

Reflection

1. What is the relation between your graduation project topic, the studio topic, your master track (A/U/BT, LA, MBE), and your master programme (MSc AUBS)?

The thesis focuses on flood adaptation measures in riverine areas, including pluvial flooding and fluvial flooding. The study of fluvial flooding requires attention to the relationship between upstream and downstream. Studying pluvial flooding, on the other hand, requires recognizing the urgency of climate change and increasing risk awareness. The application of flood adaptation measures and the engagement of stakeholders will be accompanied by changes in the function and form of the spaces, which is the “accumulation” and “clearance” processes that Transitional Territories Studio stress.

Theoretically, the project combines knowledge and concepts from design practice, social sciences, technology, and engineering to explore innovative approaches to flood resilience. This way of researching stems from the MSc Architecture, Urbanism and Building Sciences programme, which has developed my interdisciplinary problem-solving skills.

The research and design of this thesis are carried out at the urban scale, which is divided into macro, meso, and micro. The process uses methods such as spatial analysis, cross-scale analysis, and research by design, all of which are explored in the Urbanism Track.

2. What is the relation between research and design in your graduation project?

Research by Design is the research methodology that runs through my entire project. In the stage of establishing the thesis, research was dominant, while design always existed as a subconscious in the mind. As in the site analysis, I not only used the four lines of inquiry to research the accumulation of urban elements but also conducted design explorations during this phase (see Appendix). Upon entering the planning and design phase, design transcends research to become the dominant approach, and smaller-scale case studies are conducted alongside the use of design tools. As shown in Chapter 10.3, best practices with similarities can assist in illustrating design effects. Finally, these two approaches accomplish each other and form the desired outcome.

As an urban planner and designer, the project has both planning and design outputs. The planning output is a series of new spatial planning policies derived through interdisciplinary policy analysis. The design output is an urban design proposal using Roerdelta as an example.

3. How do you assess the value of your way of working (your approach, your used methods, used methodology, studio methodical line of inquiry, scientific relevance of the work)?

In the establishment stage of the project, I planned to use methods including research by design, literature review, analytical mapping, multi-scale analysis, stakeholder analysis, case study, site visit, surveys, and interviews. In retrospect, this was overly ambitious. Due to time constraints, surveys and interviews were not used, and the literature review and case study were not sufficient.

Other than those, the use of approaches has brought me enlightening conclusions, especially policy analysis and stakeholder analysis. Interdisciplinary collaboration has been the focus of scientific advocacy, but it remains unclear how to do this in practice and what the results will be. The planning and design results of this project have demonstrated that this approach is feasible and meaningful.

The studio's methodical line of inquiry helped me to explore many design possibilities during the initial phase of the project (see Appendix). Although not every inquiry was adopted by subsequent designs, this approach expanded my knowledge base in a short period.

4. How do you assess the academic and societal value, scope and implication of your graduation project?

In terms of academic value, this project summarizes and compares research advances in the fields of institutional theory, resilience theory, knowledge society, and urban governance.

Then, the intersection between them is found, based on which the new concept of Public-Private-Civil Partnership is proposed. In research by Sharma and Nayak (2013), the literature on public-private partnerships for water management is limited, so future research must provide further insight into this approach to water issues. The approach introduces civil society to the partnership, incorporating water management and spatial planning. The results of this study demonstrate the promise of Public-Private-Civil Partnerships in raising mass flood risk awareness.

In addition, this thesis elaborates on the forms and mechanisms of the Science-Policy Interfaces. Recent research in the field of flood risk management has shown that SPIs promote institutional learning and encourage the assimilation of knowledge in practice, but ignores the context in which they arise and function (Hegger et al., 2020). Chapter 10.4 of this thesis demonstrates in detail the mechanism of spatial interventions from initiation to landing, and the role SPIs play in it.

A transition from less to more stakeholder engagement in flood management is taking place in Belgium, the UK, and the Netherlands (Soma et al., 2018). From the perspective of social value, this project further explored and detailed how stakeholders can be involved in flooding issues in the Dutch context, such as which groups can be involved in which stages

of the project, and how to motivate them to participate. Although the relevant strategies have not been tested in practice, the findings can provide direction for other researchers. Moreover, this project has proposed a series of spatial solutions following an interdisciplinary policy analysis. These solutions can be provided to the urban planning department of Municipality Roermond to inform the development of an Environmental Vision for 2050.

5. How do you assess the value of the transferability of your project results?

The transferability of research results was considered at the beginning of site selection. Firstly, compared to other riverine cities in Limburg, Roermond has a more diverse spatial composition, including floodplains, camps, ports, historic urban areas, and modern commercial streets. Different types of waterfront space will have different design strategies for adapting to floods, which also provides more application scenarios for knowledge promotion.

Secondly, the analysis deliberately downplays the complex geopolitics of Limburg considering the broader research implications. Since it is located at the junction of the three countries, its geographical location is too unique to apply relevant research results to most provinces and cities. Therefore, the study focuses more on Limburg's cross-scale collaboration within the Netherlands.

Furthermore, international case studies were conducted while designing Roerdelta, so the spatial interventions proposed in this project have a wide range of application possibilities. The interdisciplinary policy proposal applies only to Roermond, but the approach used is applicable to other cities and countries.

6. Discuss the ethical issues and dilemmas you may have encountered in doing the research, elaborating the design and potential applications of the results in practice?

Ethical dilemmas often exist when viewed through the lens of water management and urban planning at the same time. For example, the conventional approach to flood control is to raise and strengthen the dike system. However, when the height of the dike is increased to a certain level, it will completely block people's view and become an obstacle in the city. This is the dilemma faced by Roermond, where the city has difficulty connecting to the water, despite its proximity to the Meuse. In the design, my solution was to make a stepped or sloping treatment on both sides of the embankment. This provides the possibility for citizens to ascend and use the dike, although it is still visually impermeable.

Another dilemma is how to use the space in the flood risk area. Many of the industrial parks in Roermond-South have building vacancies, some of which are adjacent to the Roer River.

The strategy I proposed in the Environmental Vision is to convert them into social housing. This provides quality housing and landscape for a vulnerable group but also brings with it an ethically controversial flood risk. Roermond-South is not a priority design area for this project, so this strategy was not explored in-depth, but it provides an idea for using flood-risk areas and points out the possible ethical dilemma.

Convincing the port-related companies to give up waterfront space was the difficult part of designing the Roerdelta. This project started by investigating the current land use and found that the parking lot on the headland is illegal, so the space there deserves to be released. In addition, this project cleared four berths close to neighborhoods and also planned two new berths on the west side of the port to mitigate the loss of port companies. The project also establishes a partnership between port companies and the forest park developer to explore new ways for port companies to make profits.