.

This case study is written for:



- Urban farmers looking to shift to sustainable agriculture practices¹.



- Cities looking to build greater food-security and economic-resilience in their urban farms.



- Urban communities (e.g. communities living in townships, suburbs or close to the city centre) interested in the opportunities within sustainable urban agriculture.



- Fresh produce markets interested in procuring their supply from the communities within which they reside.



3 Key insights

- Urban agriculture can be seen as an opportunity in cities to build resilience within communities through promoting greater food security, encouraging job creation and economic activity. The City of Cape Town is well-positioned to take advantage of this opportunity, as it has a number of established agricultural communities within and close to the City's urban perimeter (such as the Philippi Horticultural Area, Philadelphia, Brown Farms, etc.)
- Sudden spikes in input costs (particularly fertiliser) can seriously undermine the business case for urban farming. Farmers should invest in sustainable farming techniques that maximise yield whilst minimising the amount of resources used.
- Polyculture production means that a farm that produces a diversity of produce is less vulnerable to when a specific commodity experiences price spikes and/or markets are saturated with a particular crop.
- Soil health is a key investment for long-term profitability of an urban farms. As soil health improves, less and less fertiliser and compost is needed and the soil is able to hold moisture better, reducing irrigation needs.
- Regenerative agricultural practices have ecological benefits but also work in making farms more economically-resilient. Urban farmers should consider how they can integrate these concepts into their production to become more sustainable, both environmentally but also financially.
- Economies of scale: Urban farmers are forming co-operatives in order to access bigger, more lucrative markets by aggregating their output. The use of co-operatives has also been beneficial for farmers who are able to reduce the costs of their inputs by bulk-buying as well as using a participation guarantee system (PGS), to peer review each other's production methods in a way similar to localGAP. The PGS creates greater accountability and incentivises farmers to farm sustainably.



¹ Sustainable agriculture practices such as agro-ecology, organic farming and regenerative agriculture, aim to address the impacts of climate change in agriculture by improving soil health and conserving natural ecosystem services.

4 Background

South Africa is experiencing a rapid rate of urbanisation as large numbers of people move from rural areas to urban centres for work and living. It is estimated that 63% of South Africans already live in urban areas, with that figure expected to rise to 71% by 2030 [1]. This increase brings with it many challenges, including residential densification that results in greater demand for resources such as food, water and land. People living in cities rely mostly on buying food, instead of growing it. Additionally, the rising cost of living in cities, high unemployment and economic shocks such as the lockdown due to COVID-19, has meant that economically vulnerable communities in the City of Cape Town often do not have consistent access to fresh produce, especially nutrient-dense food [2].

A commonly cited solution for the food insecurity challenge is urban agriculture (UA) - the production of crops and livestock at home or on plots in urban and peri-urban areas.

Agricultural production has traditionally been seen as an activity confined to rural areas. However, UA can work in a complementary fashion with rural production to improve food systems for city supply [3]. UA intersects across a number of different sectors, namely horticulture, technology, urban planning, food security and social and community upliftment [4]. In Cape Town, there is a particularly strong interconnectedness between the city's UA sector and its agricultural value chain, especially between UA producers and informal vendors located within the City [4]. The size of UA producers can vary in size, as well as in their aims and limiting factors. **Table 1**, below, highlights some of these variations.

Table 1: Common typology of urban farmers[3],[5]

	NAME OF DISBURSEMENT CHANNEL	SMALL-SCALE COMMERCIAL AGRICULTURE	LARGE-SCALE COMMERCIAL
Primary location	Urban – often residential or communal land	Urban & peri-urban	Peri-urban
Product destination	Household	Urban markets – farmers often form co-operatives to reach larger markets	Urban markets & export
Main aim	Self-consumption	Small income generation	Full- or part-time activity for income generation
Common Size	< 100 m ²	< 1 000 m ²	> 2 000 m ²
Common products	Leafy greens, corn, fruits, chickens, sheep	Leafy greens, other field crops, chickens, sheep, milk	High-value crops
Main gender	Female	Both	Male
Limiting factors	Land size	Land size, access to land and to agricultural inputs, market fluctuations	Technical knowledge, high capital demand, market fluctuations

There are several advantages to Urban Agriculture, namely:

- **Food and nutrition security:** The urban production of fresh produce leads to greater access for the most vulnerable people to food with greater nutritional variety.
- **Viable economic sector:** Commercial UA production, in particular, can stimulate economic activity. It creates job opportunities and also promotes the growth of enterprises along the agricultural value chain (e.g. producers of farming inputs such as fertilisers, compost, seed etc., agro-processors, marketing, packaging and others). The production of high-value, specialty goods directed to niche and export markets can have a larger impact in stimulating economic activity, providing job opportunities.
- **Social and environmental benefits:** There are a number of interpersonal benefits UA can have such as community cohesion, urban greening, intercommunity networking etc. These are resilience-building benefits. Where UA is located in well-frequented communal land such as schools and parks, they can serve an educational role in teaching community members about agriculture, food diversity and the importance of biodiversity. Additionally, urban farms established on land previously used as a dumping site can serve as a method of ameliorating urban areas.
- **Resource efficiency:** The proximity of urban farms to market have an obvious advantage of reducing the distance produce must travel to arrive at the consumer, resulting in reduced transport costs and carbon emissions. Another possible opportunity UA offers is for cities to take a circular approach to managing food waste and consider how organic waste emanating from municipalities can be further processed to sell to urban farms as compost.

Urban Agriculture, however, cannot be viewed as a “silver bullet” for food security and economic prosperity in cities. The competition for land often proves as a limiting factor for intensifying food production of existing farms, prompting many commercial farmers to farm intensively – i.e. using synthetic fertilisers, monoculture production – in order to produce at a competitive scale. Such was the case for Nazeer Soday, an urban farmer in the City of Cape Town.





5 Overview

Nazeer Sunday grew up on the Philippi Horticultural Area (PHA), watching his grandfather produce vegetables on a small land parcel leased from a German farmer. Forced off of the land due to the Group Areas Act, Nazeer spent the rest of his adolescence on the Cape Flats before training to be a baker and starting a small bakery. However, the pull of farming led him to return to his roots, first as a recreational farmer, then to go full-time into farming, producing tomatoes hydroponically.

Nazeer invested in a hydroponic system and greenhouse structure using money he received from the Comprehensive Agricultural Support Programme (CASP). Two years into production, Nazeer was producing 1 tonne of tomatoes per week over 8-month production cycle, but could not find a reliable market to sell his produce to. Fresh produce markets, such as the Epping Market, had constantly fluctuating prices that made margins erratic and made investment and return on investment and hard work precarious. Supermarket chain stores offered a more stable price and consistent outlet, but was hard to break into. Once there, Nazeer found that he could not negotiate a price that would sustain his operation to make sure the price covered the viability of his small-scale operation. Although he was treated as a special supplier by a retail chain family store and was paid cash on delivery, - even before he went on a 30-day invoicing system which would have caused additional liquidity issues- he struggled to stay afloat.

The proverbial straw that broke the camel's back occurred in 2008, when potassium nitrate fertiliser increased from R100 to R300 per kilogram. Nazeer realised that his dreams of farming and contributing to the City's food system required further reflection. It was in re-examining his role in the food system that he started learning about sustainable agriculture and how he could marry farming with his ethos of environmental conservation – learning concepts like the water conservation, biodiversity, food, justice, permaculture and regenerative agriculture.

² Participatory Guarantee Systems, as defined by IFOAM – Organics International in 2008, are locally focussed quality assurance systems.

6 Solution

Once Nazeer decided to change to sustainable agriculture, he spent a year removing rubble and rehabilitating the soil to be ready for planting. A digger loader and labour was used. Over eight truckloads of rubble were removed from site with the rehabilitating 4000 m² of the 1ha farm costing a total of R50 000. The 1ha Vegkop polyculture farm is located in Philippi, an area that is especially vulnerable to dumping, land invasion and crime. To mitigate this risk, he applied for CASP funding from the Western Cape Department of Agriculture to erect fencing. The fencing was essential to protect the produce, as well as equipment and tools.

For Nazeer, soil health was the primary improvement focus. He tested his soil to determine the soil organic content (SOC), and set a course for increasing SOC, which he used as a metric for measuring microbial activity and soil fertility. He immediately cut the use of synthetic inputs, just dressing the grow beds with organic compost. Among his 96 beds with an area of 15m x 1.2 m, he implemented a crop rotation schedule to ensure that nutrients in the soil would never be depleted by planting the same crop every year in the same bed. He also makes use of sunflowers as wind breakers/cover crops, eliminating the need for shade netting and also assisted in reducing evapotranspiration, reducing water needs. He is also able to sell the sunflowers at the end of each season, providing additional revenue to the farm's operations with minimal additional inputs.

A pain point at Vegkop's operations is the price of compost. Nazeer estimates that Vegkop requires 20 m³/month of compost for at least 5 years - with a dramatic drop in need after this - to successfully meet their SOC trajectory. Currently, he can only afford to purchase 5 m³/month. Production is linked to the capacity of the soil, however, Nazeer needs more compost to increase his soil health to produce more crops to sell, but he cannot produce enough to be able to afford more compost. This is why Nazeer is trying to solicit the donation of compact tractor to produce his own compost. His advocacy organisation - the PHAA Food & Farming Campaign repurposed left-over funding - with permission from the donor - of their 2020

covid-19 lock-down community food support drive, to purchase a chipper for the farm. He now uses the chipper to shred green garden waste which is dropped off at the farm. Material from the chipper is then composted in heaps, manually turned weekly until it is ready for application on its 6th week. This process is labour-intensive and back-breaking work Nazeer hopes that, with the purchase of a small compact tractor, removing the 'donkey work' out of farming and improving productivity.

On the operational side, Nazeer's farm has a partnership with the Western Cape Department of Agriculture, to develop and model a unique LocalGAP for small scale farmers. Good record-keeping and traceability are important for these standards. He believes that good practices improve production, efficiency, reducing wasted time, energy and resources. For example, Nazeer introduced a record-keeping tool that monitored the activities across the farm. One of the practices implemented was a daily assignment of tools such as spades, clippers, brooms etc. to a particular team member and at the end of each day, all tools had to be accounted for. This led to an almost complete reduction in the loss of tools, cutting the cost of replacing them. Moreover, recording the inputs of each bed, its yields and income allowed Nazeer to quickly pick up on trends and either apply interventions where needed or note practices that should be replicated across the farm.

After his experience with the urban markets, Nazeer looked into alternative ways of selling his produce. He allowed customers order via WhatsApp. In February this year, he opened a farm stall market at the farm's gate, to serve the local community and take advantage of the busy road traffic. This opens up a new avenue for revenue generation. In addition, Nazeer intends to extend the production onto more of his land, adding fruit and nut trees, chicken and aquaculture. These additions will benefit the farm in further diversifying revenue streams. In addition, the diverse farm activities open the opportunity to recycle nutrients on the farm, helping reduce the farm's dependence from outside inputs.

7 Impact

1. Using the regenerative agriculture practices listed above, Nazeer was able to raise his soil organic content (SOC) from 0.5% to 2% within 2/3 years. Nazeer is targeting 6% SOC, at which point he can dramatically reduce his need of compost.
2. In winter, Vegkop farm consumes 10 000 l water per day via micro sprinklers to all the 96 blocks, increasing to 30 000 l/day in summer. This translates to an average of 7 500 m³ of water used per annum, which he draws from a wellpoint.
3. Nazeer increased the number of crops he produced from one (tomatoes) to around thirty at a time. Over and above the original jam tomatoes, he produces a number of leafy greens, herbs, potatoes, brinjals and more.
4. Nazeer currently farms on 4 000m² (although the entire farm spans 10 000 m²) and employs four full-time workers. This is far greater than the averages of other crop industries such as stone fruit and pomme fruit (~1 employee per ha), flowers (~2 employees/ha) or even blueberries (just less than 3 employees/ha)[6]. Moreover, extra employees are required for additional tasks such as shredding and composting.



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