

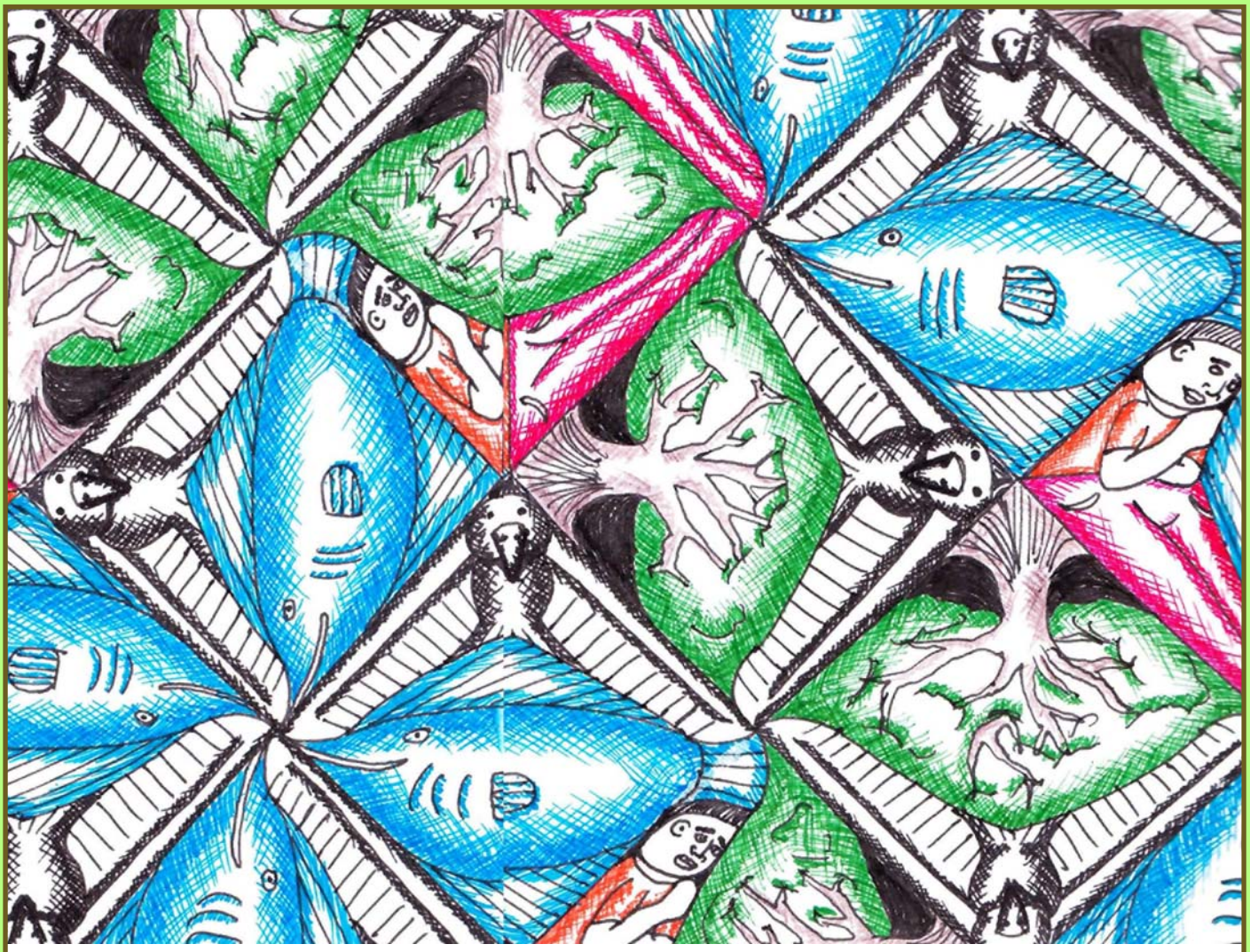
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A growing city: agriculture and food security in the growing urban context

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This image is a tesselation that showd the four elements of air, water, earth and fire (represented by a man). It shows further how human can live in harmony with the natural environment. Image source: author, 2012

Conclusion

Chapter: 6

Systems are inescapable. We are part of them whether we are conscious of it or not. Every little action we do has ramifications, sometimes small and sometimes big. This thesis has demonstrated how a failure to acknowledge systems in approaching design and food production has serious consequences. These consequences sometimes only become noticeable in the distant future. Evidence of this can be seen in the soil contamination from mining. What can be learnt here is that there are relationships between everything.

Through this thesis I have tried to form a more complete picture than might be portrayed from isolated sources. Sources primarily concerned with food security might recognise the issues that affect the production of food but often miss the effects that food production has on other things. Sources primarily concerned with city growth might miss what that growth does to other systems. Sources primarily concerned with nature might rebel against the growth of the city at the expense of human habitation and quality of life. Quality of life is not only linked to nature but also man made things, both positively and negatively. For something to increase, often something else must decrease. The costs of all these fluctuations must be considered before an action is undertaken.

That is what I have done through my design. I have looked at urban growth, considering the effects of it and what causes it. I have considered many different forms of urban growth and how they relate to one another. My thesis then looked further into potential future growth. Future growth will be limited if it continues along the trajectory which it is currently going. This is because the consumption patterns of current growth are excessive and wasteful, leading to destruction and desolation.

We are caught in the whirlwind of unsustainable use of resources, borne out of short-sightedness. But a systems based approach, an approach based on natural systems, considers the whole and how things work together before trying to achieve something. Natural systems prove time and again that they can thrive off efficiency to the benefit of every branch of the system, and are therefore a worthy teacher.

I then looked at the systems related to food in terms on production, nutrition, soil quality, climate, health, transportation, and consumption. These were considered before deciding on how to address them. The areas of biggest need were noted and responded to first. By uplifting the weakest link in the system the entire system benefits. This led to determining an appropriate response to the context of food in Johannesburg.

Even though current food production methods are questionable, our infrastructure is hardly in a position for it to be changed immediately. Therefore an intervention such as this one, which would run alongside industrial agriculture in the meanwhile, allows for a leverage point to implement change in the future. This can be likened to a relay race where the runner that is about to receive the batten begins running to match the speed of the previous runner before taking the batten. My design implements infrastructure that allows for this kind of transfer within the informal markets at the very least.

The stresses that the Johannesburg context brings have negative effects on people and the greater society. These effects are linked to food security in that they affect health and wellbeing. But through my research I found a means of combatting this which can relate to food production. By involving people in the production of food they are afforded opportunity that they did not have previously and they are also given the opportunity to be reconnected with nature – the very system that keeps us alive.

The design then took shape by considering what is needed for urban agriculture and how to accomplish it through natural means. Resources such as energy, wind and water are of high priority and should be used to the best potential. I addressed these through a systems based approach considering each stage of use, reuse, and waste for each

of these.

Through passive design, tectonics and systems this design uses resources efficiently. All the materials required to construct the buildings will be recycled wherever possible and recyclable at the end of their use, and alternately sourced from appropriate energy efficient and environmentally friendly sources. This is responsible stewardship of the natural environment and resources, maintaining the quality of the ecosystems which would otherwise be jeopardised, and allowing opportunity for future generations to have a high quality of life and enjoy the earth. This design thrives off interdependencies. Humans are all part of the greater system that is the earth, and because we are part of that system we impact it and are in turn impacted by it.

"When one tugs at a single thing in nature, he finds it attached to the rest of the world." - John Muir

Biomimicry has proven to be a valuable design tool for achieving efficiency and a design which benefits people at no cost for future generations. Resource efficiency leads to reduced running costs and little to no waste. This leads to availability of resources in the future and low levels (if any) of destruction to ecosystems and resources. If these ecosystems and resources are not looked after now they will be inaccessible in the future.

This stewardship ultimately determines the quality of life of a society. Trying to live in what is considered good quality of life by many (which is really greed and narcissism) will mean that future quality drops. The whole is greater (or other) than the sum of the parts.

There are so many opportunities in cities to reuse and recycle, turning death to life. Some of the most innovative people doing this are the poorest, because they have little that they can afford to waste now. In truth, no one can afford to waste the way we do, not in the long run in any case. There are so many vacant buildings and sites in Johannesburg that if they were all used to their full potential the city would consume agricultural land and ecosystems at a far slower rate, perhaps even slow enough for the ecosystems to re-establish themselves or be unaffected by urban growth. This would also improve the quality of the inner city and the general perception of it. The same can be said for amount of waste materials which can be salvaged or recycled.

I believe my design has created a space in the inner city, in the midst of many troubles and much damage, which is like an oasis of life. It restores the barren and forgotten parts of the city, improving their condition from desert to teeming with life. This is achieved in part with the presence of trees and plants. The trees and plants also serve the multifunctional purpose of producing food. They uplift the context of Faraday creating a pleasant sight against the harsh concrete and rubbish disposal platitudes of the inner city.

Furthermore, the design of the buildings demonstrates biomimicry and biophilia and the benefits these have for creating pleasant interior spaces. The buildings encourage appreciation for the natural environment and promote quality of life by looking at the different flows in the world of different phenomena, and responding to them, rather than trying to control them.

The aim of this thesis was to consider how the city currently grows, examining the effectiveness of this, and then reconsider how the city can continue to grow in the future. Through my design I have tried to demonstrate a model of design related to food production and urban growth, which could enable the city to thrive in the future.

Thneedville began as a beautiful countryside abounding with life. It was only through misuse that it became barren. But as is shown in this thesis, what was once destroyed can be rejuvenated if one would only consider what the Lorax said, "Unless..."