

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	Lilli Malou Selcho
Student number	6083080

Studio		
Name / Theme	City of the Future	
Main mentor	Alper Alkan	Architectural Design
Second mentor	Florian Eckardt	Building Technology
Third Mentor	Chiara Pradel	Research
Delegate	Arjen Meijer	Delegate
Argumentation of choice of the studio	The studio's interdisciplinary approach, as well as the focus on systems thinking.	

Graduation project	
Title of the graduation project	Sympoietic Waters: Rethinking Repair in Contaminated Landscapes
Goal	
Location:	The Erft River drainage basin and the surrounding Rheinisches Braunkohlerevier region, Germany. This area has been heavily impacted by lignite mining, resulting in significant degradation of water systems through acid mine drainage and contamination.
The posed problem,	The Erft River basin, heavily impacted by lignite mining, exhibits degradation through acid mine drainage and contamination. This disruption has reconfigured ecological, hydrological, and cultural landscapes, where current countermeasures fail to address the systemic issues. The prevailing approach of establishing nature-protected zones, while aimed at restoration, reinforces a static, controlled ecological state that disables adaptive processes. These artificially imposed zones, dependent on external input, conceal the ongoing

	<p>contamination rather than addressing it. In particular, the contamination from mining operations is increasingly evident in the southern regions, where groundwater levels are rising. Previously isolated contaminants, held in stasis by the absence of groundwater, are now mobilized, spreading through hydrological networks and surfacing in artificial lakes. This contamination, typically obscured by human-made parks and fields, challenges the perception of restoration and underscores the need for a rethinking of ecological repair.</p>
<p>research questions and</p>	<ol style="list-style-type: none"> 1. What defines the relationship between human and non-human actors within a contaminated landscape? 2. What alternatives exist to artificial approaches to restoration and repair? 3. How can degradation be mitigated without imposing fixed conditions or dictating outcomes? 4. Can architecture serve as a mediator between degradation and human/non-human actors, fostering adaptation and coexistence?
<p>design assignment in which these result.</p>	<p>The proposed design introduces a modular, adaptive, and decentralized network of interventions integrated within the Erft River's surface water systems. These structures, envisioned as "water objects," engage directly with existing flows and processes, supporting self-organizing ecological mechanisms. Unlike artificial restorations, these elements reject fixed outcomes, prioritizing flexibility, reversibility, and participation. By fostering a symbiotic relationship with the river's dynamic conditions, the design transforms a top-down imposition into a participatory gesture, enabling adaptation and the emergence of unexpected ecological states. These interventions, minimally invasive and visually integrated, seek to reveal the interconnectedness of natural</p>

and cultural systems while challenging static notions of ecological repair.

[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 research process integrates multiple methods to comprehensively understand and address the challenges of the Erft River's degradation.

It begins with **mappings** to analyze contamination patterns and the interconnectedness of industrial and hydrological systems, alongside detailed studies of riverbanks to understand site-specific contexts.

This spatial analysis is complemented by **fieldwork**, including water quality testing at 15 locations to assess the current water composition as a starting point.

A **video collage** was created to document surface conditions, riverbanks, and the cultural landscape surrounding the river, providing a visual narrative of its present state.

Archival research sheds light on the historical relationship between the river, human activities, and industry, forming the basis for contextual analysis.

Interviews with local stakeholders, including a mill owner and geology experts, offer insights into the river's past including the historical typologies developed as interfaces between humans and the river as well as the speculated future dynamics within the hydrological field.

To explore potential interventions, **models** were developed to simulate hydrological processes and test hypothetical interactions between the river and proposed design elements.

Design experimentation was further enhanced through **photocollages** that visualize possible scenarios for integrating "water objects" into the river system and the landscape.

Case studies of similar interventions provide practical inspiration for the development of water-purification structures.

Literature and general practical references

- Haraway, Donna J. *Staying with the Trouble: Making Kin in the Chthulucene*. Durham: Duke University Press, 2016.
- Leopold, Aldo. "Thinking Like a Mountain." In *A Sand County Almanac*, 129–133. New York: Oxford University Press, 1949.
- Morton, Timothy. *Dark Ecology: For a Logic of Future Coexistence*. New York: Columbia University Press, 2016.
- Morton, Timothy. *Hyperobjects: Philosophy and Ecology after the End of the World*. Minneapolis: University of Minnesota Press, 2013.
- Smout, Mark, and Laura Allen. *Augmented Landscapes: Smout Allen Architecture*. Architectural Association Publications, 2007.
- Smout, Mark, and Laura Allen. "Hydrological Infrastructure Projects." Various unpublished works and installations.
- Tsing, Anna Lowenhaupt. *The Mushroom at the End of the World: On the Possibility of Life in Capitalist Ruins*. Princeton: Princeton University Press, 2015.
- Young, L. *Specimens of Unnatural History*. Self-published, 2022.
- Mathur, A., & da Cunha, D. (2009). *Soak: Mumbai in an Estuary*.
- Haber, W. (2009). Post-Industrial Cultural Landscapes. In *Feldstudien*.

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)?

This project engages directly with the studio's focus on urban transformation by examining how a post-industrial landscape, specifically the Erft River and its surroundings, can evolve beyond degradation into an adaptive and participatory cultural and ecological system. It explores a new role for architecture in mediating between systemic contamination and natural processes, offering speculative solutions that contribute to the transition from extractive to co-existing systems. Within the Architecture track, the project redefines the scope of architectural practice, positioning it as an agent or tool capable of addressing dynamic and degraded environments.

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

The project contributes to addressing pressing environmental challenges while exploring new roles for architecture in fostering coexistence between human and non-human actors. Professionally, it encourages architects to consider broader systemic interactions and engage in speculative, interdisciplinary design approaches. Scientifically, the project explores theoretical and practical understandings of degraded landscapes. It repositions degradation as an active, transformative condition rather than merely a problem to be solved. By integrating theoretical insights with site-specific design, the project offers a bridge between speculative inquiry and tangible ecological futures.