

# URBAN AND REGIONAL DEVELOPMENT

## AMMIN/DIST - Regenerative Design for the Built Environment: Integrating Participation, Digital Tools, and Innovation for Neighborhood Transformation

<b>Funded By</b>	Dipartimento DIST Politecnico di TORINO [P:iva/CF:00518460019]
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<b>Context of the research activity</b>	B. Spatial Planning, Evaluation and Management,
<b>Objectives</b>	<p>This PhD project focuses on advancing regenerative design approaches for the built environment by integrating participatory and collaborative methodologies with digital tools, innovative materials, emerging technologies, and policy frameworks. The research aims to support the transition towards net-positive outcomes across four key regenerative domains: climate resilience, ecological primacy, resource-positive performance, and human health and well-being. The PhD will be carried out within the framework of the REGEN4BE project, which aims to mainstream and operationalise regenerative design as a transformative, measurable, and scalable approach for the construction and renovation of neighbourhoods across Europe. Within the project, Living Labs (LLs) will be established across five demonstrators (DEMs) and replicators (REPs) located in urban, peri-urban, and rural contexts. These Living Labs will function as real-life environments for testing, co-creating, and validating regenerative strategies together with local stakeholders. The doctoral research will contribute to the co-design, implementation, and validation of systemic regenerative solutions in collaboration with communities, professional networks, and institutional actors, ensuring alignment with the principles of the New European Bauhaus (NEB): sustainability, inclusion, and beauty.</p> <p>A core component of the research will be the development and refinement of a Regenerative Evaluation Framework (REF) defining key performance indicators (KPIs) across climate resilience, ecological performance, resource use, and human well-being. Each demonstrator and replicator will be assessed through a place-based approach tailored to its specific territorial context. The framework will be further enhanced by integrating the evaluation of regenerative digital tools, materials, and technological solutions. In particular, the PhD candidate will contribute to the development and integration of KPIs to evaluate the capacity of digital technologies to detect</p>

and respond to environmental and health pressures within the Regenerative Evaluation and Monitoring Framework. Stakeholders will actively contribute to the validation of the framework through participatory workshops and collaborative activities.

The research will also include the analysis of regenerative design case studies in order to identify success factors, barriers, and innovation drivers. Based on these findings, the project will develop practical Guidelines for Regenerative Design aimed at informing the development and application of digital tools, material and technological solutions, and policy interventions. Participatory methodologies will play a central role throughout the research process. Co-creation workshops and collaborative activities with local communities and professional networks will support the integration of social, ecological, and technological perspectives in real-life contexts. Through iterative feedback loops within the Living Labs, the research will enable the continuous refinement of proposed solutions and foster co-evolutionary learning among stakeholders. The expected outcomes include transferable methodologies and practical tools supporting sustainable, resilient, and inclusive urban transformation across Europe.

**Skills and competencies for the development of the activity**

Preferably, the candidate should be familiar with regenerative design, indicator-based assessment tools, digitalization, participatory approaches, and GIS.