



International Council on
Monuments and Sites

Conseil International
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Deutsches Nationalkomitee e.V.

Learning from Ahrtal

Climate, Resilience, and Heritage

ICOMOS Germany EPWG Spring School 2024



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Acknowledgments

The 2024 Spring School was organized through the collaborative efforts of the Emerging Professionals Working Group (EPWG) of ICOMOS Germany and RWTH Aachen University. From March 22–24, 2024 in Aachen and the Ahr Valley, the program addressed the critical lessons learned from the devastating 2021 floods in the Ahr Valley. These events caused significant damage to the region's cultural heritage, including the Nepomuk Bridge in Rech. They underlined the urgent need to strengthen the resilience of the built heritage against the increasing impacts of climate change. Through site visits, discussions, and expert presentations, the Spring School aimed to provide participants with an in-depth understanding of the challenges and complexities of heritage conservation in this context, while fostering best practices and strategies for safeguarding cultural heritage for future generations.

I want to express my appreciation to a range of individuals and institutions whose invaluable support and contributions were essential to the success of this Spring School. Warm thanks go to Dr. John Ziesemer, Scientific Secretariat at ICOMOS Germany, and Dr. Dörthe Hellmuth, Office Manager at ICOMOS Germany.

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Dr. Tino Mager
President of ICOMOS Germany

Resilient Heritage



01
Location of the Nepomuk Bridge
before its demolition in 2023

Drastic changes induced by **political or environmental transformations** have always had the most profound and dramatic effects on heritage across the globe. In 2022, the inevitable impact of conflicts and disasters on heritage was the focus of the thematic conference “Architectural Monuments in Conflicts and Disasters” organized by ICOMOS Germany. The conference addressed the complexity of armed conflicts and natural disasters in three sections: prevention, intervention, and follow-up care. The various expert perspectives were enlightening in understanding the urgency of such disasters and in grasping the diverging and often conflicting interests in heritage care.



02
Mayschoß, devastating
impact of the 2021 flood
in the Ahr Valley

In the same year, ICOMOS Denmark and ICOMOS Germany, as well as the ICOMOS Emerging Professionals Working Group, organized an online Summer School “Heritage in the Shadow of Conflict”. The workshop brought together young professionals and students who were trying to find answers to the shocking and overwhelming destruction caused by conflicts. In this context, the participants had to deal with various issues. These included questions of contested value, prioritization, methods of conservation and protection during a conflict, and the need to rebuild afterwards.

It was thus natural to address the issue of **climate change** and the threat it is posing to heritage in a separate event. In March 2024, the Emerging Professionals Team therefore organized a Spring School entitled “Learning from Ahrtal – Climate, Resilience and Heritage” at the RWTH in Aachen. The workshop focused on the consequences of the flood in the Ahr Valley in 2021, looking specifically at the devastating impact on the built heritage. The natural disaster illustrated the **vulnerability of architecture** and structures that initially seemed permanent and indestructible. Moreover, once again the consequences of the devastation led to a recurring conflict of values due to diverging perspectives on cultural heritage.

The workshop thus brought students, young professionals, and experts to Aachen to explore strategies for heritage conservation in the face of climate change. The three-day event included a site visit to the Ahr Valley, where the devastation was still visible three years after the flood. In further discussions with the residents, the participants had the opportunity to address the extent of the consequences and to understand the urgency of the long-awaited solutions. Expert contributions enriched the participants' knowledge by providing different perspectives on the relationship between climate change and the built environment. These diverse contributions were intended to confront the participants with the complexity of heritage conservation in times of crisis. Thus, the aim of the workshop was to identify and communicate **best practices and strategies** for preserving cultural heritage and to develop solutions for heritage sites affected or threatened by climate change and its consequences.



03 ►
Rebuilding efforts
in Mayschoß
04 ▼
Altenahr in March 2024
05 ▲
Rech in March 2024



06 ▲
Viaducts of Altenahr
07 ►
Viaducts of Altenahr, detail

Program

March 22nd, 2024
DAY 1
Ahrtal

Welcome!
Barbara Engel
Karlsruhe Institute
of Technology
Christa Reicher
RWTH Aachen University

Field Trip

Initial Moderated Tour
“on wheels” through the
village from Bad Neu-
enahr-Ahrweiler to
Kreuzberg (passing through
Dernau, Rech, Mayschoß)

Local Winery
Next generation
winemaker Lukas Sermann,
who rebuilt his family's
winery and developed it
with new vision

Walk in Mayschoß
Visit of the heritage site
“Lochmühle” and the “Win-
zergenossenschaft”

**Visit of the Former Site of
Nepomuk Bridge**
Discussion with Dr. Ulrich
Eltgen and Wilfried Donner

March 23rd, 2024
DAY 2
Aachen

Workshop

Marie Baudis
ICOMOS DE
Arbeitsgruppe Klimawandel

Helen Graser
Abriss Atlas
Architektenkammer

Judith Sigel
Student in Futur[Ahr]-Projekt

Adelaide Di Nunzio

The first day of the Spring School included a joint excursion to the Ahr Valley. The tour covered Bad Neuenahr-Ahrweiler, Dernau, and Rech. In addition to impressive insights into the extent of the destruction and the rebuilding efforts, the participants were able to deal in detail with the workshop's case study. The controversial demolition of the historic Nepomuk Bridge, its process, and its handling were a focus of the Spring School. This illustrated the complexity and multifaceted nature of the discourse. The students received comprehensive information and insights from experienced experts on site.

On the second day, all participants gathered at the RWTH Aachen to receive further input through several lectures. These provided more profound insights into the current knowledge on heritage conservation and climate change, possible adaptation strategies, documentation methods for demolitions, and ideas for assessing damage after natural disasters. Additionally, the knowledge about the

March 24th, 2024
DAY 3
Aachen

Gregor Stolarski
Gutachter für die
Nepomukbrücke
Deutsche Stiftung
Denkmalschutz

Groupwork 1

Groupwork 2

Groupwork with Supervision

Groupwork 3

Group Results

Groupwork 4

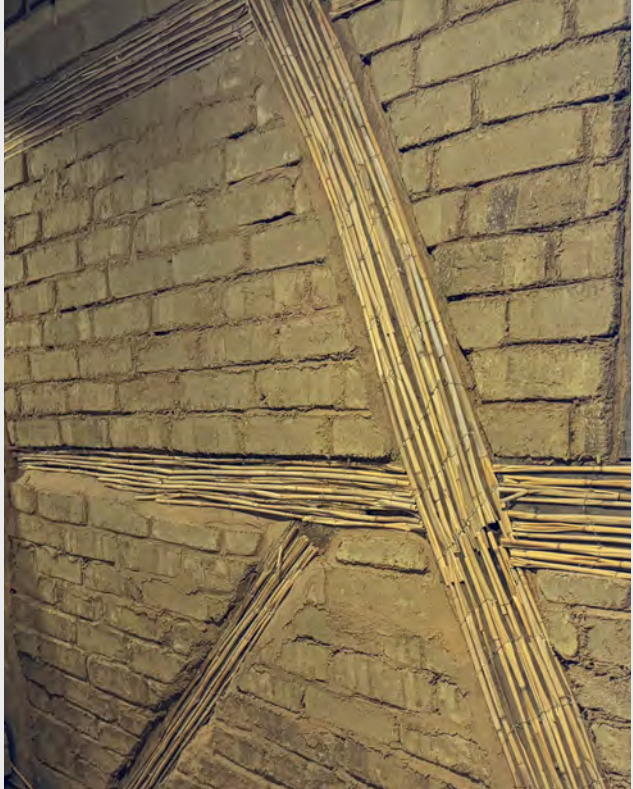
Final Presentation and Discussion

Nepomuk Bridge was deepened by a lecture on the bridge's assessment report. After a joint discussion and exchange session, students were divided into small groups to develop solutions for the future handling of the bridge's issues. The task aimed to raise awareness of the importance of heritage conservation and the challenges of preserving historic sites and structures in the face of the negative impacts of climate change, and to promote ideas for a livable future.

After another working phase the following day, the Spring School concluded with the presentation of the group results.



08
Altenahr, inputs from the local entrepreneurs



09
Dernau, visiting a restoration project



10
Visiting Rech

11
Visiting Rech



Insights and Perspectives: Expert Contributions



14
Students during the visit to
the Ahr Valley with Dr. Ulrich Eltgen

*Preserving Heritage and Redefining Reconstruction:
Challenges and Strategies in the Post-flood Recovery of the Ahr Valley*

Ulrich Eltgen

*Regenerating and Destroying Nature:
Traces – Photographic Method of Post-disaster Observation*

Adelaide Di Nunzio

Abriss-Atlas

Helen Gräser

Concerning the Rescue of the Historic Bridges of the Ahr Valley

Gregor Stolarski

Ulrich Eltgen

Preserving Heritage and Redefining Reconstruction: Challenges and Strategies in the Post-flood Recovery of the Ahr Valley



15
Students during the visit to
the Ahr Valley with Dr. Ulrich Eltgen

Since the disastrous flood devastated the Ahr Valley, causing significant loss of life and extensive damage to infrastructure and cultural heritage, the voluntary restoration efforts have focused on repairing damaged monuments, such as the 17th-century Hubertus Chapel in Hönningen, and advocating for the preservation of historic bridges in the region.

While surveying flood-affected areas from the eastern Bundesstraße 257 [Federal Highway 257] in Hönningen, restoration specialists identified the partially damaged Hubertus Chapel on the western bank of the Ahr River. The flood inflicted severe damage on both the chapel's architectural structure and its interior. In collaboration with local authorities, various restoration measures have since been implemented, including work on the altar base, the altar itself, and several small sculptures. Other voluntary projects have included the restoration of the 19th-century Quirinus statue at the Schützenmuseum Ahrweiler [Ahrweiler Museum of Marksmen] and conservation measures at the Wegekapelle [wayside chapel] in Mayschoß.

In the summer of 2022, a week-long training and restoration program was conducted in collaboration with the Jugendbauhütte [Youth Masons' Guild] of the Rhineland, focusing on the interior and exterior of the Hubertus Chapel. Similar flood-relief camps in June 2023 and June 2024 supervised restoration and conservation efforts across multiple architectural sites in the Ahr Valley. Numerous heritage sites in the lower and middle Ahr Valley benefited from these efforts, which addressed damaged historic fabric with the assistance of volunteers from the Jugendbauhütte. Simultaneously, further assessments of damaged cultural assets were conducted across the region.

Through a local citizens' initiative in Dümpelfeld, attention was drawn to the historic railway bridge from 1910 and emphasized the far-reaching challenges associated with the demolition of preserved stone arch and iron railway bridges in favor of modern concrete and steel replacements. Current plans for flood protection in the state of Rhineland-Palatinate, which also include the electrification of the Ahr Valley Railway, envisage the demolition of all historic bridges in the region.

The Ahr Valley presents a complex dynamic between the renewal of infrastructure, such as bridges and new constructions, and the undervaluation or demolition of historic regional architecture. Conflicting interests illustrate the challenges of preserving architectural heritage amidst rapid and often inadequately planned reconstruction efforts. Shortly after the flood, the Deutsche Stiftung Denkmalschutz [German Foundation for Monument Protection] sent experts to the Ahr



16
Hubertus Chapel in Hönningen



17
Railway bridge in Dümpelfeld

Valley to provide direct and unbureaucratic financial assistance to owners of historic buildings affected by the disaster. Additionally, the foundation used its Jugendbauhütte as a mobile task force to work at various sites across the region.

Currently, visitors to the Ahr Valley encounter a juxtaposition of preserved historic structures and modern architectural infill. This situation offers an opportunity to redefine the integration of monument preservation and context-sensitive modern construction. Guided tours for various visitor groups have highlighted examples of oversized concrete structures disrupting the character of historic towns such as in Dernau, as well as standardized new constructions in towns such as Hönningen and Mayschoß. Positive examples of moderate modern architecture that blend in with historic styles are documented in a publication by the lower monument authority of the Bad Neuenahr-Ahrweiler district administration. These examples emphasize the exterior architecture and the use of regional materials as models for integrating future construction projects into established local contexts.

Guided visits to restoration sites in the lower and middle Ahr Valley have introduced professionals, academics, and private individuals to monument conservation efforts in the region. For example, in summer 2022, architecture students from the University of Frankfurt explored the relationship between moderate new construction and historic regional building culture. Subsequent tours included experts from the Universities of Stuttgart and Mainz, who assessed

current reconstruction efforts and the preservation of heritage sites. In spring 2023, a focus on the interplay between tourism and architecture in the Ahr Valley was examined during a visit by students from the University of Mainz' Department of Tourism. These efforts reflect a growing interest in balancing new construction with the preservation of cultural identity, particularly in regions like the Ahr Valley where tourism and viticulture are closely linked.

Despite these efforts, there is currently no overarching architectural master plan for the Ahr Valley, nor a comprehensive emergency framework for protecting cultural heritage during future disasters. To address these gaps, the Verband der Restauratoren [Association of Restorers] presented a developing catalog of emergency measures for cultural assets at the European Heritage Fair in Leipzig in 2022. This catalog, expected to be digitally released by late 2024, aims to provide practical guidelines for responding to large-scale heritage crises, including protocols for mural paintings, stone sculptures, architectural finishes, and stucco work.

On March 22, 2024, as part of the ICOMOS EPWG Spring School, a site visit to the Ahr Valley highlighted key issues such as flood protection, monument conservation, and the integration of modern architecture into historical contexts. During this excursion selected architectural examples were used to illustrate restoration techniques, material science, and damage patterns, providing participants with valuable insights into the challenges and opportunities of reconstruction in the region.

The ongoing architectural developments in the Ahr Valley underscore the need for comprehensive collaboration among stakeholders. For the region to emerge as a model for sustainable cultural tourism and context-sensitive rebuilding, interdisciplinary cooperation between government agencies, local authorities, architects, and heritage professionals is essential. Organizations such as the Deutsche Stiftung Denkmalschutz and the Verband der Restauratoren have long called for coordinated measures involving representatives of the state government, flood protection authorities, and local municipalities, to ensure a balanced approach to rebuilding and preserving the valley's cultural identity.

Adelaide Di Nunzio

Regenerating and Destroying Nature: Traces – Photographic Method of Post-disaster Observation



18
Lecture by Adelaide Di Nunzio

Jules Verne's words "The creative force of nature overcomes the destructive instinct of man" echo in the aftermath of disasters like the 2021 Ahr Valley floods. Neglecting preventive measures led to devastation, with villages like Mayschoß and Altenahr losing homes, livelihoods, and cultural landmarks, such as the historic Nepomuk Bridge in Rech. The river's overflow produced tributaries of rubble and took with it much of the identity of the community and of the places. Tourist activities were also affected, with hotels destroyed, leaving behind ghostly images of places no longer inhabited.

In a similar way, although several years earlier, an earthquake devastated the city of L'Aquila and the villages in the Crater (*I comuni del cratere*) in 2009, destroying not only the houses but also the communities, their history and even their daily lives. Thus, the shared memory of the tragedy became part of the identity of the places, just as it later happened in the Ahr Valley. The connection between these two places, although far apart, is very significant, because both

places have many points in common, both with regard to the hilly terrain, rural and agricultural aspects, and because there are small villages that have a strong identity, a sense of community and ancient traditions. In addition, they have experienced depopulation due to the movement of younger generations to urban centers, but they have developed a powerful desire for rebirth after the recent tragic events. The ruins that have emerged from these natural disasters put us in touch with the traces of lost history. They also have the power to help us imagine and even anticipate a future resurgence and heritage in the perspective of an ethical design that respects the community as an identity, but at the same time evaluates possible scenarios that appeal to outcomes limited by the era of uncertainty, in which urban interventions accept a third dimension that is the form of experience and the principle of organizing perception. This new adaptive form accepts uncertainty as a component of planning, provides for a series of hypotheses and submits them to a democratic debate.

Ruins attract people because like sublime nature, we cannot control them completely. Somehow, they escape our urge for control but at the same time connect us in an emblematic way to something that is other than us but that we feel with our body. The eye allows us to select images and imprint them in us as inspiration and source of further subtle knowledge.

The seminar "Traces" stems from this need: to develop a didactic methodological strategy aimed at an ethical reconstruction design which, starting from the observation of the territory through the photographic tool for the revelation of traces after an environmental disaster, allows a careful and sensitive recognition of the architectural, structural and atmospheric details of places. Photography not only has the value of documentation and representation but is also a dynamic tool for connecting and revealing atmospheres, history and shared memories.

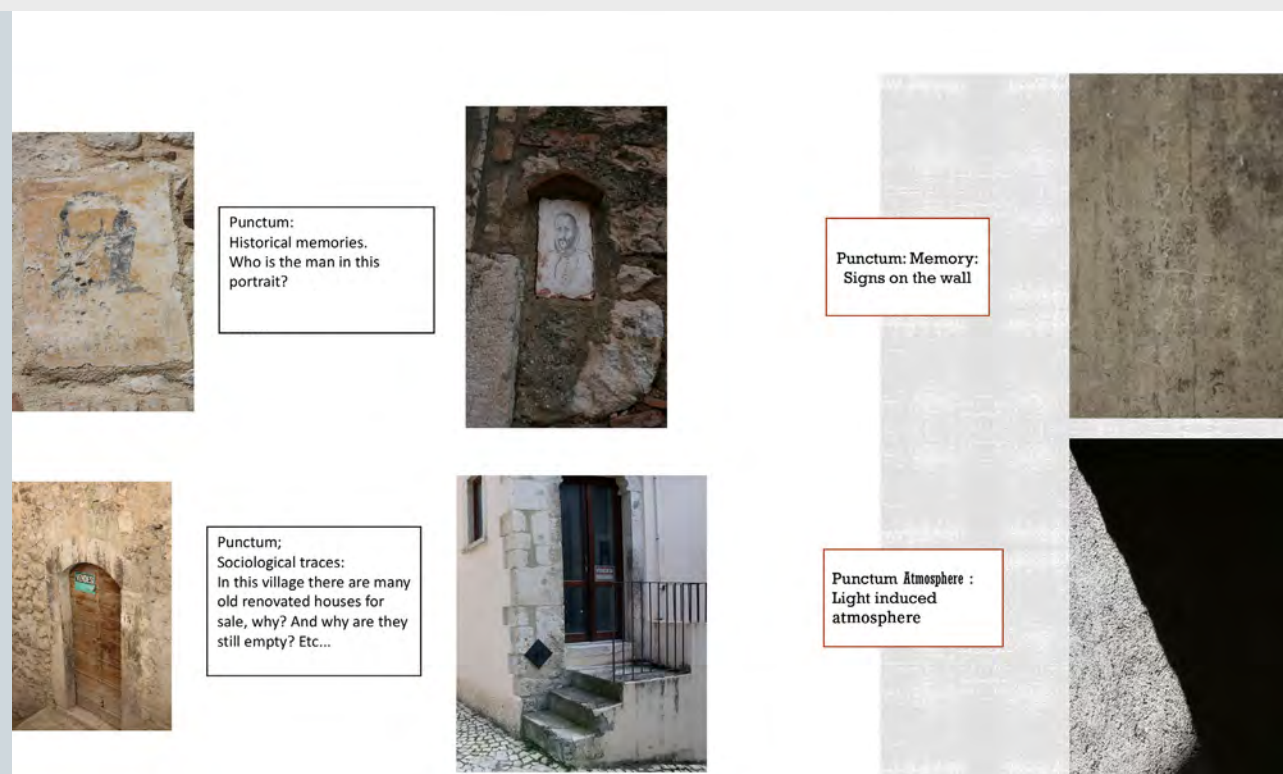
Traces are details that emerge from structures and places that talk to us by asking questions and giving us the opportunity to increase our knowledge. Traces can be of a structural, material, architectural kind, but they can also be objects, ordinary structures, signs on the ground, empty spaces, silhouettes on walls, and traces of 'atmosphere', even immaterial (i.e. not visible).

In addition to giving us objective information especially about architecture, materials, the environment and the weathering or fragility of materials, traces tell us about historical memory, whether it is official or shared by communities.

The 'punctum' in the revelation of traces

Furthermore, as Roland Barthes describes in his book *Camera Lucida: Reflections on Photography*, the 'punctum' emerges when using photography, i.e. a detail that reveals us more, opens up more intimate channels of knowledge which have the power to align our semantic, archetypal and affective experience with what we observe, so that we can reflect and ask ourselves questions that we necessarily have to answer. As suggested by Federico De Matteis in his book *The Affective City*, the method of observing the traces is developed as a pilgrimage, as the need to walk and traverse slowly without an aim, the only objective being to get to affectively know the place and space. Moreover, the methodology makes use of an initial part of physical contact with the place through touch.

Italo Calvino writes that one must learn to "look". The "Traces" observation methodology serves this purpose, so that the photographic eye does not produce a static type of archival documentation, but a dynamic and complex system of investigation.



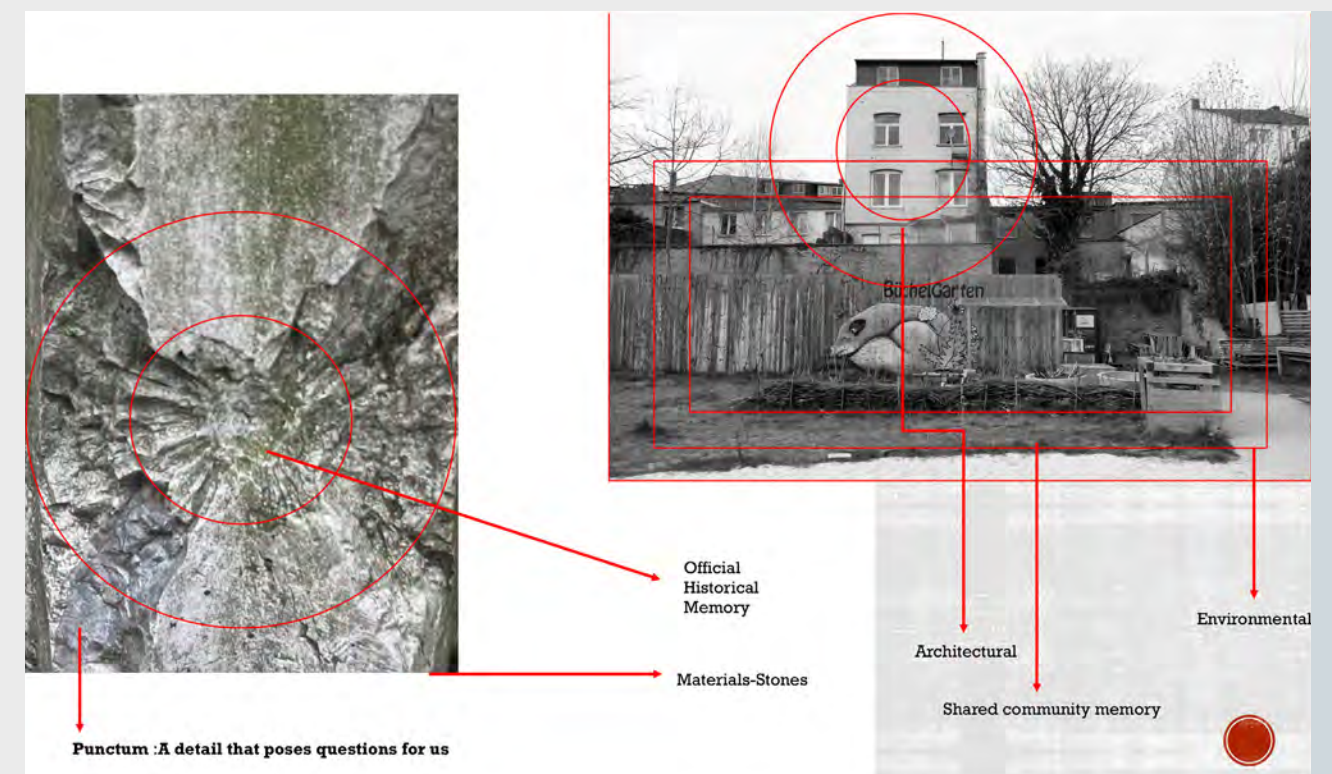
19
Scheme for revealing traces from images

Revealing the types of traces through the analysis of the photographs produced

In his book *Viaggio in Italia* (title in reference to Goethe's book) Luigi Ghirri, one of the most internationally renowned Italian photographers, talks about an Italy of ordinary landscapes, where objects, places and the suburbs become the true Italian portrait, instead of the well-known historical monuments which usually represent the identity symbols of cities. "Observation Education and Visual Awareness" is no longer a mere goal but an urgent necessity (Aby Warburg, Bilderatlas Mnemosyne).

In connection with the territory, building a collection of visual "Traces" through the dynamic photographic act is the means to implement a cognitive tool for an affective mapping of places for reconstruction after an environmental disaster, which can ideally counteract the architectural havoc and violence against historical and social memories that are often the result of a materialistic system based on utility, politics and money.

It is essential to expose oneself to the gaze of experts in order to build an active and modifiable memory over time, one that incorporates a strong ethical and aesthetic code.



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Scheme for revealing traces from images

Helen Gräser Abriss-Atlas



21
Helen Gräser on the Abriss-Atlas
during the workshop

The construction industry in Germany generates 7.3 tons of waste every second, amounting to a total of 222 million tons annually. The logic of the fossil-fuel-based modern era still relies on principles of demolition and new construction, resource extraction, and the destruction of buildings that no longer meet their owners' "requirements". Architecture and urban planning continue to operate according to these principles, which are still common practice in Germany's construction industry – an industry often seen as the universal solution to societal challenges. As a result, the building sector accounts for approximately 40 percent of Germany's CO₂ emissions and nearly 90 percent of its mineral resource consumption.

Each year, 14,000 buildings are officially reported as demolished in Germany. While this is already a significant number, it is far from accurate. Estimates by the Federal Statistical Office suggest the real figure could be up to four times higher.

Since September 2023, the Abriss-Atlas [demolition atlas] Germany, inspired by its Swiss counterpart (Abriss-Atlas.ch), has been collecting and visualizing buildings threatened by or lost to demolition in a participatory manner. Initiated by a coalition of architecture, cultural, and environmental organizations – including the Bund Deutscher

Architektinnen und Architekten BDA, the Deutsche Umwelthilfe, Architects 4 Future, Leibniz University Hannover, and various heritage protection groups – it serves as both a tool for documenting demolition activity and a platform for telling the stories of affected buildings, particularly those that might otherwise escape public attention.

In addition to recording, documenting, and visualizing, the Abriss-Atlas underscores the need for a radical rethinking of approaches to the built environment. It calls for a paradigm shift across the construction industry, politics, and society to move away from the narrative that demolition and new construction are the only viable solutions for existing buildings. Instead, it advocates for a culture of respecting, maintaining, and repurposing existing structures – a vision outlined by the BDA as early as 2019 in their "House of the Earth" initiative. Such a shift demands significant societal, cultural, legal, and political changes. While this topic is increasingly dominating the professional discourse among planners, it is insufficiently taken into account in practice. Demolition and replacement are still the norm. This stems from multiple factors, including a lack of appreciation for existing structures. The modern ideal often equates "new" with "better," dismissing the value of preservation. Another factor is how easily demolitions can be justified to the public, particularly when dealing with post-war modernist architecture. In public debate, these buildings are often associated with pollution, poor construction quality, and unattractive designs. However, claims about e.g. hazardous materials and high emediation



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On the interactive map of the Abriss Atlas (Demolition Atlas), anyone can document buildings at risk of demolition or already demolished. www.abriss-atlas.de

costs are misleading, since the contamination must be addressed during demolition as well.

The narrative of demolition as unavoidable is further bolstered by economic and sustainability studies that rely on flawed metrics. Comparisons often focus exclusively on operational energy and ignoring embodied energy, resource use, and waste production, thereby unduly favoring “energy-efficient” new construction. Similarly, economic evaluations equate profitability – defined as return on investment – with necessity, overlooking real priorities and labeling anything “unprofitable” as expensive. Moreover, expensive renovation costs often result from neglect rather than inherent building issues – expenses that could be avoided through consistent maintenance over time.

In evaluations of existing buildings, the cultural and social values – key factors for a high-quality built environment – are often entirely overlooked. In a profit-driven construction industry, these aspects seem to have no place. Yet they represent a straightforward, sustainable approach: buildings that are beautiful and culturally significant are more likely to be cared for and maintained. Structures with a history, those to which people feel connected and which are embedded in collective memory – whether on a neighborhood or broader scale – have a better chance of survival.

A significant part of the current problem lies in building regulations. In many cases, demolitions require no approval – only notification – while loopholes allow protected structures or affordable housing to be replaced with luxury developments, leading to social displacement. In contrast, renovations or conversions are often legally more challenging, because restrictive regulations for new

construction are difficult to comply with in existing buildings and costly deviation requests are required that deter investment. As long as demolition and replacement are perceived as the easier legal and economic path – and as long as demolitions can be publicly justified with arguments like “existing structures must make way for sustainable new buildings” – it is difficult to fault profit-oriented investors for choosing this route. It’s important to note that demolition does not only affect dilapidated buildings.

There are, however, reasons for hope. Numerous exhibitions, initiatives, events, and publications in recent years have highlighted alternatives to demolition. A societal paradigm shift can be achieved through increased awareness of the value of our built heritage. This is, above all, a communicative challenge.

The Abriss Atlas contributes to this effort by visualizing the scale of unnecessary demolitions, documenting the loss of various buildings and their histories, and promoting a broader conversation about preservation. In addition to such discursive, awareness-raising approaches, action is needed at the political and legal levels. Effective tools already exist to make demolition harder and renovation easier.

For instance, there are widespread calls for a renovation code to complement state-level building codes, alongside the introduction of a demolition permit requirement. In contrast, the introduction of a mandatory demolition permit could significantly complicate demolition practices. Planned demolitions would need to be formally applied for and justified, and lifecycle assessments that consider the entire lifespan of the building could be required as part of the justification. A 2022 report by the Deutsche Umwelthilfe [Environmental Action Germany] (DUH) demonstrates that such a measure would be legally feasible. A demolition moratorium, as initiated by Alexander Stumm in 2022, could provide the necessary framework to implement these processes.

To conclude, one of the rare success stories of preservation is the Landesbehördenhaus [state authority building] in Bonn, a building saved from demolition through joint efforts. This proves that change is possible when action is taken.



23
Built in 1975 by architects Ernst van Dorp, Rolf Altmann, Kurt Kleefisch, and Eberhard Rüttgers, the Landesbehördenhaus in Bonn was initially slated for demolition as part of the “New Quarter Federal District” redevelopment.

However, after Cityförster presented three planning proposals, a recommendation committee, appointed by the Bonn City Council and led by Prof. Christa Reicher, endorsed the Urban Modules concept, which retains the currently vacant building for further development.

Gregor Stolarski

Concerning the Rescue of the Historic Bridges of the Ahr Valley



24
The Nepomuk Bridge in Rech

Extreme rainfall in the summer of 2021 led to a disastrous flash flood in the Ahr Valley, causing loss of life, the collapse of infrastructure, and irreversible damage to monuments, with recovery expected to take years. Despite the extensive loss brought by the flood, municipalities and communities in the valley urged for a change. Local authorities blamed old bridges, especially arch bridges, for being responsible for the disastrous damage. Soon after, without careful surveys and thorough studies all the historic bridges were put on the demolition list. Minor damages served as justification for the hasty demolition of historic early engineering and railroad construction examples, which are true landmarks. The urgent desire to build new bridges was also strongly politically driven by the available special funds for flood relief, in addition to other goals for a large-scale “restoration of the river” and the infrastructure.

An alternative, independent analysis focused on the possibilities of conservation and engineered preservation of endangered bridges, among them four arch bridges: the Nepomuk Bridge in Rech, the bridge at the Steinbergsmühle in Dernau, the Domhof Bridge in Schuld, and the old railroad bridge in Dümpelfeld. *The Deutsche Stiftung Denkmalschutz* [German Foundation for the Protection of Monuments] organized and funded the project. The team included civil engineers specialized in

protecting and conserving historic structures, including hydro technicians and restorers of masonry.

The work comprised thorough analyses of the current condition of the bridges and an assessment of the damages. A significant focus was on field studies of the dynamics of the Ahr river during the flood to understand what the role the historic structures played, if any, in exacerbating the flood impact. The two bridges in Rech and Dernau stand for a robust flood-surviving technique of particularly beautiful and simple local stone masonry, as the structures sustained numerous floods. The bridges in Schuld and Dümpelfeld are outstanding structural and architectural examples, as they were built of concrete and partly covered with ashlar in the aftermath of the 1910 flood. To mitigate future floods, the railroad engineers accordingly designed a particularly wide and high triple-arch bridge in Dümpelfeld. The current Domhof Bridge in Schuld is a reconstruction of the former bridge that was damaged by the 1910 flood. For the design of this bridge, the authorities then already requested the use of local stone masonry as a compulsory cover for the façades.

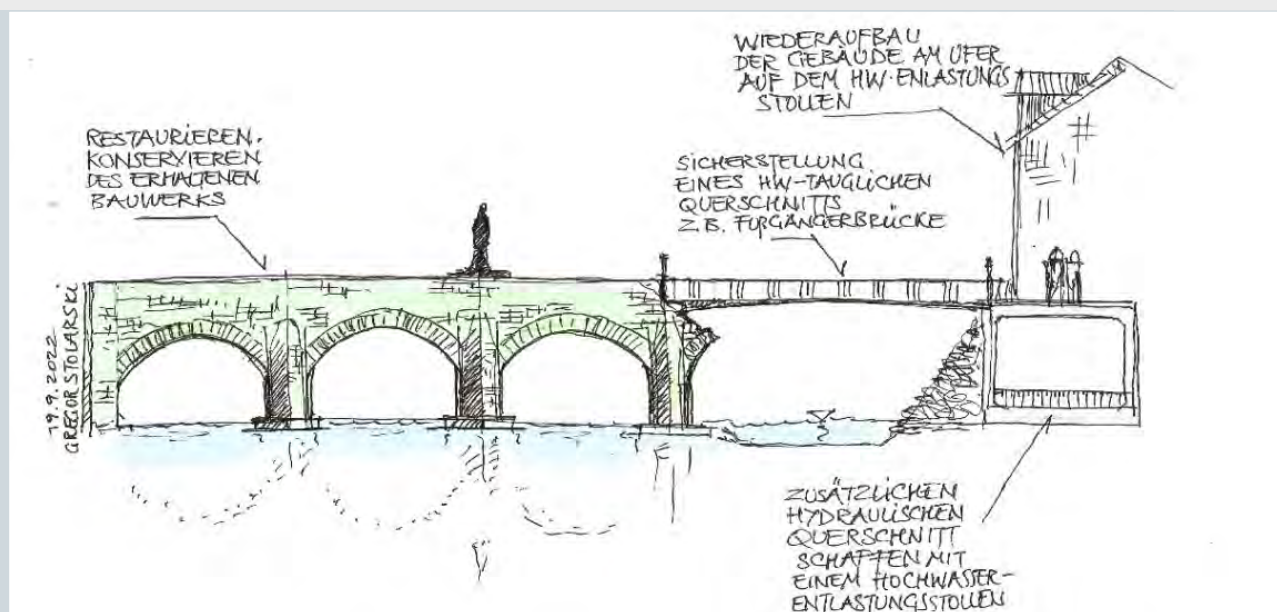
The analysis furthermore surveyed the condition and recorded the damages of the four selected bridges after the 2021 flood. A strong tsunami-like wave rolling on top of the high-water level caused by the collapse of a railroad bridge further upstream severely damaged the Nepomuk Bridge, resulting in the loss of the right abutment and the right arch. The study showed that the course of that wave, which was well documented and recognizable from the damages, was not included in the numerical modeling of the flood that was used to justify the demolition of the bridge two years after the flood. Dating back to the middle of the 18th century, the bridge featured numerous structural improvements to the foundation following careful maintenance and repeated repair after flood damages. These improvements were unveiled during the inspection. The underwater examination and reports show that the bridge's structural integrity after the 2021 flood was unaffected. This would have allowed for a full restoration, structural repair and a further use of the bridge. Damages caused by the flood on the right riverbank could have been used for highwater-bypasses in the event of a flood and, simultaneously, could have served as a safe foundation for new houses. After all the debates, the demolition of the most beautiful bridge in the valley was a political decision that left open controversies and divides the local community.

The bridge in Dernau, similar to the Nepomuk Bridge, had suffered only minor damages to the parapet. In recent decades, parapets were newly constructed with steel ropes built inside them that meet the standards for withstanding a collision with vehicles. Strongly reinforced parapets also would not yield to flood pressure and collapse. The built-in reinforcement contributes to higher water rise at such bridges. In Dernau, the left riverbank offers space for the

construction of flood bypasses. The inspections of the bridge have opened possibilities for restoration and preservation.

The railroad bridge at Dümpelfeld has been out of service for the last 50 years with no proper maintenance and has been quite forgotten. Designed by the engineers who witnessed the flood of 1910, the bridge is a rare example of combining the traditional architecture of arches with a sufficient hydraulic capacity of large dimensions and arches on land in the inundation areas. This monument of technology has been preserved unchanged with original concrete and facades made of local stones. Strong currents during the flood of 2021 caused serious and deep cavities under the pillars protected by the wooden sheet piles. While restoring the original concrete and masonry should pose no problems and may be reduced due to the robust structure and good condition attested, filling the cavities under the pillars will be quite challenging. Political aspects of a free demolition of the bridge covered by the flood relief budgets covered by the flood relief budgets continue to pose a serious risk to this important monument. Fortunately, independently financed detailed examinations of the bridge with the goal of its preservation are being carried out.

In Schuld, the bridge of 1910 suffered the loss of its entire top, including the road, the parapets and the facade of the arches. The bearing structure is made of early reinforced concrete. Due to the excessive traffic load, the concrete was already fissured in places before the flood. The bridge's parapets were not reinforced and collapsed under the pressure of water and floating debris, preventing a higher water rise. The structural concrete and masonry damages could be repaired, and the

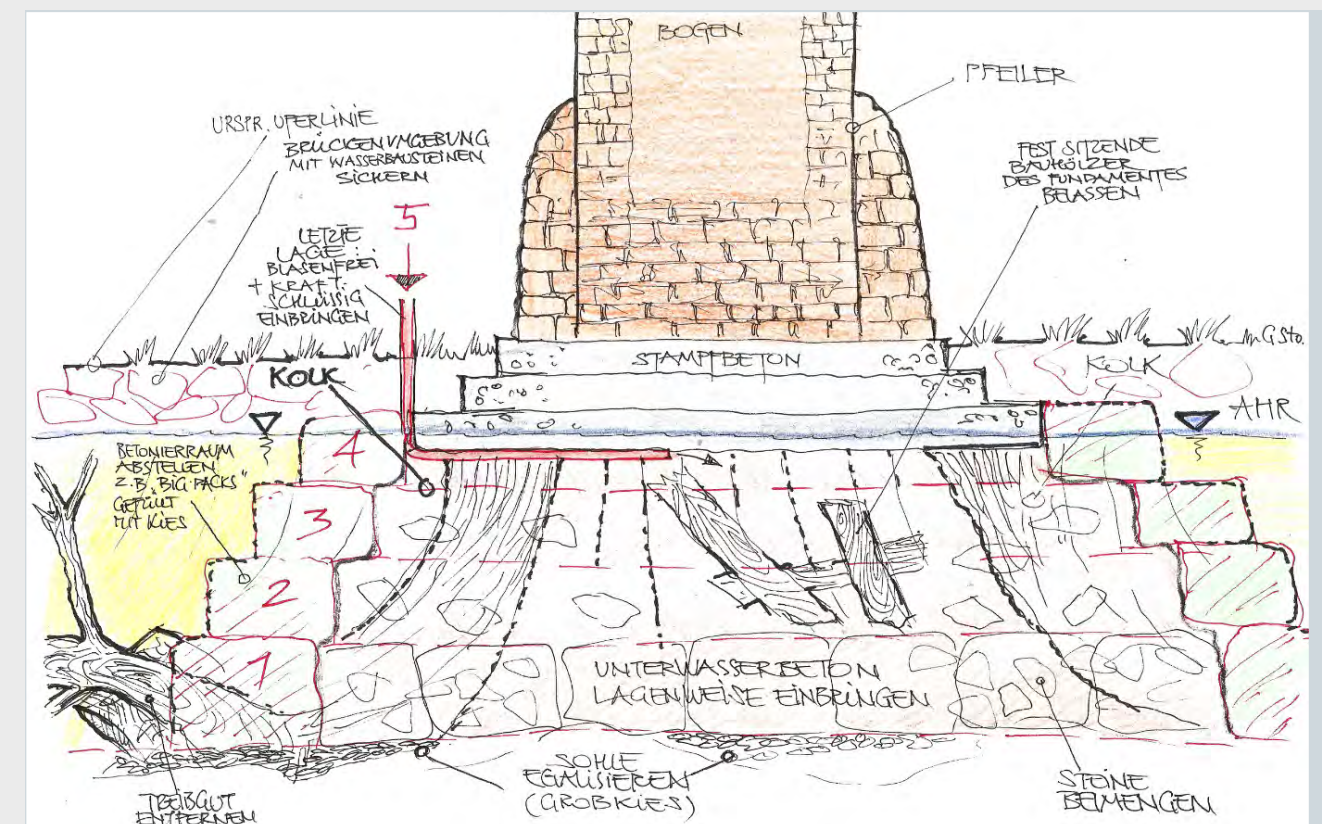


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One of the ideas for reconstruction and flood-bypasses on the right riverbank

bridge could be fully restored. However, the community prefers a new bridge with a higher load capacity at that location. The monument will, unfortunately, be demolished.

In the entire valley, new bridges are being constructed. They follow the most modern design with concrete slabs and will have large spans. The historic vaults and arches across the river Ahr will disappear except perhaps for a few and are still seriously endangered. Currently, methods of flood retention, bypasses, and changes in urban planning, which aim to reduce the impact of future floods, are being developed. Although too late for the Nepomuk Bridge and other precious old bridges, these new plans may hopefully help preserve the remaining few historic bridges in the valley. A broad, multidisciplinary forensic analysis of the actual impact of the flood on each location and the historic bridges could significantly contribute to the preservation of similar bridges elsewhere. The historic bridges are often unsuitable for a flood or flash flood: vulnerable foundations, unfilled old cavities, land arches, foundation areas blocked by sediments, and rigid parapets. These and other aspects are lessons that should be learned from the Ahr Valley disaster to prepare special maintenance and inspection processes for historic bridges and better protect these important monuments.



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A sketch of possible cavity filling under the bridge foundation in Dümpelfeld

Results



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Lectures during the workshop

All working groups produced remarkable results and sophisticated ideas within a short period. The outcomes have shown possibilities and potentials for handling our built cultural heritage in the face of climate change.

Social and Societal Aspects

Group 1

New Design for the Nepomuk Bridge

Group 2

The Loss of the German Heritage

Group 3

Group 1

Social and Societal Aspects



28
Group 1

The group comprising Rebekah Mills, Domenica Noboa, Narmada Hansani Polgampalage, Sophia Salim, and Cansu Türker focused on the **social and societal aspects** of a natural disaster. To this end, they looked at the historical context, the stakeholders, the social and political network, and the unique features of the region.

The Ahrtal flood showcased the region's remarkable solidarity and the strength of its support systems. This resilience stems partly from longstanding associations and organizations dedicated to mutual assistance, such as Technisches Hilfswerk and fire brigades. Additionally, many other volunteers stepped up to provide aid during and after the disaster. The group also worked out that it is important for a successful support system that the community was developed before the crisis so that it could then fall back on the existing structures. Likewise, aid should be provided acutely during or shortly after the disaster to enable long-term and sustainable support afterwards. Communication is the key to success for all these measures and structures.

Another critical factor for a successful support system is cultural heritage. It has proven to be a unifying force that fosters collaboration and strengthens efforts to rebuild and support affected communities. Using the Nepomuk Bridge as an example, the group worked out that our cultural heritage has the power to connect people, bring them together, and stand up for shared values and memories.



1482

Rech became as a part of Saffenberg estate.

1482

Rech was first mentioned in the registers of the Princes of Metternic.

1704

The Saffenburg was destroyed.

1720

The church of St. Luzia was built.

1723

Construction work began on the stone Ahr Bridge. (Nepomuk Bridge)

1759

The bridge structure was replaced by two arches made of rubble stones

1804

River partially flooded the town due to driftwood accumulating in front of the bridge arches and destroyed one arch, two more arches were added

1910

The great flood happened. (Nepomuk Bridge was the only bridge that was survived)

1919

The original stone figure of St. Nepomuk, which was erected on a parapet in 1789, was thrown into the Ahr by American occupying troops in 1919 and destroyed.

1920

The Eifelverein (Hiking Club) donated a new, 1.7 meter high figure made of basalt.

2008

Extensive renovation work was carried out (934.000 Euro)

2021

The tidal wave and flooding of the Ahr after heavy rain on July 14th and 15th caused significant destruction and damage in the village. The stone bridge is damaged. Volunteers started to work on the site. Metal bridge has been constructed in November.

2023

The mayor of Rech, Benjamin Vrijdaghs, resigned at the end of April in the dispute over the preservation or demolition of the flood-damaged Nepomuk Bridge.

2024

**Develop Community Structures before Disasters**
It is important to plan for future disasters and community agencies that can be activated should be included in this planning

**Stakeholders are needed for Immediate Action and Long-Term Solutions**
Disaster relief requires both immediate action and long term assistance. It is important to acknowledge who can provide assistance for continued support

**Cultural Heritage is the Connection**
Instead of being an afterthought, using a cultural heritage framework for crisis planning connects stakeholder interests

**Community Spirit is Key**
Community groups and local action are critical in rebuilding after a disaster. In many places, these groups already exist. Activating these organizations is important for crisis recovery

Sustaining the Cycles

Why People Live Here? What are the Shared Values?



Lucia Market
Veraison
Ripening
Harvest of Grapes
Shoots
Flowers
Wine Festival
Harvest of Grapes
Ripening
Veraison
Green
Hiking Days

"NEPOMUK BRÜCKE"

AS A MOTIVATIONAL CASE STUDY OF SOCIAL COHESION AND AWARENESS FOR SHARED VALUES, SOCIAL MEMORY, FEELING OF BELONGING AND COMMUNITY-BASED CONSERVATION OF CULTURAL HERITAGE, AND COMING TOGETHER FOR DISASTER RELIEF



CULTURE AS A DEVELOPMENT DRIVER

- TOURISM
- WINE PRODUCTION
- CONSTRUCTION INDUSTRY
- TRANSPORTATION

SOCIAL COHESION EFFECT OF HERITAGE

- SOCIAL AND POLITICAL WEBS
- GOVERNANCE SYSTEMS
- VOLUNTEER-BASED FIRST RESPONDERS
- DECISION-MAKERS

SOCIO-ECOLOGICAL SYSTEMS

- IMPACT ASSESSMENTS OF RECONSTRUCTION MEASURES
- ACCEPTANCE AND RECONCILIATION

Group 2

New Design for the Nepomuk Bridge



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Group 2



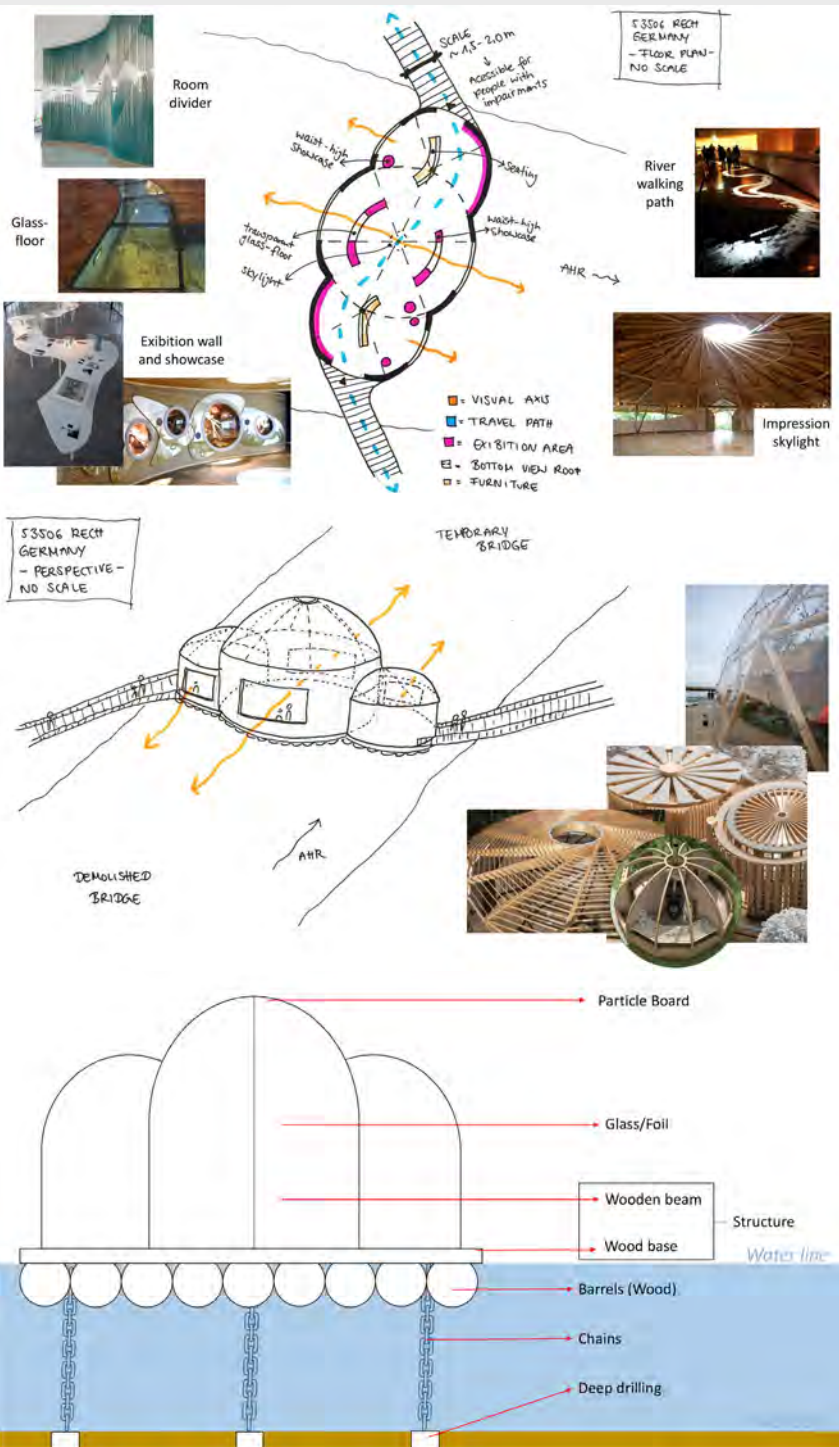
Niklas Bulla, Franziska Prell, Samayro Saif, Ho Wing Choi, and Ava Omid developed an **architectural design** for a new Nepomuk Bridge. This design was intended to evoke both the historic structure and the flood itself, while also creating a new meeting place. Their idea consisted of three pavilions floating on the Ahr, symbolizing vulnerability and a resilient solution for the future.

The design emphasizes flood safety through measures before, during, and after the disaster. This includes comprehensive risk assessments that analyze hazards, sequence of events, vulnerabilities, and degrees of exposure. The project evaluates potential impacts on heritage attributes, associated values, safety, the economy, livelihoods, and the social structure. It considers the short-, medium-, and long-term consequences for cultural heritage using socio-spatial mapping techniques.

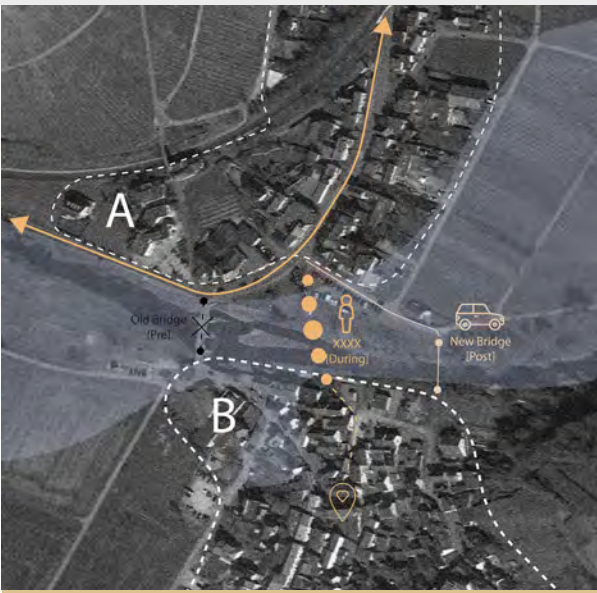
A prominent feature of the bridge design is a glass floor that allows visitors to engage directly with the river below and that symbolizes transparency and resilience. Exhibitions and showcases within the pavilions narrate the history of disasters and conservation efforts in the region, offering insights into previous interventions and new developments at the site and its surroundings. The team critically evaluated existing disaster management policies, emergency response facilities, and institutional frameworks while also assessing the degree of potential loss of values associated with the site. A value assessment for heritage highlighted attributes that need protection, ensuring a holistic approach to cultural preservation.

The Nepomuk Bridge also integrates an inter- and intra-village alert system tailored for the Ahr Valley. This system is intended for education, commemoration, and identity formation by preserving traditional skills and architectural styles. It fosters community connection by reflecting lessons learned from past generations.

The bridge will serve various users, including tourists and villagers, and aims to become a **landmark of resilience**. Funding sources are envisaged to include both local and international support to achieve its multifaceted goals.



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Results from Group 2



Site Plan



Infrastructure

Group 3

The Loss of the German Heritage



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Group 3



The group of Ali Mohseni, Anton Petrukhin, Benjamin Gabler, Joel Jöbgen, and Simita Purkayastha explored how the loss of built heritage is addressed, focusing on Germany's recent history, where various disasters required the construction of new buildings and infrastructure. They argue that there is a clear pattern in Germany's approach to reconstructing historic sites and monuments, particularly when later generations are disconnected from the original heritage.

Taking the demolished Nepomuk Bridge as an example, the group created a provocative photo composition imagining how future generations might want to reconstruct the bridge. Several examples from German cities illustrated the broader approach to heritage loss:

1. Berlin Palace (Stadtschloss): The palace, heavily damaged during World War II, was controversially demolished in the 1950s for ideological reasons in East Germany. The site was later occupied by the Palace of the Republic, which itself was destroyed in the early 2000s, partly due to asbestos contamination and to the building's incompatibility with the unified Germany's narrative. In 2021, the Humboldt Forum, a reconstruction of the palace, was completed as a cultural institution.

2. Hotel Lausitz, Cottbus: This hotel, built in the socialist style, was demolished in 1992, after Germany's reunification, and replaced by the modern Lindner Hotel. The official reason was outdated facilities, but the replacement suggests a desire to erase remnants of GDR architecture.

3. New Old Town, Frankfurt am Main: This controversial reconstruction project, completed in 2018, recreated parts of the historic city center destroyed in World War II. The new buildings mimic the old but clash with modern interior requirements and raise questions about the value of preserving historical identities through reconstruction.

4. Bauakademie, Berlin: Karl Friedrich Schinkel's iconic building, demolished in 1962 and later replaced by the Ministry of Foreign Affairs, has sparked ongoing debates about its reconstruction. For some years, a life-size model of the Bauakademie was displayed, calling for the building's complete reconstruction.

The group concluded that the creation, destruction, and recreation cycle characterize the life of historical monuments. They argued that monuments, originally symbols of their time, could be demolished due to shifts in the social or political context, as seen with the Berlin Stadtschloss. However, with the change of generations, new

interpretations of the past may emerge, leading to demands for the reconstruction of lost heritage.

Drawing on examples from across Germany, the group suggested that the demolition of the Nepomuk Bridge in the Ahr Valley was part of a broader pattern of loss and rebuilding. They emphasized the importance of recognizing the value of original artifacts, as noted by art historian Richard Hamann, who argued that “facsimiles of precious relics can never replace an original.”

„Facsimiles of precious relics can never replace an original“ Richard Hamann



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Results from Group 3



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Group photo



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Group photo

Necessity for Further Discourse: Reflections on the Findings



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Field Trip

The challenge of addressing heritage in the era of climate change and the disastrous impact on monuments attracted participants from around the world. The remarkable results of the workshop underline the success of the initiated discussion. The international background of the participants, from far East Asia to South and North America, also led to the groups achieving very different results, from historical analysis to future-oriented strategies, in a limited time. It was interesting to speculate on how the participants approached the complexity of the diverging understandings of heritage that arise from their backgrounds. At the same time, the demolition of the Nepomuk Bridge made the participants discover another layer of diverging values regarding heritage protection. This played an essential role in the conflicting ideas of different stakeholders: residents, local activists, politicians, experts, and others. In this context, it was of utmost interest to see how the participants urged to redefine the idea of heritage and underlined the need for new approaches to heritage conservation. When, at times of change, the question of heritage conservation takes on greater importance, it is crucial to have a form of management that takes into account the diverging values and addresses the needs of each stakeholder. This outstanding result provided the EPWG Team with a set of ideas for addressing numerous recurring questions related to heritage conservation and corresponding models at future events.

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