



14th BIENNALE  
OF EUROPEAN TOWNS  
AND TOWN PLANNERS  
**NAPOLI**

SPECIAL WORKSHOP 2 | Enhancing urban regeneration and spatial justice with Nature-Based Solution

Nature-Based Solutions in historic centres: an exploration of current knowledge

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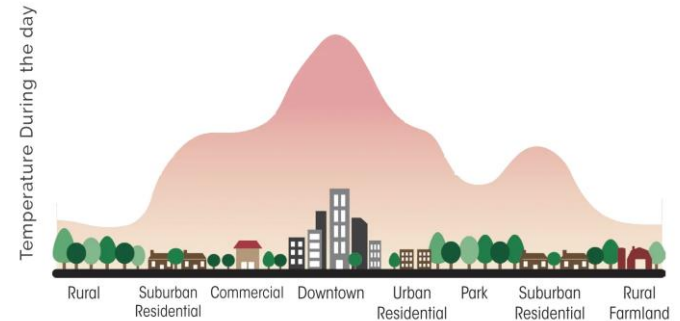
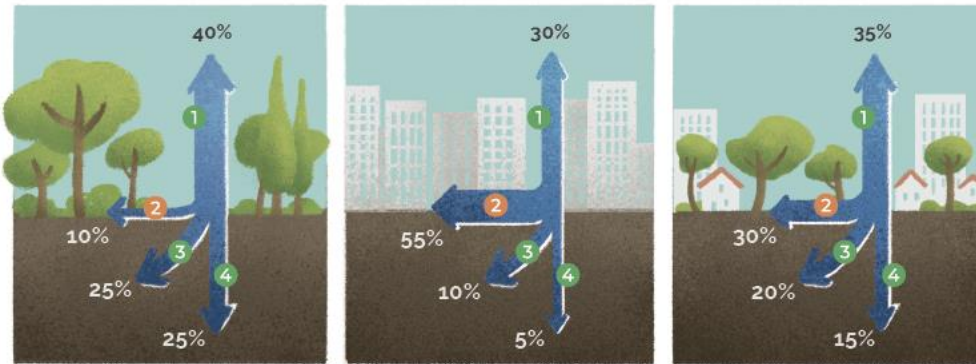
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Naples, 22 April 2024



This research is part of the Project “Nature for sustainable cities: planning cost-effective and just solutions for urban issues”, PRIN 2022, funded by European Union, Next Generation EU.

In all cities and urban areas, the risk faced by people and assets from hazards associated with climate change has increased.



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Nature Based Solutions (NBS) can help to storage and sequester carbon, purify water and air, reduce urban heat islands and water runoff.

NBS are intended as engineered green measures inspired by nature in a way to meet the improvement of sustainable urbanisation as a priority aim.

NBS include a wide range of components such as green roofs and green walls, street trees, rain gardens, vegetated swales, stormwater planter boxes and permeable pavements.



Historic center of Catania, Sicily

**Historic centers** are extremely complex parts of the contemporary cities, particularly from a morphological, architectural and cultural point of view, where a significant proportion of the land area may be occupied by sites designated as heritage to be protected and conserved.

These contexts are also characterised by **deep weaknesses**, such as:

- limited accessibility;
- building stock with inadequate housing standards;
- scarce green and open spaces endowment;
- high levels of natural risk exposure;
- complex urban morphology;
- high level of density.

Limits to the implementations of NBS:

- Policies and programmes constraints
- Suitable locations

Opportunities for built heritage conservation to be integrated to the wider delivery of NBS in cities are **rarely discussed** and cultural heritage is still not receiving sufficient consideration in disaster risk management planning.

Keywords and results from queries to *SCOPUS*  
(periods: all time)

Q1: "nature-based solutions" and "heritage"  
Q2: "nature-based solutions" and "historic"  
Q3: "nature-based solutions" and "historic center" and "review"  
n. 137

Title  
Abstract  
Keywords

Papers selected and analyzed  
n. 22

Full papers

Final set of selected papers  
n. 10

Reasons for exclusion:

- keywords are used in a not pertinent way
- historic centres are not the study object

Reason for exclusion:

- focus only on risk assessment

The selected results obtained from Scopus were merged with some findings from **grey literature**, to define a unique set of results.

Most **existing studies** around discussions of NBS in historic centres:



- have focused on revalorisation, cultural perception;



- focus on the effects of greenery on traditional building materials.

Review of **best practices** on adaptation to climate change, within the Italian and European panorama, are mainly **strategic planning experiences** and standalone experiments in urban areas.



- are chosen specific portions of the historic center that offer particular opportunities;



- design scenarios focus on marginal portions of historic centers that lack typical historic center characteristics;



- case studies lack the weaknesses typical of historic centers.

The existing approach capture the nuance and specific challenges of greening individual built asset that are managed but fails to structure a greenery integration method in historic centres.

Step forward in the research:

- definition of new queries that take into account the density and morphology complexity only, without the cultural heritage component



different transformation scenarios



adding the problem of heritage conservation constraints



structure greenery integration method in historic centres

# THANK YOU FOR YOUR ATTENCION

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