

# 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](mailto: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	
Student number	

Studio		
Name / Theme	Resilient coastal landscape	
Main mentor	Steffen Nijhuis	Landscape
Second mentor	Lei Qu	Urbanism
Argumentation of choice of the studio	I am interested in the topic Coastal resilience. Besides, I chose Globalization lap in last quarter. At that time, we did regional analysis and planning on GBA	

Graduation project	
Title of the graduation project	Guangzhou metropolitan park -- Design of the landscape-nature network in Guangzhou to increase the adaptive resilience in the urban environment
Goal	
Location:	Guangzhou, China
The posed problem,	<p>The fast development in the Great Bay Area has caused many social and ecological problems. Guangzhou inevitably suffers a lot as the capital city of Guangdong province and regional economic and transportation center.</p> <p>Along the process of urban expansion, more natural area was occupied or pushed outside the city. However, natural spaces in cities have unignorable influence on the environment and society. They could provide multiple ecosystem service, which are beneficial to the public and the ecosystem. Thus, the shrinking of green space and occupation of water body aroused plenty of problems under the influence of climate change, such as loss of biodiversity, extreme high temperature, storm water problem, and adverse effect on human health. More hard surfaces replaced the permeable surfaces and original water space,</p>

	<p>leading to water systems problems. Green spaces become Islands of green patches faced with increasing environmental pressure. However, the climate change often makes the situation even worse, which means the harm to natural space loss and the broken of coherent natural-human relationship. The side effects of are enlarged as well. Under this condition, making the city more resilient, livable, eco-friendly, and sustainable becomes a public concern and a big challenge in Guangzhou. It means that the city should be given solutions to better adapt to changes and recover from unexpected problems. In the design, a landscape-nature network will be applied in Guangzhou city center. It will connect the green-blue network and involve recreation, history and ecology concern. Landscape planning and design approach will be applied in order to increase the resilient capacity in Guangzhou. The green patches in side city will be preserved and the more connections will be created. Moreover, nature and landscape areas, including green space and blue system, historical areas, recreation spots and urban networks will be regulated in a wiser way to co-exist with each other coherently and provide more benefits for the city through landscape design.</p>
<p>research questions and</p>	<p>To design a multiscale metropolitan landscape-nature network for Guangzhou through landscape approach.</p> <p>Sub question 1: How does the landscape-nature network function in Guangzhou and what clues can be found to develop it further?</p> <p>Sub question 2: What are the principles and strategies to develop a metropolitan landscape-nature network?</p> <p>Sub question 3: How can applying the landscape-nature network improve the urban environment and living conditions in Guangzhou through design?</p> <p>Sub question 4: What can be learned from Guangzhou for the creation of a landscape-nature network and what needs to be developed further?</p>

<p>design assignment in which these result.</p>	<p>This project will develop a multiscale a landscape-nature network in Guangzhou city center and select zoom in areas. The network aims at forming more resilient green-blue-recreation-history systems in order to improve the resilience of metropolitan urban area. Along with the regional map, there will also be regional strategies and principles to apply. The network will mainly be made up of patches and connections. Thus, the detail design would be used as examples of different types of space with network. In the detail design, how strategies and ideas all applied in a local scale will be tested and summarized. For detail design, the master plan, sections, axons, perspective drawings will be used to elaborate the design.</p>
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[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

Based on the context and problems in Guangzhou, Designs and researches will provide possible ways to help with Guangzhou in a landscape perspective. A landscape nature network is proposed in this case as the main theme. Theories as used as underpinnings for the landscape-nature network. The design process will follow the sequence of the sub-questions I proposed.

To be more clear of what landscape-nature network is, the background theories will be explained here. Loss of natural space, especially green space and water area, is stressed as one of the key problems in the study area. In order to create a more resilient urban environment, three related theories are needed as theoretical underpinnings. To be more specific, resilient design, Landscape as a system and Ecosystem service are the main theories used in this project. "systems theory can be considered as an approach to landscape design in terms of both the product and the design process. ...not only involve the identification and consideration of the essential parts of the system, but also improve the system as a whole. " (Just a Moment. . ., n.d.). Besides, ecosystem service has been discussed in many types of research. It is defined as "the direct and indirect contributions of ecosystems to human well-being." (What Are Ecosystem Services?, n.d.). Resilient design is a method widely used in plenty of projects for creating a system have a higher capability to change.

Based on the theories and contexts of the site, approaches are as follows. A multi-scale approach will be used to formulate analysis through scales. The transformative perspective

will also be used as an approach to understanding historical development and the mechanism of the system. These two approaches were selected based on the theory landscape as a system. Another approach is landscape as infrastructure, especially in the creation of urban green infrastructure, which is a means of ecosystem service theory. Nature based solution is the approach for resilient design theory. Combining all elements mentioned above, landscape-nature network would be a concluded theory and main theme in this project.

For sub-question 1, the inner mechanism of landscape-nature network now and in the past will be figured out. The main challenges and potentials in Guangzhou city will be analyzed. In this part, description will be used as the research strategy. The history will be researched and how the network works in the past will be figured out. A basic understanding of the site and the system will be gotten in this part by comparing the network in the past and now. In order to have a deeper understanding of the problems and opportunities, literature review, mapping, and history analysis are used as the analysis tool.

For sub-question 2, the general principles and strategies will be studied. Classification and evaluation will be used as research strategies. Case study will be used as the method for exploring suitable principles and strategies. Classifying the patches and connections and evaluating suitable strategies for them will be the main task in this part.

For sub-question 3, Applying the principles and strategies into the site will be the focus. Modeling and interpretation will be the research strategies, modeling the landscape and applying design into the context. All previous steps lead to the design strategies – the creation of a regional landscape-nature network in the dense urban area of Guangzhou city center. Visions and detail plans will also be used as solutions to the problems. As urban green infrastructure, the landscape-nature network could help with improving ecosystem service in the study area, and at the same time create a more resilient urban environment.

For sub-question 4, what needs to be explored further will be summarized. In this part, reflection and summary will be discussed. It is a conclusion and reflection of the whole project.

## Literature and general practical preference

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12. Road map of the Boston district showing the metropolitan park system - Norman B. Leventhal Map & Education Center. (n.d.).  
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<https://openknowledge.worldbank.org/handle/10986/36507> License: CC BY 3.0 IGO.
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17. Lan, S. (2018). 广州市城市改造的历史研究(1918-2015年) [MA thesis]. South China University of Technology.
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## Reflection

The research objective is to create a landscape-nature network in order to help with the urban environment of Guangzhou. To create the network, historical wisdom will be studied. Case study will also be used as an inspiration for design. The calling for a more resilient Guangzhou has been proposed long. However, after several times of reregulating the drainage system and green space planning, Guangzhou still suffers from extreme weather like flooding and extreme temperature.

The traditional wisdom of nature and city arrangement has been used for thousands of years and has its unique ecological, cultural and social functions. However, nowadays, urban expansion took place so fast that the previous landscape-nature pattern has been deserted. The wisdom of traditional city planning has been ignored for a long time. The relationship between the natural system and urban patterns is not coherent anymore. By learning from traditional wisdom and new approaches from cases worldwide, new strategies for mitigating the influence of extreme weather could provide citizens with a more livable city and a healthier ecosystem. It will not only be a good inspiration for Guangzhou but also for other metropolitan cities in China and the world.