PLANT OF PLANTS

MAKING GREEN SPACE MULTIFUNCTIONAL
IN URBAN AND LANDSCAPE AREAS OF AMSTERDAM NOORD

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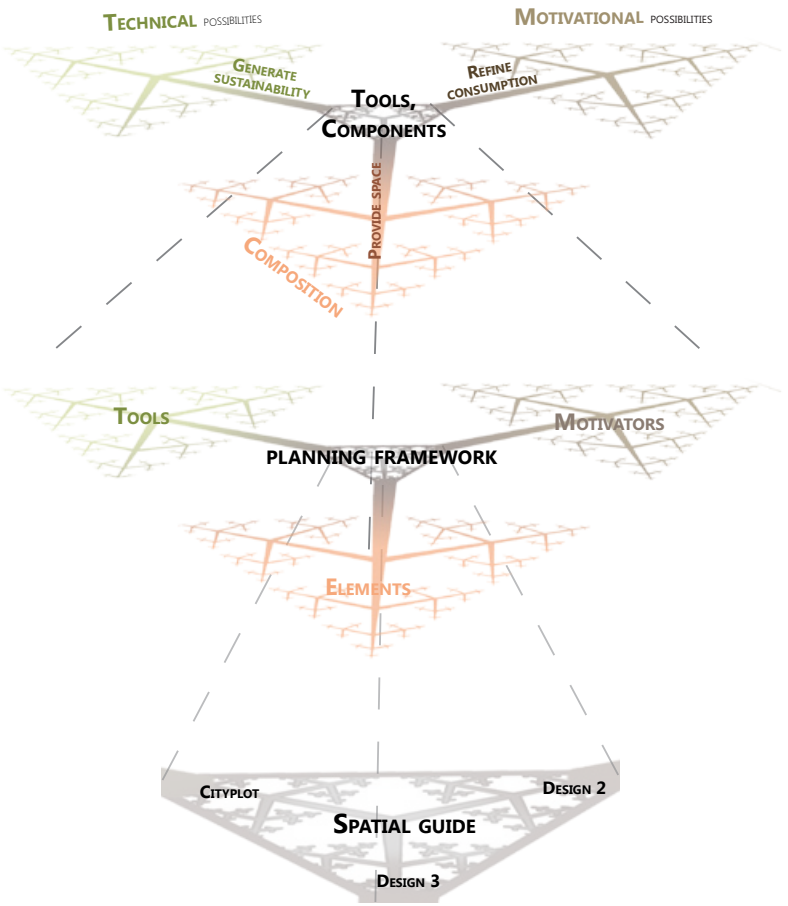
REFLECTION

RESEARCH QUESTION:

HOW CAN GLOBAL RESPONSIBILITY BE IMPROVED WITH THE INTRODUCTION OF VEGETATION-BASED TECHNOLOGIES AS NEW SUSTAINABLE TOOLS IN THE LOCAL SCALE?



Relationship between theory and design methodology – theories provide principles to components and structural framework to

Prior to choosing my topic, (multifunctional green spaces), my goal was to find the most sustainable, most circular invention, technology or element that can become my tool in design. As Midden et. al. stated, however, introducing new technologies (that seem sustainable in small quantities) do not necessarily produce the desired outcome on the long term. They sometimes even allow humanity to consume more. Technology can make the world more circular, but only if technological improvements come with the improvement on social awareness and responsibility (Odum, 1998). I therefore aimed to introduce a new tool to the urban sphere along with educating its future users to balance out what humanity consumes and what is available on the planet.

RESEARCH AND DESIGN

Out of all resources (and related technologies) available on the planet, I chose vegetation since, unlike other inanimate resources vegetation already possesses the qualities that I wished my end result to become: it is diverse (289 000 species, Roskov et. al., 2016), multifunctional, local and is in constant transformation.

The final outcome of this design thesis aims to bring global problems into the neighborhood scale to enhance global responsibility (Figure 9). The design intends to demonstrate issues and challenges of overpopulation, limited resources, and wasteful consumption (as stated in the I/2. Problem Statement – Supply<Demand) in integration with inhabitants' everyday lives. Design is exclusively based on the local, neighborhood scale which becomes the spatial nucleus of the global design strategy.

Research in the three chosen frameworks of my thesis, the evolution theory (Darwin, 1859), the importance of context (Bell, 1993, Jacobs, 1961), and the theory of planned behavior (Ajzen, 1991) contributed greatly to finding connections, symbioses between my tool (vegetation), my chosen design location (Amsterdam Noord, Cityplot) and my target (the future user of my location). Based on this triangular framework, I chose principles, components, and a strategic programme that, combined together resulted in my design proposal and the spatial guide for other locations.

Evolution theory states that composition improves by time (Darwin, 1859, Jablonski,1991, Sylvestro, 2015) , the theory of planned behavior imposes that providing individuals with choices and responsibility has a positive effect on behavior

change (Ajzen, 1991, Ajzen, 2009, Kaiser, 1999), therefore the program of the design itself incorporates the possibility of change by choice of the users of the designed multifunctional green space. The context of this space makes sure there are permanent elements within the changing environment that guard the network to stay a functional part of the urban fabric that surrounds it for decades to come.

It unfortunately goes beyond the scope of the thesis to consider all the attributes of the design area, therefore assumptions had to be made regarding the three studied field of science.

URBAN METABOLISM AND CHOSEN TOPIC

The developer of the concept of Urban Metabolism, Abel Wolman (1965) drew analogies between the metabolism of organisms and the workings of urban areas: they have inputs, outputs, transformations and flows. The importance of this concept is defined by Holmes et. al. (2012): '*UM analysis emerged from a growing understanding of the limited availability of fossil fuels and their impacts on the environment*'.

With current consumption habits (The true cost, 2015), however, there is no such tool or resource available on the planet (let it be coal, silicone, soil or water) that can provide the same quality of life to everyone on the planet as what was determined to be standard by the EU (ec.europa.eu, 2016). The sun and the wind may be infinite, but the tool used to retrieve energy from them are not (Mulvaney, n.d.). The thesis hypotheses that using as many resources as possible (for electricity: solar, wind, thermal, fixed carbon fuels, hydropower, tidal power, atom power) in the most diverse, local and circular way possible can help in solving global environmental as well as social issues.

This thesis investigates the potentials of spatial design in the battle against accelerated climate change. As such, it aims to solve related global issues (deterioration of resources, overconsumption, wasteful consumption) with tools that are in strong physical, functional or habitual connections with their natural and built environment. Urban metabolism is examined on the block level. It explores how can globally relevant measurements be taken in the neighborhood, where inhabitants pursue their everyday activities.

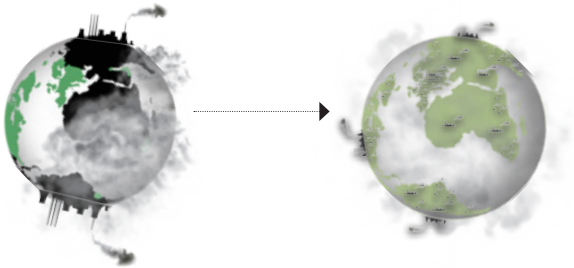
DIFFERENCES IN METHODOLOGY

After quantifying and categorizing inputs and outputs of given city or neighborhood, the main aim of studying the metabolism of cities is to reduce outputs as much as possible. Circularity means that output becomes input. As my thesis took the most circular resource, vegetation as a tool, this principle is valid on an object scale. Unlike other technologies and their equipment I chose a tool that has more than a million variables, has the ability to change in many planes.

This flexibility and diversity, as stated by my choice of topic can be used in the advantage of people, and the message in space takes evolution as a basis: parks and green surfaces do not look the same every year. Inhabitants become part of the circularity process as they are responsible and involved in the transformation process. People in this sense are invited to join the evolution process of their own living environment, they become transformers of circularity.

PROJECT AND SOCIAL CONTEXT

My thesis puts emphasis on the understanding that pro-environmental, sustainable technologies (that make a city circular) must be guided by social 'engineering'.
Overconsumption is a real problem in today's society. The design of the project aims to present what a certain portion of energy, electricity, food or medicine means for given space to bring production closer to the user. This is still a guiding principle of the project, however, there is much more to be done to have an actual effect on one's consumption habits, as proven by various experiments using the theory of planned behavior (Ajzen, 1991). The design is only part of the project that also aims to provide inhabitants with a plan on how to make pro-environmental behavior a part of their everyday lives by providing other channels and motivational tools within the program of the thesis.



SUMMARY

Urbanists are responsible for knowing how cities work, what are the components of the city, and what kind of combinations can be made from them, how to reach and inspire targeted layers of society, where funding could be obtained from, where is the gap and where is the overflow, how the design fits into higher level strategies and documents, etc.

Having a solid research is very essential to be able to provide the right kind of knowledge through the design. It is up to the urban designer, planner, how much knowledge and responsibility should we, can we bestow upon the inhabitant.

The urban designer's responsibility is to keep in mind that the stakeholder is not only the inhabitant or the potential funding organization. It is also someone who will live 30 years from now, and it is also the endangered tree species. Urban design has to consciously (but not necessarily transparently) guide development towards spatial justice, balance between conservation and development, gender equality, or in the case of this thesis, a site that is prepared for global warming.

DISCUSSION

During the elaboration of the thesis, the following topics, reserch questions opened up for further discussion that go beyond the scope of this thesis to explore:

- How can nutrients be resupplied to cityplot?
- What is the quantifyable amount that cityplot can produce?
- What is the position of social inequity in the hierarchy of global issues?
- What is the mechanism of the living room?
- How is individual biowaste production tracked?
- How can locally produced, less delicious edible products compete with chemically engineered products?
- What amount of nutrients need to be resupplied?
- What kind of funding is avaliable to launch the project?

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