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# The Geology of Landscapes

## Times, rhythms, palimpsests of the Rhenish crater

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# REL22

## *reinventing*

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In cooperation with TU Delft
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In cooperation with Politecnico di Milano
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reinventing energy landscapes

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# a drop in the min(d)escape

constructing a landscape thinking

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# The Geology of Landscapes

## Times, rhythms, palimpsests of the Rhenish crater

By Laura Cipriani

For those who want to understand the meaning of the Anthropocene, I suggest stopping at Hambach. The Rhenish crater is one of Europe's largest and deepest open-cast coal mines. Humans have transformed the landscape to the point of giving life to a new geological era. The mine is the symbol of humanity's power over territorial, environmental, and climatic transformations at impressive levels of scale and scope.

This workshop confronted us with five different times of the landscape, with its rhythms and palimpsests: deep geological time, historic time, the rapid anthropogenic time of excavation, the present time of transition towards new forms of energy, and finally, future time with the conversion of the crater into a lake.

*Deep geological time* is displayed by the stratigraphy of the geologic palimpsests. The vertical excavation in the earth shows the period of marine transgressions in the lower strata. During the late Oligocene and after the middle and late Miocene, this area was covered by peat bogs and humid forests now converted into lignite – the brown gold mainly extracted for energy production.

*The historical time* of cartographies recounts the landscape changes in the 13,000-acre Hambach Forest, partly transformed into agricultural fields and then eroded by mine excavations.

*Anthropocene time* starts in the 1970s, with mining activities giving life to the crater. The slow geological rhythms collided with the rapidity of contemporary transformative time. The destruction of villages in the quarry grounds and their relocation to other areas caused an exodus of about 30,000 people. The horizontal topographies of the mine's contour lines narrate its palimpsests in a continuous change, fan-shaped in a succession of fleeting landscapes repeated by the obsessive mechanical procedures of the wheel-excavators. Through land excavation, lignite

extraction, and mine reclamation, forest, soil, and water, are all interdependently altered. To extract the lignite layers, bulldozers cut down the forest, bucket-wheel excavators remove the land, belt conveyor transport it outside the mine to be re-cultivated, and pumps extract the groundwater changing the previous levels.

Then there is the *present time* of transition. It is a transition towards new forms of energy production and new economies as a result of the closure of the mining activities, as well as the socio-economic consequences for those who work and live in these places.

Finally, the *future time* of the *longue durée* envisions that the crater will be converted into a lake by 2100. Water will come from multiple sources: from the river Rhine, which will be diverted by 50 kilometers to reach the mine; from the groundwater that will rise as soon as the pumps are stopped; from the water that will be left in the mine, rather than being pumped out. This long-span infill process will be unpredictable from the point of long-term climatic, environmental, and economic uncertainties – a process that will not be completed for generations.

Based on this premise, the workshop deconstructed the landscape palimpsests and the rhythms that evolve over time. Two main ambitions guided the workshop:

Firstly, the intention was to imagine future scenarios that would stimulate a collective discussion in the present. A scenario is a tool for exploring future conditions of uncertainty and complexity and is constructed on hypothetical reasoning. What happens if new forms of energy replace extractive activities? What if the lake will never be filled due to water shortage due to future climatic change? What if the lake reaches a certain level, rather than the intended one? What if we temporarily occupy the mine slopes? Planning through scenarios means answering the question “what if…?” since there are many and multiple possible futures. Imagining the future and deciding what to do in the present becomes fundamental for the lifetime of these places.

Secondly, the workshop intended to work on constructing “landscape thinking” in the minds of younger generations coming from different disciplinary backgrounds – landscape architecture,


urban planning, energy, and hydraulic engineering; from diverse European university settings – the Netherlands, Germany, Italy, Switzerland; and from different academic levels – master's and PhD degrees. Collective and interdisciplinary working is a way to encourage the construction of transdisciplinary education to tackle today's unprecedented uncertainties and challenges. As in a geological process, I hope the change of practices will take root in the minds and actions of these future professionals.
Not to mention the fact that these generations of young students are probably the only ones entitled to envision the future of this land. They are the ones who, at the end of their lives, might be able to see and testify to how the Hambach mine will be transformed. The time of change starts with them.

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**Silvia Beretta**
is a landscape architect who works as research associate at the Institute of Landscape Architecture of RWTH Aachen University since 2016. She studied Architecture at Politecnico di Milano and TU Delft and obtained a postgraduate degree in Landscape Architecture from the University of Genoa (2001). She has taught as adjunct professor for Landscape Architecture at Politecnico di Milano (2006-2012) and has worked as research associate at Accademia di Architettura in Mendrisio (2007-13). She is co-founder of beretta kastner landschaft architektur, a design office which has carried out several strategic landscape projects and open space designs since 2004.

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**Katharina Christenn**
studied landscape architecture at Technische Universität München (TUM) and Sapienza Università di Roma. She started her academic career with her doctoral research on professional history of landscape architecture in the 20th century at the Chair of Landscape Architecture and Transformation at TUM. As a research and teaching associate at the Institute of Landscape Architecture at RWTH Aachen University since 2016, she has been active in design studio teaching and projects in the field of Co-Producing Green Infrastructure with Urban Agriculture as well as the transformation of the Rhenish Revier. Her focus lies on cultural heritage and the transformation of post-industrial landscape.

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**Antonio Longo**
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