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	Yijing Li
Student number	4936418
Telephone number	
Private e-mail address	

Studio		
Name / Theme	Pear River Delta	
Main mentor	Steffen Nijhuis	Landscape Architecture
Second mentor	Lei Qu	Urbanism
Argumentation of choice of the studio	In my bachelor study, I was always interested in the urban problems with the development of fast urbanization. I had lived in Beijing for seven years, and have a deep understanding of city disease. I have interest in how to tackle with or alleviate these problems from a landscape perspective. Through researching in this lab, I hope I can find some landscape principles or strategies for urban problems.	

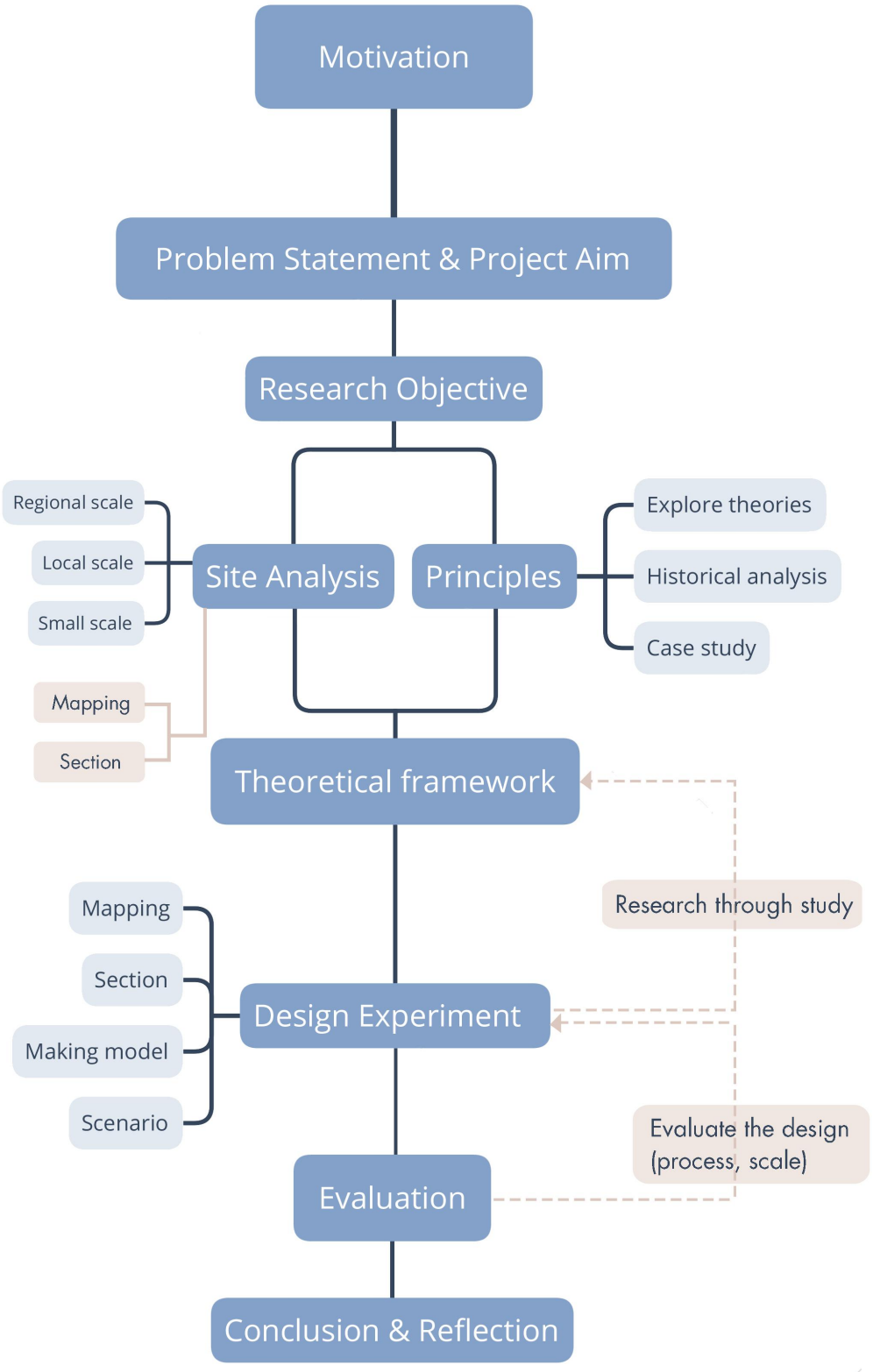
Graduation project	
Title of the graduation project	Identify/ explore landscape based strategies and design principles for water resilient industrial transformation in Shunde District
Goal	
Location:	Shunde district, Foshan city, Guangdong Province, China
The posed problem,	Shunde is located in the middle of Pearl River Delta plain, where Xi river and Bei river merged. Historically, water played an important role in the formation and development of Shunde district. There was a dense water network and people lived with water, mulberry-dike-pond system, fishing in water, transporting by water and playing with water. However, with the rapid urbanization and uncontrolled industrialization in the past 30 years, water becomes a threat to people. Severe water logging and flooding problem bother the city, cause huge economic damage and take some people's lives every year. At the same time, people still can't stop filling the waterway and building more constructions on top of that. They gradually change their way from living with water into living in backland. The government takes some steps to deal with the problems, like regional scale dike ring and lots of sluices. But are these hard engineering facilities the only way, is that a long-term plan? Currently, Shunde is in the key phase of industrial transformation, how to

	make use of the industrial area which occupies nearly 25% of the city to achieve water resilience is a big opportunity and challenge. Because of the uncontrolled industrialization, now the industrial area in Shunde takes lots of space but only has low profits. Presently, they are facing the stage of upgrading or demolishing. This situation inspires this thesis which intended to identify and explore landscape based strategies and design principles for water resilient industrial transformation. It is expected to create a resilient and adaptable green and blue structure on the basis of existing industrial area to release the pressure from heavy rainfall in the city and enhance the long-lost water culture value back to city. The research scope is in a regional scale and the focusing area is in the industrial area along Desheng River.
research questions and	1. The historical water management system in different scales in Shunde district. 2. The evaluation of the level of industrialization in Shunde district, the characteristic of industrial distribution, the influence on blue-green system and the evaluation of existing conditions of industrial area (location, morphology, interface with water or infrastructure and potentials). 3. Identify landscape based design principles for sustainable industrial transformation. 4. How to apply the spatial design principles and what are their potentials for landscape development at different scale levels?
design assignment in which these result.	The project will explore landscape based strategies and design principles for water resilient industrial transformation. The result of the design assignment can be described as following: --A new green and blue structure is constructed on the basis of transformed industrial area along the main infrastructure in the city (main canal and main road), which can be used for water detention and water retention to reduce the pressure from heavy rainfall and avoid water logging and flooding problem. --In a local scale, through the the integration of land, the scattered industrial areas are linked by water. By making use of the existing facilities and space of the industrial areas, a series of water activities can be achieved, such as water collection, purification, transmission and reuse. On the one hand, it improves the water capacity, protects this area from water logging and flooding problem, on the other hand, people are reconnected to water, and at the meantime, it creates some economic value. --In a small scale, how to generate a dynamic interrelation among industrial buildings, landscape and water is an assignment.

[This should be formulated in such a way that the graduation project can answer these questions.
The definition of the problem has to be significant to a clearly defined area of research and design.]

Process

Method description



Literature and general practical preference

-- "Research on the Urban and Rural Coexistence Features and Pattern in the Urbanization Process of Shunde" by Xin Wen

-- "Research on Evolution and Dynamic Mechanism of Water Features Morphology of Shunde since 1978" by Jiahao Li

-- "Shunde County History"

-- "Research on Evolution and Dynamic Mechanism of Small Towns Morphology in Guangdong Shunde" by Liyun Liang

-- Pearl River Delta Water Village Settlement "Sangyuanwei" by Zhiming Zhang

-- Defensiveness in the Settlement of Shunde Water Township during the Ming and Qing Dynasties by Liyun Liang and Hui Liu

-- "Study on the Relationship between Urban Canal-system of Ancient Guangzhou and City Development" by Wei Liu

-- Study on Spatial Forms of Traditional Village Water System in the Pearl River Delta Based on Flood Control and Drainage by Donghui Yang

-- "Study on Cultivated Land Change Driving Mechanism and Spatial Distribution Optimization of Foshan" by Qiuxiang Wang

-- Cultural Geographic Research on Traditional Settlement and Housing Types in Guangdong by Zeng yan

-- Sankey ponds Landscape Heritage Research Of Pearl River Delta by Liu Kehua

-- 2013 Asla, Piggyback Yard Feasibility Study By Mia Lehrer + Associates, Los Angeles

-- Room for river in Nijmegen

-- Research on Spatial Pattern of Traditional Villages in Guangfu Area by Zhang Shawei General

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)?

The topic I'm interested in is water resilience in industrial transformation. In the past 30 years, because of the support of policy and excellent location, the industry in Pearl River Delta is developing rapidly and leading the country. At the same time, it also causes the water logging problem and exacerbates flooding problem. Now China is in the key phase of industrial transformation, so how to make use of this opportunity to tackle these problems is a topical issue. Compared with hard engineering infrastructure, landscape strategies cost less and are more flexible and adaptable. At the same time, it can also keep the city identity and creates more public and recreational value to the society. In this project, I will explore the landscape based strategies for water resilient industrial transformation. I think it can inspire the other regions for the similar problem in the future.

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

With the rapid urbanization and industrialization in the past 30 years, the economy in China develops a lot and living quality of people is improved. However, followed by that, there are some problems showing out. Water logging and flooding is one of the most serious problems. More and more impermeable pavement exacerbates the problem and old drainage system can't deal with the heavy rainfall. Now it's a key phase for industrial transformation, so how to make use of this opportunity to improve water resilience and release the pressure from heavy rainfall is a topical issue in China. Currently, most of the places tackle with this problem by constructing more hard engineering facilities, on the one hand, it costs a large amount of money, on the other hand, it only alleviate the problem temporarily. In this project, we can explore and test the possibilities

and explore more effective way from landscape perspective. Landscape strategies for resilient industrial transformation cost less money and it can improve the water resilience effectively. At the meantime, it can keep local identity, form a complete water flow and even achieve economic income. The toolkit for water resilient industrial transformation in this project can inspire and be applied in the other regions.