Reflection Paper
Intecture: Harvest_BK
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The project “On gradual demolition and participatory nature” is a design to repurpose Sibleco Sand mine in Heerlen into a bird sanctuary. The ultimate aim of the intervention is to protect and restore aerial and aquatic biodiversity in Limburg, using the Sibelco Sand Mine as a stimulating area. A secondary aim is to enhance enjoyment of the site and understanding of nature as well as its conservation through the visitor facilities. This proposal seeks to facilitate Parkstad’s ambition to become a Garden City and it is a response to the IBA Parkstad 2020 open call. The exhibition invites architects to amplify the character of the area in order to reverse the shrinking population trend.

Due to the multilayered problematic of the area, which involves increasing vacant buildings, poor connection to the rest of the country and lack of collective identity my research focused on the future of the Sibelco Sand mine in Limburg, as it is a reflection of these notions. The coal mining industry has been replaced on site by the automated sand mining infrastructure, which soon as well will come to an end. My challenge as a designer was to investigate how to account for such perpetual reappropriation of the industrial infrastructure and how to plan the gradual process of compensation to the neighbourhood and nature.

Aspect 1 the relationship between research and design.

Starting with the fascination of mutualism in nature I investigated how built interventions can affect the flows in ecosystem. Simultaneously, my ambition was to identify qualities which are unique the post- extraction landscape of Parkstad.

It was necessary to understand the key notion of Drosscape - described by Alan Berger as “future being under perpetual construction”[1] . His theoretical manifesto on exploited lands became the main driver in my design. The environmental obligation to accommodate the undesired infrastructural leftovers leads to realisation that every industry is temporary, every job redundant, and every structure will eventually become abandoned. Drosscape is a designed landscape which accommodates for waste in the man made urban voids.[2] It uses the environmental deficit to shape the future.

With this framework in mind I approached my research of architectural devices for the activation of ecology, with the idea of implementing them in the drosscape of the Sibelco sand mine. I investigated architectural tools in order to speed up the processes of ecological restoration. The intention was to bridge the theoretical knowledge from the discipline of ecology restoration with architecture. Via an investigation of several case studies, such as greenhouses or windbreaks I have studied how they impacted the climate and therefore the ecology around it. This study not only proved that the orientation of such structures can have a mutual benefit on each other, but also their presence can accelerate the development of vegetation and different species close by. Having identified instruments for the stimulation of nature I aimed to incorporate them into the restoration of the environment on the site left by the Sibelco Sand mine.

I intended to apply the knowledge from the analysis to reorder the abandoned infrastructure into devices, which activate the processes in the post-extraction landscape. The proposal seeks a compromise, which gradually will convert the industrial site into an environment for cohabitation of people with nature. It aims to prevent the drastic end to the sand mining industry, in a similar way to what happened with the coal mining industry. My graduation project is a design for a gradual demolition, which considers the left over infrastructure, as elements, which reordered can find its new use in the ecosystem.

This is an exercise in vision making for the future without remains. It demonstrates demolition as an important field for architectural engagement.

1. Berger, Alan. Drosscape: Wasting Land in Urban America. 1st ed. New York: Princeton Architectural Press, 2006.
2. Hooimeijer, F.L., F. Lafleur, and T. Trinh. “Drawing the Subsurface: An Integrative Design Approach.” Science Direct, March 2017.

Aspect 2 the relationship between your graduation (project) topic, the studio topic (if applicable), your master track (A,U,BT,LA,MBE), and your master programme (MSc AUBS).

Architectural Engineering, Harvest_BK graduation studio is a multidisciplinary group, where a part of the research has been done by students from landscape and architecture tracks. As a team we mapped potentials of the area related to metabolism. Via the investigation of the social, ecological, energy and water flows we have produced a collective database - "Atlas".
Architectural and Landscape students mutually influence each other. As and architectural student I adopted the characteristics of the landscape design thinking. Rather than designing a product I aimed to plan a process which develops over time. My project strived to result in architecture, which makes conscious impact on to an ecosystem and can evolve further with time.

Aspect 3 Elaboration on research method and approach chosen by the student in relation to the graduation studio methodical line of inquiry, reflecting thereby upon the scientific relevance of the work.

In the Architectural Engineering studio, the design via research has a great importance. Studying the flows in nature I learnt that all the design decisions can result in a multivalue solution. Being aware that the research will be my starting point to the design I consciously framed my fascination in ecology in the architectural framework - drosscape. Extensive precedent study demanded from me to compare literature from 2 different disciplines which is architecture and the science of ecology restoration.

I have expanded my understanding of landscape design, thanks to my research mentor. The realisation that landscape design deals with the development of frameworks in time and the management of resources, has expanded my understanding of the discipline. My mentor explained to me that nature, when not disturbed, will regrow quickly even without any interventions. The only obstacle is the human access and the maintenance that the area is exposed to. My research tutor has encouraged me to speculate and draw different scenarios, as landscape design has always to account for the unexpected.

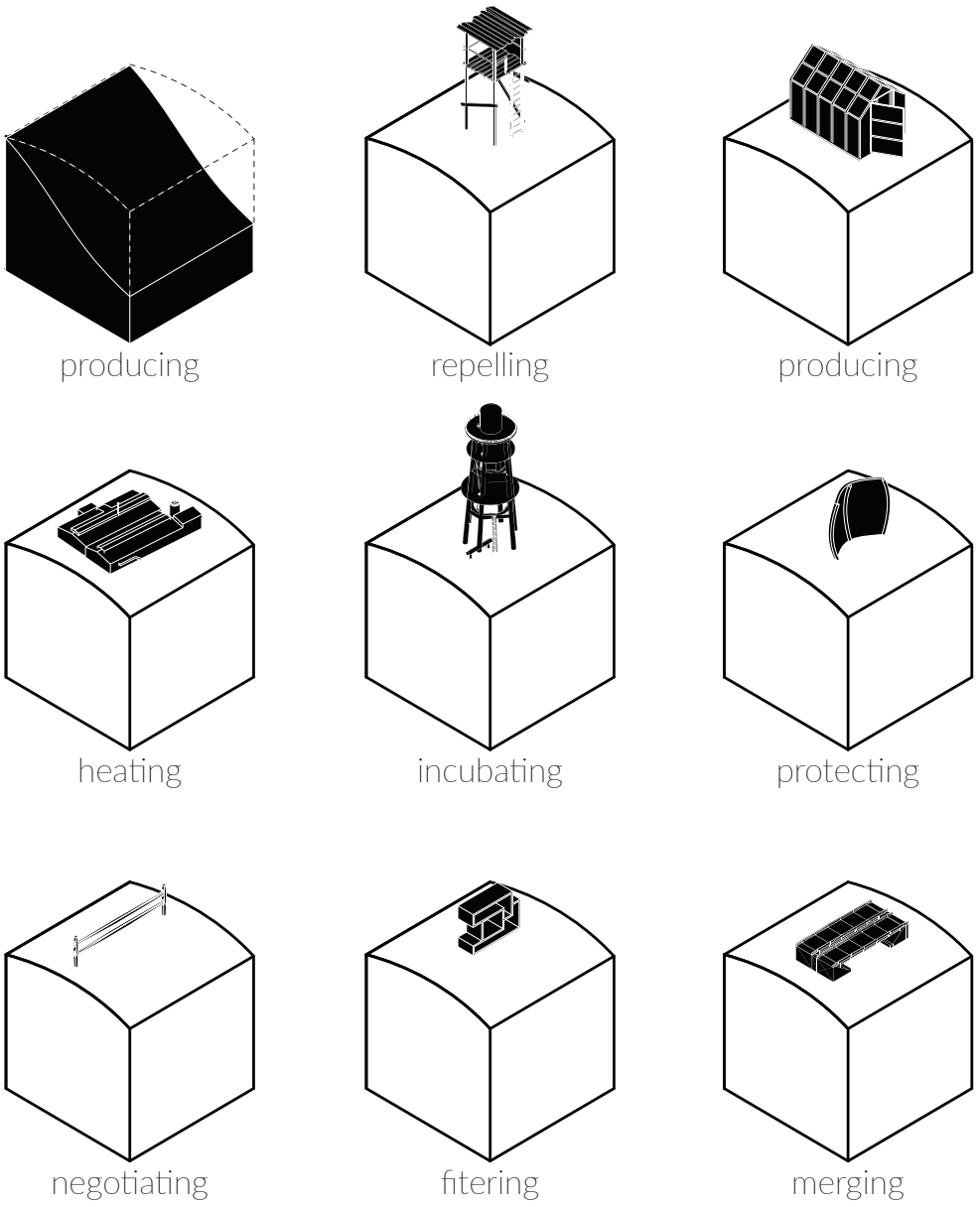
Such multidisciplinary exchange of ideas was an intention of the Harvest studio and I believe that shortening the distance between the professions can result in quicker and more effective innovation.

Aspect 4 Elaboration on the relationship between the graduation project and the wider social, professional and scientific framework, touching upon the transferability of the project results.

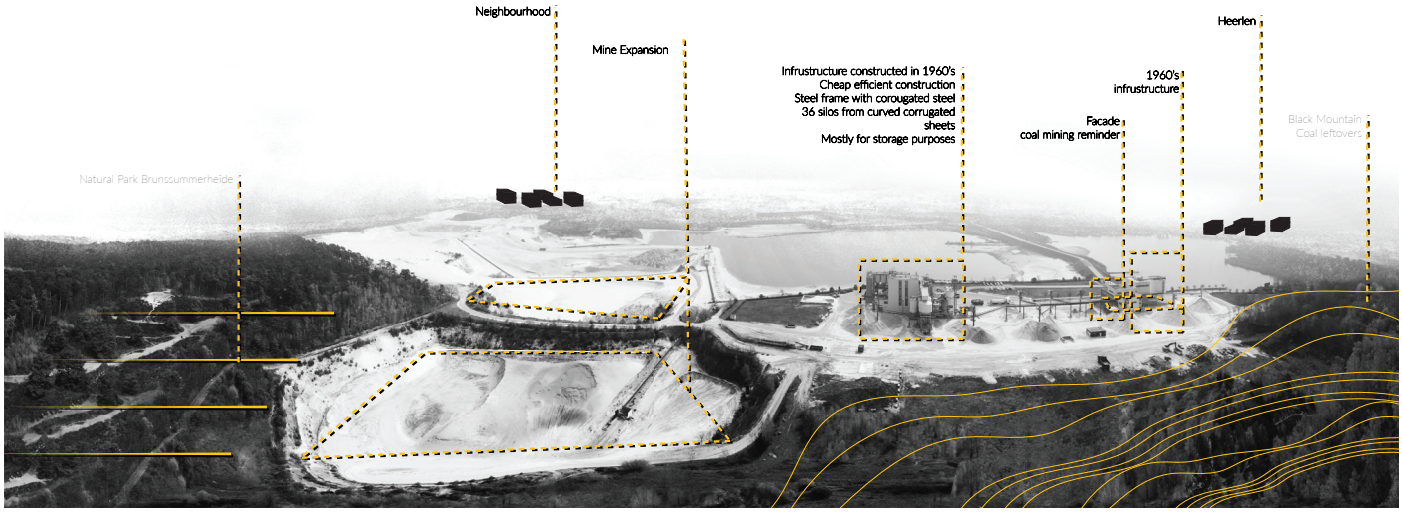
A big challenge was defining a relevant program for the Parkstad area. What should architecture accomodate in the area where everyone has already left. The project aimed to design a gradual demolition and reorder of the infrastructure. This process was to be facilitated by a building workshop.

However my design tutor suggested that reordering the parts of the sand mine does not require an additional building. This process could simply happen on site. In addition, designing another building to decompose the other was contradictory. Her suggestions and questions regarding the purpose, necessity and target of my project were necessary to sharpen my concept on reordering the pieces of environment.

This suggestion made me rethink all the decisions again. Eventually the program developed into an open science center, which demonstrated the way architecture can stimulate the nature. The designed spaces reflect how architecture affects the natural environment. The retaining walls, which form cliffs to invite swallows, slender towers mocking stork environments, or a chamber, which protects the plants from wind and provides a warmer microclimate with it's thermal mass. I have used the spatial qualities investigated in the research paper and consciously designed a space which invites nature.
Because nature is unpredictable the project is a speculation. It is often the novelty landscapes which surprise the science. The species adapt in the most unpredictable ways. Therefore, the project is a scientific guess and bases on the mechanisms observed in the precedence.

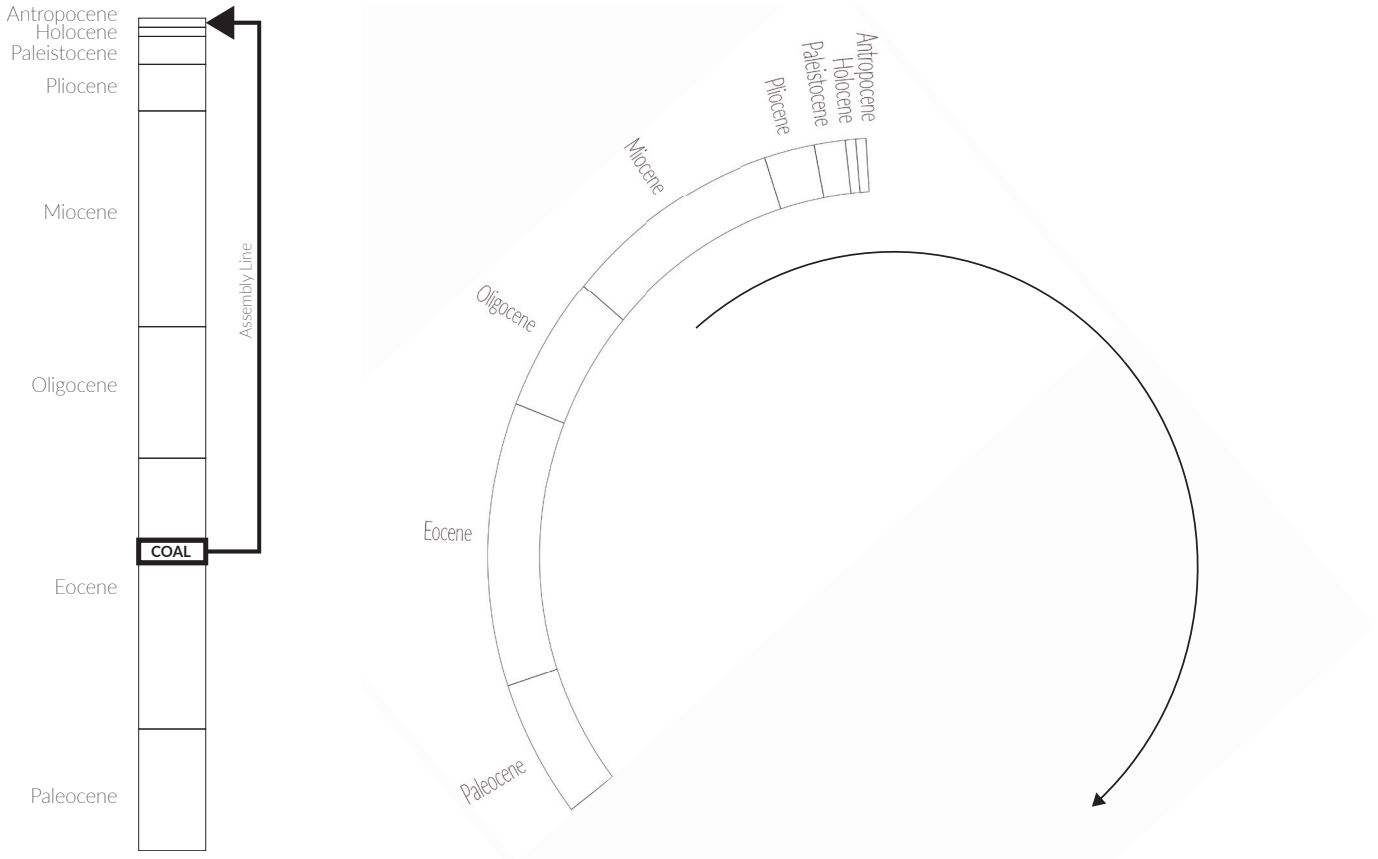


Devices and mechanisms indentified in architectural interventions-part of the research paper.



Site inventory - design starting point

Due to the scarcity of resources, professions such as coal mining receive a timeline with an end. Along with the expiration of a certain industry, it is not only the buildings, infrastructure, and local settlements that lose its purpose. It is also a profession which from one day to another becomes redundant. The exploitation of the resource or computational replacement will result in more and more waste from the industries which became outdated. Can this waste be treated as the geological layer of anthropocene? Can the industrial leftovers become the “coal” of tomorrow? These questions have a great relevance for me in



the future.

When designing for resilient, inclusive and safe sustainability, it is necessary to look at the ecology in terms of time. Therefore, accounting for the natural consequences of an architectural intervention is our professional obligation.

Aspect 5 Discuss the ethical issues and dilemmas you may have encountered in (i) doing the research, (ii, if applicable) elaborating the design and (iii) potential applications of the results in practice.

In my research I was looking to prove that the built environment can be used as tool to facilitate nature. Very quickly I have found out that this thesis can be only supported by case studies, but never completely proven. I have encountered multiple cases where nature adjusted to the built environment, or was negatively impacted by it even though the expectations were different. The flows present in nature are always disturbed, broken or diverted. Almost every intervention (even a positive one) triggers an unknown to a certain extent chain reaction. Rather than via a singular element, restoration should happen via a collage of instruments, which work in a timed synchrony. Any research aiming

to predict the behaviour of nature in a novel environment will always stay to a certain extent a speculation.

I have also questioned how to actively involve the community in the restoration of the environment. Technology has a capability to facilitate the interaction with it. Via a construction of an open source platform www.shiftingsandsproject.com I intend to give actors the power to influence the planned restoration in their proximity.

Parkstad Area is a shirking area in the age of the supremacy of growth. Once instruments of financial accumulation are soon to be left unattended. My project aims to repurpose such outdated technology. Due to the ever-changing landscape, which bears traces of human modifications, it is necessary to accept these temporalities as a novel ecology. This project demonstrates that one way of creating architecture which is an extension of the environment is to consider it as a device operated by natural forces.

Conceptual Image