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A growing city: agriculture and food security in the growing urban context

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A Growing City

Agriculture and Food Security in the Growing Urban Context

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Abstract

Quality of life is something that is desired by all. For some it is thought to be found in urban environments where things are more developed. For others it is thought to be found away from cities, where quiet has a stronger appeal. For some it is in the form of physical health and activity, for others it is mental and spiritual. What links these two extremes is growth, though the growth often comes through different means. Both systems are growing and changing all the time.

There are different kinds of growth, some of which are beneficial to life and some not. Sometimes it may look good on the surface but underneath the surface the roots are rotten and diseased. Physical growth is often related to food and resources, while mental health is related to stress. What can be found is that often different types of growth are in competition with one another. This is what is happening between our urban industrial systems and our food systems. They are competing for the same land at the expense of each other.

This thesis delves into the various systems that affect urban growth and agricultural growth in the South African context. When looking at food security in the South African context, one finds that even though the country as a whole is food secure, a large portion of the population are still hungry and malnourished. One finds further that food insecurity is not an isolated problem – there are numerous issues of concern which share the same roots. These issues and concerns are in fact linked to the stresses that can affect wellbeing.

Thus this thesis explores how physical health and mental wellbeing can come together in the production of a farm which heals a scar in the inner city landscape. Through considering the effects that urban conditions have on humans in contrast to the effects that the natural environment has on humans, this thesis addresses a design problem which seeks to unite the two extremes. It seeks to join the city with agriculture, allowing the city to continue expanding without losing arable land, and agriculture can improve the quality of the inner city. The design is formulated through response to context and climate, using biomimicry as a tool to create conditions conducive to life.

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I, Ian Paul Tarboton (student number 561408), am a student registered for the course ARPL7003 in the year 2012. I hereby declare the following:

I am aware that plagiarism (i.e. the use of someone else's work without permission and/or without acknowledging the original sources) is wrong. I confirm that the work submitted for assessment for the above course is my own unaided work except where I have stated explicitly otherwise. I have followed the required conventions in referencing thoughts, ideas, and visual materials of others. I understand that the University of the Witwatersrand may take disciplinary action against me if there is a belief that this is not my unaided work or that I have failed to acknowledge the source of the ideas or words in my own work.

Signed: _____ on _____

This document is submitted in fulfillment as part of the requirements for the degree of Masters in Architecture (Professional) in the faculty of Engineering and the Built Environment, at the University of the Witwatersrand, Johannesburg, in the year 2012.

Credits

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Definition of Terms

Adaptability	The ability to be changed readily to different conditions. The ease with which something can be changed.
Aquaponics	The practice of rearing fish for consumption in concert with plant crops, where the same water is used for both. The fish live in the water and defecate. The water is pumped to where the plants are grown and the plants filter the fish feces from the water. The feces nourishes the plants and the water returns to the fish tank clean.
Biomimetic	Of or relating to biomimicry.
Biomimic	A person who practices and researches biomimicry.
Biomimicry	Literally means to imitate life. It is the art and practice of imitating a natural phenomena's or environment's efficiency and survival mechanisms in manufacturing processes, design, social systems, and resource consumption.
Biophilia	A love of life and the living world. The affinity of human beings for other life forms.
Ecopsychology	The study of the relationship between humans and the natural world through ecological and psychological processes. It suggests that there is a synergistic relationship between planetary and personal wellbeing.
Feedback loops	Information from anywhere in a systematic process that is fed back to certain points in order to adjust and reevaluate the success and productivity of the system.
Industrial agriculture	Food and livestock that are cultivated in large amounts by a small group of people. It is characterised by rows of single species crops that extend for many hectares and use of chemical fetilisers and pesticides.
Organic	The process of natural and often spontaneous growth without the addition chemicals.
Paradigm	A pattern or model, often relating to thought processes.
Permaculture	Means permanent agriculture. Founded by Bill Mollison it is a method of farming in ways that mimic natural growth of an ecosystem. This allows the food to grow continually without need of chemical additions as in industrial agriculture.
Quality of life	Physical and mental health and wellbeing.
Sustainable	Pertaining to a system that maintains its own viability by using techniques that allow for continual resuse.
System	An assemblage or combination of things or parts forming a complex whole or unitary whole. It can relate to physical things or non-physical things such as information.
Urban agriculture	The act of producing food crops in an urban context that is normally characterised by buildings and a lack of agriculture. This can be at any scale, whether small such as an individual growing a few vegetables in their backyard, or large such as a large area of land in the city used for growing food. It can be done in buildings or outside on open sites in the city.
Urban sprawl	The outward spreading of the boundaries of a city, usually through suburban buildings and densities.
Urbanisation	The development of land into buildings and cities, or the movement of people from rural areas to urban areas.