

## Reflection

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### Relationship between the thesis and the master's program (MBE)

At the beginning of the Graduation Laboratory in February 2023, I knew that theme 5, *'Sustainability transitions and the transformation of (port) cities'*, would be the theme that best suited my interests. The theme especially offered research opportunities for sustainability and urban area development, the two concepts I wanted to combine. In this thesis, I focused on the implementation of biodiversity in new construction projects in urban areas, through collaboration between stakeholders and between plots. The research examines the roles, responsibilities, and risks of stakeholders. The goal of this thesis was to better understand the influence of stakeholder collaboration, phasing, and financial prerequisites on the implementation of biodiversity across multiple plots. This thesis, as well as the master *'Management in the Built Environment'*, aims to guide stakeholders toward the realisation of high-quality, feasible, and sustainable initiatives in the field of urban area development. During my master's studies, I learned a lot about stakeholder management and building processes, practical for this research. Furthermore, the importance of biodiversity within the built environment is increasing due to various factors, such as urbanisation. This makes it a topic that is becoming increasingly important within the context of the master's program. The undeniable impact of the built environment on biodiversity generated a compelling interest in me to delve deeper into this connection.

### Relevance

The social relevance of this research lies in the usefulness of the developed framework and recommendations, supporting project developers and other stakeholders in implementing biodiversity in their projects. This not only benefits the urban environment and end-users, but also enhances their competitiveness in tender applications. The implementation framework provides clarity on stakeholder engagement and associated phasing, as well as risks and financial prerequisites. The enhancement of biodiversity is a collective task that requires the involvement of all stakeholders who should consider it a matter of importance. This research contributes to this endeavour.

Regarding scientific relevance, this research has generated a better understanding of biodiversity and its relationship with its context. Insight was gained into stakeholder management for biodiversity enhancement and its connection with green and blue infrastructure. The primary focus of this thesis was on biodiversity enhancement within a multi-plot context, which had not been investigated before. This research has identified steps that lead to more biodiverse urban areas, which is necessary for sustainable urban area development. By conducting interviews with ecology experts and a workshop involving stakeholders from diverse disciplines, this study has successfully established a nuanced and comprehensive understanding of the subject by incorporating multiple perspectives.

The transferability of this research and its research findings is multifaceted. The recommendations are widely applicable across urban area development processes, as well as in project management processes focusing on single buildings. In addition, the findings are relevant for diverse stakeholders seeking to enhance biodiversity across varied locations, including different municipalities. It is imperative to note that the research is delimited to the Netherlands and adheres to Dutch laws and regulations. Despite this, the research, which does not focus on specific building

types such as offices or residences, offers broad applicability. To broaden perspectives, a more extensive interdisciplinary study could be conducted.

## **Methodology**

The methodology consisted of a literature review, expert interviews, and a focus group workshop. The literature review, while not challenging due to my prior experience, proceeded as a dynamic process, with information gradually revealing its relevance later in the research process. Conducting a substantial literature review during the P2 phase proved beneficial for the subsequent P4 phase, although most of the content was completed by the end of the study.

The decision to conduct interviews with ecology experts was predetermined at the beginning of the research. This provided an insightful introduction to the research and at the same time made me realise how important I consider the topic myself. Completing most of the interviews during the summer reduced time constraints toward the end of the research, ultimately yielding 11 interviews, compared to the initial goal of 10 to 15. Although this abundance of data was enriching, I quickly found myself drowning in the volume of information and was less able to distinguish important points from less important ones.

The adjustment in the research methodology, moving from case studies as planned, to a focus group workshop, was made to improve the desired results. The workshop was postponed due to problems recruiting participants and took place only two weeks before the P4 deadline. This allowed for adequate preparation but caused stress at the end of my P4 period due to limited time for analysis of the results and synthesis of the conclusion, discussion, and recommendations.

## **Process**

During the second half of this thesis year, I had regular consultations with my two supervisors from the TU Delft and my supervisor from VORM, my graduation company. My supervisors at the TU Delft have helped me to further explore and determine my methods, and VORM has given me a lot of inspiration and new ideas. These different approaches to supervising were pleasant at times but occasionally made moving forward difficult.

In retrospect, the period leading up to P2 proceeded quickly. The structured supervision within group settings and consultation with fellow students facilitated the conceptualisation of my research. I personally chose to continue working over the summer. I worked at a slower pace than planned but took some time to recharge before the research really started in September. When September came, I was engaged in transcribing and coding my interview data and started my internship at VORM. For a while, I did not feel like I was making any progress except keeping myself busy with my data, which did not put my mind at ease. Frequent discussions with both my TU Delft and VORM supervisors were required to regain some clarity. As being someone who needs clarity and structure, consistently meeting these preferences over the past year was a challenge.

Although the P3 deadline was relatively early, it contributed positively to my research process, which fostered a sense of self-assurance because my progress was on track. However, the period leading up to the P3 presentation was characterised by increased stress as the influx of information became overwhelming, temporarily hindering the delineation of my next research steps. After this phase, clarity about the progress of the research gradually recovered as the P4 deadline approached. The decision to postpone the workshop caused significant concern, but its eventual completion relieved a significant burden, knowing that I now had all the necessary components to write the final chapters of my thesis.

During the past year, the main focus of feedback has been on the development of my conceptual framework and the formulation of hypotheses. The complicated task of constructing a conceptual framework, despite my visual thinking, has presented me with constant challenges. The final version of my conceptual framework currently exhibits improved clarity in delineating the interrelationships among my key components. The formulation of hypotheses proved important in providing clarity and structure to guide me through successive research steps.

### **Personal reflection**

I enjoy challenging myself, but my master's thesis proved to be a great challenge and did not go without obstacles. There were fluctuations between periods of certainty and periods of uncertainty. I was challenged by the many methods I had established during my P2 and the amount of data I wanted to collect. Reducing this to two methods brought more peace of mind and this was a good decision.

The subject of biodiversity was more complex than I initially expected. It is multifaceted and there is a diverse landscape of stakeholders with diverse opinions and degrees of influences. I learned how these stakeholders view green elements, and in what ways they make a project more difficult or simple. Despite some fluctuations in interest over the past year, my continued engagement with the topic deepened my appreciation of biodiversity. I already knew biodiversity was important, but I have come to better understand its relationships to other societal issues such as climate change and health.

Conducting interviews and organising the workshop provided invaluable insights into different perspectives on biodiversity. This social dimension of the research, characterised by knowledge sharing and interactive sessions, was particularly enjoyable. All in all, I am happy with the result for my final P5 report.