

Graduation Plan

Master of Science Architecture, Urbanism & Building Sciences



Graduation Plan: All tracks

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

The graduation plan consists of at least the following data/segments:

Personal information		
Name	Hanneke Wander	
Student number	4311280	
Studio		
Name / Theme	The Wadden Sea Lab	
Main mentor	Laura Cipriani	Landscape Architecture
Second mentor	Luisa Calabrese	Urbanism
Argumentation of choice of the studio	<p>When choosing a graduation studio, I have been looking for a studio where multiple scales are addressed with a careful and considerate approach to the sense of place, and the people who have given form and use the landscape daily. This is something that has sparked my interest not only through courses, but also through my background in industrial design. In my perception the Wadden Sea studio weaves social implications with bigger relevant challenges such as climate change and water issues, economic developments and the productive landscape. This is an approach which has attracted me greatly.</p>	

Graduation project	
Title of the graduation project	Land & Farmer's Equilibrium
Goal	
Location:	Friesland and the Waddensea
The posed problem,	<p>The problem is sub divided into three themes which are all related to the topic of agriculture, which is an industry which is strongly embedded in Frieslands landscape identity and strongly effects how this province looks and is perceived. The three themes are economical, ecological and cultural as translated through the landscape. These themes are chosen as they fall into the scope of this graduation project and have potential to be intertwined in a multi-layered design project.</p> <p>Economic Agriculture practice has gone through numerous developments since the rebuilding after the second world war. Agricultural practice has become more efficient and is targeting higher yields. To be able to compete on the global market, farmers will have to keep scaling up. E.g. after the abolishment of the milk quota in 2015, the number of cows in the</p>

Netherlands went up while the number of farms went down (CBS, 2021). Although upscaling in economic terms seems to be of high interest it also brings a risk. Other countries such as China are also rapidly upscaling their milk production which can destabilize milk prizes and put Dutch farmers in a vulnerable position, especially regarding the big investments that are involved in upscaling farms (Moai Fryslân, 2014).

Ecological

The agriculture system has a big impact on the ecological qualities of water, nature and agricultural lands themselves in the Netherlands. The agricultural system is also under pressure due to climate change and site-specificly under the threat of salinization.

The surface water quality in the Netherlands has been decreasing for many decades and is qualified as being bad to not sufficient (Compendium voor de Leefomgeving, 2020). The two biggest causes for the degrading of the quality of surface water are excessive use of fertilizer and manure (Natuur en Milieu, 2019). The phosphor and nitrogen surplus has increased in recent years through droughts in summers. When washed out into the surface water, it can decrease biodiversity and this leads to numerous problems. Also, when phosphor and nitrogen infiltrate into the ground, they can affect the quality of drinking water (RIVM, 2020).

Next to this pollution, biodiversity on agricultural lands is at a record low due to the monocultural nature of the contemporary agricultural practice (Wageningen University & Research, 2017). This leads to a decreasing soil quality, effecting agricultural practice in the long run negatively. The effects current agriculture has on the ecological structures in Friesland is decreasing its biodiversity, and thus the experiential qualities of the landscape. E.g., there has been a 40 percent drop in the number of meadow birds since 1990 (Bouma, 2019).

Focusing on Friesland, the coastal area of Friesland is facing the risk of salinization. In this area, a lot of potato farmers are located on the fertile grounds of old creek ridges. Salinization is taking place because of two main reasons. First of all, by constantly pumping water out of the polder systems, the salt ground water finds its way up. Secondly, due to rising sea levels the contact area for salt water to infiltrate is getting bigger, which is a development which will keep increasing due to climate change (Rijkswaterstaat, 2021).

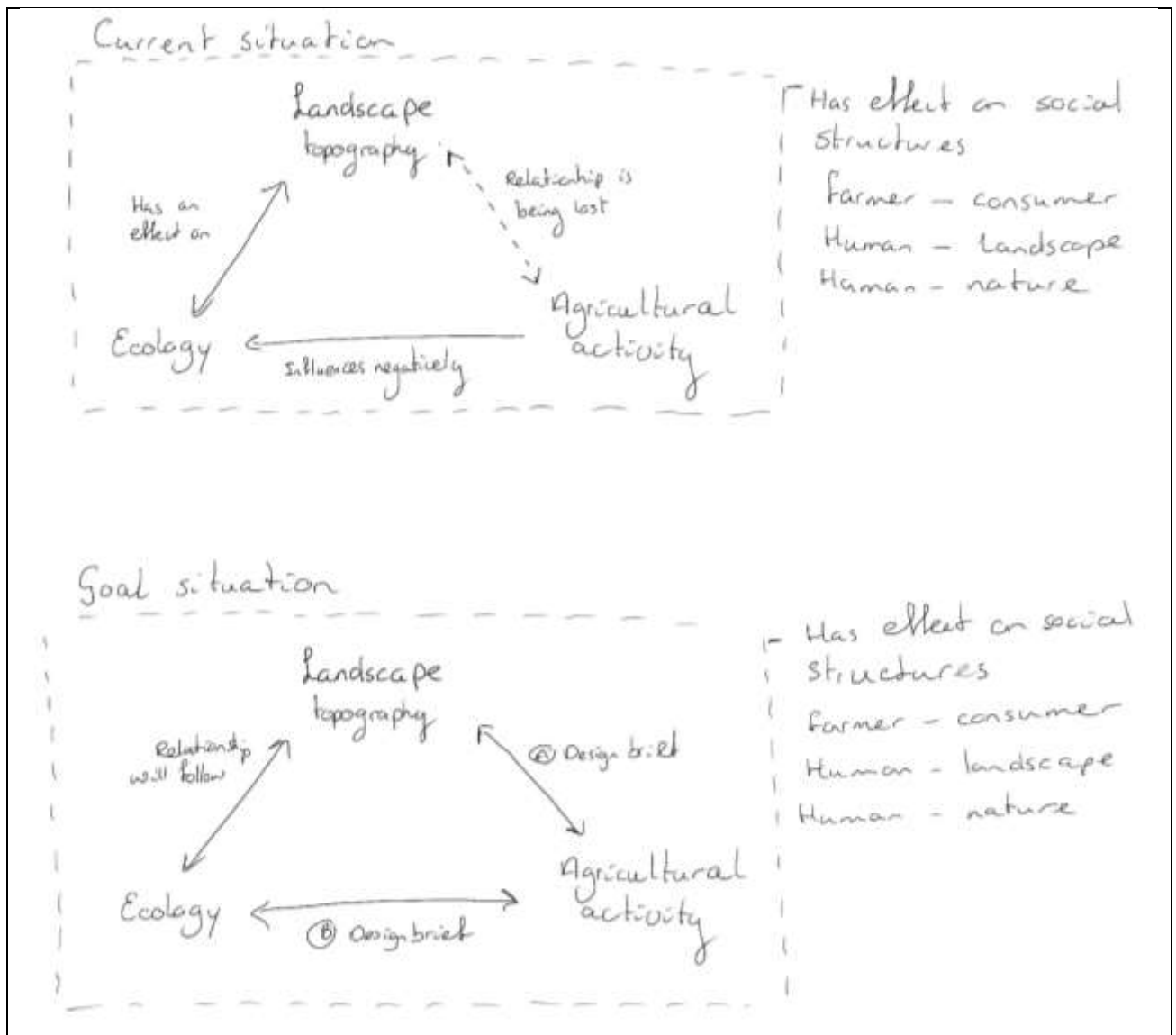
Social

Upscaling and focusing on the highest yields have also influenced the journey from farmland to the consumer's plate. Consumers and farmers have become more and more disconnected from each other, influencing their relationship. The changes to which the landscape is subject is also altering the relationship humans have to the farm landscape and the relationships between humans and nature.

The cultural Landscape

The trends as described above have a resulting effect on the landscape and the Frisian landscape identity.

	<p>Upscaling as a result from globalization is drastically changing the landscape in Friesland. Allotments are merged and bigger cowsheds are built, effecting the sightlines in the landscape. (Kernteam De Nije Pleats in Fryslân, 2009). This has an effect on how the landscape is perceived and threatens a loss of identity, as small-scale historical structures fade away.</p>
<p>research questions and</p>	<p>What can a renewed relationship be between the landscape and agricultural activity in Friesland, pulling inspiration from its history and contemporary agricultural knowledge, resulting in a system sustainable ecologically, economically and socially?</p> <p><u>Subquestions:</u></p> <ul style="list-style-type: none"> • What is the Frisian (landscape) identity related to agriculture practice and how did it come to be? • What are alternative -sustainable- forms of agriculture? • What are historical forms of agriculture in Friesland? • Which alternative -sustainable- forms of agriculture are applicable in the Frisian landscape and what are the ecological, socio-cultural and economic implications of such a change.
<p>design assignment in which these result.</p>	<p>The aim of the design assignment is to formulate a vision on the future of the Frisian landscape where sustainable forms of agriculture are the generally accepted approach for organizing an economically, socio-culturally and ecologically viable society, rebalancing agricultural practice, landscape and ecology with each other. To move towards a more sustainable agricultural system, inspiration and ideas can be drawn from Friesland's history. This is combined with the already existing knowledge on more sustainable forms of agriculture, which forms the framework for this graduation work.</p> <p>The result of the design assignment can be described as following:</p> <ul style="list-style-type: none"> - An analysis of Friesland's history and current agricultural practice, and topics related to the research question. - A toolkit for sustainable agricultural practices, taken from the history of agricultural practice in Friesland and current scientific knowledge on the topic - A regional vision and masterplan for the province in terms of strengthening ecological networks - An ecological masterplan on the smaller scale envisioning a new agricultural system being part of this ecological network - Specific site design of a chosen area(s), translating the principles from the regional scale to a site-specific scale.



Process

Method description

Understanding the current situation

- Through mapping an understanding of the historical development will be pursued.
- Using mapping to analyze the current state of affairs in Friesland, related to agriculture and its effect on the environment.
- A literature study on the current states of affairs of agriculture in Friesland
- By analyzing the soil and the activities in the landscape as a result of its soil type, to understand the landscape furthermore.
- Site visit
- Talking with experts
- Getting a sense of regional identity by reading, watching, listening to found material (documentaries, books, interviews, art) related to the site
- By drawing, through sample picking on maps, redrawing found patterns, and irregular outliers, an understanding of the landscape and its identity will be pursued.
- Creating and listing devices which are used in the decision-making process and create a framework in which to work

Vision setting

- Listing the strengths, weaknesses, opportunities and threats of Friesland and the Waddensea
- By using a layered approach exploring a vision on the regional scale

Research by design

- Through scenario-based design, different concepts will be worked out which will give input and inspiration for the design to envision a future for Friesland related to the research question.
- One or several specific sites will be chosen in Friesland to design how the landscape will look and function, translating the principles from the regional scale to a site-specific scale.
- For communicating the findings of the graduation project, a report will be made which summarizes each research phase, where findings are communicated through conclusion maps, diagrams, graphs, drawings by hand and in the computer. The final design drawings will also be used in the production of final posters. Next to these results on paper, a maquette communicating the design will be produced by the student.

Literature and general practical preference

Materials

For the first part of the research reading is being done, in documents on the internet and in books.

Books:

Koppen, H. (2017). Friesland Vandaag.

Ruyter, P. (2020). Vloeiend Landschap. Over de toekomst van het Friese landschap.

Provinsje Fryslân. (2014). Grutsk op 'e Romte! Structuurvisie 2014.

Barends, S. et al. (2005). Het Nederlands landschap. Een historisch-geografische benadering.

Steenbergen, C. (2008). Ontwerpen met Landschap. De tekening als vorm van onderzoek.

AMO, 2020. Countryside, A Report.

Lemaire, T. (1970). Filosofie van het landschap.

Articles:

Witteman, L. (2020). Boerenbelangen op de grote hoop. Article in de Groene Amsterdammer, (18-11-2021). Jaargang 145/ Nr.46. P. 26.

Nieuwhof, A. (2018). Dagelijks leven op terpen en wierden. University of Groningen.

Various news articles on agriculture.

Casestudies:

Holwerd aan Zee

Documentaries:

<https://wadfilm.nl/>

Moai Fryslân. <https://docplayer.nl/28744257-Enquete-over-ruimtelijke-kwaliteit-effectsmeting-tv-serie-moai-fryslan.html>

Rapports:

RIVM. (2020). De Nitraatrapportage 2020. <https://www.rivm.nl/nitraatrapportage2020>

Provincie Fryslân. (2009). Adviesboek De Nije pleats in Fryslân.

Onderzoek Waterkwaliteit & Biodiversiteit. (2019). Natuur en Milieu.

Plantinga, R. Molema, M. Meijer, N. Agri & Foodscan Fryslân 2018.

Venema, G. Benus, M. Van Everdingen, W. et al. (2021). Agrarische productie ten behoeve van de korte keten. Een landelijke meting. Wageningen University & Research.

te Winkel, T. Velstra, J. van Rijsselberghe, M. Laansma, K. van Meijeren, S. (2020). Zilte kansen Waddenregio.

Jukema, G. Ramaekers, P. Berkhout, P. (2021). De Nederlandse agrarische sector in international verband. Wageningen University & Research.

Provincie Fryslân, Wetterskip Fryslân, Vitens. (2020). Grondwateratlas Fryslân.

Provinsje Fryslân. (2021). Friese Landbouwagonde 2021-2030.

Schoumans, O.F., Groenedijk, P., Renaud, L., Van der Bolt, F.J.E. (2008). Nutrientenbelasting van het oppervlaktewater. Alterra-rapport.

Websites:

The Waddenacademie

<https://www.landschapsbeheerfriesland.nl/projecten/ruimtelijke-kwaliteit/630-moai-fryslan.html>

<https://www.platformkringlooplandbouw.nl/>

<https://www.wakkerdier.nl>

Data and maps from:

<https://www.atlasnatuurlijkkapitaal.nl/kaarten>

<https://data.overheid.nl>

<https://www.klimaat-effectatlas.nl/>

<https://www.cultureelerfgoed.nl/>

<https://www.nationaalgeoregister.nl/>

<https://www.fryslan.frl/kaarten>

Centraal Bureau voor de Statistiek. <https://www.cbs.nl>

Reference projects

De Eetbare Waddenkust – Flux.

Plan B: NL2200 The nation formerly known as The Netherlands - Lola

Terp fan de Takomst. Dorpsbelang Blije, It Fryske Gea, het Terpen centrum (RUG), Sense of Place.

Kunstwerk: Wachten op hoog water - Jan Ketelaar

Pilot landschapsinclusieve landbouw; Op weg naar een New Deal tussen boer en maatschappij. Casestudy De Marne, Juli 2020 door College van Rijksadviseurs

In the next research phase, alternative forms of agriculture will be researched by use of literature.

Reflection

1. What is the relation between your graduation (project) topic, the studio topic (if applicable), your master track (A,U,BT,LA,MBE), and your master programme (MSc AUBS)?
2. What is the relevance of your graduation work in the larger social, professional and scientific framework.

Bibliography

Bouma, J. (2019, maart 2). *Nederland verliest in hoog tempo zijn weidevogels.*

<https://www.trouw.nl/duurzaamheid-natuur/nederland-verliest-in-hoog-tempo-zijn-weidevogels~b874abd2/>

CBS. (2021). *Landbouw; gewassen, dieren, grondgebruik en arbeid op nationaal niveau.*

<https://www.cbs.nl/nl-nl/cijfers/detail/81302ned>

Compendium voor de Leefomgeving. (2020, juli 30). *Waterkwaliteit KRW, 2019.*

<https://www.clo.nl/indicatoren/nl1438-kwaliteit-oppervlaktewater-krw>

- Kernteam De Nije Pleats in Fryslân. (2009). *Adviesboek De Nije pleats in Fryslan*. provincie Fryslân. https://www.planviewer.nl/imro/files/NL.IMRO.1900.2016BPbuitengebied-VA02/b_NL.IMRO.1900.2016BPbuitengebied-VA02_bijlage9.pdf
- Moai Fryslân. (2014, maart 29). *Lânbou* [Documentary]. https://www.youtube.com/watch?v=OKq7Tn4_cx0
- Natuur en Milieu. (2019). *Onderzoek Waterkwaliteit & Biodiversiteit*.
- Rijkswaterstaat. (2021). *Verziltting* [Webpagina]. Informatiepunt Leefomgeving. <https://iplo.nl/thema/water/beheer-watersysteem/verziltting/>
- RIVM. (2020). *De Nitraatrapportage 2020*. <https://www.rivm.nl/nitraatrapportage2020>
- Wageningen University & Research. (2017, maart 9). *Mengteelt vervangt monocultuur voor duurzame landbouw*. <https://www.wur.nl/nl/nieuws/mengteelt-vervangt-monocultuur-voor-duurzame-landbouw.htm>