# 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** | |
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| Name | Wenting Gao |
| Student number | 5565804 |

| **Studio** | | |
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| Name / Theme | Flowscape - Circular Water Stories lab | |
| Main mentor | Inge Bobbink | Landscape Architecture |
| Second mentor | Francesca Rizzetto | Urbanism |
| Argumentation of choice of the studio | My fascination with water led me to research the traditional water system, and I used this as the starting point for my design project. | |

| **Graduation project** | |
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| Title of the graduation project | From "Stone City" to "Water Region": Re-imagine the hidden human-water relationship in Matera |
| **Goal** | |
| Location: | Matera, Basilicata, Italy |
| The posed problem, | Matera is located in the Basilicata region, Italy. It's now famous for the stunning cave dwellings and complex underground water harvesting system of Sassi di Matera, a historical center and a UNESCO heritage site. However, the rest of the region is poorly connected to Sassi and has a lot of water-related problems. Firstly, there is a disconnection between human and water. Unlike the people of Sassi who used the sustainable water system in the past, they mainly rely on the San Giuliano Reservoir which also faces the problem of falling water levels because of climate change. Extreme rainfall events also made urban flooding a problem for the historical and urban center. The unregulated and undertreated wastewater from agricultural activities and domestic use has also polluted nearby streams, showing the indifferent attitudes people hold toward the water. Secondly, the urban and rural areas have had very poor connections since people were partly evicted from Sassi in the 1950s, and the connection is even poorer now because Sassi rises as a cultural destination, making itself isolated from the rural surroundings. Thirdly, the Murgia Materana Park and San Giuliano Regional Reserve are separated by farmlands with |

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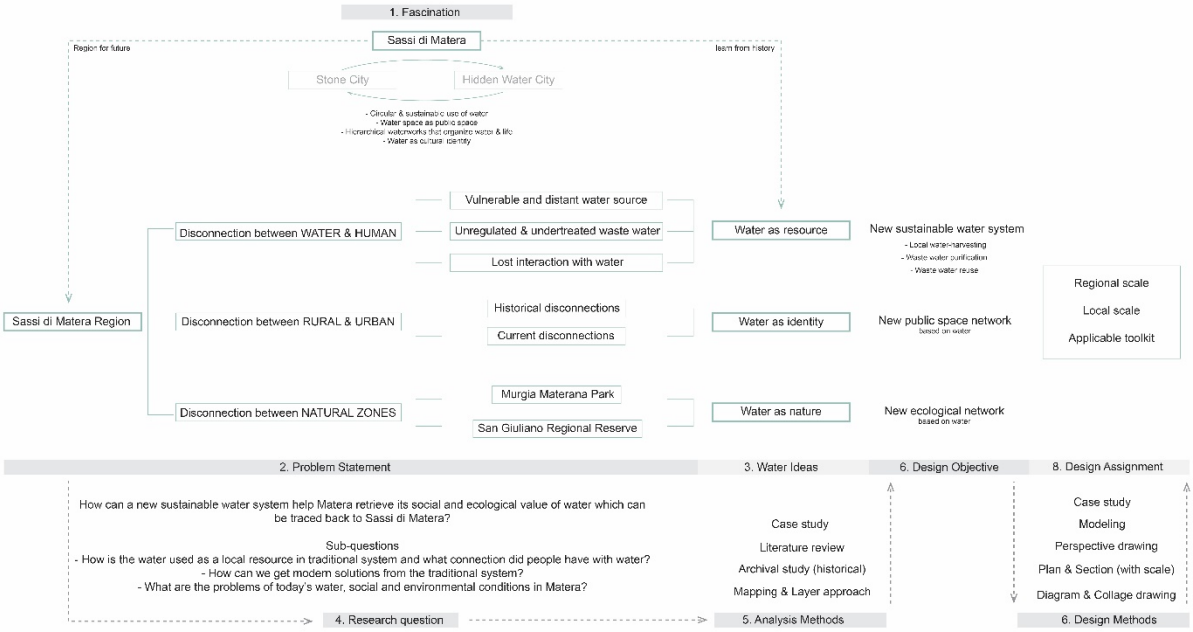
| | low ecological value, and there's a potential problem of soil degradation. This situation has led to the exploration of the thesis which intended to learn from the historical water system of Sassi and create a new sustainable system for this region to solve the water-related crisis and deal with the social and ecological disconnections. |
| research questions and | How can a new sustainable water system help Matera retrieve its social and ecological value of water which can be traced back to Sassi di Matera?<br>1) How is water used as a local resource in the traditional system and what connection did people have with water in the past?<br>2) How can we get modern solutions from the traditional system?<br>3) What is the suitable water system module for the rural areas which also suffer from water-shortage problems in southern Italy? |
| design assignment in which these result. | The design will mainly carry out on local scale and regional scale.<br>Regional-scale<br>1. New sustainable water system<br>2. Public space network (based on water) for locals & visitors<br>3. Ecological connection<br>Local-scale<br>4. The ecological wastewater purification & reuse of wastewater (*La Martella* as an example)<br>5. The cultural transformation of the historical cisterns in Sassi (toolbox)<br>6. The transformation of *Grabiglioni* as a solution to urban flooding in Sassi<br>7. The rainwater-harvesting design (*Spine Bianche* as an example)<br>A toolkit of the new sustainable water system which can be the reference for other rural cities with water issues in southern Italy. |

## Process

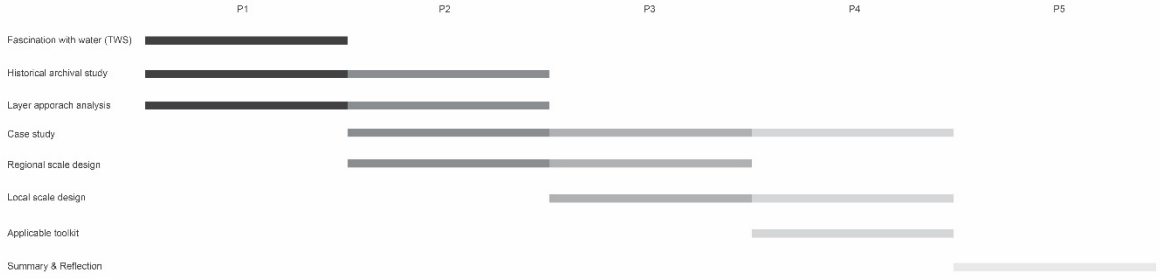
**Method description**

1. Case study: the traditional water system in Sassi di Matera is an important local case study, and the case studies about urban & rural water-harvesting methods will also be the focus.
2. Archival study: the history of Sassi di Matera and the origins of its surrounding rural villages, the social and environmental problems today.
3. Literature review: theoretical literature in the domain of landscape architecture
4. Mapping & Layer approach: urban, rural, natural, and cultural layers of Matera
5. Plan & Section: scaled drawings which help the detailed design
6. Diagram & Collage drawing: works through the whole design process

# 7. Perspective drawing and model: design scenarios




*Framework*




*Timeline*

**Literature and general practical preference**


1. Chiarella, D., Festa, V., Sabato, L. and Tropeano, M. (2019), The city of Matera and its 'Sassi' (Italy): an opportunity to broadcast geology in the European Capital of Culture 2019. Geology Today, 35: 174-178. https://doi.org/10.1111/gto.12283
2. De Pascale, Francesco & Bernardo, Marcello. (2016). Matera (Basilicata, Southern Italy): A European Model of Reuse, Sustainability and Resilience. Advances in Economics and Business. Advances in Economics and Business. 26-36. 10.13189/aeb.2016.040104.
3. Grano, Maria. (2020). Palombari, cisterne e pozzi per l'approvigionamento idrico nei Sassi di Matera (Basilicata). Il Capitale Culturale Studies on the Value of Cultural Heritage. 21. 377-389. 10.131382039-23622076.
4. Manfreda, S., Mita, L., Dal Sasso, S. F., Dibernardi, F. R., Ermini, R., Mininni, M. V., ... & Fiorentino, M. LA GESTIONE DELLE RISORSE IDRICHE NELLA CITTÀ DEI SASSI (MATERA) WATER RESOURCES MANAGEMENT IN THE CITY OF SASSI (MATERA).
5. Masi, Salvatore & Palese, Assunta & Celano, Giuseppe & Xiloyannis, Cristos. (2013). Treated municipal wastewater for irrigation of olive trees.
6. Norris, Fran & Stevens, Susan & Pfefferbaum, Betty & Wyche, Karen & Pfefferbaum, Rose. (2008). Community Resilience as a Metaphor, Theory, Set of Capacities, and Strategy for Disaster Readiness. American journal of community psychology. 41. 127-50. 10.1007/s10464-007-9156-6.
7. Pontrandolfi, R.: URBAN-RURAL: "TIBURTINO" DISTRICT IN ROME AND RURAL VILLAGE "LA MARTELLA" IN MATERA AS EMBLEMATIC CASES OF SETTLEMENTS DURING THE ITALIAN RECONSTRUCTION, Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci., XLIV-M-1-2020, 789–796, https://doi.org/10.5194/isprs-archives-XLIV-M-1-2020-789-2020, 2020.
8. TOXEY, A. (2004). Reinventing the Cave: Competing Images, Interpretations, and Representations of Matera, Italy. Traditional Dwellings and Settlements Review, 15(2), 61–78. http://www.jstor.org/stable/41758044
9. Trulli, Ettore & Torretta, Vincenzo & Rada, Elena & Istrate, Irina & Papa, Enrico. (2014). MODELING FOR USE OF WATER IN AGRICULTURE [MODELLAZIONE PER L'USO DELLE ACQUE IN AGRICOLTURA]. INMATEH- Agricultural Engineering. 44. 121-128.
10. http://www.europan-italia.eu/EUROPAN_15/italian-results.html


## 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 research methods in Circular Water Stories (CWS) helped me to look into the harmonious relationship between human and water in Sassi di Matera, and my fascination with water led me to explore the Sassi di Matera region from the perspective of water. The traditional water system contributed as an inspiring example for the new possible water system in Matera, dealing with current water-related problems and creating a new relationship between human and water. From the perspective of Landscape Architecture, water can also contribute to the improvement of social life and ecological value through the design of public space and green space.

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

My graduation work explores the value of the traditional water system and seeks a modern solution to the current water crisis under climate change. Learn from the past and design for the future. Socially, it aims to bring back the harmonious relationship between human and water, and improve the awareness of the value of water. It will also bring insights into other water-demanding cities in southern Italy, showing a healthy, local, and sustainable way of living with water.

In the realm of landscape architecture, my graduation work explores the landscape solutions to water-related crisis under climate change. Finally, the scientific frameworks of landscape architecture and other related theories, e.g. Community Resilience, also helps the construction of the project.