Event Report

REGENERATIVE FUTURES SYMPOSIUM

17-19 September 2025

BAUHAUS EARTH

The Bauhaus Earth Symposium on Building Practices of Transformation, Care, and Re-Entanglement

Project Funding

Bundesministerium
für Umwelt, Klimaschutz, Naturschutz
und nukleare Sicherheit

ReBuilt is funded by the German Federal Ministry for the Environment, Climate Action, Nature Conservation and Nuclear Safety (BMUKN)

Project Partners

KOTA KITA
A CITY FOR ALL

BAMBOO VILLAGE TRUST
Bamboo Village for Restoration Economy

KDA
KA-JA DESIGN ASSOCIATES

AFRICAN CENTRE FOR CITIES

Hochschule
für nachhaltige Entwicklung
Eberswalde

EW
E-WERK Luckenwalde
Kraftwerk & Kunstzentrum

Dark Matter 04 Labs

TONI PIËCH
FOUNDATION

Team

Diana Barrera
Francesca Brecha
Amelia Djaja
Albrecht Dobelstein
Cara Emberger
Felix Exton-Smith
Adrian Foong
Arushi Gupta
Patrizia Haggenmüller
Dr. Anne Holsten
Georg Hubmann
Tino Imsirovic
Alexandr Karpov
Kéan Koschany
Dr. Gediminas Lesutis
Dr. Chaohui Li
Prof. Dr. Philipp Misselwitz
Gian Marco Morigi
Nicole Mroczek
Nicole Pastrik
Tobias Seydewitz
Alisa Schneider
Kilian Schneider
Stepan Svintsov
Ramsha Tauqeer
Lily Teitelbaum
Lanhua Weng
Caroline Wolf

Report Editors

Amelia Mega Djaja, Georg Hubmann, Dr. Gediminas Lesutis, Barbara-Brigitte Mak, Lanhua Weng

BAUHAUS
EARTH

Content

About ReBuilt

Transformation Pathways Towards a Regenerative Built Environment (ReBuilt) promotes the novel concept of a regenerative built environment and demonstrates how it can be put into practice worldwide.

The research, roadmaps, toolkits, and policy recommendations generated in the ReBuilt project work towards reversing the negative impacts of construction on the climate through a fundamental change in the way we design and maintain our built environment and landscapes. The goal is to turn the built environment from a carbon source into a carbon sink through the adoption of regenerative building practices. In doing so, we can improve and preserve habitats for people and the planet.

Central to achieving this goal is the rethinking of construction materials and practices worldwide. In order to do so, the ReBuilt Project engages holistically with regional supply chains, including their socio-spatial, ecological, and political dimensions. We analyse and advocate for using bio- and geo-based materials, such as wood, bamboo, hemp, and earth, as well as secondary materials such as reused and recycled building components.

The ReBuilt Project has two research strands: a global study and a series of regional case studies. The **Global Study** quantifies the supply and demand of bio-based materials for future urban construction worldwide. The four **Case Studies** – Berlin-Brandenburg (Germany), Cape Town (South Africa), Denpasar-Bali (Indonesia), and Paro-Thimphu (Bhutan) – promote transformative action by engaging with local stakeholders, identifying opportunities, and testing them through demonstration projects.

The project aims to advance the adoption of regenerative building materials by combining quantitative assessments with qualitative field research at multiple scales. Our interdisciplinary and international team employs a variety of methods including lifecycle assessments, spatially explicit resource assessments, transformation labs, and participatory engagement. The results will be disseminated in various multi-media formats.

About the Symposium

Bauhaus Earth invited project partners as well as experts from science, practice, and politics to a three-day symposium at which the results of the ReBuilt project were presented and discussed. Over the past three years, the project has produced applied research in four case study regions, demonstration buildings, roadmaps, digital toolkits, political strategies, and a global supply-demand model for timber as well as LCA studies and regionally specific resource assessments. The **key results** were presented at the symposium, which allowed us to disseminate and discuss the topic of a regenerative built environment with experts, planners, funders, and policymakers.

The Regenerative Futures Symposium started with an evening event on Wednesday, the 17th of September, attended by more than 200 people. After an introductory greeting by Federal Environmental Minister Carsten Schneider, Prof. Dr. Dr. h. c. mult. Hans Joachim Schellnhuber held a keynote speech emphasising **the necessity of transforming the construction sector from a climate perspective**. This was followed by the presentation of key results of the ReBuilt project by Prof. Dr. Philipp Misselwitz, which served as input for a high-level panel discussion in which **key framework conditions for a regenerative future of construction** were discussed with representatives from politics, science, and practice.

Thursday, the 18th of September was dedicated to an international conference, attended by around 100 guests, that focused on the presentation and discussion of the most important findings from the ReBuilt case studies in Berlin-Brandenburg, Denpasar (Bali, Indonesia), Cape Town (South Africa), and Paro-Thimphu (Bhutan) as well as the quantitative global study.

On the 19th of September, several workshops took place to present the project results (global study, roadmaps, Bauhaus Earth Toolkit) to an expert audience, followed by formats for internal project reflection. The day ended with an experimental bioregional dinner.

The Symposium was dedicated to the question of **how nature-based materials for durable circular building products can become a decisive lever in global climate protection**. The goal was to build a shared understanding – across disciplines and society – of the potential of regenerative construction practices, in order to identify enabling conditions for transforming the construction sector.

Programme

Wednesday 17.9.2025	Positions on Regenerative Futures Exhibition Opening
Thursday 18.9.2025	International Conference: Practices accross Boundaries
Friday 19.9.2025	Launch of The Bauhaus Earth Toolkit Internal Workshop Exhibition Tour

Right: Symposium venue at Atelier Gardens
© Raquel Gómez Delgado

Day 1

Wednesday, 17th September 2025
Atelier Gardens, Haus 12

Positions on Regenerative Futures Exhibition Opening

Welcome Address

Carsten Schneider

Federal Minister for the Environment, Climate Action, Nature Conservation and Nuclear Safety

Welcome address by Carsten Schneider
© Raquel Gómez Delgado

In his Welcome Address, Carsten Schneider, Federal Minister for Environment, Climate Protection, Nature Conservation and Nuclear Safety, emphasised the urgent need to adapt cities to climate change by rethinking how we plan and build. He described the construction sector as a “sleeping giant” of climate policy, noting its vast resource use and emissions, and called for a decisive shift away from CO_2-intensive materials like cement and steel towards regenerative resources such as timber, bamboo, clay, hemp, and straw, which can act as carbon sinks. Highlighting the ReBuilt project by Bauhaus Erde as an international lighthouse initiative, he praised its role in researching regenerative, locally sourced building materials in Germany and across the globe, including Indonesia, Bhutan, and South Africa. Schneider underlined that such global knowledge exchange and innovation are essential to transform the construction sector from a major emitter into a driver of climate protection, while ensuring that future cities are both liveable and climate-resilient.

Keynote: Regenerative Futures

Prof. Dr. Dr. h.c. mult. Hans Joachim Schellnhuber
Founder Bauhaus Earth and Director General IIASA

Presentation by Prof. Dr. Dr. h.c. mult. Hans Joachim Schellnhuber
© Raquel Gómez Delgado

In his keynote, Hans Joachim Schellnhuber, founder of Bauhaus Earth and Director General of IIASA, warned that the global carbon budget for meeting the 1.5°C Paris target will be exhausted within two years, with climate tipping points threatening rapid and disruptive shifts to societies and infrastructures. He identified the built environment as the decisive lever for change – responsible for 40% of global emissions, over half of waste, and most mineral resource use, yet uniquely capable of becoming a vast carbon sink through the use of renewable, biobased materials such as wood. This transformation could shift the construction sector from emitting to storing gigatons of CO_2, while creating healthier, more beautiful places to live. Schellnhuber concluded by calling for a "Bauhaus Earth" of the 21st century, echoing the spirit of the original Bauhaus in uniting technology, functionality, and design to build for both people and planet.

From Vision to Practice: Insights from ReBuilt & Built by Nature Germany

Prof. Dr. Philipp Misselwitz
CEO Bauhaus Earth

Presentation by Prof. Dr. Philipp Misselwitz
© Raquel Gómez Delgado

Philipp Misselwitz, CEO of Bauhaus Earth, introduced the ReBuilt project by addressing the central question of whether future global building demands can be met with existing natural resources without depleting them. Using global modelling based on building typologies from four project regions – Berlin-Brandenburg (Germany), Cape Town (South Africa), Paro-Thimphu (Bhutan), and Denpasar (Bali) – the research team assessed resource availability, material requirements, and the implications for carbon emissions and storage. Findings suggest that many cities could already become pioneers of a regional material transition, with local timber and bamboo potentially covering much of future housing needs, though timber remains scarce and requires cross-sectoral negotiation. Scaling regenerative construction will depend on sustainable forestry, broader use of bio-resources, demand reduction through circular practices, and extending building lifespans. A key part of the project was the close collaboration with regional partners through regional *Transformation Labs* (*T-Labs*). These labs enabled co-creation with local stakeholders, in-depth exploration of available resources and traditional building practices, and the joint development of region-specific pathways towards a regenerative built environment. They also led to tangible outcomes, such as the construction of demonstration buildings like ProtoPotsdam and BaleBio, innovations in regenerative materials, and the formulation of four tailored roadmaps for transformation. The knowledge and methodologies generated in these collaborations are now being consolidated into the Bauhaus Earth Toolkit, which will be made publicly available online.

Panel Discussion

Bio-Based Construction – A Driver for Climate-Friendly Cities, Forests and Landscapes

Prof. Dr. Dr. h.c. mult. Hans Joachim Schellnhuber
Dr. Franziska Tanneberger, University of Greifswald
Vera Hartmann, Director Sauerbruch Hutton
Prof. Dr. Philipp Misselwitz, CEO Bauhaus Earth

Moderation: Laura Helena Wurth, Cultural Journalist

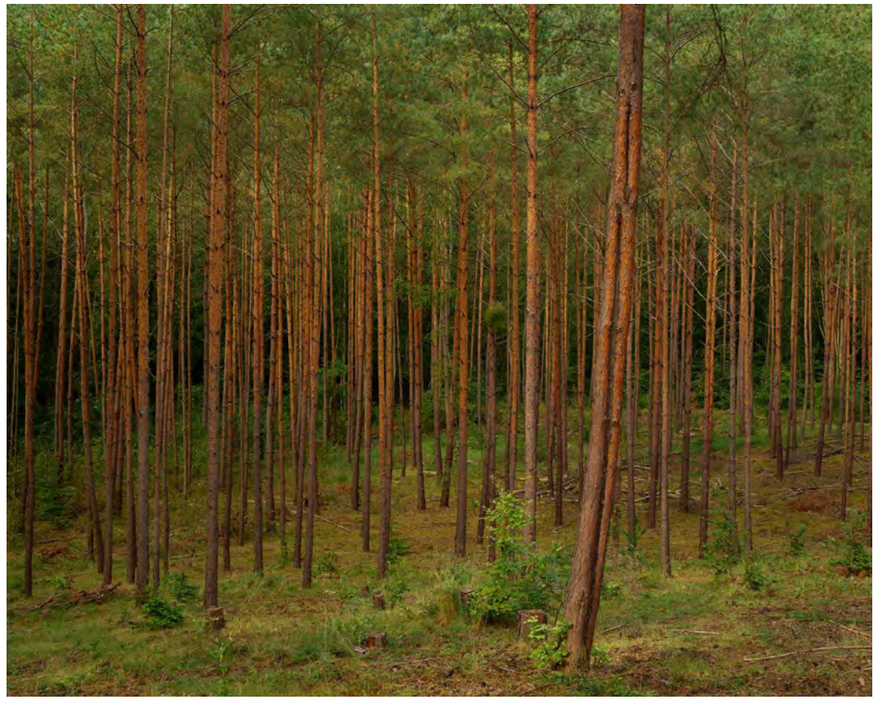
The panel brought together perspectives from science, architecture, and policy to explore how regenerative materials and building practices can transform the construction sector into a driver of climate solutions. Vera Hartmann highlighted the progress and challenges of integrating timber in architecture, stressing the need for stronger advocacy, industry innovation, and long-term building lifespans. Philipp Misselwitz emphasised that the aim must go beyond damage reduction to include ecosystem restoration and cultural regeneration, while Franziska Tanneberger pointed to the vast, underused potential of peatlands as carbon sinks and sources of renewable biomass. Hans Joachim Schellnhuber framed the built environment as the "elephant in the climate room," arguing that switching to sustainable materials can simultaneously address emissions, resource consumption, and the poor quality of much of today's built environment. He also stressed that the often-perceived opposition between land use and nature conservation is misleading: with climate warming on track for 3.5°C over land, many ecosystems cannot adapt quickly enough on their own. Proactive human support through forest conversion, rewetting of meadows, and ecosystem restoration is therefore essential.

A recurring theme was the need to overcome structural and cultural barriers: limited acceptance of natural materials, insufficient industrial capacity, and the erosion of traditional craftsmanship. The panel noted that architects play only a minor role in shaping the built environment globally, particularly in rapidly growing cities of the Global South, where informal and large-scale construction often bypasses professional design. Making renewable materials "aspirational" for the middle classes was highlighted as a key pathway. The panel also stressed the importance of political frameworks such as whole-life-carbon limits, but warned against waiting for policy alone. Instead, they called for collaborative innovation, from pioneering projects

and EU-level research partnerships to revitalising rural economies through regenerative value chains. Looking ahead, the discussion envisioned a "Bauhaus Earth" for the 21st century, where high-tech meets nature-based solutions, and where architecture not only stores carbon but also creates healthier, more beautiful, and socially resilient living environments. The motto should be: Not back to nature but forward to nature.

Exhibition Opening

The exhibition at Bauhaus Earth's *Regenerative Futures Symposium* brought together the organisation's latest research and projects, with a special focus on the ReBuilt initiative. At its heart were four striking photographs by Dutch photographer and artist Bas Princen, taken during field trips to regional case studies, revealing both the current local conditions and future potentials of a regenerative built environment. These visuals were paired with in-depth insights into the case studies and Bauhaus Earth's vision for systemic transformation. Additional highlights included research on compressed earth blocks, pioneering applications from the Bauhaus Earth Workshop, sample objects, and student theses – all presented within a timber exhibition architecture by Office ParkScheerbarth, designed as both display and spatial element.



Photographs as part of the exhibition
© Bas Princen

Day 2

Thursday, 18th September 2025
Atelier Gardens, Haus 12

International Conference: Practices across Boundaries

Participants on day two of the conference
© Raquel Gómez Delgado

The second day of the ReBuilt Symposium brought together researchers and practitioners from urban planning, architecture, material science, and social-environmental research. It built directly on the ReBuilt Annual Meeting 2024 in Bali, in which workshops called for holistic, place-based pathways towards regenerative built environments. In three panels throughout the day, with four participants each, one respondent, and one moderator, the goal was to identify policies, practices, and regulatory levers necessary to meaningfully and equitably scale up regenerative building approaches.

Rather than treating disciplines as silos, or strictly organising panels along the value chain, each session was designed to confront tensions and generate synthesis across boundaries – acknowledging that regenerative transitions in the built environment sector require systems change, not just sectoral innovation. The day was moderated by Dr. Gediminas Lesutis (Bauhaus Earth).

Opening and Introduction

Dr. Anne Holsten, Bauhaus Earth
Georg Hubmann, Bauhaus Earth

The International Conference opened with a summary of key achievements and learnings from the ReBuilt project by the project leads Dr. Anne Holsten and Georg Hubmann. The opening address included a definition of regenerative construction and the presentation of the following findings:

1. Regional Lense on Material Availability
2. Buildings Can Become Carbon Sinks
3. It Takes More Than Material Substitution
4. Collaboration instead of Cooperation
5. From Experimentation to Scale
6. Mindset Change across Sectors

The global supply and demand study highlighted that many major cities around the world may have sufficient timber resources to meet a large share of future housing demand using wood and other bio-based materials. One central learning from the regional case studies was that transformation should be understood as a holistic process – not focused solely on material transition, but equally integrating elements such as ecosystem care, socio-spatial equity, building practices, and enabling policy frameworks. The presentation concluded with a highlight of the Bauhaus Earth Toolkit and an expression of gratitude to the entire ReBuilt team and all those who contributed to organising the symposium

Introduction of the ReBuilt project results by Dr. Anne Holsten and Georg Hubmann
© Raquel Gómez Delgado

Panel 1

Regeneration from the Ground Up

Prof. Andrea Klinge, ZRS Architekten Ingenieure
Jed Long, Bamboo Village Trust (BVT) & Cave Urban
Prof. Stefan Krötsch, Hochschule Konstanz
Prof. Dr. Delfina Fantini van Ditmar, Royal College of Art & CARADT

Moderation: Dr. Gediminas Lesutis, Bauhaus Earth
Respondent: Jamie Micah Lawrence, Senior Advisor Bauhaus Earth

This panel examined how regenerative approaches in architecture and construction extend beyond material innovation to encompass social, ecological, and political dimensions. While advances in bio-based materials, carbon sequestration, and circular design are crucial, the panel underscored that their impact depends on how materials are sourced, circulated through value chains, and embedded in systems of governance, labour, and culture. Bringing together diverse disciplinary perspectives – including architecture, design, and ecology – the discussion highlighted that regeneration at scale requires cross-sectoral alignment and systems change rather than isolated breakthroughs, asking how material transitions can simultaneously address environmental imperatives and socio-spatial justice, and where the greatest opportunities and obstacles lie.

The discussion also highlighted the need to extend regenerative innovation beyond the design and research community, engaging sectors such as the economy and the private sector that are not yet fully part of this conversation. Yet panelists stressed that this is not a straightforward task: different actors bring different languages, logics, and value systems. While regenerative discourse tends to adopt a systemic perspective, oriented towards ecological and social well-being, private sector actors are often driven by profit imperatives and, historically, have externalised social, environmental, and economic costs to sustain profitability. This clash of values raises the difficult but necessary question of how to create spaces where actors operating under such different dynamics can work together meaningfully. The panel concluded that researchers and practitioners, with the privilege of being tasked to think critically about the future, also carry the responsibility to engage these tensions with honesty, rigour, and creativity, rather than sidestepping them.

Top and right: Discussion of Panel 1 "Regeneration from the Ground Up"

Left: Graphic recording of the panel by Tomma Suki Hinrichsen

Panel 2

Bioregional Imagination

Sonam Choden, KaJa Design Associates
Prof. Erik Findeisen, FH Erfurt
Prof. Niklas Fanelsa, TU Munich
Erick Bergelund, Bauhaus Earth

Moderation: Georg Hubmann, Bauhaus Earth
Respondent: Dr. Ing. Barbara Reck, Senior Advisor Bauhaus Earth

While many urban sustainability efforts operate within administrative or infrastructural boundaries, regenerative thinking means a shift towards bioregional frameworks – aligning human activity with ecological systems. The very idea of regeneration is not to see the resource base and the (social) demand as separate but to truly integrate forests, earth, and peatlands with the building sector. In this panel, practitioners of place-based knowledge presented bioregional imaginations at different scales – from a material (straw), regional (both Thuringia and South Asia) to a systemic perspective. The panel explored how cultural and ecological landscapes can shape not only supply chains and land use but also the underlying narratives that guide regenerative development. The central question was: How can and should bioregional thinking reshape architecture, urban planning, and governance?

The discussion emphasised that Bhutan's future in construction lies in reviving traditional, nature-based practices while integrating modern know-how to strengthen value chains and local industries. Erik Findeisen highlighted the need to empower rural communities and use wood and other bioregional materials wisely to create economic and social value at the same time, while reducing dependence on global material flows. Niklas Fanelsa stressed the importance of both bottom-up (local research and materials) and top-down (regional visions and frameworks) approaches, framing beauty – in design, relationships, and business – as a central driver. Sonam Choden called for action-oriented research and collaboration to translate cultural momentum into practical value chains and technical capacity. Overall, the discussion underscored bioregionalism, education, and cooperative models as key to building resilient, beautiful, and regenerative futures.

Top and left: Panel discussion on the topic of "Bioregional Imagination"

Right: Graphic recording of the panel by Tomma Suki Hinrichsen

Panel 3

From Roadmaps to Realpolitik

Prof. Andrew Boraine, Cape Town
Rina Gashi, Stadt Lörrach
Fabian Lecker, EFFEKT
Irene Garcia, CNCA

Moderation: Tino Imsirovic, Bauhaus Earth
Respondent: Emma Pfeiffer, Dark Matter Labs

What are the key enablers that make a transition towards a truly regenerative development possible? And what institutional architectures are needed for these transitions? This panel discussed these questions amongst researchers, planners, policy advisors, and independent urban change practitioners from Germany, Denmark, and South Africa. Reflecting on his decades of engagement in leading urban economic and justice transitions in the Western Cape region (South Africa), Andrew Boraine stressed that data alone cannot shift systems but institutions and human psychology do. To carry a majority, people must see change as necessary, effective and fair. Rina Gashi, a south-German-based urban planner from the municipal administration, complemented this perspective with her insights on the development of the first climate-neutral timber business park. Rina shared that initiatives in form of networks, public hearings, leadership, and the right mix of formal and informal planning instruments enable progressive projects in small municipalities.

How other cities deal with similar ideas was presented by Irene Garcia from Carbon Neutral Cities Alliance. Irene shared highlights from cities across Europe on how they address their decarbonisation goals, e.g. through “refurbishment first”-policies or how regenerative design can drive and influence legislation. Lastly, Fabian Lecker from EFFEKT in Copenhagen presented the “Reduction Roadmap”, a strategy paper which mobilised the construction industry to cut the CO_2 limits for buildings significantly. The discussion highlighted how we can shift from “beautiful exceptions” (a term introduced by respondent Emma Pfeiffer from Dark Matters Labs) to establish regulatory norms that help to scale regenerative shifts across the building industry.

Overall, multifaceted strategies are needed, from addressing legislation as a tool that can be shaped to mobilising industry partners to start telling compelling stories that put people and culture in the centre. In summary, the panel revealed that (1) real change occurs when broad coalitions are formed around a shared agenda, (2) top-down authorisation blends with bottom-up mobilisation, (3) early pilot actions prove feasibility, and (4) learnings are embedded into rules and policy. “Regeneration” must not become a buzzword: add biodiversity and social justice alongside carbon, and sometimes build less.

Top: Graphic recording of the panel by Tomma Suki Hinrichsen

Right: Discussion of the Panel 3 "From Roadmaps to Realpolitik"

Symposium Spotlights

Session 1

Building Typologies & LCA Studies
Alisa Marielle Schneider and Felix Exton-Smith

The study analysed housing typologies in Bhutan, South Africa, Bali, and Germany, quantifying materials and greenhouse gas emissions. Results reveal regional differences and underscore the mitigation potential of nature-based materials and construction practices.

Session 2

Digital Avatar Cape Town – A CO_2 Footprint Model
Gian Marco Morigi

The Digital Avatar is a prototype that explores nature-based materials for Cape Town's future. Comparing two social housing typologies, it contrasts conventional and regenerative choices, revealing impacts on design outcomes and performance.

Session 3

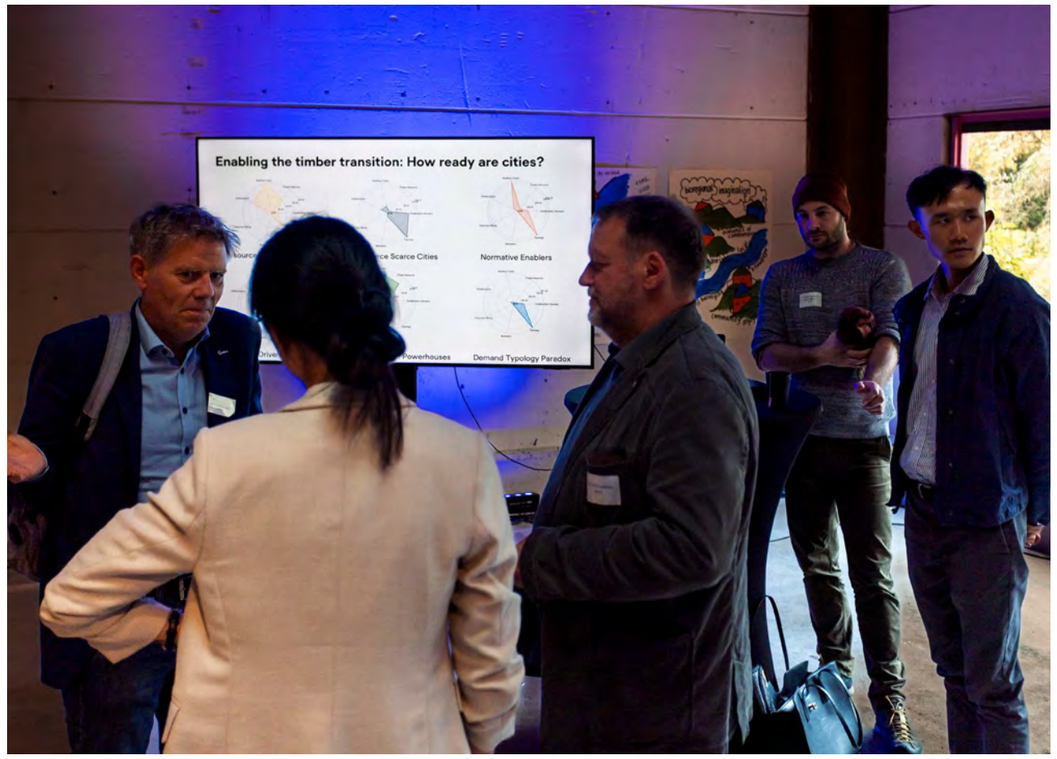
The Bauhaus Earth Toolkit
Kilian Schneider and Tino Imsirovic

The Bauhaus Earth Toolkit is a digital guide for regenerative built environments, translating a complex framework into practical tools: mapping local systems, co-creating visions, and scaling solutions to implementation globally.

Session 4

Berlin-Brandenburg Forest Inventory & Timber Resource Assessment Tool
Adrian Foong and Tobias Seydewitz

The global dashboard estimates city-adjacent forest area for timber demand and carbon storage. Covering around 2000 regional capital cities, it supports scenario testing on population and construction trends for academics and practitioners globally.



Discussion during one of the spotlights session
© Raquel Gómez Delgado

Session 5

Supply and Demand Assessments for Berlin-Brandenburg & Bhutan
Aleksandr Karpov and Arushi Gupta

Two studies estimate timber demand against harvest potential for Berlin–Brandenburg and Thimphu. The demand includes the growth in floor area for low, mid and high-rise buildings. This is compared to the current timber availability based on inventories, national statistics and remote-sensing data.

Session 6

Mapping the Transformation Potential of Cities for Timber Construction
Adrian Foong, Dr. Chaohui Li, and Tobias Seydewitz

This project examines around 2500 cities regarding their potential for a transformation towards timber-based construction. It identifies overall typologies, challenges, barriers, and opportunities, and gathers perspectives to refine determinants for future nature-based urban construction.

Day 3

Friday, 19th September 2025
Roter Saal, Bundesstiftung Bauakademie

Launch of The Bauhaus Earth Toolkit
Internal Workshop
Exhibition Tour

Participants on day three of the symposium
© Constanze Flamme

Welcome Address

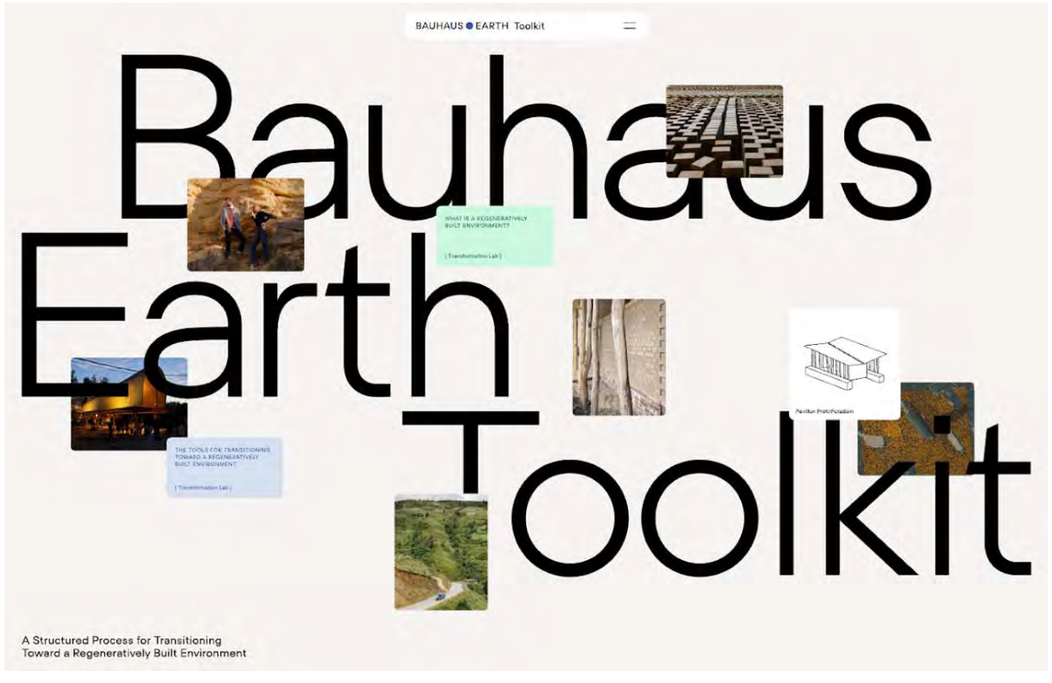
Achim Wollschläger
Bundesstiftung Bauakademie

Achim Wollschläger, architect and Foundation Representative for the Bauakademie, opened his address by reminding the audience that successful building can only happen through collaboration and open exchange. Reflecting on the Bauakademie's own history of demolition and reconstruction, he positioned the project as a symbol for how the construction sector must transform. Wollschläger called for bold initiatives that embrace digitalisation, urban development, and above all, a circular economy in which buildings are not torn down, but thoughtfully renewed and adapted. With climate-conscious construction and integration into the urban context at the heart of his vision, he encouraged all stakeholders to collaborate in developing sustainable solutions that bridge the fields ofconstruction, industry, and policy.

Beta-Launch of the Bauhaus Earth Toolkit

Tino Imsirovic, Bauhaus Earth
Kilian Schneider, Bauhaus Earth

As a seminal outcome of the ReBuilt project, Tino Imsirovic and Kilian Schneider presented the Bauhaus Earth Toolkit. Based on three years of research, the toolkit serves as a digital guide to driving the shift towards a regenerative built environment. It is a “how to”-methodology that provides users with the necessary tools and processes to get started with the ReBuilt approach in their own region. Firstly, it introduces the concept of a Regenerative Built Environment through eight principles. Secondly, a set of thirty tools is presented which users can explore in more detail. Building on the data base of the quantitative research, two interactive dashboards are available in which users can explore (1) the timber supply-demand balance per city across the world and (2) the more detailed forest explorer for the Berlin-Brandenburg region. Lastly, the process design of “Grounding”, “Piloting” and “Scaling” is presented to users as a three-step approach for systemic transformation.



Website view of the Bauhaus Earth Toolkit

Top and bottom: Presentation of the Bauhaus Earth Toolkit by Tino Imsirovic and Kilian Schneider
© Kéan Koschany

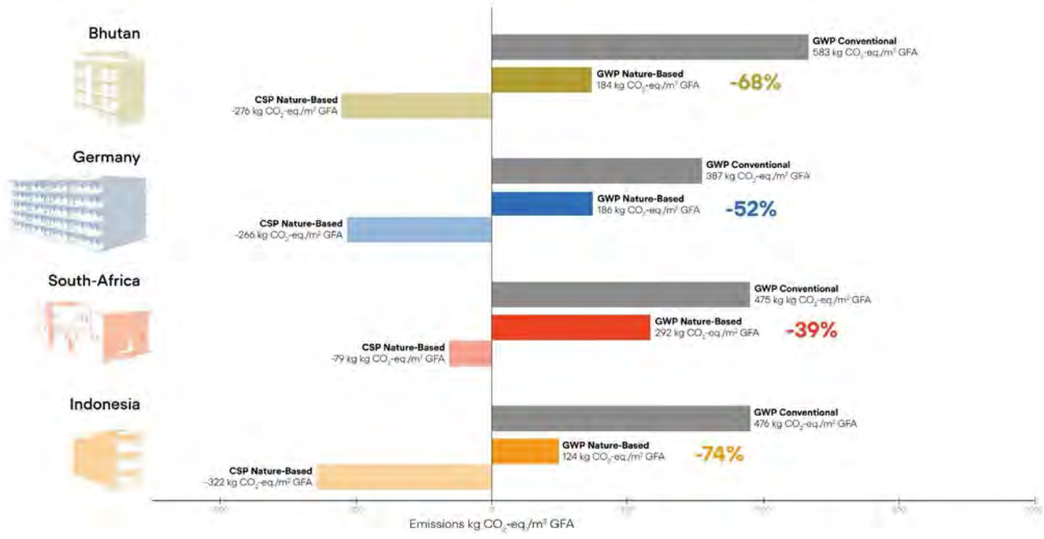
Material Availability and Climate Benefits of Bio-based Construction

Dr. Anne Holsten, Bauhaus Earth

Presentation by Dr. Anne Holsten
© Kéan Koschany

Top: Presentation slide about material availability by Dr. Anne Holsten

Below: Schneider et al. (2025): Carbon Mitigation Potential in Building Design: A Region-Specific LCA Approach for Natu-re-Based Construction. IOP Conference Series: Earth and Environmental Science



Anne Holsten provided detailed insights into the availability of materials and the climate benefits of nature-based construction. At the building scale, the researchers developed regional low- and mid-rise building types for each case study region, comparing conventional construction designs with versions using nature-based materials. By quantifying emissions associated with material supply and the construction process through life cycle assessments, the researchers demonstrated substantial benefits from switching to nature-based building practices. In addition, bio-based materials can store significant amounts of carbon over the long term.

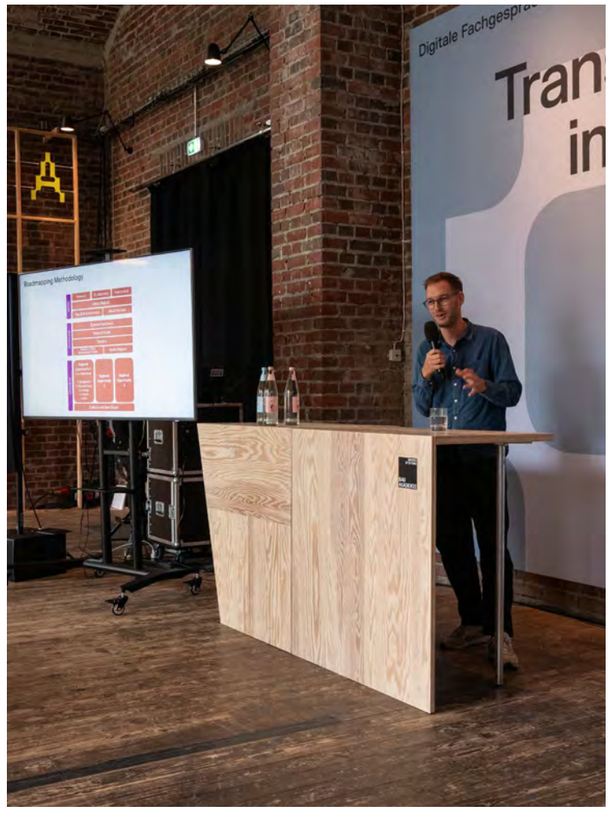
A central question was whether regions would have sufficient local resources if such nature-based buildings were to be scaled up. For Berlin, the study showed that in principle abundant timber resources to meet the future demand for residential housing are available in the surrounding forests of Brandenburg. In Bhutan, harvests from key timber-producing forest areas were also compared with projected future demand for nature-based construction materials, indicating that sufficient quantities could be sourced domestically.

At the global scale, the researchers developed a new regionalised roundwood production map based on country-level harvest data. This map can serve as a foundation for comparing potential future timber demands of capital cities. On an individual city level, many would be able to meet their construction needs from surrounding managed forests based on current harvest quantities. However, regional and sectoral competition for these resources remains a critical factor to consider.

Finally, beyond material availability, the study analysed a wide range of enabling conditions for cities at the global level. Distinct patterns emerged across cities, offering valuable insights into their potential for transitioning towards regenerative construction.

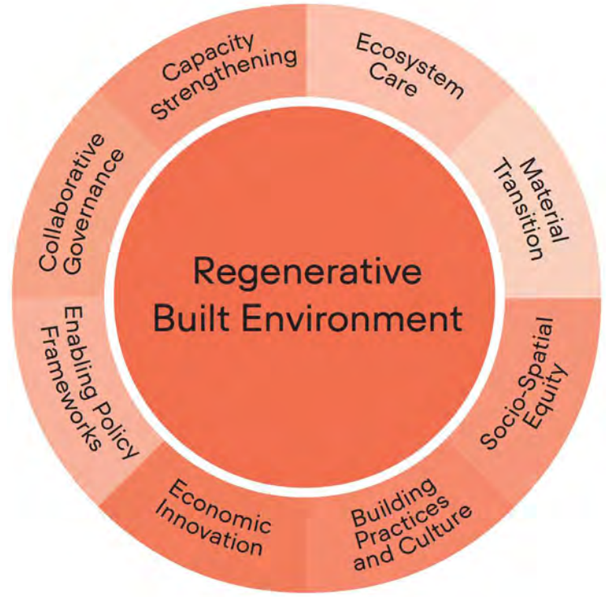
Introduction to the Roadmaps

Georg Hubmann, Bauhaus Earth



Presentation by Georg Hubmann
© Kéan Koschany

Georg Hubmann, ReBuilt project lead of the four case studies, briefly explained the methodology, according to which the roadmaps have been developed. Emphasis was placed on thematic focus points, identified by the project in each region over the last three years. He also highlighted that the development of the roadmaps, or the 'roadmapping', is based on a systemic framework developed during the project. Finally, all of the roadmaps have the same structure and visual build-up or layout but focus on very different regional pathways towards a regenerative built environment.



Systemic transformation framework

Roadmap methodology

Roadmap Presentation: Indonesia

Jed Long, Bamboo Village Trust & Cave Urban
Nayaka Angger, Kota Kita

Roadmap presentation by Nayaka Angger and Jed Long
© Kéan Koschany

The collaborative roadmap in Denpasar, Bali, addresses six key challenges in transitioning to regenerative construction: tourism-driven urban growth, land scarcity for natural resources, cultural shifts from traditional low-carbon architecture practices to modern construction methods, governance coordination barriers, market limitations, and low public awareness of regenerative practices. To overcome these challenges, the roadmap establishes a co-created vision for Bali as Indonesia's regenerative built environment model through five goals: restoring ecological systems, adopting regenerative practices through vernacular innovation, collaborative cultural planning, integrated governance, and inclusive knowledge systems. Key opportunities to achieve these goals include scaling sustainable material supply chains, developing building components based on Tri Hita Karana principles, banjar-led urban planning, enhanced governance integration, and cross-sectoral knowledge sharing, with discussions focusing on how to upscale these innovations to educational infrastructure and housing sectors while leveraging the stakeholder network created through the Multi-stakeholder Events and the BaleBio pavilion.

Roadmap Presentation: Germany

Kilian Schneider, Bauhaus Earth

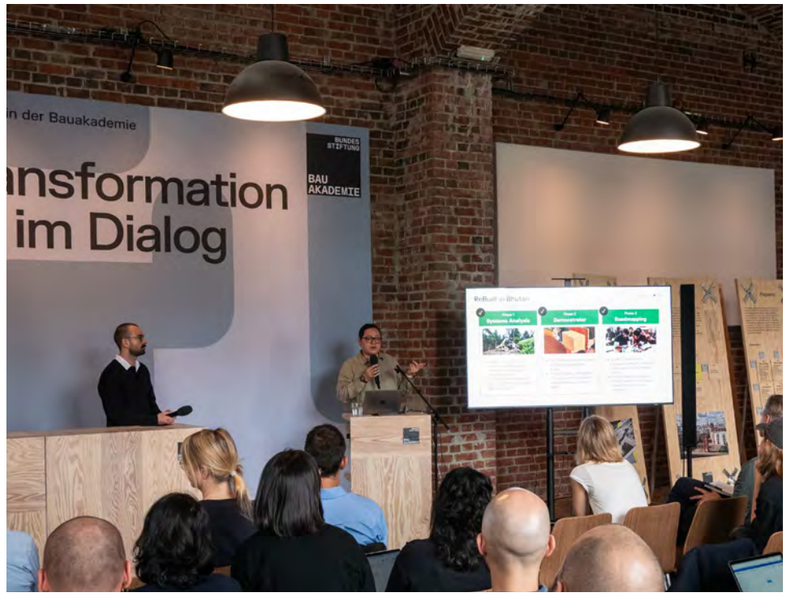
Roadmap presentation by Killian Schneider
© Kéan Koschany

The roadmap of the Berlin-Brandenburg case study is guided by the vision of a Regenerative Resource Region. Following the logic of a value chain, four regional opportunities were developed: they harness the region’s nature-based resource potentials, build on the current innovation momentum in processing and production, and advance the urgently needed building transition by tapping into the existing building stock. The aim is to meet housing needs in a demand-driven and circular manner while simultaneously transforming the construction sector into a climate-positive industry. An overarching fourth opportunity emphasises collaboration through cluster alliances to pool regional efforts and amplify impact.

In the subsequent discussion, the local pine emerged as a pivotal lever: while it offers significant potential for the regional construction economy, its stronger integration into the sector faces persistent hurdles. It was particularly emphasised that current VOC regulations block the use of pine in construction. Against this backdrop, further regulatory frameworks were discussed that complicate the use of nature-based building materials and currently continue to slow down the building transition.

Roadmap Presentation: Bhutan

Sonam Choden, KaJa Design Associates
Tino Imsirovic, Bauhaus Earth



Roadmap presentation by Tino Imsirovic and Dr. Sonam Choden
© Kéan Koschany

The roadmap for Bhutan is a collaboration between Bauhaus Earth and the Ministry of Infrastructure and Transport (MoIT) as well as other network partners. Through a systems analysis, five regional opportunities were identified: resilient value chains, research and innovation, regulatory reforms, utilising urban growth and building national capacities and knowledge for nature based construction. Addressing the actions for each of the regional opportunities offers the possibility to shift the country's construction sector towards the vision of carbon-neutrality, social inclusivity, economic growth and cultural acceptance by championing regenerative and nature-based building practices. The discussion highlighted the need to first address data gaps and support the updating of the Bhutanese building code as the main regulatory framework for regenerative construction. Last but not least, investments in research and capacity building were discussed as crucial by the participants.

Roadmap Presentation: South Africa

Prof. Andrew Boraine, Independent Practitioner
Gian Marco Morigi, Bauhaus Earth

Roadmap presentation by Prof. Andrew Boraine and Gian Marco Morigi
© Constanze Flamme

The Cape Town roadmap focuses on creating a strategy that addresses the city's persistent housing deficit, while enabling ecological and social regeneration. It responds to local challenges such as entrenched spatial inequality from apartheid-era planning, escalating land prices, a chronic shortage of affordable formal housing, and regulatory barriers that marginalise alternative building materials and informal self-build practices. At the same time, it identifies regional opportunities including a vibrant culture of incremental construction, a growing network of civil society organisations and technical experts, and emerging national policy support for alternative building technologies and climate adaptation. The roadmap proposes a multi-scalar, multi-actor approach: supporting neighbourhood-level Housing Support Centres to provide technical assistance and legal guidance for incremental builders; piloting demand-side subsidies to make regenerative materials financially accessible; advocating zoning and regulatory reforms to legalise and scale self-build and alternative construction; and mobilising tourism and private investment to channel revenues into low-income housing upgrades. The discussion highlighted some of the challenges of the transition from exclusionary development towards inclusive, low-carbon, and contextually appropriate urban regeneration, including the need to address citizen demands for contextually-appropriate material choices.

ReBuilt Reflection Workshop

As part of the Regenerative Futures Symposium, the ReBuilt team organised an internal reflection workshop to consolidate knowledge generated over the three-year project and to identify elements of enduring value beyond the project content and deliverables. The objective was to document key lessons, capture intangible outcomes, and explore the project's legacy after its conclusion. Participants were divided into two groups and engaged in three structured discussion formats: (1) **Lessons learned**, focusing on challenges encountered and strategies for overcoming them; (2) **Mapping intangible outcomes**, identifying new skills, competencies, mindset shifts, and professional relationships developed; and (3) **Future Seeds**, projecting potential follow-up initiatives, funding opportunities, and partnerships. This methodology allowed for the collection of qualitative insights that complement the project's formal outputs and which can inform future action.

Session 1: Lessons Learned

During the first session, participants reflected on lessons learned throughout the project. A central insight was that transformation requires patience, with change occurring gradually and often in non-linear ways. The team highlighted the importance of systems thinking as a human-centred approach, emphasising trust, communication, and collaboration across disciplines, cultures, and languages. Participants also noted the value of collective check-ins, celebrating small victories, and balancing ambition with practical realities. The discussion further emphasised the complexities of working across regional and global teams, navigating regulatory frameworks, and engaging with stakeholders without creating unrealistic expectations. Ethical considerations, such as avoiding knowledge-extraction practices and fostering trust with case study communities, were highlighted as central to long-term impact.

Session 2: Mapping Intangible Outcomes

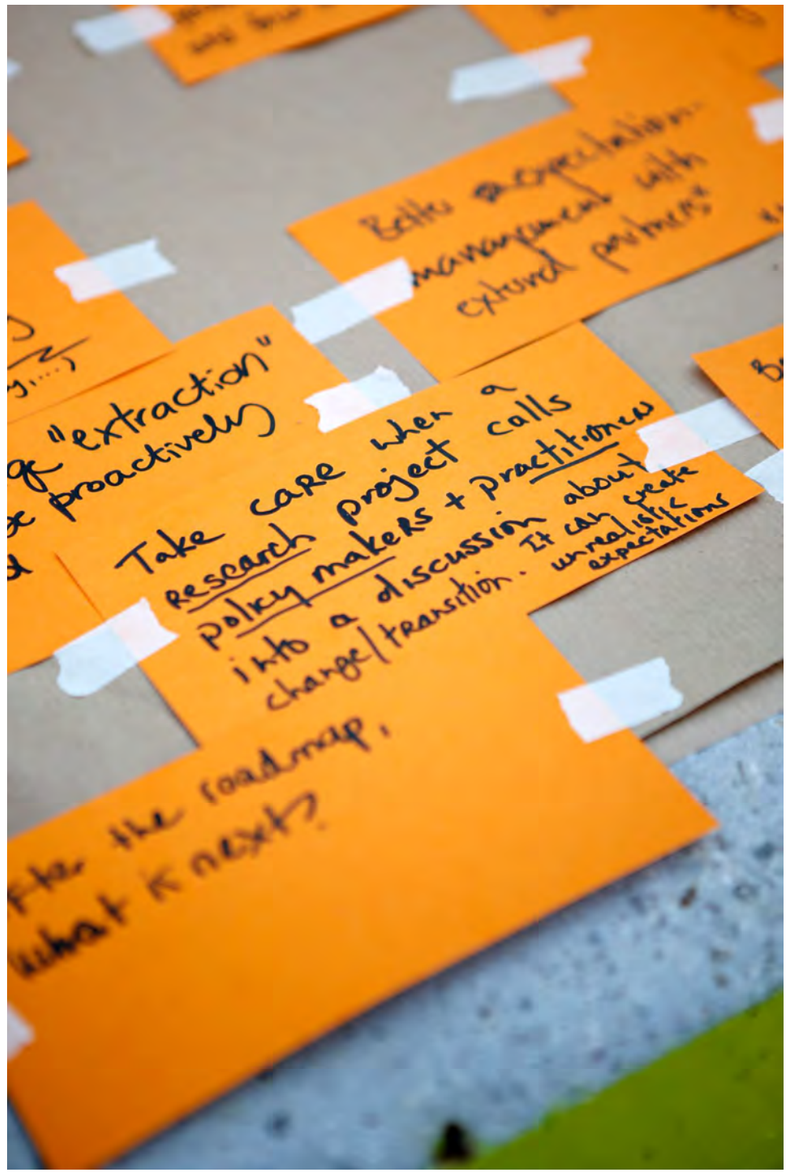
In the second session, participants reflected on the intangible outcomes of the project, highlighting the significant personal and professional growth that occurred throughout its duration. The group emphasised the development of new skills and competencies, ranging from technical knowledge of architecture, building systems, and ecosystems, to soft skills such as empathy, intercultural communication, and constructive feedback. Participants noted the importance of hands-on learning, open-mindedness, and humility, alongside a supportive and empowering team environment that encouraged self-reflection and confidence. The experience of working in an interdisciplinary setting – combining science, design, and culture – helped the team members broaden their perspectives, develop new vocabularies, and gain insights into different professional cultures and approaches. Beyond these skills, the workshop highlighted shifts in mindset and the strengthening of

Top and Bottom: Participants engaged in three structured discussions within two separate groups
© Constanze Flamme

relationships: participants reported an increased appreciation for collaboration, shared accountability, and creative problem-solving, often facilitated by humour, care, and a positive working atmosphere.

Session 3: Future Seeds

In the final session, participants projected forward the lessons learned, to identify the enduring value and potential long-term legacy of the project. These “future seeds” outlined how ReBuilt’s outcomes could continue to influence research, practice, and professional communities after the project’s formal conclusion. Reflections highlighted both personal and professional ambitions ranging from completing advanced studies and developing skills to applying project knowledge in regional and global contexts. Several contributions emphasised the need to continue research and field engagements in follow-up projects, on topics such as forest mapping and climate-adaptive timber construction. There was a clear emphasis on transforming the generated knowledge into actionable insights for regional decision-making, advocacy, and educational activities. The session also reinforced a commitment to further developing regenerative thinking not as a label, but as an ongoing practice, and to fostering optimism, open-mindedness, and perseverance in future endeavours.



Left and right: Presentation of workshop results
© Constanze Flamme

Exhibition: Treffpunkt Bauwende

Exhibition display at the site
© Constanze Flamme

Dinner & Get-Together

Closing dinner
© Constanze Flamme

IMPRINT

BAUHAUS EARTH
Prof. Dr. Philipp Misselwitz
Oberlandstr. 26-35
12099 Berlin, Germany
www.bauhauserde.org

contact@bauhauserde.org

Shareholders Bauhaus der Erde gGmbH:
Prof. Dr. Dr. h. c. mult. Hans Joachim Schellnhuber (Founder)
Prof. Dr. Jürgen P. Kropp
Marc Weissgerber


More Info


Sign Up for Newsletter

BAUHAUS
EARTH