

Reflection

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The relation between the research and design (Aspect 1)

The research part of project mainly focuses on the North Sea, the Wadden Sea and Groningen region scale. The characteristics of the North Sea can help to understand the relation between built-up environment and the natural landscape. The Wadden Sea area gives the graduation project precise context. Together with the Wadden Sea, Groningen region provides the problem fields for graduation project. Besides, the urbanization process that happened along the coastline in the last centuries emphasizes the socio-economic aspects in the project region. The natural context, together with socio-economic characteristics, makes the project possible to search a new sustainable relation between built-up environment and nature. This preliminarily forms the research question, namely how to achieve a socio-economic and ecological healthier landscape. After zooming in to regional scale and local scale, the research started to find out the reason behind shrinking region (Groningen province). With that, it is easier to start a design for such region. It also forms the second half of research question, rethinking the Eemsmond-Delfzijl structure under the process of functional transition and external challenges like climate change, social shifts and need of innovation through spatial planning and design.

With the help from graduation studio group, I did the research about spatial-temporal context, namely '3x3x3' analysis. This integrates three physical layers of landscape, infrastructure and occupation in temporal dimension and in different scales. Also the research about soil type and its suitable function helps to transform research into design. This is also about the Dutch layer approach that put forward by Sijmons. According to the problem field, there is a conflict between urban functional transition and ecological conservation. So the hypothesis to solve such problem is that urban functional transition have benefits and can contribute to biophysical restructuring of landscape, and vice versa. Then the research and design phase is to find out what need to be adapted to fit the combination of urban functional transition and biophysical restructuring of landscape, and how. According to literature research, there is a suitable way to achieve goals, namely building up a polycentric system with nature-base solution, as well as landscape infrastructure methods. In order to have such polycentric system, the first step is to find and design functional synergies to validate this system. Then by introduce ecosystem services, functional transition can be better connected to biophysical structure. The final outcome will be an urban-landscape matrix with local adaptation to validate it.

And this will react and respond the problem field.

To emphasize the consistency in research and design, the process of design by research is to find out potential condition and method for answering research question. So at this phase, I did a lot of literature study and research about bio-based economy and engineering method for restructuring of landscape. These researches help me to do the precise design in order to achieve goals and vision of graduation project. From the whole graduation process, I can finally understand the meaning of research by design and design by research. They are cyclical relation and contribute to each other at different phase.

The relation between research group and subject of the project (Aspect 2/3)

The graduation studio Delta Interventions focuses on the theme of 'Landscape of Coexistence'. It mainly deals with the spatial effects of extreme climate change scenarios. Landscape of coexistence means sustainability and adaptation, both for urban and natural system. This includes ecological and socio-economic parts and will be indicated in regional scale. Besides, Delta Urbanism is an interdisciplinary research group, which investigates the possibilities to combine sustainability and water management strategies with urban design, landscape design and spatial planning. These design and planning approaches and methods contribute to make urban delta landscape more sustainable, attractive and adaptive. For urban project, it is important to deal with the relation between built urban environment and natural landscape.

The subject of project is mainly about function regeneration. The way to achieve this is bio-based economy through biophysical restructuring of landscape. Within this process, it is important to considerate threaten from climate change. This provides project the request about regional mitigation and local adaptation. All these subjects correspond with the aim and discipline of research group. So they can give me great support and input during the research and design process.

Wider social and scientific framework (Aspect 4) & the potential ethical issues (Aspect 5)

[Social and Scientific Relevance]

Nowadays, because of economic restructuring, demographic change, urbanization and political transformations (ShrinkSmart, 2012; Wiechmann, 2008), Cities in Europe can no longer expect growth (Urbact II 2013; McKinsey,

2016). This means shrinkage becomes an essential problem for European country. The shrinkage is because of migration. For the Wadden Sea Region, migration phenomenon, especially shrinkage, is obvious. Besides, the Wadden Sea Region is world heritage zone, which means there will be a lot of regulations and targets related to nature preservation goals. It is important to combine nature preservation with socio-economic development. In addition, the WSF has focused on achieving a sustainable society by 2030 in which economic activity supports social development and safeguards healthy ecosystems and cultural historic landscapes throughout the Wadden Sea Region (WSF, 2010). Currently, many of studies focus mainly on the management of the ecological system in the Wadden Sea (Kabat et al. 2012). Much less attention is paid to the combination of nature targets and socio-economic development (Dijk, Broersma, Mehnen, 2015). With the studies on ecology, landscape infrastructure and adaptive design that are often used for explaining nature environment and sustainable development, this thesis can contribute to the field by providing a clear approach towards sustainable and resilient urban environment and by developing a concrete design for green infrastructure.

[Ethical Paragraph]

For this site, it is essential to consider what kinds of function the land should be. Be a complete nature reservation area or a prosperous coastal area? From the Wadden Sea point of view, this area is world heritage zone. It is famous for its rich flora and fauna, especially the Ems estuary, and it is also a rich habitat for gulls and terns. While on the other hand, most coastal areas in the world attract many people and are always centers of population. Now the current situation is that the balance has been turned aside and this will continue for an uncertain period. It is good for people to have such a gorgeous nature reservation area, but it is unfair for other big cities and local land value since people will always move to bigger cities and the land they leave behind will have no use. This is not sustainable for both ecological and socio-economic point of view. As Michael Dukakis (1978) said, "towns don't want to be suburbs, suburbs don't want to be cities, and cities don't want to be wastelands." Each towns and villages have its value within bigger urban structure, and the shrinkage will lead to social isolation, less effective social infrastructure for the villages and over-high living pressure for the big cities.

The main idea for this project is to build up a new vision for Eemmond-Delfzijl Structure and Delfzijl city. Upon this new vision, there will be healthier ecological and socio-economic environment for local residents. Such structure and urban system will then help to reinforce the 'shrinking' Groningen province.

[Dilemmas]

So far, with the help from my mentor team (Dr. Diego and Dr. Nico), I think the research approaches and methodology are quite clear. However, reviewing my research and design process, there were still several obstacles and dilemmas. The biggest challenge is whether the project can be operated or not in reality. I did interview with people from Delfzijl. For them, it is possible and doable to restructure landscape and regenerate industry. But it may be harmful to some other stakeholders, especially farmers. But since there are already a lot of innovation policies, ecological potentialities, as well as some pilot projects, this dilemma is easy to deal with currently or in the future.