

Terraforming

Reclaiming post-mining territory as an unfinished laboratory for an integrative transformation

Reflection

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Introduction

The following paper is a reflection upon my graduation project: “Terraforming. Reclaiming post-mining territory as an unfinished laboratory for an integrative transformation”. The project has been developed with a multiscale approach to the remediation of degraded post-mining territory, focusing on the intersections between different material and temporal scales, such as landscape/architecture, environment/society. Both the research and design have been developed in collaboration with my tutors, Alper Semih Alkan, Taneha Kuzniecowa Bacchin, Freek Speksnijder. Thus, the architectural proposal that followed the research phase is a multilayered intervention at the intersection of land- and built forms aimed at the remediation of the degraded post-mining territory along the axis of the extracted post-mining groundwaters.

Research and Design

My research began at the country scale of Poland where I investigated the country’s energy transition, and the scenarios in the light of the energy transition at the end of coal extraction. This phase led me to the region of Upper Silesia – the following focus of my research, where I investigated the territorial relationships between both the “extensive” and the “intensive systems” underlying the bituminous coal mining industry in Poland. During my territorial investigation, I discovered the relationship between the mining systems and the systemic degradation of the waterscape. Subsequently, in my research, I was able to distinguish strategic post-mining sites and infrastructures relevant for the systemic groundwaters modeling. Thus, I arrived at my project site deductively while being aware of the fact that the project’s location in the city of Bytom both the most accurate location for project’s intervention as is an extreme case of the intersection between different post-mining conditions (e.g. sinking of the ground, systemic pollution and depletion of waters, contamination of soil, shrinking of the city). The following analysis of the site in terms of, inter alia, aforementioned post-mining conditions resulted in setting crucial axes and thresholds for the prospective intervention. Thus, the research framework fused with design framework. At that point, however, in retrospect, I regret I did not employ the physical performative soil-based model, which would assist me in modeling the site under the waterscape condition. Further, the multilayered character of research rendered the translation on the line research and design challenging, as I had to prioritize certain layers (e.g. waterscape) distancing from the others (e.g. the operations of the post-mining artefacts).

Once the outline of the site strategy was set, I approached the micro (architectural) scale, and the materiality of the consecutive thresholds introduced in the intervention. This, however, had to be reworked in the loop between all of the scales: macro (territorial), mezzo(urban), micro (artefact), as the separation of one scale often led to inconsistencies in the others. As a result of designing and thinking in the multiscale loop, the approach to the design and site strategy permeates all of the scales (macro, mezzo, micro). Thus the site strategy aimed at channeling and accumulation of waters is realized both by the large-scale earthfill thresholds, and the architectural detail aimed at harvesting the rainwater.

Method

The project's research framework was based on the theory of Ecosophy by Felix Guattari. This philosophy lay the foundation for the key lens, which was used to both organize and categorize methods according to the scales of mind, society, and environment. These scales were projected onto the triangulation of the corresponding categories of methods. Thus, the methodology of the research was based on this triad: mind follows ethnographic, society follows demographic/economic and environment follows cartographic/ecological techniques of research. Further, the mentioned three categories were interlinked with the macro, mezzo, and micro-scales, which enabled reflecting upon a multiscalar approach to architecture at the intersection of these scales. Consequently, my approach considered both deductive and inductive methods, which aimed to characterize on one side the "extensive systems" and on the other "the intensive ones".

Among the aforementioned mentioned categories, I gave the techniques of mapping (cartographic methods) special attention as I used them to coordinate, organize, process, and illustrate the key spatial, geological, economical, and morphological findings. This technique helped me understand the materialization of architectural objects on the territorial scale. Moreover, it helped me notice complexities, dependencies, and relationships between the extensive systems on the canvas of the territory. From the regional scale, I could reflect upon the materialization of certain objects (e.g post-mining infrastructure) in specific locations. Here, the relationship between the processes and materialization of objects was a main philosophical theme that shed the light on the field of architecture and beyond it.

Through correlations of quantitative and qualitative data, I used it to draw topological and typological links to depict not only the present state but also the state of "becoming." Further, mapping served as an analytical tool, which allowed for, inter alia, layering, addition, subtraction, exclusion, and zooming. This, however, resulted in gathering and processing an extensive amount of data, which, despite being structured, categorized, and presented accurately, became problematic in the light of the following design phase. Thus, in the design phase of my project, I found it highly challenging to select and prioritize certain layer/s for my further design. The multi-scalar approach was highly productive in the research phase, however, it has been highly challenging when I approach its translation into the design. Here, I would like to emphasize the fact that I could proceed with the design only when I worked on all of the scales simultaneously. Hence, the integration between the scales was essential. The progress was, however, much more gradual than I expected in the very first place.

Wider Implications

Model Example

As the project considers the redevelopment of a specific site in the city of Bytom, it becomes a model example for the treatment of the remaining (strategic) post-mining sites in Upper Silesia. Subsequently, it proposes the establishment of a laboratory for the evolution of the territory under the condition of the released groundwaters at the end of the coal mining industry in Poland. The conclusions drawn from the project's intervention could serve as the guidelines for the redevelopment of the remaining post-mining (strategic) sites and enrich the local knowledge in the procedures that can be applied to the degraded territory. Hence, the project is not a transferable solution, but a transferable approach that can be applied to a different post-mining site in the region.

Environment

The impact of the project's intervention exceeds the limits of its site. The treatment, release, and reuse of the groundwaters have a systemic impact on the environment, as these operations reduce the wide-spread pollution of surface waters in the first place. Further, while released on the site, the groundwaters are applied to the remediation of both physically and chemically exhausted soil. This has a positive impact not only on the condition of the soil but on the ecosystem as a whole. This ecosystem includes both human and nonhuman actors who in light of the project share equal rights to the post-mining territory.

Society

Through the introduction of the intervention in Bytom, the city standing at an extreme intersection of post-mining conditions, the project envisages an impact on channeling the local identity. Before the introduction of the project, this identity was solely based on the emotional attachment to the past industrial era. From now on, however, this identity is thought to evolve as the project becomes a singularity in the Deleuzoguattarian sense - a turning point on the canvas of the post-mining territory. This can be achieved as the whole project site is open to the public which enables the local citizens to discover the evolution of the site in time.

Mind

Although the socio-economic gap, in the aftermath of the 1990s structural changes, will remain regardless of the intervention, the project aims to address this gap as it speculates that this is one of the ways to productively interweave the emotional attachment to the mining symbols with the much-needed environmental values. Thus, the aforementioned remediation will embrace not only the environment but the local society and individuals who willingly or unwillingly will become the actors in the process of remediation of the post-mining site

Graduation studio and the topic

As the studio of Explore Lab is a research-oriented studio and provides an open framework for the investigation of personal fascination, the project proposal was strongly nested in a research-based deductive process of arriving at the architectural scale. The freedom to lead the research in a personally chosen direction provided a chance to explore cross-domain extensive systems, which helped me understand territorial conditions, their intensities, and finally intensive systems in the form of key architectural objects, their materiality, including both tangible and intangible features, such as atmospheres. The later point strongly anchored the project within the architecture master's program, as it challenged my understanding of architecture of not only the buildings but the conjugation of different fields and flows. Further, what I found challenging in the studio of Explore Lab, was the isolation of my topic. In retrospect, I suspect I would find it easier to proceed with the project, if I had been working in the same thematic group which would foster the exchange of knowledge between the participants working on closely-related topics.

Ethical dilemma

Investigating the degraded Upper Silesian territory, I encountered the following ethical dilemma: could the prolonged use of the project's post-mining site harm human health despite the introduction of the remediation operation? This question has risen many times, both during my site visits and the design phase of the project. In this phase, however, it is hard to predict such an influence. Thus, to a certain extent, the application of some of the human-centered programs is speculation. In the light of the systemic contamination of the site, I suspect that the levels of the actants would be thoroughly monitored, and notice would be given to the users if the levels of the contaminants would exceed the norms.

Further, I recognized the following dilemma: how much time must pass before the whole site could come back to the city? Here, I would like to emphasize the fact that the construction of the intervention, its renaturation, and return of the programs would be stretched in time. Hence, human presence on the site will increase, however, its rhythms would have to be adjusted to the levels of the contaminants. It is not excluded that certain leisure activities (e.g. fishing, swimming) will be forbidden on the project's site for years despite their recent illegal occurrence. Subsequently, the initial phase of the operation would be probably burdened with the temporary limitation of human access to the site. This, however, will evolve, and in the end, I suspect, will be more beneficial for local society than the present status quo of the site.