

# Berlin Call to Action

## Message from Berlin

### **From net-zero to climate positive - a built environment within planetary boundaries**

Outcome of the Sustainable Built Environment D-A-CH Conference 2022

#### **Where do we stand now?**

In recent years, the full extent to which the construction and use of buildings, infrastructure and cities contribute to climate change has been recognized, leading to numerous reports, declarations and protocols. Statistics and figures are well known. Yet our community of practitioners, political decision makers and significant members of society are painfully slow to act.

Every day we are challenged by substantial crises, including the coronavirus pandemic, war in Ukraine and the disruption of supply chains for energy or building materials, and the dramatically unfolding housing crisis. Major industrial countries such as the UK would use up the entirety of its 1.5°C carbon budget on housing alone if the government sticks to its pledge to build 300,000 homes a year, according to a new study. Even in countries like Germany, the building sector fails to set emission reduction targets and business as usual prevails.

We still lack resolve and courage to act.

#### **Towards a built environment within planetary boundaries**

Climate science has proved that there are ecological stress limits to Earth's systems - planetary boundaries - which have determined political and societal agreements, such as the new edition of „Human Progress within Planetary Guard Rails“ (2015), a revision of the central messages of the 1992 UN Conference on Environment and Development in Rio de Janeiro. In Germany, the recent 2019 UBA Federal Environmental Agency study „RESCUE“ outlines several transformation pathways to greenhouse neutrality. It emphasizes that immediate and drastic reduction of greenhouse gases, halving of resource consumption and sealing of land is essential if the Earth system is to remain habitable for humans.

#### **From Net-Zero to Climate Positivity**

Studies such as „RESCUE“ have demonstrated that with collaboration bet-

ween the energy, construction, agriculture and forestry sectors a reduction in greenhouse gas emissions of up to 97% compared to 1990 levels would be possible by 2050. However, eliminating emissions is no longer enough. The likely overshoot beyond 1.5-2.0°C will make atmospheric carbon sequestration essential; it is here that a radical change in the way we build, construct and manage our built environment can play a significant part. While sequestering atmospheric carbon through natural processes is still the only credible primary solution for carbon withdrawal, employment of biogenic building materials would facilitate withdrawn carbon storage in buildings and infrastructures. Transforming land use (expanding and sustainably managing forest and agroforestry systems) and our building sector (from a fossil-based, linear and wasteful economy towards a bio-based, circular economy) we can work towards a regenerative built environment which respects planetary boundaries, is not only net-zero but climate-positive and contributes to repairing our natural systems while transforming cities into liveable and healthy environments.

Realising a regenerative built environment requires integrated and transdisciplinary approaches, international cooperation, a strong will to shape the future and rapid action. What is needed is a "building breakthrough" initiative which will require the resolve and concerted action of the following key stakeholders:

### **1. Actions by National Governments**

Establish guard rails for effective and speedy decarbonization of the building sector, transform to a circular construction industry that results in regeneration by:

- Introducing legally binding, maximum carbon emissions targets for procurement in green new constructions and refurbishments for 2023 and beyond, setting up transition pathways towards net-zero in the building sector.
- Reforming taxation to account for whole life-cycle carbon emissions in the building sector, to abolish unfair advantages for fossil-fuel heavy materials such as concrete and steel and to create a level playing field for biogenic materials.
- Addressing regulatory barriers to the use of wood and other biogenic materials as substitutes for carbon intensive materials and assemblies.
- Reforming national building codes, regulations and standards to enable the use of biogenic materials across all building elements including structu-

ral cores.

- Introducing legally binding standards, benchmarks and taxonomies for biogenic carbon stored in buildings, respecting embodied energy and encouraging reuse and recycling of existing and new building materials.
- Delivering national policies to promote densification, minimize green field development and incentivize appropriate footprints in housing by supporting mixed-use buildings and communal living forms.
- Establishing a direct link between national funding programs for housing and infrastructure development, net-zero emission targets and carbon storage.
- Introducing national urban policies that follow principles of decentralization and subsidiarity to mandate and resource cities and local governments to lead decarbonization and carbon positivity in the building sector.
- Incentivizing innovative research into material ecology and instruments for transitioning the building sector towards carbon positivity.
- Funding experimental building projects (demonstrators and prototypes) as well as neighborhood based transformation laboratories with appropriate financial, legal and design tolerance.

## 2. Actions by Cities and Local Governments

Lead the way in transforming city regions towards climate resilience and carbon positivity and a bio-based, circular and regional building economy through:

- Building up city-region wide, transparent public databases for carbon emissions in the construction sector and introduce emissions targets in new construction and refurbishment projects.
- Promoting intra-regional administrative zones for to encourage collaborative local economic development of small and medium sized businesses.
- Agreeing on an immediate moratorium on demolition and new construction to prioritize reuse and refurbishment to meet local building needs.
- Implementing green procurement prioritizing biogenic, carbon positive materials and privileging local supply chains.

- Building climate resilience through natural solutions and strengthening of ecosystem services (sponge cities, greening, etc.).
- Delivering local demonstrators and innovation projects through funding and support programs with transparent and low-threshold allocation procedures.
- Promoting cooperation with civil society actors, cooperatives and non-profit third parties, and promote the restructuring of the administrative sector to make building procurement more time and resource-efficient.
- Reforming local building codes to support circularity principles, green procurement and regional sustainability, mixed-use neighbourhoods, redensification and green and blue infrastructures.

### 3. Actions by Building and Planning Practitioners, Researchers and the Industry

Lead the way in building the advanced knowledge base required for use of biogenic materials, advanced processing and construction techniques as well as design for disassembly, by:

- Ensuring life cycle assessment understanding, capacity and application by making further education in the field of life cycle assessment and the use of biogenic materials mandatory for practicing designers, architects and engineers.
- Revising education programs and curricula for designers, architects and engineers to:
  - guarantee profound understanding of carbon life cycle in the construction sector, promote the use of biogenic materials and building assembly techniques that integrate waste streams, disassembly and reuse;
  - reduce consumption of resources and energy by developing design concepts and building typologies promoting shared living and working (shared spaces, mixed use, co-housing and communal living forms);
  - build cultural and historical sensitivity and technical skills for transforming the existing built fabric in urban and rural contexts.
- Revising education programs and curricula for urban professionals such as urban designers and planners to lead in creative, integrated and trans-scalar transitioning towards carbon positive and equitable built environments.

- Expanding research to address knowledge gaps in the field of circular construction and materials research, with an emphasis on biogenic building materials such as wood, natural fibers or earth to accelerate their potential application in the construction sector.
- Expanding research to develop new instruments and strategies for inclusive, contextually and culturally specific, participatory and economically viable transitioning of buildings, neighborhoods and cities.

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