Graduation Plan

Master of Science Architecture, Urbanism & Building Sciences

Graduation Plan: All tracks

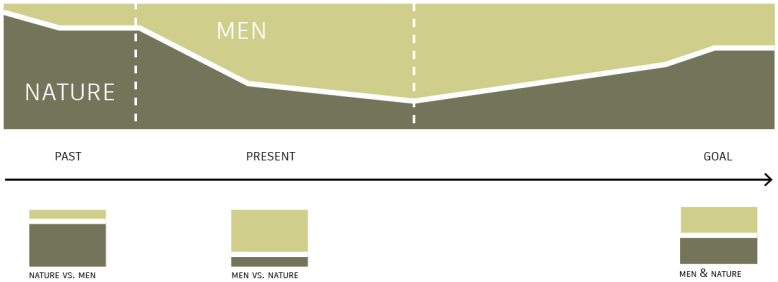
Submit your Graduation Plan to the Board of Examiners (Examencommissie-BK@tudelft.nl), Mentors and Delegate of the Board of Examiners one week before P2 at the latest.

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

Personal information	
Name	**Hilde Huijboom**
Student number	5485207

Studio		
Name / Theme	Flowscapes: Resilient Coastal Landscapes	
Main mentor	Steffen Nijhuis	Landscape Architecture
Second mentor	Fransje Hooimeijer	Urbanism
Argumentation of choice of the studio	I choose the Resilient Coastal Landscape lab because I wanted to learn something new. In this lab, you start working on a big scale, which we did not really experience in MS1/2. The way of working interested me, starting from the big scale in order to understand relationships and natural processes.	

Graduation project	
Title of the graduation project	**River Regeneration; regional design to restore the natural river dynamics to increase resiliency in the Nile River Basin.**
Goal	
Location:	Nile River Basin; Egypt
The posed problem	The Nile is the home to millions of people, it flows through 11 countries in North-, East-Africa. The countries are heavily dependent on the water of the Nile as the main source of their livelihood. For five thousand years, nature has dominated the river's constitution and functions, but from the mid-nineteenth century to today, different countries and regimes have increasingly influenced the Nile river system (Tvedt, 2021). Ambitious water management of big irrigation projects and the building of large dams has resulted in an imbalance in the relationship between the river, delta, sea, and people. The landscape of the Nile River Basin has changed from dynamic and natural, to a highly controlled and obstructed river. Before the Nile was completely tamed in Egypt, the river had resisted erosion and subsidence in the delta from the sea for thousands of years. It carried nearly 200 million tonnes of soil and sediment annually. Sea currents and waves always tend to erode the coastline, before, the Nile water filled with sediment battled this coastal erosion. The Aswan Dam changed that natural battle between silt and sea overnight (Tvedt, 2021).

	Upstream, countries are growing rapidly. The demand for food and space has resulted in deforestation around the sources of the Nile. As a consequence, deforestation has led the soil to erode. Dams are obstructing the flow of eroded soil and has been building up in the lakes. These places have become more prone to flooding. A big part of the current landscape of the Nile River Basin consists of hard structures. The coast is currently defended by concrete, irrigation canals are hard concrete channels without vegetation and the large dams are massive structures obscuring the natural water flow. The landscape can currently be described as, non-resilient. It is a sturdy landscape, unable to move with change over time. Current measures are fixed and unable to move with future uncertainty. In short, the Nile River Basin has shifted from a nature-dominated river landscape into a human-dominated river landscape (see figure 1). The people living in the Nile River Basin may become victims of this disbalance. A transboundary strategy is needed in order to restore the balance of relationships. A landscape-based regional design approach is needed to employ a landscape approach in which social and ecological processes are the basis for spatial design exploration and solutions throughout the scales.  *Figure 1: schematic indication of the relationship between men & nature over time*
research questions and	Main research question: How to renaturalize the river Nile by regional landscape-based design, in order to increase the resiliency of the Nile River Basin? Sub questions: 1) How to understand the current Nile River Basin landscape and what challenges and potentials belong to the basin? a. How is the river landscape formed? b. How does the landscape of the Nile River Basin look like? c. What interventions have been made to denaturalize the river? 2) What landscape architecture design interventions could be made on a strategic and regional scale to renaturalize the Nile River? 3) How to implement landscape architecture design regionally to renaturalize the river Nile, building the design through time?

design assignment in which these result.	1) A large-scale and long term strategy for the whole river basin, based on design principles to indicate the design interventions that could be made in order to renaturalize the Nile River Basin. 2) Three designs on a regional scale to show the implementation of the large-scale strategy, designing through time.

Process

Sub question 1: How to understand the current Nile River Basin landscape and what challenges and potentials belong to the basin?
For the first sub-question, it is the goal to understand the landscape and the processes and relationships in the river basin. The main research method belonging to this sub-question is analyzing through **literature study and mapping**. The goal is to understand the river landscape of the Nile. How was the river formed and how has it developed over time? What changes have been made in the past that have obstructed the natural processes of the river?

Sub question 2: What landscape architecture design interventions could be made on a strategical and regional scale to renaturalize the Nile River?
For the second sub-questions, the main goal is to research possibilities on how to achieve the renaturalization of the river. For this question, a **literature study** to do historical research is done to understand the vernacular practices of the area. Besides that, a **case study** is performed to learn from similar practices.

Sub-question 3: How to implement landscape architecture design regionally to renaturalize the river Nile, building the design through time?
The main goal of the third research question is the implementation of the results of sub-question 2. In answering the third research question the possible interventions are tested through design. For this question, the main research method is **research through design**. The designs will be tested by **design explorations, visualization**, **model-making**, and **mapping**.

In the end, the main question will be answered; *How to renaturalize the river Nile by regional landscape-based design, in order to increase the resiliency of the Nile River Basin?*
The answer to the main question is a reflection ovn the research. The answers to the sub-questions build the answer to the main question. This will result in a summary of the results, the main products being 1) a large-scale strategy for the whole river basin, and 2) three designs on a regional scale to show the implementation of the large-scale strategy, designing through time.

See figure 2 for a schematic overview of the research questions and prospected results.

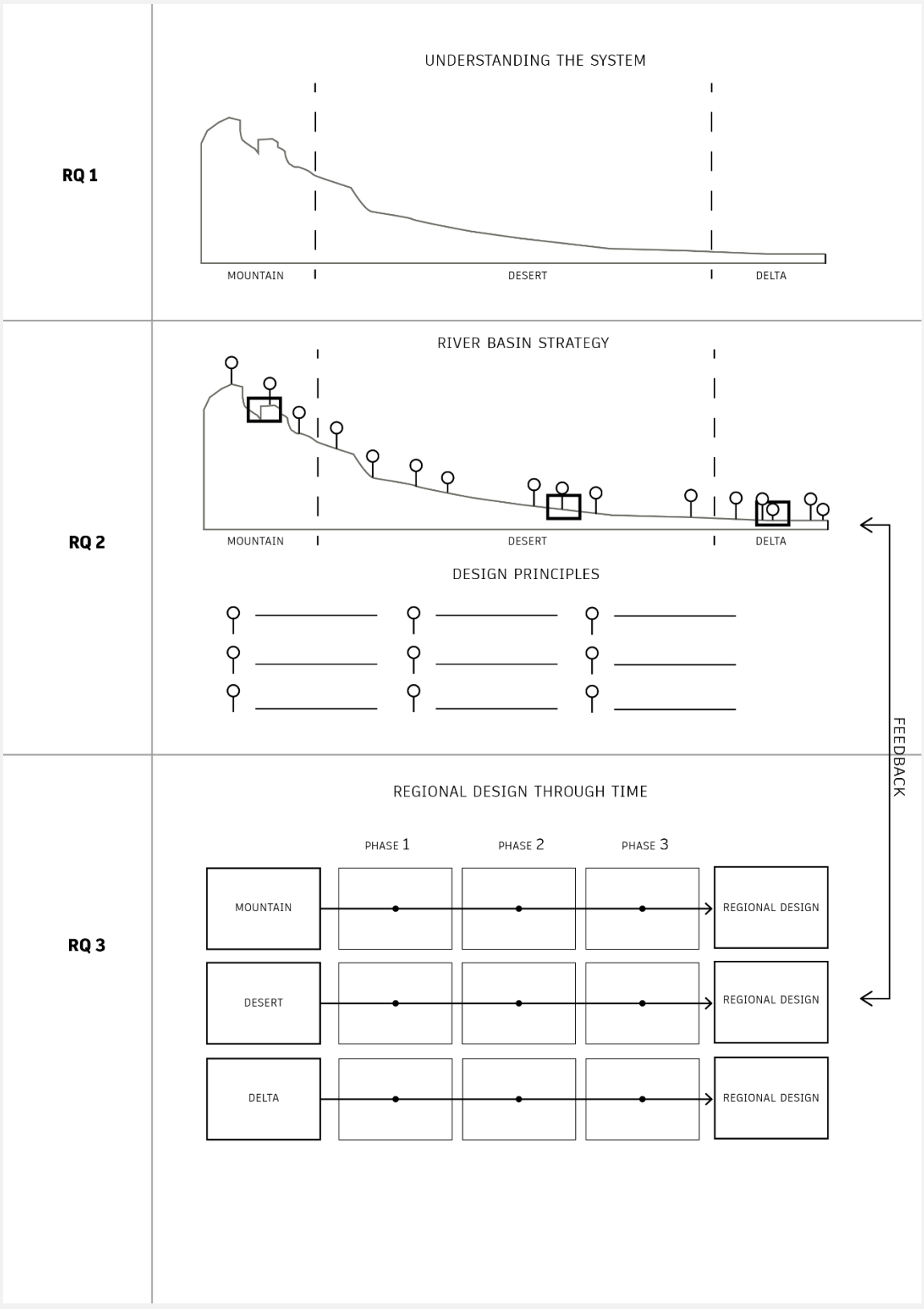


Figure 2: Schematic overview of research questions and prospected results

Literature and general practical preference

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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)?

Studio topic: Resilient Coastal Landscapes (RCL)
The Resilient Coastal Landscapes lab is all about designing a coastal landscape for future challenges. The main focus is water and natural processes. The goal is to design a resilient landscape, which is adaptive and nature-based. In the RCL lab, a systematic approach is taken. First, the big scale is analysed and researched thoroughly in order to understand the processes and relationships in the landscape. When the big scale is researched, a smaller scale design can be done, considering the knowledge of the big scale research. In my graduation project, I take the same approach. In order to make the right design interventions, I first try to understand the big-scale processes and relationships of the whole Nile River Basin. In my graduation project, I focus on designing adaptive. In this way, the design is not fixed and can handle future changes, which helps make the landscape of the Nile River Basin more resilient.

Master track: Landscape Architecture (LA)
For me, the master of Landscape Architecture is about learning the ability to shape the relationship and interaction between man and nature through design. The master teaches us to apply design in order to improve or create a landscape. I feel like, we as designers, have the ability to imagine what is not yet there. In my graduation project, I aim to design a change. By understanding the relationships and shaping them in order to improve the landscape. My graduation project can show what an improved landscape of the Nile River Basin could look like.

Master program:
The master's program at TU Delft is a program that teaches students how to work on solutions and design in the built environment. The master's program is teaching the students how to be critical and develop an academic attitude in our projects. In my graduation project, I am working on solutions for the Nile River Basin. I want to design something innovative while remaining critical. My graduation project may show a new way how to design for the future. By performing literature research, I learn from the research that has been done in the past, testing it for my own project. My graduation project is built on research, which results in conscious design choices.

2. What is the relevance of your graduation work in the larger social, professional and scientific framework?

Social
In my graduation project, I want to design based on the natural system. The Nile flows through 11 counties and is highly conflict-sensitive. With my graduation project, I want to show that there should be a transboundary approach with the landscape as the basis. Besides that, millions of people are dependent on the water and land of the Nile. My graduation project includes the importance of the relationship between the land and water of the Nile to the people that are depending on it. Currently, many of the inhabitants are facing challenges. With my graduation project, I want to show that there is hope for a better future where the landscape is resilient to current and future challenges. In my work, I am learning from the past, including the site-specific cultural past.

Professional
My graduation work relates to the professional framework of landscape architecture because it uses a landscape-first approach in order to make conscious design choices. It shows how landscape and landscape processes can form the basis of solutions. I believe that my work can contribute to the professional field of Landscape Architecture by showing an approach on how to deal with these types of challenges.

Scientific framework
In terms of the scientific framework, I believe that my graduation work can contribute to the knowledge about the Nile River Basin. Even though a lot of research has been done about the Nile, I can add a landscape architecture approach to this. Using the knowledge there is about the Nile in order to design this landscape.