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“Planning Green Infrastructures for Industrial Cities”
ESALQ-Piracicaba, Brazil & UniLaSalle-Rouen, France
November 27 - 28, 2025

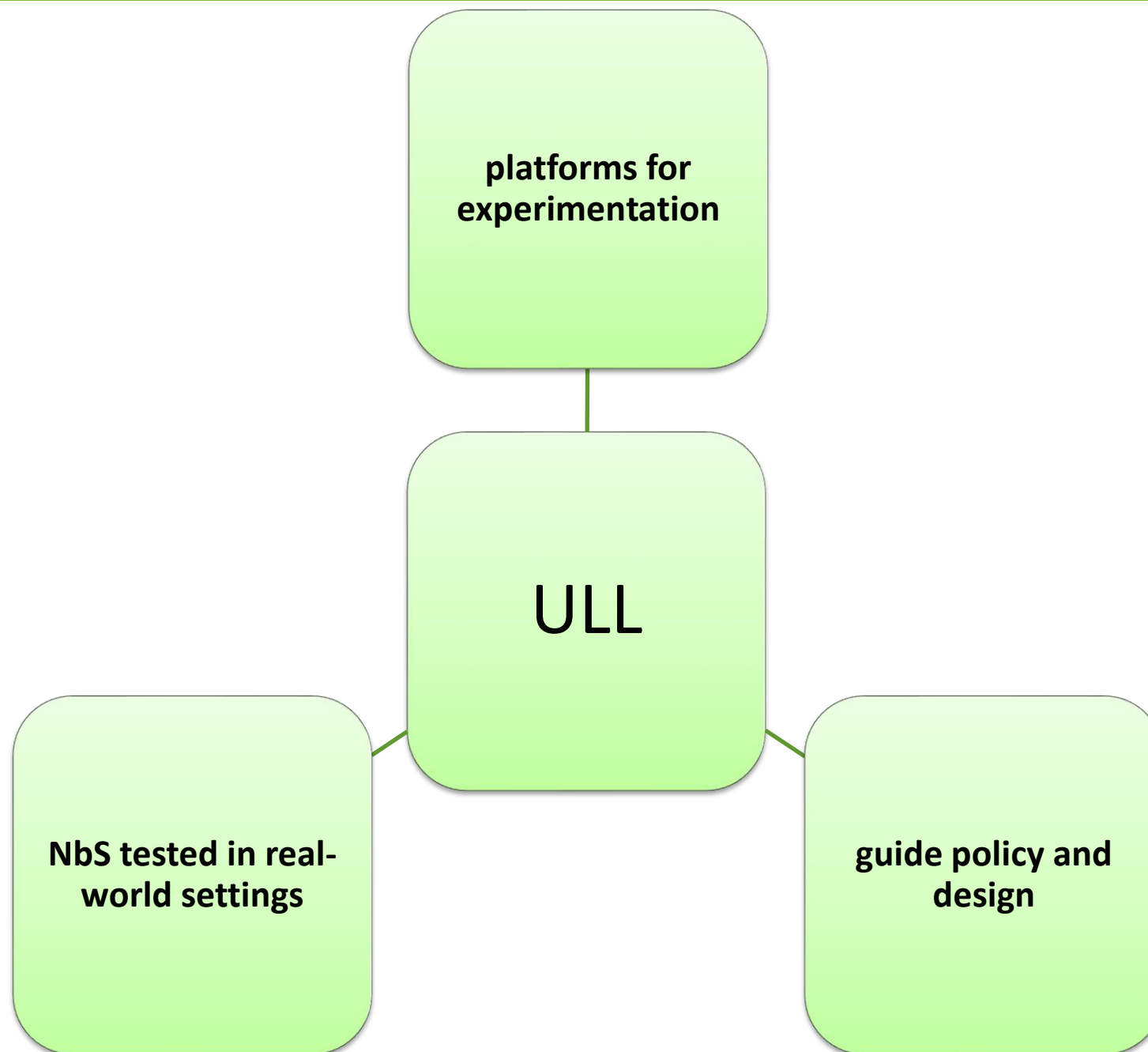
Culture, Ecology and Co-creation in Inclusive Urban Transformation: The Case of Turin

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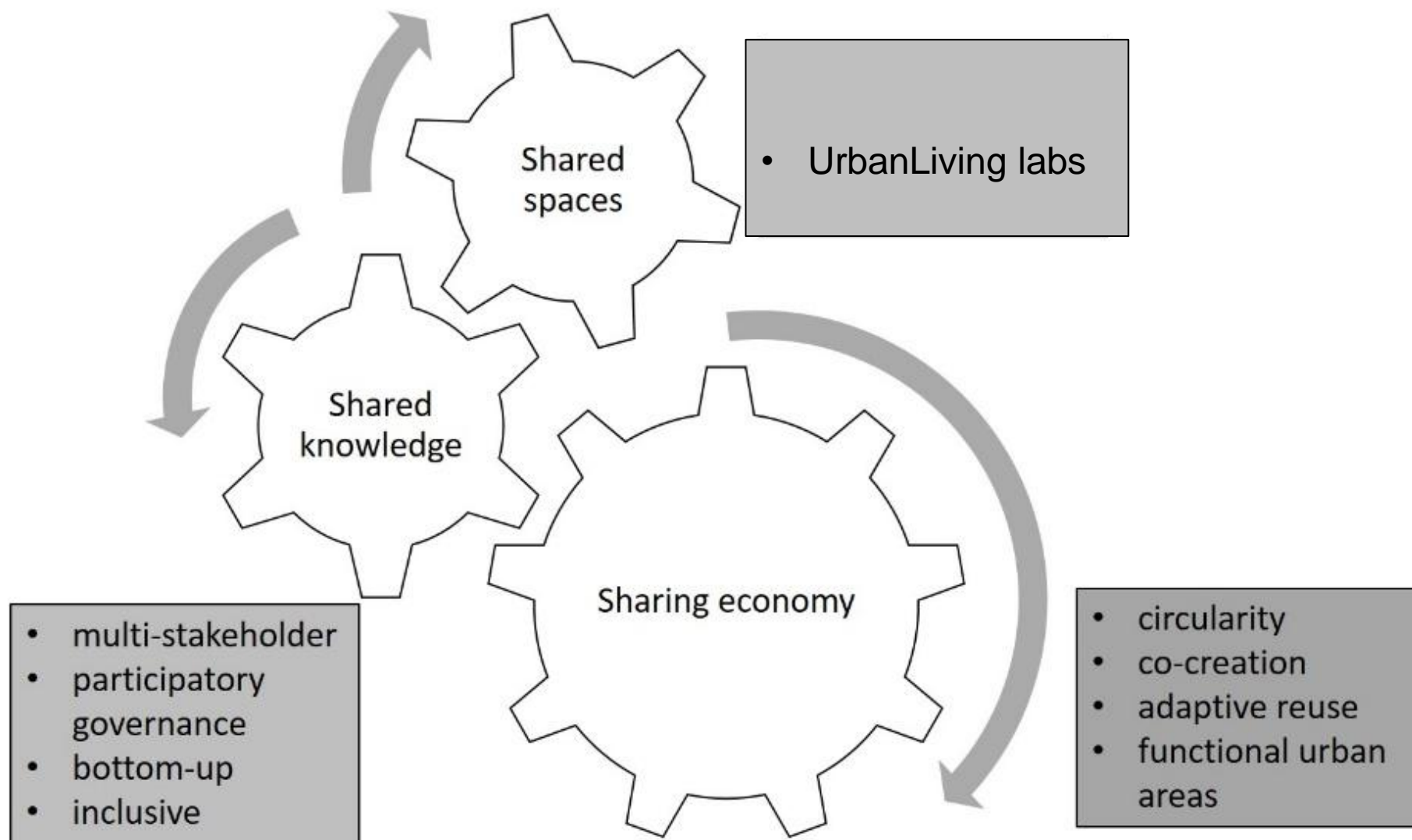
Urban Living Labs (ULL)



The building blocks of urban transformation

Topics (What)	Goals (Why)	Means (How)
Inclusion	Participatory governance and decision-making Promotion of cultural diversity	Co-creation Promoting dialogue among actors
Innovation	Interaction Enriching user experience	Real-time prototyping/testing step by step
Transformation & Sustainability	Culture-led urban transformation Sustainable urban development	Circular economy Adaptive reuse plans

An integrated framework



The **United Nations Environment Assembly** (UNEA 5.2) definition of NbS:

actions to protect, conserve, restore, sustainably use and manage natural and modified terrestrial, freshwater, coastal and marine ecosystems and calls for more collaboration and resources.

The **European Union** defined NbS as:

Solutions that are inspired and supported by nature, which are cost-effective, simultaneously provide environmental, social and economic benefits and help building resilience.

Nature-based Solutions

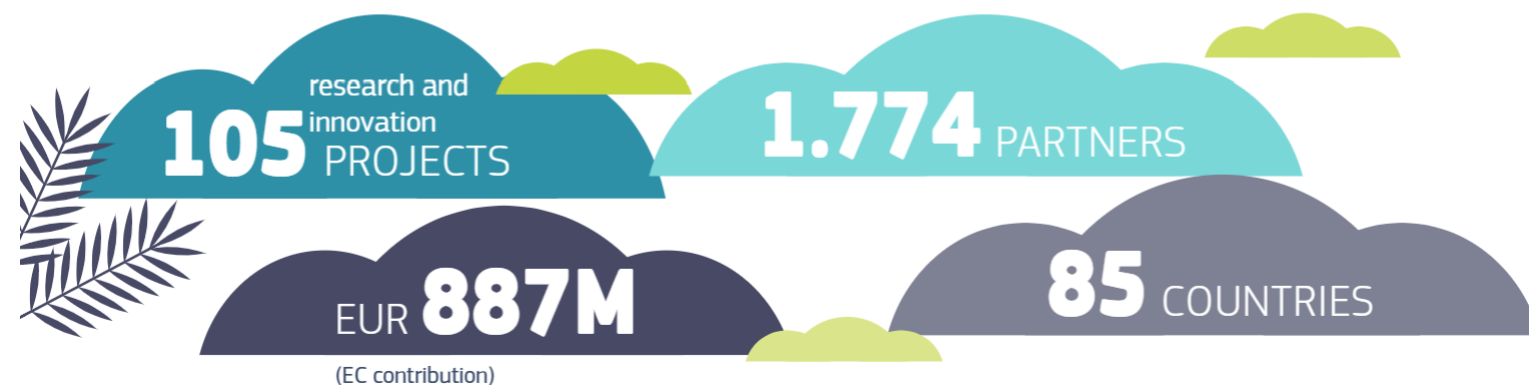


NATURE-BASED SOLUTIONS
EU-FUNDED NBS RESEARCH PROJECTS TACKLE THE CLIMATE AND BIODIVERSITY CRISES

Nature-based solutions (NbS) are inspired and supported by nature, they are cost-effective, simultaneously provide environmental, social and economic benefits and help build resilience; such solutions bring more, and more diverse, nature and natural features and processes into cities, landscapes and seascapes, through locally adapted, resource-efficient and systemic interventions. NbS must benefit biodiversity and support the delivery of a range of ecosystem services.

Benefits shown in the infographic include: Biodiversity enhancement, Water management, Natural and Climate Hazards, Soil, land and sea management and planning, New economic opportunities and green jobs, Health and well-being, Place regeneration, Capacity building for sustainable transformation, Participatory planning and governance, Food security, Climate resilience, and Air quality.

EU-funded research and innovation projects tackle the climate and biodiversity crises implementing nature-based solutions in different environments.



<https://op.europa.eu/en/publication-detail/-/publication/c956cec9-8f8f-11f0-bfe2-01aa75ed71a1/language-en>

Nature-based Solutions

NBS IN URBAN AREAS

CLIMATE RESILIENCE

[Connecting Nature](#)
[Grow Green](#)
[GREENINCITIES*](#)
[URBREATH*](#)

[Urban GreenUP](#)
[UNaLab](#)
[REGREENATION*](#)

WATER SECURITY

[MULTISOURCE](#)
[NICE](#)

INCLUSIVE URBAN REGENERATION

[CLEVER Cities](#)
[EdiCiNet](#)
[NATURVATION](#)
[Nature4Cities](#)

[ProGReg](#)
[URBINAT](#)
[UGPPLUS](#)

NATURE PROTECTION AND RESTORATION

[EU-CHINA:](#)
[CLEARING HOUSE](#)
[REGREEN](#)

[EU-CELAC:](#)
[CONEXUS](#)
[INTERLACE](#)

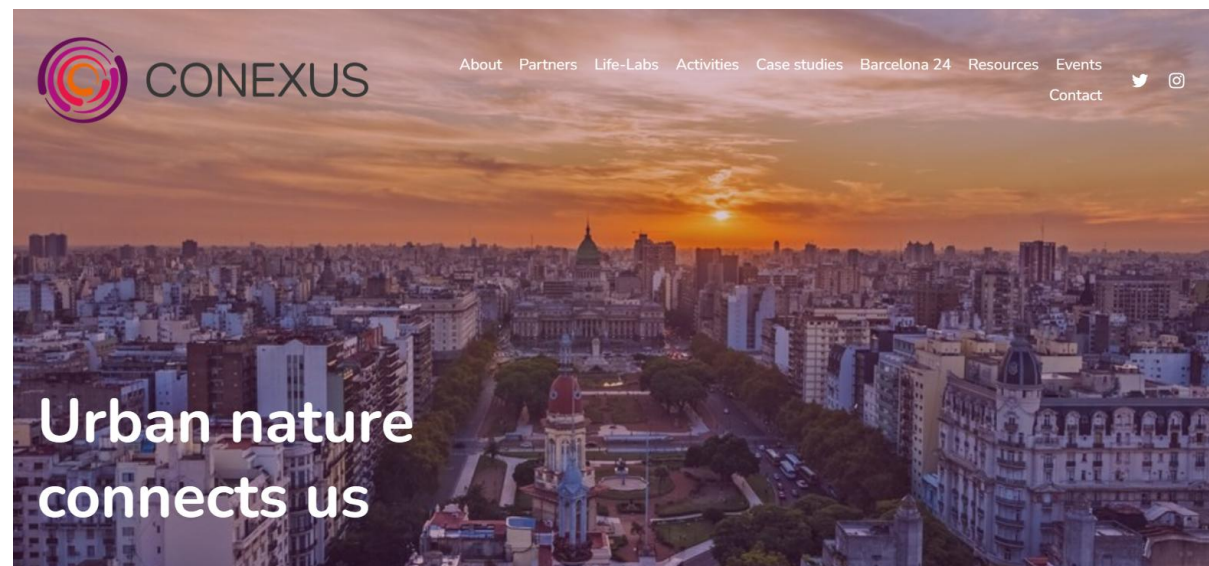
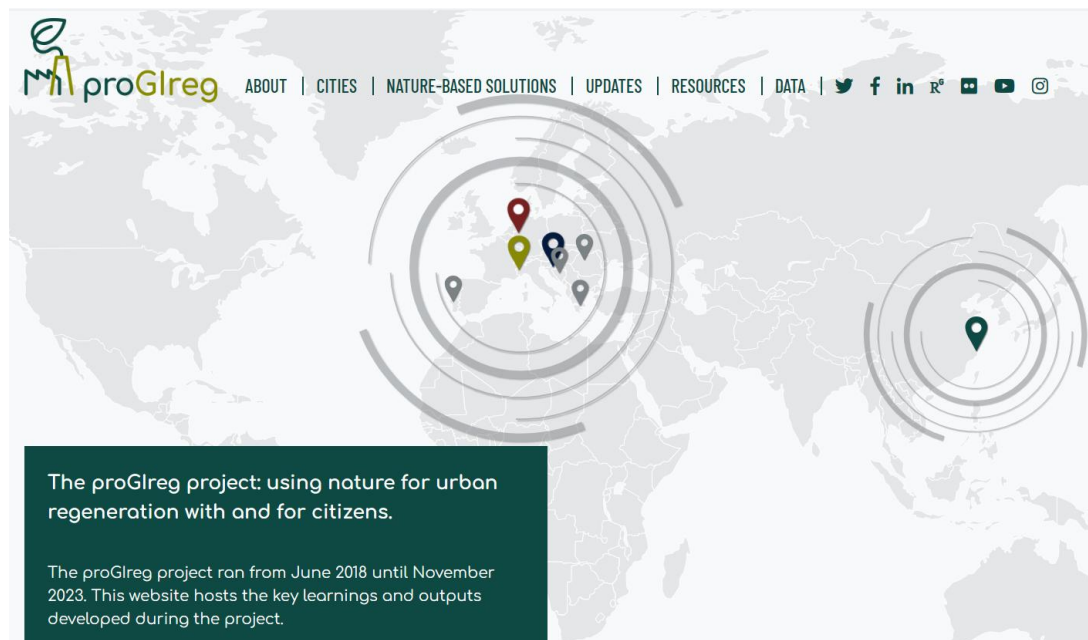
HEALTH AND WELLBEING

[EUPOLIS](#)
[GO GREEN ROUTES](#)

[IN-HABIT](#)
[VARCITIES](#)

AIR QUALITY

[DivAirCity](#)
[JUSTNature](#)
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Quadruple helix approach

NBS IN URBAN AREAS

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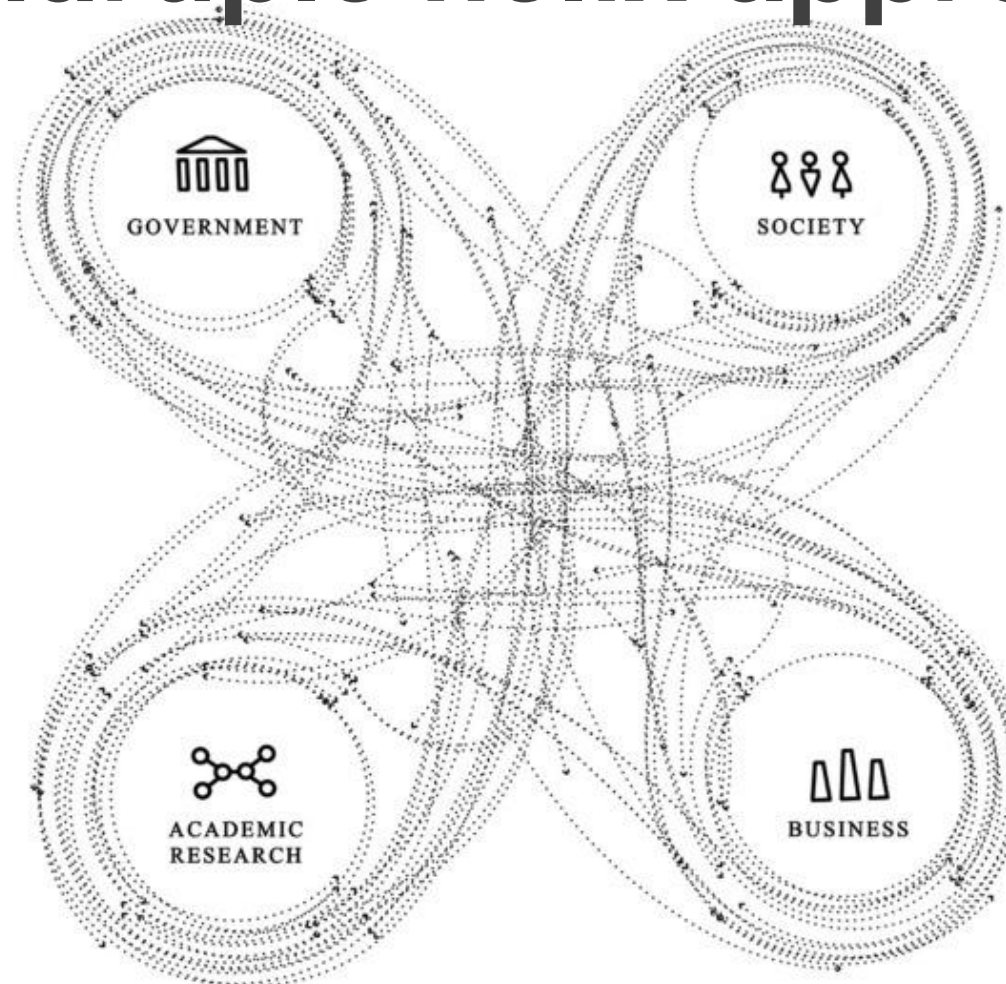
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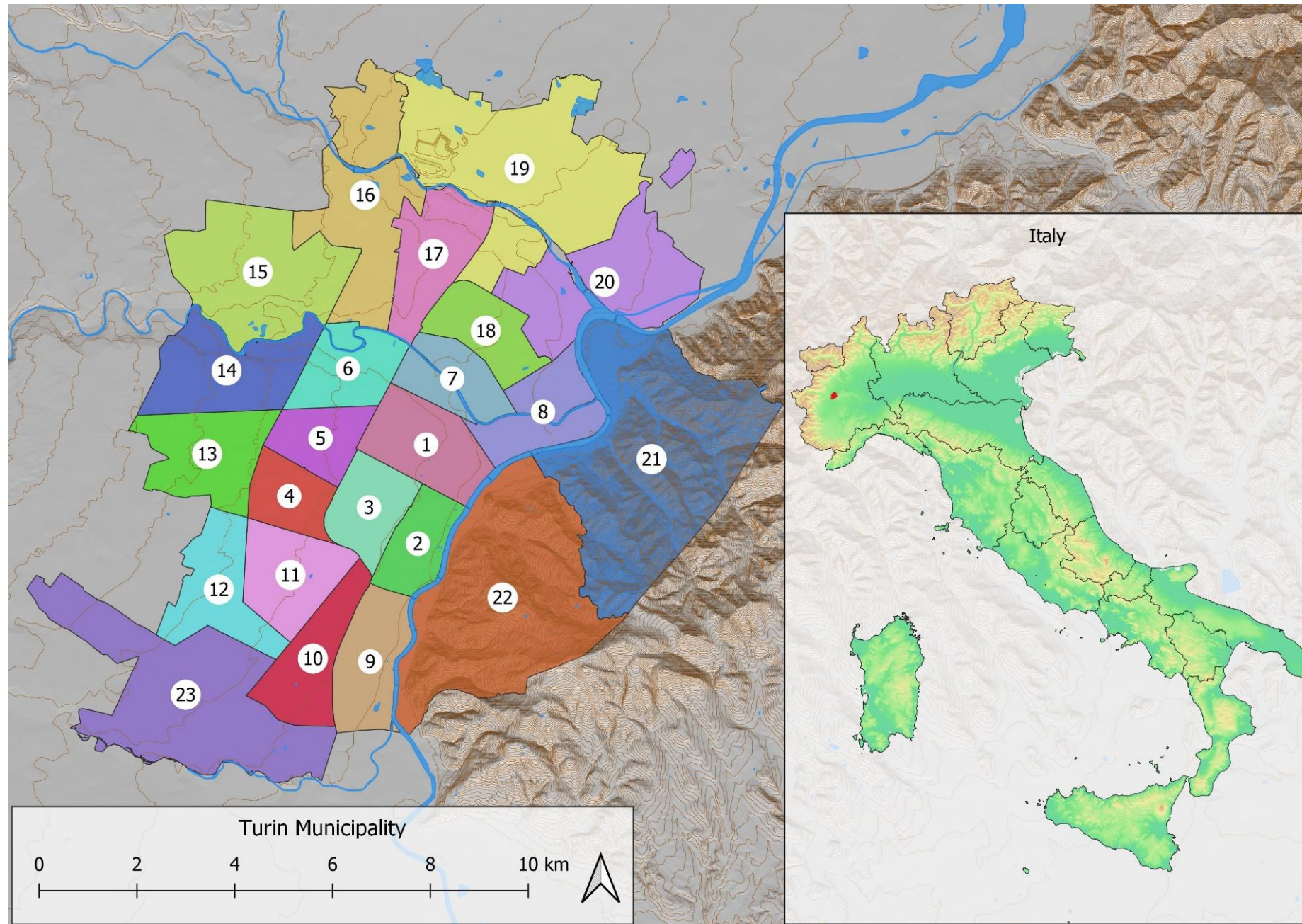
Credit: The Quadruple Helix Model adapted by Fraunhofer (2016), originally developed by Carayannis and Campbell (2009). Copyright © 2015 Fraunhofer.

<https://doi.org/10.1016/j.sheji.2019.04.002>



- Shrinking cities: post-Fordist cities still suffer from the 'vacuum (social, economic, but also spatial, 'terrain vague')' left by the industrial sector.
- Today, these 'vacuum' tend to be rethought as living laboratories through NbS experiments.
- Turin has distinguished itself in recent years in the active experimentation of NbS, participating in and obtaining various European funds.
- Turin, and Mirafiori (FIAT district) has become the flagship of a green transition.
- Torino signed the Climate City Contract: the goal is to reach the carbon neutrality in Europe by 2030.

Welcome to Turin!



Welcome to Turin!



Inauguration of Fiat Mirafiori,
Turin – May 15, 1939



Mirafiori Sud between the 1950s
and 1970s



The proGireg project



ProGireg (Productive Green Infrastructures for post-industrial urban Regeneration) was a five-year project (2018-2023) funded by the European Commission, under the Horizon 2020 programme, and is based on the implementation of nature for the urban regeneration of post-industrial areas in Europe and China.

The international partnership is composed by four front-runner cities (Turin, Dortmund, Zagreb and Ningbo) and four followers (Cascais, Piraeus, Cluj Napoca and Zenica).

<https://urbasofia.eu/en/progireg/>

The proGireg project

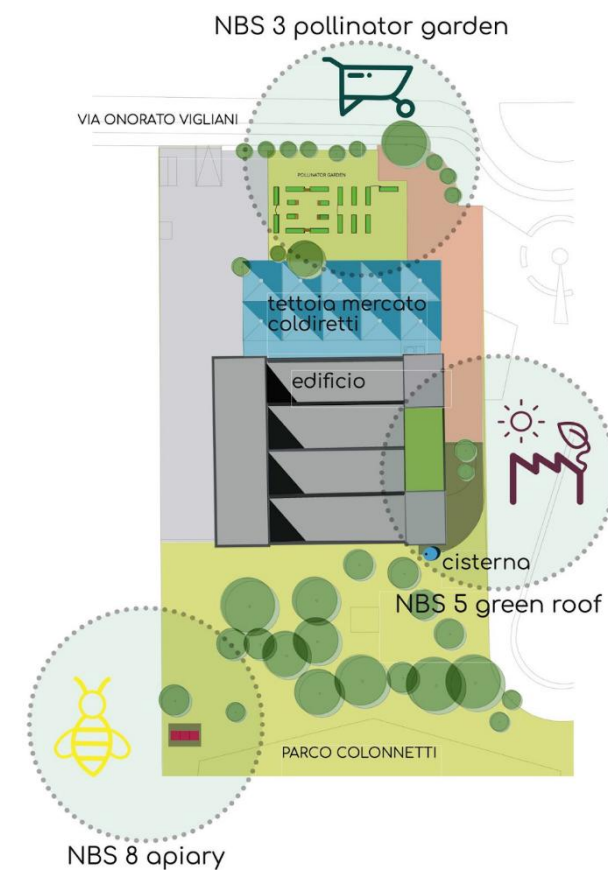


This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no. 776528.

In Mirafiori Sud 7 types of NbS were implemented.



<https://fondazionemirafiori.it/progireg-tutte-le-mappe-e-i-tour>



Sometimes NbSs work... Sometimes they don't..



Sometimes NbSs work... Sometimes they don't..







Orti Generali





Challenges

An initial analysis of the proGInreg case study revealed three main challenges with these NbS:

- NbS are considered 'diagonal green' (liminal space/solution), meaning that they are not formally recognized at the administrative level, making it difficult for anyone to take responsibility for them.
- The concept of NbS is not widely understood by the general public.
- NbS are sometimes designed primarily to meet human needs, with the needs of other living beings, such as plants, being considered only if time and funds permit..

While Urban Living Labs (ULLs) are known for fostering horizontal partnerships, it remains unclear how these arrangements can extend beyond experimental boundaries to produce lasting impacts.

- **Public-led governance:** Sensitized administrative actors—such as municipal officials and urban planners—play a crucial role in leading projects, managing conflicts, and setting up maintenance strategies.
- **Inclusive participation:** Citizen engagement is essential for sustaining NbSs. The "Green Corridor" example illustrates the challenges of maintaining greening initiatives without active community involvement.
- **Private-led governance:** The "Orti Generali" social enterprise model demonstrates how private actors can lead inclusive and sustainable maintenance strategies.
- **Nature as an active agent:** Moving from a quadruple to a quintuple helix model, make possible to think nature not as a passive object of maintenance but as an active participant. This shift could inspire new governance approaches and deepen the relationship between ecosystems and human practices.

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Luca Battisti, Federico Cuomo

POLITICHE DELLA NATURA E QUESTIONE CLIMATICA

Semi di cambiamento a Torino



FrancoAngeli

Nuove Geografie. Strumenti di lavoro

Chaire
UsinoVerT
usines & territoires