Graduation Plan

Master of Science in Architecture, Urbanism & Building Sciences

MSc Landscape Architecture 2023 - 2024

[Junhui Zhang]

Graduation Plan

Submit your Graduation Plan to the Board of Examiners (Examencommissie-BK@tudelft.nl), your mentors and delegate of the Board of Examiners one week before the P2 date at the latest.

I Personal information	
Full name	Junhui Zhang
Student number	5782457

II Studio / Lab information		
Name / Theme	FLOWSCAPES/ Landscape Architecture Principles - Scale continuum	
Main mentor	Eric Luiten	Landscape Architecture
Second mentor	Marc Schoonderbeek	Architecture
Argumentation of choice of the LA graduation lab	The main reason for choosing this lab is that since the beginning of my study in the master track of Landscape Architecture in TUDelft, I have been providing feedback on the 4 lenses in Landscape Architecture at the end of each design course. Moreover, in the arrangement of design courses, it is evident that each design focus is closely related to these four aspects. However, after each reflection at the end of the course, I didn't have more time to digest and build the connections between these four principles. Each reflection seemed more like using these four lenses as a checklist to assess the completeness of a project rather than applying them in design. Therefore, on the one hand, in order to better understand these four aspects of landscape, I would like to take the opportunity of my graduation project to apply and explore this methodology. On the other hand, this lab topic is entirely new, with no previous student involvement, offering a high degree of freedom but also challenges. The choice of site and the issues of concern are more flexible than other labs, providing more space for personal creativity.	

III Graduation project	
Title of the project	After gas - From extraction to restitution: exploring a Strategic Framework for the future of new perspective in Groningen after the closure of gas field
Context and aim of the project	
Location (region / area / site)	Netherlands/ Groningen province / Groningen gas field

Problem statement	Over the past 60 years, the severe consequences of earthquake activity and land subsidence resulting from the exploitation of the Groningen gas field have gradually come to light. Faced with the threat of earthquakes and public protests, the gas fields within the Groningen Gas Field have been mandated for closure and dismantling, leading to the transformation of extensive industrial brownfields into vacant land. In the current scenario, although natural gas extraction activities have ceased, the land subsidence and seismic activity caused by decades of natural gas extraction persist and are expected to continue for an extended period. Examining the history of the discovery and exploitation of the Groningen gas field, it becomes evident that only a small portion of the funds derived from natural gas has been allocated to the development of the province of Groningen. Simultaneously, residents within the Groningen gas field region endure both physical and psychological torment from the earthquakes, compounded by the cumbersome and protracted procedures for compensating earthquake-damaged homes. As you drive through the province of Groningen, the impact of gas extraction becomes increasingly visible. The reinforcement operation is in full swing. Many houses are in scaffolding or struts. Construction workers work day in, day out on the recovery. Hundreds of houses have now been demolished and rebuilt. Hundreds of temporary housings have been built on the flanks of the affected villages.

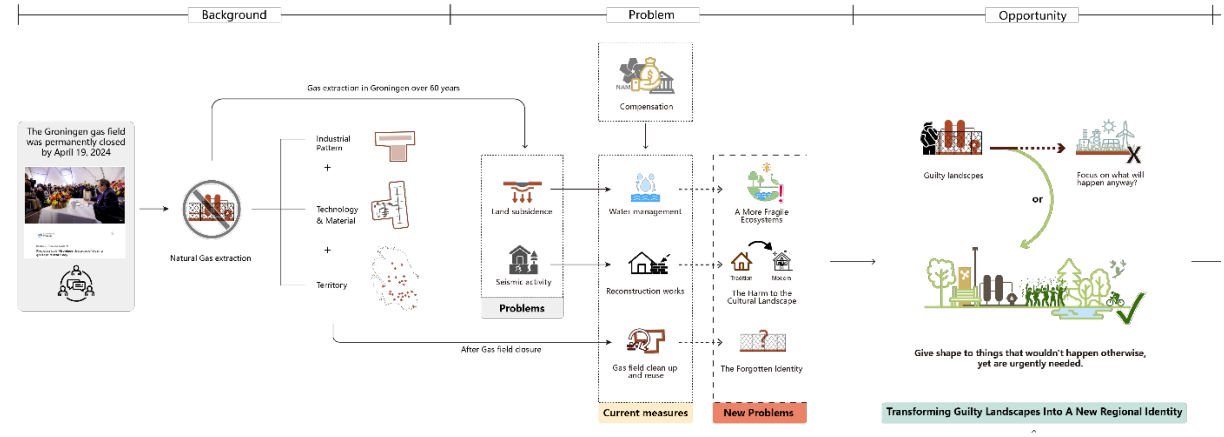
	In some places, open spaces have been created because a house once stood there. All this affects the quality of life and the appearance of the many villages and neighborhoods. The Groningen gas field appears to represent a dual punishment for the local population rather than a gift from natural. The positive news is that, starting from 2018, natural gas extraction from the Groningen gas field has been gradually ceasing, aiming to eliminate as much as possible the factors causing significant damage and insecurity (associated with gas extraction activities). The Groningen gas field began a "pilot" phase in October 2020 and shut down all production activities on October 1, 2023. This is the result of years of struggles by social organizations and residents, marking a historic moment. However, the subsequent question of how to reuse these retired productive lands has not been widely discussed or addressed.
Research question(s)	Main question: What role can the reuse of these demolished gas production sites play in the future development of the Groningen gas field region? Sub questions: SQ1: How does the experience of natural gas extraction intertwine with the future identity of Groningen? SQ2: How to formulate a strategic framework to address the risks of earthquakes and land subsidence?

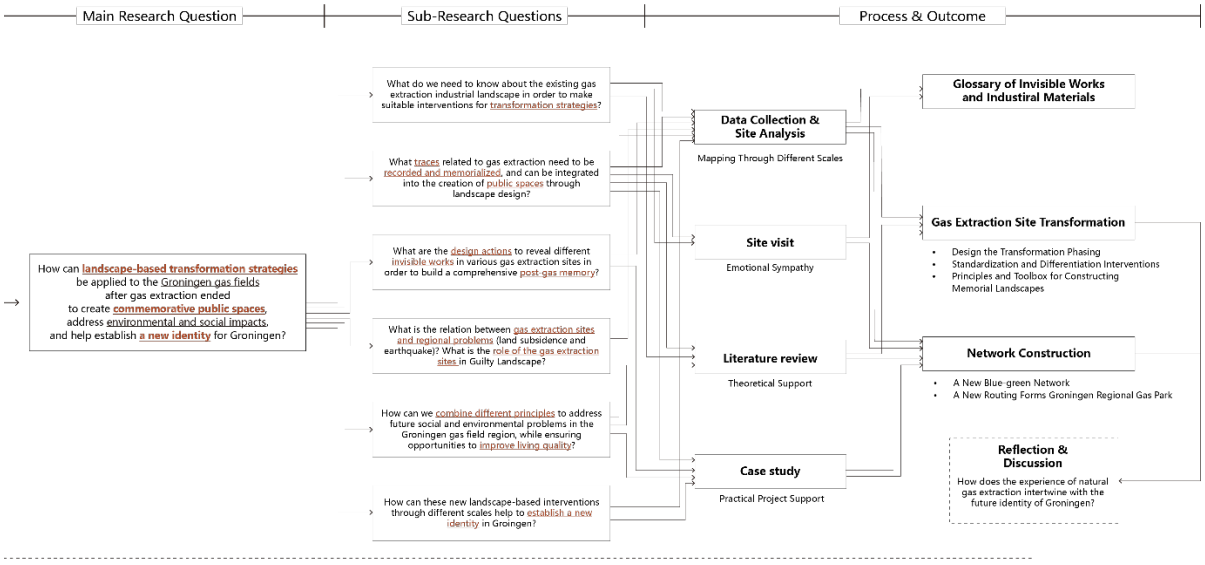
	SQ3: How can we adopt different principles for gas fields located in different regions to provide room for new possibilities (like ecological value, economic benefits, cultural aspect and the potential for resilient regions etc.)?
Design assignment	Through analyses at various scales related to the Groningen gas field and considering the relationships between ecology, economy, social concerns, and the living environment with landscape, the final design outcomes include: 1. At the regional scale, formulating guidelines for the development and future expansion of the Groningen gas field area, integrating the historical context of gas extraction into a more positive future image for Groningen. 2. At the village scale, analyzing the impact of earthquakes and land subsidence on residential life, designing wetlands and natural parks through landscape planning to enhance the region's resilience to future disasters and improve the quality of life for residents. 3. At the gas extraction station scale, exploring potential approaches of reutilization for the gas field.

Through the transformation of the Groningen gas field, diversifying the functions of the gas field from a single industrial attribute through landscape planning aligns with Groningen's new goals for rural development. This approach aims to enhance the future quality of life for residents, and on a regional scale, improve the resilience of rural areas to future earthquakes and climate change.

IV Graduation process

Method description





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V Reflection on the project proposal

1. What is the relation between your graduation topic, the lab topic, and your master track?

   In the field of landscape architecture, the intensifying contradictions in the external environment are becoming increasingly apparent, such as global warming, the proliferation of abandoned industrial sites, urban decay, and the deterioration of living environments. Landscape restoration, or landscape redemption, seems to have become a more popular topic in landscape discussions, with the hope that contemporary landscapes can serve as tools to address these external contradictions. Personally, I am very interested in the future development of the world and have been exploring how landscapes can confront these challenging issues from the future. The outcomes of many landscape projects around the world also illustrate that urgent social and environmental needs can be addressed through the development of a compelling language of landscape design.

   John Beardsley, a professor at the Harvard Graduate School of Design, argued in 2023 in favor of the importance of contemporary landscape design: "Disharmony, discontinuity, contradiction: these are the conditions driving the development of a contemporary language of landscape architecture." (John, 2023) Using an organized
   landscape language to reconnect the disharmony and discontinuity existing in a site and resolving the contradictions arising from these disharmonies with new connections. This is precisely the theme my graduation project aims to address. Over the past 60 years, the natural gas fields in Groningen have generated significant wealth; however, concurrently, they have inflicted enduring hardships upon the local residents. Now, with the closure of the natural gas fields, there emerges a new opportunity for these once-regarded "guilty landscapes." There is potential to transform these depleted gas fields into more attractive and integrated regional spaces. And this is the redemption myth present in the Groningen gas field, the location of my project.

   The lab's topic, Landscape Architecture Principles, and this year's focal theme—the scale continuum—serve as an effective means for observing, analysing, and intervening in the landscape design of the Groningen gas field. This involves transitioning thinking across scales to achieve the connection and integration of various functional aspects.

2. What is the relevance of your graduation work in the larger social, professional and scientific context?

   Regarding the closure of the Groningen natural gas field, it has been a constant struggle for local residents, with various groups, organizations, and individuals closely monitoring the situation. Different groups are using their respective professional skills to document, express, advocate, and resist. At the same time, the Groningen gas field involves issues of land, history, and landscape, displaying strong spatial distribution characteristics and spatial language (carrier). It is visible, perceptible, and can be designed for improvement.

These characteristics determine that landscape architecture can leverage its professional capabilities within this context, offering the potential to envision a new future for Groningen. As the closure of the Groningen gas field is a recent decision, there haven't been many spatial designs and studies related to it in the fields of landscape architecture or planning. Previous research on the Groningen gas field has mainly focused on social impacts, including economic aspects, seismic house repairs, residents' mental health issues and the living environment in the future. Therefore, my graduation project could provide some inspiration for those who wish to continue researching this topic in the future.