

Title of the symposium:

Ecology, water and the city: strengthening water-sensitive planning with Nature-Based Solutions in urban contexts

Detail of organizer(s):

Responsible

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Co-organizer

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Symposium abstract

Worldwide trends in the increase of impervious surfaces and climate change are leading to the rise of urban flooding and degradation of urban ecosystems. Increased urbanization and precipitation extremes define changes in hydrological regimes that are challenging the traditional city drainage infrastructure and causing impacts on urban areas, communities, environments and economies. For these reasons, water-flow regulation represents a crucial ecosystem service in urban contexts, and land use planning and management strategies are focusing on the ecosystem's capacity to regulate water-flow as the most promising way to address the city's capability of dealing with flooding occurrence.

Parallel to these issues, there is a rising demand for the provision of ecosystem services and functions in contemporary cities, especially when looking at the increased urban flood risk levels associated with other urban issues as the Urban Heat Island, social degradation and soil sealing. This requires a shift from planning approaches that rely on conventional systems and devices (grey infrastructure), to those aimed at transforming the eco-hydrological footprint of the city by using nature to address the enhanced flood risk and the current urban challenges.

Among the different Nature-Based Solutions available in cities, innovative drainage-related concepts and methods, such as Sustainable Urban Drainage Systems (SuDS), are based on an ecosystem urban drainage approach. SuDs aim at restoring or re-creating a more naturally-oriented water cycle in urban areas by minimizing the impacts from the development on the quantity and quality of the runoff, maximizing amenity and biodiversity opportunities and specifically slowing water down before it enters a watercourse. Integrating water as early as possible into decision process on land use and grey infrastructure design can achieve (sub)optimal solutions and implement efficient and effective best management practices.

This symposium presents research, practical applications, methodological approaches on the use of SuDs to address water-related urban issues. Examples of SuDS experiences, designed and/or employed across international urban contexts, are welcome to explore and discuss the current state of art, what has been done and what may offer new possibilities to encourage a real transition to a more sustainable management of storm-water in cities. By comparing these different experiences, the symposium discusses possible trajectories of the ecosystem -based approaches to climate change adaptation in spatial decision making processes, such as urban planning of new water-sensitive developments or regeneration projects. The symposium also analyses barriers, challenges and lessons learned about the implementation of sustainable urban drainage systems in both new and existing urban developments.

How your symposia will improve landscape ecology science?

With the aim of making actionable the relation among ecology, water and the city, the symposium will also present and showcase different policies to include NBS in real urban planning policies, from local (e.g. regeneration plan) to metropolitan scale.

The symposium will contribute to the broad discourse of urban ecology by providing evidences and applied researches on how natural ecosystems and NBS can be effectively used in cities to address the water management issues, and restore the functionality of degraded urban ecosystems toward more liveable, healthier and resilient cities.

Broad thematic areas

Broad thematic areas 1st choice: Urban regions (urban landscapes, urbanization processes, urban metabolism, rural urban systems)

Broad thematic areas 2st choice: Green and blue infrastructures

Free Keywords

Nature-Based Solutions, Urban planning, green infrastructure, policies

Outcomes of symposium

Special issue in a scientific journal (to be negotiated)