

# **Nature-Based Solutions for urban microclimate regulation: the case of the Gavoglio Park project in Genoa**

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## Abstract:

This paper aims to study the role of Nature-Based Solutions (NBS) and urban greenery for heat waves and Urban Heat Islands (UHI) mitigation in the built environment. The aim is to account with different perspectives and in a multidisciplinary way for the theoretical and analytical dimensions related to the concept of NBS for urban adaptation, taking as a case study the realization of the Gavoglio Park in Genoa. Starting with the origins and definitions of the NBS concept, the mechanisms underlying the provision of this ecosystem service by urban vegetation are analysed, thus the role of green areas within urban climate change adaptation policies is discussed. The Gavoglio Park in Genoa, a brownfield redevelopment project designed as a laboratory to test the effectiveness of natural solutions for climate change adaptation, is therefore presented and analysed. Starting from the analysis of the redevelopment process of the area within UNaLab project (funded by the EU-programme Horizon 2020), the adopted solutions for climate adaptation are examined. Finally, the magnitude of thermal mitigation benefits generated by the Park's NBS is estimated using the InVEST Urban Cooling model, an Open Source software based on Geographic Information Systems (GIS).

## Keywords:

Nature-Based Solutions, microclimate, climate adaptation, UNaLab, climate change, Gavoglio Park, extreme heat, heat waves

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