Creating Flowscapes _ Arnhem's proposal

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Riverscapes _ A dialogue between *Rhine* and *cityscapes*.

[The case of Arnhem]

MSc graduation thesis
Maria – Chrysoula Akrivou _4626354

TU Delft Faculty of Architecture
Department of Urbanism - Chair of Landscape Architecture

MSc Graduation Thesis
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Flowscapes

Author _ Maria – Chrysoula Akrivou

First mentor _ Dr.ing. Steffen Nijhuis

Second mentor _ Dr. Fransje Hooimeijer

Delegate board of examiners _ ir. Paul Kuitenbrouwer & ir. André Ouwehand

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This document is a reflection on the graduation project: Riverscapes_ a dialogue between Rhine and cityscapes; The case of Arnhem, and on the proposed research and design methods and proposals. Among the subjects analyzed in this reflection are lessons learned and contributed to the field of the landscape architecture. Moreover, the project's relation to academically used methods and the "Flowscapes design studio" is discussed. The reflection ends with an elaboration on the project's importance as a tool for further research and future proposals on the riverscape system and their relation with the cities.

Lessons learned

During this one-year research and design process that led to this thesis project, several theoretical and practical issues, as well as the design process contributed to observations, new knowledge and a lot of precious lessons. The most important ones are presented below:

the riverscape system

The notion of the riverscape system consists the main theme of this thesis, so it is important to define it, in order to continue with the analysis and design proposal. A riverscape or river landscape system comprises the features of the landscape which can be found along a river. So the riverscape does not refer only to the element of the river, but in a broader zone with different landscape types composing a **system**. In order to analyze, examine and intervene it is important to examine it through all the scales and take into account all the relations of movements and flows. The same counts for the riverscape system and that's the reason of the multiscalar approach of the graduation project.

As a result, the analysis started from the regional scale and resulted in the local one with the selected focal points, the test cases of the design principles. The design started from the masterplan looking in the continuums on the riverscape and then lead to the local scale with the minimal interventions. Concluding, the fact that the project is related with a system pre – defines the scales that should be discussed as well as a part of the analysis process.

landscape as infrastructure - the riverscapes' flows

Even from the early stages of the riverscape analysis it was noticed that the riverscape's disconnection was affected and related with the concept of the landscape as infrastructure and the treatment of the rivers as waterways. As a result, this notion contributed in the structure of the project as well as in the design proposal. Conceiving landscape as infrastructure can be characterized as a goal-oriented approach, where landscape is treated as an operative field that defines and sustains the urban development and ecological and economic processes are employed as formative design tools." (Nijhuis, S., & Jauslin, D. 2015) The goal of this research and design proposal was based on this definition determining the next steps.

The element of the river, which had already been transformed into a waterway detached from the riverscape, presents a more interrelated character with the riverscape system, through design interventions, while flows of natural processes are present. The design principles applied on the system managed to redefine the relation of the waterway with the city and the different landscape types. The river became the core of the city and presents more complex relations. A new zone of flows and processes gives to the river the place and space that needs and enables new relations with the southern expansion of the city.

minimal interventions

Finally, concerning the design part the key role of the minimal intervention approach was crucial. After the analysis results in the regional scale, the proposed masterplan is on focus, where the application of the design principles starts and different relations between the river and the surrounding landscapes, the vegetation types. the atmospheres and the processes are proposed, resulting to a variety of habitat types. The goal is to test the design principles in different cases and understand if they can respond to the research objective that was stated in the beginning of this project through small design interventions.

The aim of this thesis is to highlight how small design decisions can create continuums and zones of processes and relations, taking advantage of the existing landscape types, the relief's characteristics (such as the dikes) and the historic character of the city of Arnhem (lost brooks, destroyed watermills and roman ruins), referring always to the research objective. These decisions could be architectural elements and installations, small paths or even small changes in the relation between the water and the soil level, having a great impact on the riverscape system. Referring always to a system is obvious that any intervention affects the whole system and its relations.

Finally, the power of the minimal interventions could be noticed by looking at the following results of for Arnhem's riverscape proposals. Ambiguous design proposals with radical changes were rejected, such as the case of the "Masterplan Rijnboog Arnhem" or the "Art on the Rhine", on contrast punctual interventions and strategic proposals realized in steps over the years, such as the project "A complete inner city for Arnhem" presented an ideal character easily embodies with the area. (details of the proposals can be found in the appendix)

Did the design principled re-activate relations and interactions between the elements of the riverscapes, emphasizing on the rivers treated as waterways?

The most important question to be answered in the final reflection phase of this project is whether the design proposal answered the initial research objective or, in other words, if the proposed design principles, applied in the area could restore the continuity, the relations and the interactions between the elements of the riverscape system.

The proposed plan consists of different layers of natural and architectonical elements, offering to the river more space and resulting into the creation of new habitat types as well as transitional zones of interactions, such as the waterfront zone. All these different layers are projected on the existing situation in such a way, allowing interactions and interrelations. Though the scale of the project creates the necessity to define a number of sub - projects and decide when each of them should be constructed as part of the whole process. Of course the goal of this thesis is not only to propose a masterplan for the case of Arnhem, but also explore the possibilities of the research by design and design by research methods.

Looking back at the starting point it is obvious that from a really generic notion - the riverscape - and using the case of Arnhem and theories related with the flowscapes, it is achieved to translate them into a strategy for the area. The multiple readings of the proposal, the water management, the ecology, the social interaction, the urbanization as well as the architecture, was a goal. All the detached elements and flows of the riverscape system are in a dialogue with the landscape while the processes are highlighted. Moreover, it was impossible to define all the aspects of the proposal on the local scale, while parameters such as the time had a crucial role in the way that the proposal was framed.

Finally, the selection of this unique case study, the city of Arnhem, with its unique character and the "particular relation" with the riverscape of Nederrijn defined the way that this thesis was conducted. The site specificity affected the application of the principles in the area and adjusted them based on the existing situation. As a result, this thesis should not be considered as an answer to the general field of the research objective but as a further step in the research process of the riverscapes in the field of the Landscape Architecture.

Relevance

Flowscape studio

This project was conducted as part of “Flowscapes”, the one-year graduation studio of the MSc Landscape Architecture. The studio addresses landscape architecture design of green, water and transport infrastructures, considering them as armatures for urban development and for facilitating functional, social and ecological interactions. [1] This graduation project is undoubtedly strongly related to the theme of “Flowscapes”, as the notions of flows and the landscape as infrastructure, emphasizing on the waterways, has been crucial points during both research and design process of this thesis project.

The “Flowscapes” studio recommends an approach based on design research and research-by-design, when carrying out a graduation project. More precisely, each work should be the blend of both research methods leading to design decisions, and design try-outs asking for theoretical re-evaluations. The “Riverscapes_ a dialogue between Rhine and cityscapes; The case of Arnhem” project has been the outcome of both methods. The notions of the landscape as infrastructure as discussed above and the minimal interventions approach affected the whole process, while the riverscape analysis as a desk process and the examination of precedent studies had been important inputs.

Future proposals

Nowadays, the relation between the elements of the riverscapes has changed. Major rivers have been transformed into waterways detached from their natural system – the riverscape –having no interaction with the landscape and its elements; fragments of the landscape. Though many cities seek to re-define their relation with the water, which gradually becomes the main content of a sustainable design approach. Problems such as water level rise, higher temperatures and flooding set the relation between cities and rivers on focus.

The purpose of this graduation project is to create such a continuous base for interaction and relations, by identifying these elements and reveal the potentials of these places as elements of a highly dynamic ecological system, development corridors and places of social invention, in relation to the urban fabric. The overall goal is to seek for design principles, strategies and ideas that could act as guidelines and be used on a more generalized way when dealing with waterways detached from the landscape. The case study becomes an experimental site where these principles will be applied. Though the expected result will not mere focus on the production of visualizations or two dimensional drawings, but also in the development of a set of design principles that can be used and applied in similar cases. Finally, the lower and delta parts of the Rhine River present the ideal site for a new multifunctional and sustainable landscape where spaces beneficial both for people and nature, in all scales, will be explored and proposed.

Though the introduced principles can be applied worldwide in similar cases of fragmented riverscapes relations as it is already tested in the cases of Wesel and Duisburg, as a first approach desk study. Of course the design result will be affected by the site and the characteristics and qualities of each case - site specificity - that should be taken into account, resulting to a different design proposal, however the proposed principles consist a useful tool for further update and research.

[1] Study Guide of the MSc Landscape Architecture TU Delft, 2017-18.