

Urban Design as a platform to promote biodiversity, green infrastructure and equality in cities with nature-based solutions

Israa Mahmoud ⁽¹⁾ - Niki Frantzeskaki ⁽²⁾

⁽¹⁾ Politecnico Di Milano, Department Of Architecture And Urban Studies, Laboratorio Di Simulazione Urbana Fausto Curti, Milan, Italy - ⁽²⁾ Utrecht University, Chair Professor Of Regional And Metropolitan Governance And Planning, Section Spatial Planning, Geosciences Faculty, Utrecht, Netherlands

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Abstract In the light of several urban regeneration projects that use nature-based solutions (NBS) as a possible instrument for accelerating climate resilience pathways, this research investigates the link between urban design as a platform for NBS experimentation in cities. Several researchers have linked the role of nature-based solutions in supporting multi-scalable tools and policies with which cities advance their urban planning practice to comply with the Kunming Montreal Global Biodiversity framework (CBD, 2022). However, little attention is paid to how urban design contributes to enabling the delivery of social, and ecological co-benefits of nature-based solutions.

In this research, we develop a potential framework on understanding of how urban design can work as a platform for advancing the experimental stages of nature-based solutions in cities. Historically, the promotion of NBS came from urban ecology perspective to restore green and blue infrastructure, hence addressing environmental hurdles. lately, a more integrated approach for including socio-ecological aspects in the policy alignment of NBS would be likely increasing the strategy relevance and lever of urban adaptation and mitigation (Diep & McPhearson, 2025).

Our notion to focus on NBS from an urban design approach is to be developed conceptually by building on a synthesis of case studies with empirical data collected from cities that have progressively advanced urban nature plans in the last 3-5 years and in which urban design elements were pivotal in making nature-based solutions co-beneficial for biodiversity, (nature itself) and people. We will also provide early reflections on the innovative methods or tools that cities employed or have used to advance their renaturing policies and conclude with which new research questions emerge when elucidating the role of urban design for 'making' nature-based solutions more inclusive in place.

References:

- CBD. (2022). Kunming-Montreal Global biodiversity framework. In: Draft decision submitted by the President. Convention on Biological Diversity. <https://www.cbd.int/conferences/2021-2022/cop-15/documentsasdocument:CBD/COP/15/L25>
- Diep, L., & McPhearson, T. (2025). Empowering cities globally: Four levers for transformative urban adaptation with nature-based solutions. Proceedings of the National Academy of Sciences, 122(29). <https://doi.org/10.1073/pnas.2315912121>