URBAN AND REGIONAL DEVELOPMENT

Ateneo/DIST - Accelerating Urban Climate Action: Mainstreaming Climate Shelters in Europe and Beyond

Funded By	Dipartimento DIST Politecnico di TORINO [P.iva/CF:00518460019]
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Context of the research activity	This proposal aims at financing a quali-quantitative doctoral fellowship on accelerating urban climate action, adopting a research-oriented approach to provide the essential enabling conditions for implementing climate shelters in European cities and beyond, producing theoretical knowledge supported by applied research. The candidate will pay particular attention for (i) spatial policies and urban design, (ii) resilience capacities, (iii) projects and actions on the ground.
	As stated during the COP28 in Dubai, 2023 was considered the hottest year on record. Cities worldwide have a fundamental function in supporting climate ambition as the objective to limit the temperature increase to 1.5°C is still far-reaching. Despite the current efforts of cities in experimenting with planning and designing solutions to reduce GHG emissions and to contrast the impacts of climate-induced extreme events, integrating climate actions locally needs to be improved. Nature-based Solutions and an ecosystem approach can contribute significantly to this integration, fostering biophilic-designed urban spaces. In recent years, European cities have started to face the rise in temperature. To deal with this situation, they are introducing different projects to transform critical urban spaces – parks, libraries, and civic centres – into climate shelters where the urban population can take refuge. Such solutions have been generally recognised as relevant strategies in responding to climate risks due to their multifunctional and cost-effective nature, supporting climate justice. Recently, a growing interest is focusing on transforming schoolyards into refuges during extreme temperatures, as tested in Paris and Barcelona. These few European experiments are pioneering projects fostering innovative actions towards a sheltered city. Moreover, a scientific framework is missing to interpret these experiments analytically and replicate them. Furthermore, the implementation challenges and European upscaling opportunities for climate shelters still need to be systematically understood and tested in practical case studies, expanding the current experimentations. The proposed doctoral research fellowship lays into the financed project Driving Urban Transition (DUT) MAINCODE “MAINstreaming nature to CO-

Objectives	DEsign urban climate shelters in schoolyards" that intends to develop and test a methodology for transforming schoolyards into UCS through NbS as a "main code" to unlock the regenerative urbanism in cities, mainstreaming nature and biophilic design. In response to this research gap, the proposed doctoral research fellowship aims at studying climate shelters as a promising path to boost multiple co-benefits from urban nature and climate change mitigation and adaptation to manage extreme temperatures and other heat-related hazards and to enhanced health, well-being, and social cohesion for all citizens, in particular those mainly vulnerable to extreme events. More on this line, the purpose of the proposed doctoral research fellowship is to support MAINCODE in defining new ways of how cities can support climate actions in cities through: (i) decreasing GHG emissions by strategically using ecologic materials for the transformation of schoolyards, reducing consumption levels and prolonging the life of existing infrastructures; (ii) helping the natural water circuit, by advocating for an increased level of permeable surfaces in schoolyards; (iii) reducing pollution levels by promoting the use of ecologic materials; (iv) supporting climate actions mainly related to heatwaves; (v) following the circular economy approach in co-designing schoolyards achieving a near-zero demand for energy and water resources, thus maximising recycling and promoting sustainability; (vi) mainstreaming nature in transforming schoolyards into UCS, advocating for NbS and an ecosystem approach to protect and restore the biodiversity and the ecosystems. More in detail, the selected candidate will be required to: • Develop a comprehensive and critical investigation, collection and analysis of the existing understanding of climate shelters to contribute to the broader academic climate field of study and support future urban climate initiatives; • Support the development of a methodology for helping cities integrate climate shelters into schoolyards to create sustainable and resilient urban environments, working with the community and enhancing bottom-up approaches through co-production and co-design; • Follow the practical application of climate shelters in selected pilot schoolyards in Turin and Halandri to assess their real-world effectiveness. Additionally, the selected candidate will support the upscaling of climate shelters as a codified approach for schoolyards, supporting the two cities in overcoming policy barriers that prevent the successful up-taking and quantifying the socio-economic impacts of these solutions. Moreover, the selected candidate will contribute in writing a comprehensive toolkit for schools and practitioners and a set of policy recommendations for policymakers; • Develop a number of key messages to support the replication of the methodology for transforming schoolyards into climate shelters in other European cities and beyond to accelerate the urban climate action globally.

Skills and competencies for the development of the activity	PhD candidate is expected to show interest in the theoretical understanding and implications of resilience in spatial planning, as well as in the differential functioning of spatial planning and urban design in climate change adaptation. The candidate must have a high proficiency in both written and spoken English and spoken Italian. Additionally, fluency in a third language, both written and spoken, will be considered a plus.