

# Graduation Plan

Master of Science Architecture, Urbanism & Building Sciences



## Graduation Plan: All tracks

Submit your Graduation Plan to the Board of Examiners ([Examcommissie-BK@tudelft.nl](mailto:Examcommissie-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	<b>David J. Sauer</b>
Student number	5835380

Studio		
Name / Theme	Explore Lab	
Main mentor	Peter Koorstra	Architecture
Second mentor	Georgios Karvelas	Building Technology
Third mentor	Carola Hein	Research
Argumentation of choice of the studio	<p>Explore Lab allowed me to combine my interest at the intersection of architecture and water with my hometown of Mexico City.</p> <p>The Water Crisis of Mexico City is not only one of environmental destruction but deeply intertwined with political destructions. a solution approach must consider and address both framework conditions. Explore Lab enabled not to propose an architectural intervention prematurely but allowed me to anchor any proposal in extensive research. The relevant complexities of the Hydrology in Mexico City make this especially necessary.</p>	

Graduation project	
Title of the graduation project	Parched Paradise
Goal	
Location:	Mexico City - Mexico
The posed problem,	The predecessor of Mexico City, Tenochtitlan was built on an island in the middle of an extensive Lake System. Many of its indigenous adaptations depicted a close relationship to the environment. The arrival of the Spaniards would mark the beginning of this ecosystem balance as many indigenous traditions were forgotten.

	<p>But it was not until the Independence period that most remnants vanished fully for make place for a Modernity. The Paradigm of Modern Water (Water under Modernity) has led to large scale hydrological changes in the 20<sup>th</sup> century and displaced many of the traditional livelihoods and narratives unattainable. Access to water has become a class attribute. The urban poor and middle classes are dependent on the state with limited possibilities for change. The looming climate crisis will exacerbate existing social distortions. Particularly concerning is a report by the UN, estimating Mexico City to run out of water by 2030. The overlay of socio-environmental issues make change not just a matter of social justice but a prerequisite for the survival of the city.</p> <p>Scholars argue for a need to reconfigure society and water in a hybrid system of decentralized and centralized water systems. This constitutes not only physical adaptation to meet sustainability targets but must address issues of governance, participation and equal distribution. Luckily the Paradigm of Modern Water has long overlooked crucial sources such as rain and greywater. Maybe not everything is lost.</p>
<p>research questions and</p>	<p><b>How can an architectural intervention reinvigorate collective narratives around water to overcome the Crisis of Modern Water in the former City on a Lake?</b></p> <p>How have Ejidos (communal land tenure communities) manages and lived with water?</p> <p>How can these type of communal narratives around water be translocated into the urban setting of Mexico City?</p> <p>How can architecture rejuvenate a distinctly Mexican Water Culture around a communal tenure?</p>
<p>design assignment in which these result.</p>	<p>The design is the logical extension of the preceding research. It will need to address an assortment of social</p>

and special nature. It proposes a Prototype of an urban ejido around a decentralized and self-managed water system.

Above all, the system will need to address the physical and social needs of the people. However, it cannot end there. Water needs to be reintegrated with the identity of the community. It should overcome the negative associations of the existing system and replace them with positive ones. This will increase the effectiveness and longevity of such a proposal.

Preliminarily, the project will focus on a site of a former ejido now an urban neighborhood in the north of Mexico City (Linda Vista). While the site consists of some 300 houses the intervention will be concentrated on its southern end (100 houses). Larger Ejidos tend to be less cooperative, as the research has shown.

However, the system is designed to be applied to other sites as well.

The intervention functions as a micro hydrological system, capturing, storing, reusing, recycling, and 'disposing' of water. These will necessarily be spread around the site, which consists of buildings, both housed and unhoused, open areas, and the streets. To enable a relationship between people and water, these infrastructures will need to be visible in the urban fabric. Socially the water will be made visible through the presence of collective governance buildings.

Therefore, the system is thought of as a variety of different buildings, such as the collective governance hall, individual rain-capturing buildings, streets that function as rivers, and storage for water. As a result, the design is not a single building but a system for a neighborhood that expresses itself as a multiplicity of individual buildings communicating with one another.

To address this system, the architectural design will formulate a cluster of buildings:

- Water governance hall
- Streets as rivers
- Retrofitted houses (rain capture)
- new social in fracture (e.g. library)
- constructed wetlands and productive greenspaces

	Crucially water and its infrastructure will be orchestrated as an aesthetic but also functional aspect of all buildings.
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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**

The design iterates upon initial urban Ejido calibrations as highlighted in the Research Plan. This stage incorporates a diagrammatic approach to map social and environmental interactions. Supplementing this, additional insights are drawn from application-oriented research, as referenced in the bibliography.

The spatial dynamics of the site are a key focus. Basic data collection is complete, but certain details require direct observation. A site visit planned for August aims to fill these gaps, offering a richer, more detailed understanding. This visit is also an opportunity for engaging with local communities and stakeholders, providing a nuanced social perspective. An excursion to an Ejido outside Mexico City is planned, to explore and document the local 'Water Culture' through various mediums including maps, photos, interviews, and sketches.

The findings from this comprehensive fieldwork will be synthesized into physical models, offering a tangible representation of the research. A 1:500 scale massing model serves as an exploratory tool, focusing particularly on the water system's dynamics. The model facilitates an in-depth analysis of how water infrastructure can be integrated into the built environment, not only as a functional element but also as a narrative connector between the inhabitants and their water resources. This approach reflects a longstanding tradition of water integration in architecture, as detailed in the references.

## Literature and general practical references

Cunha, D. da. (2019). *The invention of rivers: Alexander's eye and Ganga's descent*. University of Pennsylvania Press.

Feyen, J., Shannon, K., & Neville, M. (Eds.). (2008). Evaluating the need, benefits and challenges of implementing shared water governance in an urban context: Comparing Calgary, Canada and Mexico City, Mexico. In *Water and Urban Development Paradigms* (0 ed., pp. 597–602). CRC Press.  
<https://doi.org/10.1201/9780203884102-90>

Lohrer, A. (2008). *Basics designing with water*. Birkhaeuser Verlag.

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Mathur, A., Cunha, D. da, Meeks, R., Wiener, M., & University of Pennsylvania (Eds.). (2014). *Design in the terrain of water* (1. ed). Applied Research + Design Publ.

Muller, B. (2022). *Blue architecture: Water, design, and environmental futures* (First edition). University of Texas Press.

city), E. G. (mexico. (2024, January 12). *Mexico looks to the heavens for a solution to its water crisis*. - Global Issues.  
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Evaluating the need, benefits and challenges of implementing shared water governance in an urban context: Comparing Calgary, Canada and Mexico City, Mexico. (2008). *Water and Urban Development Paradigms*, 597–602.  
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Ostrom, E. (2021). *Governing the commons: The evolution of institutions for collective action*. Cambridge University Press.

Brion Tomb, House Romanelli, Querini Stampalia Foundation – Carlo Scarpa

Casa Gilardi, Casa Barragán, Los Clubes - Luis Barragán

Therme Vals - Zumthor

Emperor Quianmen Hotel

The Building on the Water – Álvaro Siza + Carlos Castanheira

Zhao Hua Xi Shi Living Museum - IAPA Design Consultants

Rainwater Harvest Home- Robert Hutchison Architecture

Traditional Aztec, Mayan and Venetian Architecture

### **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 interpretation of my Explore Lab topic emphasizes the relevance of spatial/technological solutions combined with social approaches. This duality could be read as a logical extension of my previous courses. Complex projects highlighted how intricate and sometimes hidden material flows influence our built environment. Contrary, Social Housing accentuated the multifaceted influence of everyday. These two perspectives of top-down overview and bottom-up granularity influenced the approach of my research both in the Research Plan and for my proposed intervention. I am convinced, that a project must address both dimensions to be truly sustainable in the sense of the word.

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

The climate crisis is largely a crisis with water at its center. The agglomeration of people exerting pressure on their environment in urban areas makes these spaces especially vulnerable. As a result, different urban strategies for adaptation have emerged, such as water-sensitive urban design and water sensitivity. While figures like Dilip da Cunha and others brought water to the forefront of the architectural discourse, the discipline is still strongly terrestrial. My project explores this relationship from another angle and emphasizes the importance of water for the discipline. Water, especially in an urban environment, must be valued as a substantial building material, if we want to meet the challenge of climate change. Building material does not only refer to its physical characteristics but even more to its social essentiality in Water Culture. It is precisely here that I am convinced that architecture, in its phenomenological and symbolic approach, could be of great benefit to the wider water sustainability discourse. My design will elaborate on these concepts through the

architectural orchestration of water and its 'infrastructure' to make them accessible to everyone.