Weaving landscapes
Bringing the river back to the city

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Reflection P4

This year’s Hyperbody graduation studio is concerned with the design of self-sustaining climatic ecologies in the critical urban context. The most crucial factors related to the idea of climatic ecologies are the dynamic energy exchange processes between the architectural space, urban context, and the environment. Understanding and analysis of those processes should lead to the development of specific computational design tools facilitating performance-driven form finding, optimization of the parameters essential for the multi-performance of the building, as well as the design of the interactive systems aiming for maximized climate control of the building.

To define my individual project theme within the Hyperbody studio framework, I was looking for a situation within the urban context, in which the application of the concept of climatic ecologies could illustrate the design approach of merging human interest with environmental demands. I chose to work on the case of unregulated Vistula River passing through the city centre of Warsaw, the only such case at this time in Europe. Wild banks of the river, located in the dense urban context, play an important role for the city’s ecosystem, provide habitats to precious species of animals and ensure the continuity of the river’s ecological corridor. At the same time, spatial development of the city and the proximity of the river to its central districts, combined with the increasing consciousness of the unexploited recreational and economical potential of the river, create a need to adapt fragments of the wild banks to serve as public spaces for the city.

Since WWII, Warsaw has been turning away from the river due to its unnavigability, poor quality of the water and both spatial and visual inaccessibility of the banks, cut off from the public access and sight by the main transit roads. In recent years, a large number of projects have been curried out both by public and private initiatives, to discuss the concepts of possible adaptations of several parts of the river banks located on the central urban fragment.

For my graduation project I chose an undeveloped site located on the "Czerniakowski" Headland, just 3 km from the most central point of the city, which is supposed to be transformed into a public recreation area according to the plans of the city’s authorities. Despite the fact that the site is undeveloped in urban terms, its natural fluvial character have been gone for a long time, mostly due to the introduction of the artificial topography of the scarps on the site after WWII, related to city’s flood prevention plan. However, because of its location on the headline, the site has a very direct relationship to the river channel that accounts for it special potential and requires a careful intervention.

In this context my project aims to answer the question of how can public space be introduced on the site in order to provide a spatial platform encouraging the re-establishment of socio-cultural relationship between the citizens and the river and activating recreational and educational potential of the river without compromising the environmental and hydrological role of its banks.

During the development of the project results of the research on several areas directly influenced the design process. Understanding the problematic nature of the relationship between Vistula river and the city of Warsaw on social and ecological levels and looking at both human and environmental demands informed the nature of the building program. Analyzed data showed that most of the citizens don’t acknowledge the river in their daily lives, don’t appreciate the
recreational potential it can offer but also don’t understand the importance of the river for the city and the ecosystem and therefore often underestimate how important their environmentally responsible behaviour is for that ecosystem. For that reason, the program of the building, besides providing recreational space, is strongly focused on the educational aspect. This is based on the believe that only understanding the value of the river channel, its cycles and the habitats it provides can encourage citizen’s appreciation and will to protect its natural environment and abandon their often solely demanding approach towards the planned interventions at the river banks.

The conclusions from the research on the hydrological history of the river channel, the environmental implications of past interventions and the possible ecologically sensitive solutions developed by local environmentalists directly informed the initial concept of the design. The project aims to activate the ecological potential of the site to act as valuable fluvial landscape, within which architectural space is weaved. The function of this space is to enhance the re-establishment of the connection between the domain of the river and the citizens through the sequence of experiences it provides. Architectural spaces are aimed at supporting recreation, education and most importantly, observation. The main spacial concept implies the design of a continuous landscape, capable of inhabiting river specific plants and animals, characteristic for the area. Indoor and outdoor architectural spaces provide a route through this landscape, designed to frame its valuable elements in order to create a sequence of meaningful observation spots supported by the information presented in the exhibition spaces. This way of understanding ‘exhibition’ is based on providing a multiplicity of perspectives from which the landscape can be perceived by the users. The most important layer of the changing perspective is embedded in the fact that the building and landscape are exposed to the changing water cycles of the river and therefore the human perception of the whole composition is constantly changing reflecting the dynamic character of the river ecology. The detailed research and analyzes of the dynamic water level cycle of the river was essential to establish those relationships in the design.

The design methods used in the Hyperbody studio are based on the implementation of the computational tools and establishment of a balanced design process composed of top-down and bottom-up decisions. In my design I used computational tools to locally inform different stages of the design. In that sense the project is not a result of a complete complex parametric system, but rather of a process, which crucial mostly environmentally related aspects were informed by computational experiments. The key points of the design informed by the parametric tools include the programatic distribution scheme of the functions, according to the desired connectivity patterns, which was tested using particle-based modelling. Most importantly, the form finding process, defining the relationships between water and land areas and the global shape of the building was based on the water flow analyzis based on Computational Fluid Dynamic. Therefore, computational tools served initially to define the configuration and global shapes of the main spatial elements of the project. In the later stages of the design the crucial architectural elements such as walls and greenery connectors were also defined using parametric logic and tools.

Computational tools helped me not only to shape the design but also to understand the spectrum of possibilities within the intended framework. On its later stages, the process required top down interpretation of the results on different levels in order to create the design addressing the issue of human perception in the intended way. In the end, I see the designed building as a platform providing a variety of spatial experiences based on different scales and perspectives and specifically related to the river environment and its dynamics and hope that it could provide a meaningful and informative multi-layered experience of communing with the river.