

REFLECTION

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The relation between the research and design (Aspect 1)

The characteristics of the North Sea context and the collective impact of precipitation and sea level rise will shape new coastline in the future, making the areas between the current coastline and projective coastline, an ideal lab for exploring the coexistence between the built-up environment and the landscape. Besides, the urbanization process that emphasizes the social-economic development in the last century, had exacerbated the occupation of the land and the depletion of landscape, especially in the case of Southend-On-Sea, a seaside resort located in the lower Thames Estuary. These aspects led to the possibility of new urbanization logic based on carrying capacity of landscape and emphasizes nature comes first, and then framed the research question, "How to systematically design urban landscape infrastructure and urban programmes based on carrying capacity of the landscape structure?"

In order to address my graduation project which explores the possibilities of shifting the social-economic oriented urbanization paradigm to a sustainable one, several research processes were employed to build up the framework of my research. The research processes consist of two aspects, the first aspect is the observation of spatial-temporal context, '3x3x3' analysis, which integrate three physical layers of landscape, infrastructure and built-up environment, in the temporal dimension and in three geographical scales. The second aspect is the investigative process of defining carrying capacity of the landscape structure, which mainly refers to the criteria system from the precedent research in Process as Values, in the book Design with Nature by Ian McHarg. The core of the research comes from the second aspect, referring to the ranking criteria in Process as Values, the analytical framework in this research process consists of 16 elements in six aspects-topography, geology, hydrology, vegetation, wildlife and land use. There are three key conclusions or outcomes in meso scale, the land use suitability comes from the synthesis of all the elements. The general principle for urbanization gradient is concluded from soil unit typologies. And the Landscape Infrastructure Matrix comes from the synthesis of soil unit typologies, contour and terrain analysis.

As the conclusions of the research, the three outcomes mentioned above define the carrying capacity of landscape in three aspects-urban functions, density control of urban form, ecological network design-respectively. More specifically, the land use suitability is the guidance for land use, the general principle for urbanization gradient is the parameter of density, and the urban landscape infrastructure matrix is the meso scale structural design.

So far, I think the research approaches are quite clear, coherent and feasible. However, reviewing my research process, there were still several obstacles. The biggest challenge for me, coming from the third aspect, is the change of the understanding of design urban landscape infrastructure. At first, I was stubborn about designing the landscape infrastructure by choosing and transforming the existing infrastructure, which did not touch the core of my thesis topic. My tutors also had reminded me to temporarily forget the existing urban form and infrastructure, and to locate and design the landscape infrastructure just based on the landscape structure and characteristics. Through the adjustment of research and design methods, the three outcomes mentioned above had been finally sorted out. And I also learnt about that the design of urban landscape infrastructure, in my case, is not only the transformation and greening of the existing infrastructure, but also the adjustment of density index in different urban islands based on carrying capacity of landscape structure, so as to change the urban form, then to release the space systematically to generate the urban landscape infrastructure matrix.

To emphasize the consistency in research and design, the process of design by research is mainly based on the comparison of existing urban form and the outcomes based on carrying capacity. In this case, the information from the analytical framework is usually very complex and dynamics. Therefore, in the process of designing the projects, I divided the guidance and principles from the analytical framework into two parts-patchy interventions and linear interventions, so as to emphasize the coherence between research and design. More importantly, during the design process, another challenge is to eliminate some non-core elements in the analytical framework and highlight my own decision about what kind of city Southend will become, then create the conditions for the new space and new life under the premise of priority that nature comes first. This is the most important part to reflect my own values and positions in this project.

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

The Delta Intervention research group states: "research programme ... investigates the possibilities to combine flood protection and water management strategies with urban design, landscape design and spatial planning, aiming at improving spatial forms and structures in urban and metropolitan delta regions... to make urban delta landscapes more sustainable, attractive and adaptive." This nearly sums my intention of working with resilient design approach that can preserve the balance between the landscape and urbanized area and enhance the system when facing the extreme climate change. From this group, I can deepen my understanding of the relation between the landscape and urban area.

The delta area is one of the most dynamic hybrid area (with natural and artificial characteristics and processes). However, on the one hand, the climate change and uncertainty of natural disaster poses the risk on the delta (especially in the transition area between the land and water), on the other hand, the requirements from economic and social development also need to be materialized in the spatial environment. Uncertainty always be there on the two sides -to make full use of the extreme situation and scenarios and to customize flexible and resilient design -especially within the scope of the Delta Interventions Studio that focuses on Landscapes of Coexistence in the North Sea. Overall, from the results of my projects, I can tell this studio fits well with my theme and gave me great support and input during the research and design process.

The transferability of the project results in wider social and scientific framework (Aspect 4) & The potential ethical issues (Aspect 5)

As for the transferability of the projects results, I want to discuss it in two situations. The first one is to apply to the land that has never been developed, the second one is to apply in to an existing urbanized area such as the test site of my graduation project. The first situation is relatively simple, the distribution of functions, density control and ecological networks in the new developing land can be directly based on the results of the analytical framework, so as to allocate spatial resources. Then the local culture and characteristics will need time to accumulate and cultivate. In this case, the pressure from the social-economic aspect is relatively less, and the key point is to attract investment and to implement top-down management. The second situation is more complicated, because the principles and guidance based on landscape structure are usually quite different from the existing urban form. It is important to transform and adjust the current urban form to reach the ideal distribution based on landscape carrying capacity. Therefore, a number of stakeholders will be involved in the demolition and regeneration projects, it takes more time and effort to negotiate with local residents and stakeholders. Besides, the demolition and transformation projects, that emphasize nature comes first, will be likely to trigger social equality issues, because the demolition and renewal projects will increase local land prices. The rise in rent will inevitably pose pressure on low-income groups. It is still necessary to rethink the balance between the ecological functions and social-economic development and to formulate more specific phasing strategies to support the practical transformation.

Overall, the results from my research revealed that it is possible to provide a coherent approach and logic that regulate the urbanization density and urban functions based on landscape conditions. This approach can not only be valuable in an urbanized area, but also in the land that has never been developed. The data of landscape conditions will support the entire research and design process, however, in the design process, local characteristics need to be highlighted according to local conditions. Therefore, my research and design approaches emerged from the carrying capacity of the landscape structure, were therefore inherently able to adapt to a different site within the landscape of coexistence in the North Sea.

Summary

During this process, all the discussion and feedback has helped me to critically reflect on my research and design development, and the fresh points of views from the reflecting always inspire my enthusiasm for the project. And I have learnt that a strong and cohesive project needs the consistency in both research and design. Besides, I have also learnt the importance of clear narratives that will help to communicate effectively the main ideas of the projects to the audience. These skills are not only applicable within the academic research, but also in the professional practice in my future career.