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Title

Shifting Sands - On Shrinkage and Participatory Nature

Problem Statement

What happens if the profession becomes redundant? The landscape which used to be a provider becomes an uncontrolled void, depleted from resources, nature and life.

The site north of Heerlen is an example of an area which is exposed to the constant shift of industries. A former coal mine, now a sand mine is to be closed down by 2030. This project seeks to tackle this dynamic of constant appropriation, seeking flexible solution to prevent a creation of a post-industrial wasteland.

The transition Limburg faced in the 1960's when its coal mining industry became less profitable than the newly discovered natural gas excavations, is still in progress. Years after government's decision to close the mines and erase the infrastructural traces of the industrial past, Heerlen's coal mining identity is still deeply rooted into the society.

After the industrial boom the mining settlements faced a population shrinkage. Today south Limburg is reinstating those villages under the common umbrella of Parkstad.

Silica Sand mine Sibelco in Herlen is facing a similar forecast as the coal mine Oranje Nassau IV, the former industry on the site. This only resource of silver sand in the Netherlands became a contentious issue between the residents, private investor and the government. The excavation of 400 000 tons/ year of the "golden" powder takes place just on the doorstep of the neighbourhood in Heerlen. Exposed to noise pollution and truck traffic, the residents witness an environmental havoc. Perpetually extended commission for Sibelco to excavate the sand, challenges the company to compensate the damages to the nature, once the excavation is over.

However, the contract does not impose any measures to tackle the problem until the contract is over. Until 2035 the residents, environment and Sibelco will carry on the usual procedure - exploitation of the environment on the doorstep of the Harlem neighbourhood.

Objective

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 industry, which happened with the coal mining. Using the knowledge from the discipline of Restoration Ecology it will use low-tech architectural interventions to bridge ecosystems.

The aim is to design a framework, which can accommodate such devices over time, responding to the development of the ecology. From inhabiting nature to gradual integration of users into the landscape, this project will be a speculation on the ecological processes triggered by an architectural structure - a device for activation.

A framework of Drosscape - re-use of waste landscape, will be the main strategy to materialise the development. The ultimate goal is to design a coherent plan in phases which would satisfy multiple parties in a 20 year interval.

Overall Design Question

How to design a phasal approach for the site, which is an object to constant re-appropriation?

How to transform a post industrial site into a responsive environment which restores ecology via the framework of Drosscape?

Thematic Research Question

To what extent can an architectural intervention catalyse and facilitate the process of ecological restoration?

Can a visual guide be an open-source trigger to active engagement of a user with the restoration of the novelty landscapes?

Sub questions

Can the design account for the consecutive re-appropriation and the recurring terminations of certain professions?

How to reorder the existing elements for performative adaptation to a specific ecology?

What can the industry of sand mining convert to, when the resource is completely exploited?

Methodologies

Literature study

Study of the literature on Ecology Restoration, Metabolism, Permaculture and Drosscape.

Case Study Analysis

Architectural structures such as a birdtower, windbreak, watchtower etc are analysed in terms of their impact on the ecology.

Dialogue with the community via an online tool

The categorised case studies will provide a starting point to an online platform which will demonstrate the active strategies to restore the ecology. It will encourage the community to share their interventions in the ecosystem. The tool will organise the feedback from the users.

Material Experimentation and Inventory

Challenging the properties of the material and analysis of the available infrastructure on site.

Relevance

Energy landscapes deform and break the ecological tunnels. Then, with the expiration of a certain industry, it is not only the buildings, infrastructure, and local settlements that lose its purpose. It is also, the profession of coal mining which becomes redundant from one day to another.

The exploitation of the resource or computational replacement will result in a significant increase in the amount of waste from the industries which became outdated. The afterlife of an energy landscape is often a wasteland - inhabited by nothing, but abandoned heavy infrastructure.

However, this liminal landscape is just temporary. The nature and perpetual evolution of the ecosystems immediately adjust to such novel conditions. Microecologies develop on the borders created by the exploitative industry.

The science of restoration ecology allows to speed up the transformations of the barren land exploited from resources into a novelty ecosystem.

Nonetheless, the extensive research and analysis often does not go beyond a piece of paper. Difficulties arise when an attempt is made to implement the policy. Due to the gap between the science and practice, not only the process of restoration is being slowed down, but also the innovation within the disciplines is being limited.

Architectural profession can communicate and implement this knowledge.

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