BOOK OF ABSTRACTS

This Book of Abstracts provides a comprehensive overview of the session content and is structured into three main sections:

I. Session Description – an introduction to each session, including its objectives and expected outputs
II. Session Program – a detailed schedule for each session, including speakers and timing
III. List of Abstracts – a complete compilation of all accepted abstracts

I. SESSION DESCRIPTION

ID: T14

Innovations in Urban Planning for Nature- and People-Positive Cities

Hosts:

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Host (s):	Andrea Benedini	Politecnico di Milano	andrea.benedini@polimi.it
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Abstract:
Contemporary cities now hold an unprecedented wealth of spatial data on biodiversity, ecosystem services (ES), climate risks, and social conditions. Nevertheless, urban planning practice remains largely anchored in outdated paradigms. Despite clear evidence of where ecological functions are strongest or most threatened, and a growing understanding of how nature-based solutions (NbS) can deliver multiple co-benefits, this knowledge rarely informs planning and policy decisions. The gap between evidence and action is most visible in cities, where priorities of short-term economic growth and infrastructure expansion still outweigh ecological integrity and long- term resilience.

ES science demonstrates where nature reduces risk, supports livelihoods, and enhances well-being, but such insights remain largely confined to preservation policies rather than driving the creation of adaptive and socially just cities. How much of this knowledge is truly reflected in urban strategies, and in the location and form of city functions? And how can planning evolve from a reactive, sectoral tool into a systemic framework that that mainstreams ecological and social values into housing, transport, energy, and industry?

Addressing these questions demands a radical shift. The European Nature Restoration Law and the Green Deal demand for more than protection: they call for net-gain. Cities must therefore move beyond safeguarding the existing by actively implement new NbS that expand ecological capacity, build resilience, and equitably deliver benefits across society. This requires robust spatial assessments, innovative planning instruments, and governance frameworks capable to embedding ecological goals at the heart of decision-making. Yet, approaches that systematically integrate ES assessment and NbS into the core strategies, instruments, and tools of urban planning remain scarce, fragmented, and often experimental, leaving a critical gap between scientific knowledge and planning practice.

This session will explore how such a shift can be translated into practice through real-world cases, organised around three complementary perspectives. The first focuses on analysis, evidencing how mapping, assessments, and decision-support tools can reveal where net-gain is most achievable. The second highlights strategic design, presenting co-design and participatory approaches that empower diverse actors to shape and implement new NbS. The third examines policy integration, demonstrating how planning standards, governance models, and performance-based frameworks can incorporate the net-gain principle as a structural aim of urban policy.

Through concise impulse talks and guided discussion, contributors and participants will jointly examine how these innovations can close the persistent evidence–action gap. The outcomes will be synthesised into a positioning paper offering clear

recommendations for researchers, practitioners, and policymakers, demonstrating how urban planning can mainstream ES and NbS and become a true driver of nature- and people-positive cities.

Goals and objectives of the session:

- Demonstrate how ES science can be operationalised in urban planning by showcasing cases that translate mapping, assessment, and modelling into concrete decisions.
- Explore approaches for strategic creation of new urban nature, highlighting how co-design and participatory processes can deliver socially just and ecologically ambitious outcomes.
- Identify innovations in policy and governance that make net gain of ES a structural principle of urban development.
- Bridge the evidence–action gap by critically examining why ES and NbS knowledge is still rarely embedded in planning instruments, and by discussing ways to overcome these barriers.
- Co-develop recommendations for European, national, and local actors on how urban planning can drive the transition towards genuinely nature- and people-positive cities.

Planned output / Deliverables:

The main output of this session will be a positioning paper that synthesises insights from the three perspectives — analysis, strategic design, and policy integration — and translates them into clear recommendations. The paper will set out how ES assessments and NbS can be mainstreamed in urban planning instruments to deliver net gain, resilience, and social justice.

Session format:

The session will run for 90 minutes and combine concise inputs with interactive dialogue. It will open with a series of impulse talks (3–5 minutes each), in which contributors present case-based examples of tools, approaches, or policy innovations. Each input will end with one or two key insights to frame the subsequent discussions.

Participants will then divide into three thematic groups, each reflecting one of the session's core perspectives: analysis, strategic creation, and policy integration. In these groups, contributors will facilitate discussions that bring participants into the co-creation of ideas, exploring challenges, opportunities, and recommendations for mainstreaming ES and NbS into urban planning practice. If participation is limited, groups may be merged to ensure a dynamic exchange.

The session will close with a plenary synthesis, where each group reports back three key messages. These messages will be clustered into a set of shared priorities, which will form the basis of the main session output: a positioning paper that distils actionable recommendations for researchers, practitioners, and policymakers.

Related to ESP Working Group:

TWG 14 – Application of ES in Planning & Management

II. SESSION PROGRAM

Room: **A2**
Date of session: **Wednesday 20, May 2026**
Time of session: **11:00 – 18:15**

Timetable speakers:

Time	First name	Surname	Organization	Title of presentation
11:00-12:30	**Block 1 – Analysis: revealing needs, potentials, and priorities**			
11:00-11:07				**Chair introduction and session framing**
11:07–11:15	Adriana	Aguirre-Such	TECNALIA Research & Innovation	Methodology for Quantifying the Demand for Green Infrastructure at Local Level
11:15–11:23	Małgorzata	Stępniewska	Adam Mickiewicz University in Poznań	Ecosystem services budgeting for urban street greenery interventions: Evidence from Poznań, Poland

11:23–11:31	Giovanna	Panza	University of Urbino Carlo Bo / CREN	Mapping ecosystem capacity for spatial planning: a pilot approach in Emilia-Romagna (Italy)
11:31–11:39	Sara	Vallecillo	Independent Scientific Consultant	How much tree cover is enough? Thresholds to enhance urban ecosystem services
11:39–11:49				***Q&A & discussion***
11:49–11:57	Grazia	Zulian	Leibniz University Hannover	A multiscale demand analysis applied to urban cultural ecosystem services: an application in Hannover, Braunschweig (Germany); Milan, Naples (Italy)
11:57–12:05	Grzegorz	Budzik	Wrocław University of Environmental and Life Sciences	Cooling benefits of Urban agriculture to inhabitants—mapping cooling potential of allotments in European functional urban areas
12:05–12:13	Claudia	Romelli	Poliedra, Politecnico di Milano	Nexus between the expansion of the logistic sector and land take through ecosystem services assessments: a case study from Piacenza, Italy.
12:13–12:21	Corrado	Zoppi	University of Cagliari	Regional spatial planning and global climate change: An ecosystem service-based approach concerning two Southern Italian Regions
12:21–12:30				***Q&A & discussion***
15:00-16:30	**Block 2 – strategic design: shaping and locating nature-based interventions**			
15:00–15:08	Erica	Bruno	LINKS Foundation	A Spatial Decision Support System for Co-Designing Nature-based Solutions
15:08–15:16	Thea	Wübbelmann	Leibniz University Hannover	Biodiversity-Climate-Health scenarios in Malta – following a backcasting approach to meet policy targets
15:16–15:24	Carlos	Calzadilla-Guerra	Ecologic Institute	Urban Vacant Land as a Lever for Nature-based Solutions: A Multi-Scalar Planning Framework for Latin American Cities
15:24–15:32	Luiza Vigne	Bennedetti	University of São Paulo	Urban Agriculture, Ecosystem Services and Net Gain: An Applied Planning Framework from São Paulo
15:35–15:45				***Q&A & discussion***
15:45–15:53	Kamaleddin	Aghaloo	Mykolas Romeris University	Performance assessment of rooftop rainwater harvesting systems using integrated GIS-Hydraulic simulation in susceptible cities: a case study of Tehran (Iran)
15:53–16:01	Kacper	Skotnicki	Jagiellonian University	Woonerf concept as a tool to implement NBS and ES into urban landscape: empirical data from Cracow, Warsaw and Wroclaw in Poland
16:01–16:09	Xian	Wu	University of Manchester	Planning Small Urban Green Spaces as Nature-based Solutions: Insights from Emerging NGO–State Collaborations in Chinese Cities
16:09–16:17	Elsa	Jacob	Buro Happold	Symbiosis: A Collaborative Nature-based Approach Centred on Water Systems for Sustainable Urban Development at Scale
16:20–16:30				***Q&A & discussion***
16:45-18:15	**Block 3 – policy integration: mainstreaming ES and NbS in planning practice**			
16:45–16:53	M. Susana	Orta-Ortiz	University of Trento	What practitioners need to develop ambitious Urban Nature Plans? Comparison between expectations and real-world planning practices
16:53–17:01	Erich	Wolff	Utrecht University	Urban Planning and Policy for Nature-based Solutions in Cities: Experiences from Nine Mediterranean Cities in CARDIMED

17:01–17:09	Silvia	Ronchi	Politecnico di Milano	From metropolitan climate–ecosystem standards to municipal action: a multiscale planning framework to mitigate Urban Heat Islands in the Metropolitan City of Milan
17:09–17:17	Beatrice	Mosso	Politecnico di Milano	From evidence to practice. Integrating Ecosystem Services–driven Green and Blue Infrastructure into urban planning tools
17:20–17:30				***Q&A & discussion***
17:30–17:38	Giulio Gabriele	Pantaloni	Politecnico di Torino	Operationalising the ES Paradigm in Local Planning: Insights from the Brandizzo Urban Plan (Italy)
17:38–17:46	Jaewon	Son	KIT / IIASA	Plural Valuation and Inclusive Governance for Urban Nature: Insights from Korea and Germany through the Nature Futures Framework
17:46–17:54	Tycho	Taeckens	HOGENT	Reconciling Densification and Urban Green in the Context of EU No Net Land Take and Nature Restoration Policies
17:54–18:15				***Q&A, discussion & final reflections***

III. ABSTRACTS

The first author is the presenting author unless indicated otherwise

1. Methodology for Quantifying the Demand for Green Infrastructure at Local Level

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Cities are rich in spatial data on biodiversity, ecosystem services (ES), climate risks, and social conditions, yet this information is often underutilized in urban planning. The ESPON GILL methodology offers a modular, data-driven, and integrated framework that translates ecosystem-service science into urban planning processes. It is adaptable to different spatial scales—from urban to landscape levels—allowing planning to address challenges of different nature and extent and can be implemented at any stage depending on a municipality's maturity level, considering data access, capabilities, and knowledge.

The methodology combines a review of local policies with spatial data analytics integrating land use, climate risks, socio-demographic information, and ecosystem services (ES) to identify key urban challenges such as heat stress, flooding, and biodiversity loss. Green infrastructure (GI) is delineated not only structurally but also through the ES it provides, enabling demand–provision analyses that assess where ES provision meets—or fails to meet—urban needs, testing a variety of existing tools. This approach reveals unmet-demand zones, where existing GI delivers insufficient ES. Spatial feasibility assessments and stakeholder input enable ES-based evidence into planning practice. The resulting planning recommendations, applicable to both strategic and statutory planning, support spatially explicit data-informed decisions aimed at achieving net gain in ES and GI provision. In line with the European Nature Restoration Regulation, the methodology contributes to Urban Nature Plans and the transition towards nature-positive development.

The ESPON GILL methodology has been tested across six diverse European case studies, providing valuable insights into its practical application. Through ongoing stakeholder consultations and feedback exchanges, the methodology has been adapted to different local contexts, capacities, and maturity levels. These iterative, real-world applications demonstrate how a structured, evidence-based approach can bridge the gap between scientific knowledge and urban planning decisions, offering a path to more resilient, nature-positive futures.

Keywords: Ecosystem Services, Green infrastructure, Spatial planning, Spatial data analytics, Evidence-based planning

2. Ecosystem services budgeting for urban street greenery interventions: Evidence from Poznań, Poland

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Contemporary urban planning increasingly requires tools that translate knowledge of ecosystem services (ES) into concrete spatial decisions, supporting nature- and people-positive urban development. This contribution presents an ES budgeting approach that supports urban planning practice by explicitly addressing spatial mismatches between ES supply and demand. Using the city of Poznań as a case study, we demonstrate how integrating supply potential with socially and biophysically differentiated demand can support strategic decisions on the maintenance and development of urban street greenery. Focusing on three key regulating services—noise attenuation, air pollutant filtration, and urban temperature regulation—the study identifies locations where interventions in street greenery can deliver the highest benefits.
The adopted ES budget, defined as the ratio between supply potential and demand, offers a valuable spatial decision-support tool by indicating areas of deficit and priority for action. Results suggest that the spatial distribution of demand varies significantly more across ES than supply potential, revealing substantial trade-offs and underscoring the need for integrated, multi-service planning approaches.
By mapping structure–process relationships and translating them into clear spatial recommendations, the approach directly addresses the evidence–action gap in urban planning. The study illustrates how ES assessments can move beyond descriptive mapping to actively guide planning decisions aimed at net gains in ES, enhancing urban resilience, and maximising the societal benefits provided by urban greenery.

Keywords: decision-support tools, prioritising restoration actions, regulating services, service supply–demand mismatch, urban greenery

3. Mapping ecosystem capacity for spatial planning: a pilot approach in Emilia-Romagna (Italy)

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The Emilia-Romagna Region (RER), through Urban Planning Law No. 24/2017, recognises the strategic role of Ecosystem Services (ES), particularly regulating services, in spatial planning. Within this framework, this contribution presents an operational methodology addressed to municipalities and provinces, based on the ecosystem approach, aimed at supporting the preparation of spatial planning instruments in response to the challenges posed by urban planning legislation. The proposed approach seeks to strengthen the knowledge base of plans in a diagnostic sense, moving beyond a purely descriptive interpretation of environmental components and providing elements to consciously guide land-use governance choices towards sustainability, resilience, and natural capital protection.

The method involves the development of an Environmental System Map (ESM), derived from land-use, forest cover, and habitat data. Each territorial unit of the ESM is assigned ES supply values (on a 1–5 scale) following Burkhard et al. (2009–2013). A specific matrix enables the attribution of these values by combining environmental typologies with local modulation factors derived from quantitative assessments (e.g. slope, etc.). Values are mapped onto a 500×500 m grid and interpolated to generate continuous ES supply maps.

The resulting maps highlight the spatial distribution of ecosystem capacity, identifying both areas of high ecological potential and critical zones affected by soil sealing, degradation, or environmental fragmentation. These outputs provide a decision-support tool for territorial diagnosis, the identification of intervention priorities, and the orientation of planning and regeneration strategies, including the implementation of Nature-based Solutions.

This approach helps bridge the gap between scientific evidence and planning practice, offering an operational and replicable tool to integrate ES into territorial decision-making processes. Such an approach should be incorporated into the process for defining Nature Credits (Brussels, 7.7.2025, COM(2025) 374 final), ensuring that emerging instruments are science-based, practically feasible, and aligned with EU and international objectives.

Keywords: Ecosystem Services, Ecosystem-based Approach, Integrated Spatial Planning, Knowledge and Diagnostic Framework

4. How much tree cover is enough? Thresholds to enhance urban ecosystem services

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Ecosystem restoration is gaining increasing policy relevance, as reflected in the United Nations Decade on Ecosystem Restoration, the Kunming–Montreal Global Biodiversity Framework, and the Nature Restoration Regulation. A key challenge at the science–policy interface is identifying how much restoration is needed to recover ecosystem integrity and maximize ecosystem service delivery, given the lack of robust, ecologically grounded thresholds.
This study presents an approach to identify restoration thresholds for urban tree cover based on quantified relationships between tree cover and ecosystem services. We analyse how tree cover influences the capacity of urban ecosystems to deliver flood control, local climate regulation and nature-based recreation—services that are critical for climate resilience and human well-being. Urban ecosystems are defined as local administrative units classified as cities, towns and suburbs, in alignment with the Nature Restoration Regulation.
Using a data-smoothing technique to reduce noise in spatial datasets, we derive response curves describing how the proportion of urban areas with high ecosystem service potential varies along a gradient of tree cover. Ecological thresholds are identified directly from these relationships and interpreted as potential restoration targets for optimizing ecosystem service provision.
Applied at the European Union level, the approach indicates that urban areas need to reach 30–35% tree cover to achieve high capacity for the joint provision of recreation, flood control, and local climate regulation. We further suggest that, from an urban planning perspective, implementation of these target should prioritise areas with high ecosystem service demand as this can maximise ecosystem service benefits.
Overall, the study provides robust ecological evidence supporting the principles of the '3-30-300 rule' —in particular, the guideline that urban neighbourhoods should achieve at least 30% tree cover—and contributes to translating ecosystem service assessments into actionable urban restoration targets.

Keywords: ecological thresholds, restoration, urban ecosystems, tree cover, ecosystem services

5. A multiscale demand analysis applied to urban cultural ecosystem services: an application in Hannover, Braunschweig (Germany); Milan, Naples (Italy)

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Public green spaces are a key area providing cultural ecosystem services in urban environments. Among the different types of green spaces, local urban playgrounds are small but essential components that promote social inclusion, wellbeing, and provide spaces for children to play outdoors.
This study proposes a multi-step procedure to analyze the demand for local playgrounds. It combines concepts of Ecosystem Services, spatial accessibility analysis techniques, and multiscale analysis of demand patterns, considering socio-economic and structural urban variables. The procedure is applied to four European cities: Hannover and Braunschweig in Germany, and Milan and Naples in Italy. It uses open-source datasets such as Open Street Map, GHSL (EMC-BUILT), Landsat, and High Resolution 1m Global Canopy Height Maps. Socio-demographic variables and demand are estimated using national census data. Open-source spatial libraries used include pysal (mgwr and access).

Accessibility to public green spaces, including local urban playgrounds, is essential for quality of life in urban areas. From an operational perspective, accessibility serves as a proxy for direct use of cultural ecosystem services. In this study, accessibility is measured using the Enhanced Two-Stage Floating Catchment Area method (E2SFCA), which combines supply capacity and demand. Supply capacity is based on the attractiveness of playgrounds, defined by "perceived naturalness," and a maximum capacity estimate. Demand is based on the population in need of the service, estimated as children aged 0-9 years old. The Multiscale Geographically Weighted Regression (MGWR) technique is used to analyze geographically varying characteristics that affect accessibility to local urban playgrounds.
The Global Moran's I analysis shows that the Degree of Naturalness of public playgrounds is spatially clustered in all cities except Naples, with particularly strong patterns in German cities. When combined with the percentage of local urban playgrounds relative to demand, the results suggest that German cities, which have higher playgrounds relative to child demand, exhibit clearer spatial clustering of playground naturalness. In contrast, Italian cities, particularly Naples, show lower playground provision and less coherent spatial patterns, indicating potential disparities in access to natural play environments.
The Multiscale geographically weighted regression strongly outperforms global models, increasing explained variance from 0.04–0.70 to 0.79–0.97 across all cities. While global intercepts are near zero due to standardization, their significant spatial variability reveals strong local differences in baseline playground accessibility beyond observed covariates. Residential population density consistently increases accessibility, non-residential land use reduces it, and green space shows context-dependent effects, highlighting the value of MGWR for capturing spatial non-stationarity in urban accessibility analyses
This approach provides a comprehensive exploratory evaluation of not only the distribution of cultural ecosystem services supply and demand but also the structural and socio-demographic factors influencing service demand. By identifying these determinants, the study offers valuable insights that can inform urban planning and policy decisions. Furthermore, this methodology has the potential for global application, provided consistent census data are available. It could help cities worldwide to better understand and optimize their green space amenities, ultimately enhancing urban quality of life.

Keywords: Sustainable landscape management, geostatistics, urban ecosystem services, open source models

6. Cooling benefits of Urban agriculture to inhabitants—mapping cooling potential of allotments in European functional urban areas

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As climate change accelerates and open urban spaces diminish, multifunctional urban planning solutions that enhance multiple ecosystem services (ES) are essential. Urban agriculture, particularly allotment gardens, plays a key role in addressing these challenges. This study assesses the cooling potential of all allotments across European Functional Urban Areas (FUAs) in terms of area cooled, maximum cooling distance and intensity, cooling effectiveness, and the population benefiting from cooling services, using a custom watershed-based tool, OpenStreetMap data, and land surface temperature from Landsat 8/9. Allotments were classified according to their proximity to blue-green infrastructure (BGI) and the types of cooled built-up areas, employing the concept of local climate zones and NDVI statistics. Results show that allotments provide cooling services to 4.1 million people within FUAs, with 1.7 million in Germany. Each square kilometre of allotments cools an average of 8,221 people, with the cooled area being, on average, 2.8 times larger than the allotment size. The most effective allotments are in Brussels, where each square kilometre cools about 100,000 people. In terms of urban morphology, urban agriculture was 23 % more efficient than peri-urban agriculture, independent allotments demonstrated effectiveness comparable to those located in proximity to larger BGI objects, and only 5 % of allotments cooled areas with the highest heat risk. This is the first large-scale assessment of the cooling ES provided by urban agriculture in Europe, quantitatively indicating that urban planning should prioritize allotment placement near dense urban areas while maintaining their optimal size to maximize urban heat island mitigation.

Keywords: Ecosystem services, urban agriculture, urban cooling, remote sensing, functional urban areas

7. Nexus between the expansion of the logistic sector and land take through ecosystem services assessments: a case study from Piacenza, Italy

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The evolution of market and sales strategies adopted by companies, together with the rapid growth of e-commerce, has substantially transformed the way goods are bought and sold. These changes have multi-scalar implications, affecting not only socio-economic dynamics but also environmental systems. According to the latest land take report by the Italian Institute for Environmental Protection and Research (ISPRA), the development of logistics activities and the reorganisation of supply chains play a key role in land consumption in Italy, with more than 6,000 hectares consumed since 2006 and a substantial acceleration in the period after COVID-19.
This study examines the development of logistics settlements in the Province of Piacenza, Italy and assesses the associated loss of ecosystem services (ES) resulting from land take between 1994 and 2025. The assessment is articulated on two levels. A first, qualitative and semi-quantitative analysis applies a lookup-table methodology aligned with the Provincial Territorial Area Plan (PTAV) and regional guidelines, using historical and current land-use maps to evaluate the ES supplied by areas prior to their transformation. Seven ES are considered, including carbon regulation, agricultural production, hydrological regulation, and protection from extreme events, with specific attention to the pre-existing levels of ES provision affected by logistics-related land take. A second level of analysis focuses on selected services most significantly affected by land consumption, for which quantitative estimates are developed using biophysical indicators.
The results contribute to an ongoing, comprehensive regional study on the logistics sector and are intended to support provincial spatial planning and decision-making. In particular, the study provides evidence to support criteria for the localisation of future logistics developments, the protection of areas with high ES supply, and the definition of mitigation or compensation measures, thus offering a practical example of how ES assessment can inform land governance decisions.

Keywords: logistics, land take, ecosystem services mapping, territorial governance, Italy

8. Regional spatial planning and global climate change: An ecosystem service-based approach concerning two Southern Italian Regions

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Climate change presents significant threats to human health, influencing both physical conditions and mental well-being. Reducing these impacts depends on keeping the carbon cycle in balance, since carbon dioxide helps control the planet's temperature by shaping the behavior of greenhouse gases. In accordance with the Paris Climate Agreement, which aims for climate neutrality by the end of the century, the objective is to keep global warming within 1.5 °C by reaching a balance between carbon released into the atmosphere and carbon removed from it. Yet the carbon that is already accumulated in the atmosphere could still drive roughly 0.6 °C of additional warming, even if emissions ceased immediately. For this reason, attaining net-zero emissions is crucial to avoid surpassing the temperature threshold and underscores the need to understand how ecosystems store and capture carbon.
This study introduces a methodological approach to achieving climate neutrality through planning strategies, relying on the Carbon Capture Capacity (CCC) indicator to evaluate existing conditions and emerging patterns. CCC is examined together with five ecosystem services (ESs): reduction of heat stress, habitat quality, agricultural and timber outputs, scenic value, and the potential for outdoor recreation (POA). The analysis investigates spatial relationships between CCC and these ESs in Basilicata and Campania to assess how multifunctional ecosystems can strengthen carbon sequestration and support global climate-neutrality goals.
The spatial distribution of CCC is derived using the "Carbon Storage and Sequestration" module in the InVEST software, which calculates carbon stored in above- and below-ground vegetation, dead organic matter, and soils. Findings indicate that heat-stress reduction and habitat quality show the strongest positive associations with CCC, while POA has a moderate

influence. Agricultural and timber production, along with scenic value, display weaker connections; however, scenic value highlights the importance of carefully locating photovoltaic and wind energy systems to preserve landscape character.

Keywords: Carbon sequestration, Climate neutrality, ecosystem services

9. Cooling benefits of Urban agriculture to inhabitants—mapping cooling potential A Spatial Decision Support System for Co-Designing Nature-based Solutions

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Nature-Based Solutions (NBS) are widely recognised as effective approaches to address urban challenges such as heat stress, flooding, and biodiversity loss. However, early-stage NBS selection is often constrained by decision-support tools that are either focused on a single ecosystem service, not spatially explicit, or difficult to use for non-specialists, limiting their value in participatory co-design processes where transparency and accessibility are essential.
We present a Spatial Decision Support System for NBS (SDSS4NBS) designed to support the first phase of co-design process by helping users: (1) identify NBS typologies that best address locally prioritised challenges while fitting a site's spatial characteristics, and (2) explore stakeholder preferences by comparing alternative spatial arrangements of NBS.
Users delineate the project area on an interactive map and select local challenges. SDSS4NBS translates these priorities into MCDA weights, linking the why (locally prioritised urban challenges and desired ecosystem services) with the what (NBS typologies) to produce an initial ranking of candidate options. The ranked NBS are then refined through the where (site-suitability screening), resulting in transparent, evidence-based and site-specific recommendations. Users can then place selected NBS on the map to build and compare alternative scenarios, supporting multi-stakeholder discussion and consensus-building.
SDSS4NBS is being developed within the Horizon Europe project CLIMAGEN and will be applied in one of the pilot cities to support the NBS co-design process. Beyond the project, the tool is intended for technical staff, policymakers, and community members, and can also support education, awareness-raising, and operational decision-making.

Keywords: Decision Support System; Nature-Based Solution; Co-design; Ecosystem Services; Urban Design

10. Biodiversity-Climate-Health scenarios in Malta – following a backcasting approach to meet policy targets

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While the positive effects of urban natural environments on human health is well-known, how to ensure these environments in planning to provide synergistic solutions to climate change, biodiversity and health (BCH) simultaneously, such as Nature-based Solutions, remains poorly understood. In our presentation, we introduce a study on BCH synergistic scenario, following a GIS-based backcasting approach based on policy goals and targets in the case study of Malta.
Backcasting is an innovative urban planning approach, formulating desired future scenarios based on existing targets in order to consequently address these targets in the future.
Our methodology involves a multi-step approach: First, we conducted an analysis of relevant policy documents to identify key targets, including greenhouse gas reduction, increases in renewable energy use, pollution and emission reduction, a modal transit shift, and urban ecosystem restoration. Second, we engaged with stakeholders through interviews to uncover challenges, barriers, and enablers to implement BCH synergistic solutions. Key insights highlighted the importance of interdepartmental communication and collaboration, the need for accessible green spaces, enhanced public knowledge, and the challenge of ownership and responsibility in driving change.
The final component of our approach involved GIS-based backcasting to spatially map potential BCH synergistic scenarios. Based on the policy documents and stakeholder interviews, we suggest following scenarios: solar panels over car parks combined with grass grid pavers, cycling lanes to promote sustainable and active mobility, expanded number of trees in

parks, and urban green connectivity by introducing more park areas.
By effectively integrating BCH synergistic scenarios following a process such as backcasting, urban areas like Malta can make meaningful progress toward ecological sustainability and improved ecosystem services. Backcasting guides policymakers and urban planners in developing resilient cities to tackle the intertwined challenges of climate, biodiversity, and health.

Keywords: Planetary Health, Backcasting Scenarios, Biodiversity-Climate-Health Nexus, Stakeholder Involvement, GIS

11. Urban Vacant Land as a Lever for Nature-based Solutions: A Multi-Scalar Planning Framework for Latin American Cities

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Latin American cities face increasing climate risks in contexts of deep socio-spatial inequality, making them hotspots of vulnerability. While Nature-based Solutions (NbS) are widely promoted as cost-effective approaches to deliver ecosystem services and climate adaptation benefits, their large-scale implementation is constrained by limited space, fragmented governance, and weak planning integration.
Urban Vacant Land (UVL) represents a substantial but underutilized resource in many Latin American cities, with the potential to support NbS while simultaneously addressing climate risks, ecological degradation, and social inequities. However, the absence of standardized planning frameworks, technical guidance, and financing mechanisms has hindered the systematic integration of NbS in UVL.
This contribution presents the guidance framework “Re-Nature the City: Nature-based Solutions in Urban Vacant Land in Latin American Cities”, an evidence-based, modular, and multi-scalar decision-support tool designed to operationalize NbS and ecosystem services within urban planning. The framework integrates decision framing, vulnerability assessment, UVL mapping and prioritization, multi-scale NbS planning and design, co-creation processes, and financing pathways.
By bridging gaps between ecosystem services, NbS, policy, spatial planning, and governance, the guide supports cities in strategically repurposing vacant land in new developments or standalone measures for Latin American cities (LAC) to become more resilient, sustainable and equitable while mainstreaming nature into urban environments.

Keywords: Nature-based Solutions, Urban Vacant Land, Latin-American Cities, Ecosystem Services, Urban Planning

12. Urban Agriculture, Ecosystem Services and Net Gain: An Applied Planning Framework from São Paulo

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Urban centers face complex socio-environmental challenges, including climate change impacts, environmental degradation, food insecurity, and unequal access to green infrastructure. Nature-based Solutions (NbS) have emerged as promising strategies to address these challenges while enhancing urban resilience and social equity. Among them, Urban Agriculture (UA) stands out as a multifunctional practice capable of delivering ecosystem services (ES), strengthening community engagement, and supporting more equitable urban development.
This study presents an applied methodological framework developed through a case study in the city of São Paulo, Brazil, aimed at supporting evidence-based decision-making in urban planning and climate policy. The methodology integrates spatial assessments of habitat quality, socio-environmental vulnerability, and access to green areas to identify priority zones for UA implementation. Habitat quality mapping was used to evaluate urban ecological conditions and to identify environmentally sensitive areas where UA could pose risks to biodiversity. Socio-environmental vulnerability was assessed using indicators related to income, informal settlements, and sanitation deficits, highlighting territories where UA interventions could contribute to reducing social inequalities. In parallel, disparities in access to green areas were analyzed to prioritize low-income populations with limited access to ecosystem services.
An integrated spatial analysis overlaid ecological, social, and accessibility layers to define Priority Zones for UA, where ecological potential aligns with social demand. The results reveal pronounced spatial inequalities in access to green infrastructure across São Paulo, disproportionately affecting low-income sub-municipalities. While areas of high ecological

value, particularly in the southern region of the city, require protection and careful planning, extensive urban areas with lower ecological sensitivity present significant opportunities for UA implementation.
Overall, the findings demonstrate how integrated mapping and assessment tools can inform real-world policy and planning by identifying locations where UA can contribute to a net gain in ecosystem services, enhance food security, support climate adaptation, and promote social equity outcomes.

Keywords: Nature-based Solutions, Ecosystem services, Urban agriculture

13. Performance assessment of rooftop rainwater harvesting systems using integrated GIS-Hydraulic simulation in susceptible cities: a case study of Tehran (Iran)

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Rainwater harvesting (RWH) systems have potential for water supply and management and for reducing urban runoff flood risk. However, their effectiveness in extreme weather events remains a topic of debate, and further research is necessary to provide evidence for their adoption at large scales and to support planning and policymaking. This study assesses the water-saving efficiency and flood-reduction capacity of a typical rooftop RWH system in a city under current and future climate scenarios. A flood susceptibility map was created using GIS-based multicriteria analysis, and a continuous water-mass balance simulation with historical rainfall data was employed to analyse RWH's water-saving performance. Results indicate that rooftop RWH systems can be broadly integrated into urban drainage networks. They can be used to sustainably manage water for emergency supplies and reduce flood severity during regular and heavy short-term rainfall events. Implementing decentralised rooftop RWH systems can enhance water infiltration and regulation in cities, significantly reducing the risk of severe downstream flooding. Additionally, integrating RWH with other nature-based solutions, such as green roofs, is recommended for their multifunctionality and co-benefits for building urban resilience. This research can assist planners and policymakers in advancing sustainable cities and communities (Sustainable Development Goal 11).

Keywords: Climate change adaptation, flood mitigation, nature-based solutions, stormwater management, urban resilience

14. Woonerf concept as a tool to implement NBS and ES into urban landscape: empirical data from Cracow, Warsaw and Wroclaw in Poland

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Over recent decades, the woonerf concept has emerged as a widely adopted approach for transforming streets into more vibrant and liveable public spaces. Initially developed in the Netherlands, it has since been implemented across Europe, Asia, and North America (Dudek, 2019). A woonerf street is a shared urban space that integrates the functions of a local street, pedestrian area, parking, and neighbourhood meeting place, while giving priority to pedestrians and cyclists. It is intentionally designed to enhance road safety, support social interaction, and improve spatial quality through traffic-calming strategies and high-standard urban design, while maintaining limited local vehicle access (Kopeć, 2014). Although commonly applied to address mobility and traffic-related challenges, woonerf streets also present substantial opportunities for integrating Nature-Based Solutions (NBS) and enhancing urban well-being through Ecosystem Services (ES) (Johansson, 2024). To better understand how woonerf environments can function as spatial transmitters of NBS and ES, a holistic, empirical investigation was conducted in three Polish cities: Cracow, Warsaw, and Wroclaw. Fieldwork combined participatory observation, pen-and-paper interviews, and behavioural cartography to capture social, spatial, and daily mobility patterns as well as people's opinion on the particular solutions of the streetscape. By presenting both the collected data and the methodological framework, the study offers empirical insights into the potential of woonerf streets to support more sustainable, resilient, and climate-responsive urban landscapes, while informing practical strategies for embedding NBS and ES into street design.

Keywords: woonerf, sustainability, nature-based solutions, ecosystem services

15. Planning Small Urban Green Spaces as Nature-based Solutions: Insights from Emerging NGO–State Collaborations in Chinese Cities

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Cities worldwide are experimenting with nature-based solutions (NBS) to enhance ecological performance, resilience, and social wellbeing. Yet, despite growing spatial evidence on where ecological functions are strongest or most threatened, the integration of ecosystem service (ES) knowledge into urban planning systems remains partial and uneven. This gap is pronounced in rapidly densifying Chinese cities, where planning frameworks prioritise performance metrics and large-scale greening targets, while overlooking the finer-grained governance arrangements that shape how small urban green spaces (SUGS) are planned, designed, and maintained.

This paper examines the emergence of SUGS—pocket parks, micro-gardens, community gardens—as experimental planning instruments that offer opportunities to embed ES and NBS principles into urban decision-making. Drawing on preliminary conceptual work for an ongoing doctoral project, it analyses how collaborations between municipal authorities and non-governmental organisations (NGOs) are reshaping the planning and governance of these spaces. These collaborations introduce new forms of co-design, participatory engagement, and community stewardship, yet remain constrained by hierarchical governance logics and fragmented institutional responsibilities.

By situating SUGS within contemporary debates on evidence–action gaps, the paper argues that NGO–state partnerships can serve as boundary-spanning mechanisms that translate ecological assessments into locally meaningful interventions. However, their potential to deliver people- and nature-positive outcomes depends on how planning instruments, governance models, and participatory practices are aligned. The discussion connects with emerging work on inclusive NBS (e.g., T20c), highlighting the need for planning frameworks that centre equity, community empowerment, and fair distribution of benefits.

Overall, the paper contributes a conceptual entry point for understanding how small-scale NBS can be mainstreamed within urban planning, and the conditions under which cross-sector partnerships can move beyond experimental pilots to support systemic, long-term ecological and social gains.

Keywords: Small urban green spaces; urban planning; nature-based solutions; governance; NGO–state collaboration

16. Symbiosis: A Collaborative Nature-based Approach Centred on Water Systems for Sustainable Urban Development at Scale

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The complexity of our human settlements calls for holistic coordination, yet sustainability is often reduced to a perfunctory box-ticking exercise, with siloed stakeholders and policy fragmentation impeding the implementation of genuinely interconnected strategies. The paper elevates nature-based solutions (NbS) as indispensable interfaces between natural and urban systems, and introduces policy pathways alongside an integrated geospatial collaboration platform, designed to ensure that infrastructure and planning agendas are shaped in accordance with the needs of communities reliant on the services these ecosystems provide. With hydrological systems at the heart of any successful nature-based strategy, the UK water sector has both incentives and opportunities to spearhead NbS implementation at scale; what better way to advance more resilient social-ecological-technological development, if not through a compelling shared narrative?

The proposed platform, piloted through a UK-based project, operates across five interlinked collaborative functions at the confluence of cross-sectoral stakeholders: data fusion, gap analysis, co-creation, adaptation, and learning. There is a need for an open-source mindset, supported by constant, accessible and visually coherent information, which would empower systems thinking champions among designers, developers, authorities, and communities to collectively drive sustainable development.

It is no small undertaking; yet, just as minimising whole life-cycle carbon emissions began as voluntary efforts, standard methodologies are now embedded in the Greater London Authority Plan. So too could this paradigm shift in urban design through natural capital be implemented in local planning policy, aggregating situational insights into a data-rich picture of NbS development to inform national plans and investments. In the UK, this is particularly pertinent with upcoming regulatory changes requiring Nationally Significant Infrastructure Projects to secure at least 10% Biodiversity Net Gain over 30 years. Beyond country boundaries, this conceptual framework could enable international solidarity levies that finance NbS where they are most beneficial and just in their protection against climate change.

Keywords: Ecosystem-led approach, GIS collaborative platform, Infrastructure and planning policy, Nature-based solutions, Systems thinking at scale

17. What practitioners need to develop ambitious Urban Nature Plans? Comparison between expectations and real-world planning practices

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This impulse talk presents the results of a Delphi survey (conducted within the Horizon Europe BioAgora project) aimed at identifying knowledge needs to draft ambitious urban nature/greening plans (UNPs). The survey explored particularly the role of biodiversity and ecosystem services knowledge in the following planning stages: vision development, baseline condition assessment, targets identification, and action and priority definition. The participants were ten planners and policymakers who had recently contributed to “greening” plans in European cities.
The first round of the survey captured participants’ planning experience and reflected on good practices, recurring challenges, and the extent to which key content (e.g., biodiversity and greening indicators, accessibility considerations) was addressed in the plans. By linking general reflections to concrete plan examples, it clarified what practitioners consider necessary for ambitious UNPs and where current planning practice still falls short. The second round focused on four key topics that have emerged (biodiversity, ecosystem condition, cultural ecosystem services, and climate adaptation), alongside cross-cutting needs related to measurable targets, intervention prioritisation, and coherence with other policy instruments. The results identified a set of critical issues in how plans move from ambition to implementation. Particularly, the participants reported that ecosystem services are frequently mentioned yet not fully operationalised to guide targets, priorities, or spatial decisions. A frequently reported knowledge gap concerned climate adaptation and ecosystem conditions: current indicator sets were widely viewed as insufficient, with a clear need for locally tailored metrics.

Keywords: Urban Nature Plans, practitioner knowledge needs, planning indicators, biodiversity, ecosystem services

18. Urban Planning and Policy for Nature-based Solutions in Cities: Experiences from Nine Mediterranean Cities in CARDIMED

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The implementation of nature-based solutions (NbS), such as green walls, constructed wetlands and green corridors, is gaining momentum globally. Due to their multifunctional potential, NbS are promising solutions to support biodiversity, increase urban resilience and contribute to nature-positive urban development. Current research on NbS in cities, however, is still reliant on experiments and demonstration projects and many gaps remain in our understanding of how these solutions can gain scale in practice. Responding to these gaps, we explore the different ways in which these solutions are adopted by building upon the experiences from nine different demonstration sites through the Climate Adaptation and Resilience Demonstrated in the Mediterranean project (CARDIMED). Examining urban planning practice and policy innovations in CARDIMED, we explore how to “mainstream” NbS, here understood as an “ongoing incremental process of creating and re-forming the institutional order of existing governance arrangements that determine how planning takes place”. The demonstration sites show that the implementation of NbS depends on innovative urban planning practices that

are premised on integrating policies, supporting collaborative management and building networks to foster co-stewardship. Examples from Portugal, Greece and France illustrate how different stakeholders are adapting existing procedures, circumventing restrictions and inspiring action through pilot projects. The projects show that the mainstreaming of NbS can entail the disruption of existing practices to create opportunities for experimentation with new technologies or more inclusive decision-making processes. The examples provide important insights into how cities in similar social, political and bioclimatic conditions in the Mediterranean region can embrace transformative change through urban planning innovations. Aligned with a growing body of literature on urban policy and planning for climate adaptation, our experiences show that mainstreaming NbS depends on finding ways for existing institutions to support greening practices and on transforming these institutions to accelerate the transition towards nature-positive cities.

Keywords: nature-based solutions, mainstreaming, nature-positive, mediterranean, policy

19. From metropolitan climate–ecosystem standards to municipal action: a multiscale planning framework to mitigate Urban Heat Islands in the Metropolitan City of Milan

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Urban Heat Islands (UHI) are intensifying health, energy, and social risks, particularly in European metropolitan regions, while planning systems still struggle to translate knowledge of ecosystem services (ES) and climate indicators into operational and regulatory spatial instruments.
Despite a growing body of research on UHI in terms of drivers, impacts, and mitigation strategies, limited attention has been paid so far to how climatic evidence and ES assessments can be embedded within statutory planning frameworks and transformed into enforceable planning standards across governance scales.
In this research, we address the persistent evidence–action gap by proposing a multiscale, governance-oriented framework that aligns metropolitan climate–ecosystem guidelines with municipal planning practice, using the Metropolitan City of Milan (Italy) as a case study.
The framework builds on the Metropolitan Territorial Plan (PTM), i.e., the metropolitan-level spatial planning instrument and its thematic strategy for microclimate regulation (STTM1), which already integrates ecosystem-service approach, landscape–environmental units for addressing planning strategies, and performance-based planning standards. The research investigates how these supra-municipal guidelines are implemented, adapted, or partially adopted within municipal plans, and examines the institutional and technical conditions that enable or constrain vertical alignment.
The methodology combines metropolitan and local planning-instrument analysis with climatic assessment using satellite-derived temperature. Ultimately, we aim at: a) corroborating metropolitan landscape units, overcoming assumptions of spatial homogeneity; b) constructing a prioritization matrix that integrates thermal exposure, land-use features, feasibility, and social vulnerability to support the spatial and temporal programming of priority areas for urban heat mitigation; c) veryfing to what extent municipalities internalize metropolitan indicators and translate them into operational tools (such as zoning regulations or climate-resilient design standards).
The research intends to investigate the gap between strategic climate knowledge, especially related to urban heat mitigation and its practical implementation in planning.

Keywords: Spatial planning, Urban Heat Island, Ecosystem Services, Nature-based solutions, Multilevel governance

20. From evidence to practice. Integrating Ecosystem Services–driven Green and Blue Infrastructure into urban planning tools

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Contemporary European policies, including the Green Deal and the Nature Restoration Law, call for a decisive shift from safeguarding existing ecosystems towards a net-gain approach that actively expands ecological capacity in cities. Urban areas concentrate population, infrastructure, and climate risks, yet planning practice often remains disconnected from the increasing availability of spatial evidence on ecosystem services (ES) and nature-based solutions (NbS). As a result, ES

assessments rarely inform core planning strategies shaping land use, public investment, and urban transformation.
This contribution presents an ecosystem services–based planning framework designed to bridge this gap by integrating ES assessment and green–blue infrastructure (GBI) to inform climate adaptation strategies within statutory urban planning. The framework combines three complementary components. First, it delivers a spatial analysis of ES supply and demand for climate regulation functions—specifically temperature mitigation and stormwater management—to identify where ecological net-gain is both most needed and most achievable. Second, it supports strategic design by translating ES evidence into a multifunctional GBI structure that differentiates areas requiring strict protection of existing ecological functions from areas where targeted enhancement through NbS can generate multiple co-benefits. Third, it links these analytical and design outputs to planning instruments, demonstrating how NbS can be operationalised through zoning rules, public-space strategies, and implementation guidelines.
The framework was applied during the revision of the Municipal Plan of Varese (Italy), producing (i) an urban-scale ES assessment identifying climate-vulnerable areas, (ii) a GBI strategy explicitly structured around ES preservation and enhancement objectives, and (iii) a pilot NbS project illustrating how net-gain principles can inform concrete interventions in public space. The results show how ES-based evidence can move beyond diagnostic mapping to actively shape planning decisions, support cross-sectoral dialogue, and reposition climate adaptation as a spatially explicit and equity-oriented planning objective. By operationalising ES and NbS within statutory urban planning, the study contributes practical tools for mainstreaming ecological net-gain into everyday planning practice.

Keywords: Green & Blue Infrastructure, climate adaptation, spatial planning, urban planning

21. Operationalising the ES Paradigm in Local Planning: Insights from the Brandizzo Urban Plan (Italy)

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The EU has recently set ambitious climate and biodiversity goals, reinforced by the Nature Restoration Law, which promotes a shift from conservation to active ecosystem restoration by establishing legally binding targets.
Therefore, understanding and considering the effects of planning choices (development scenarios) on ecosystem performances is a strategic objective for public administrations.

Within this framework, we present the case of Brandizzo, an Italian municipality in the Metropolitan City of Turin, located in the Piedmontese Po Valley, in a transitional area between the urban context of Turin and the surrounding countryside, where the ES paradigm is embedded in the design of the new Urban Plan.

The Plan, drafted in accordance with the integrated co-planning and Strategic Environmental Assessment (SEA) procedure established by Piedmont regional legislation (RL 56/1977 as amended by RL 3/2013), adopts a land-use regulation approach aimed at ensuring appropriate land use while limiting soil consumption.

To generate spatially explicit information on soil ecological performance, the Plan employs statistical models based on the methodological and operational legacy of the EU Lifesam4CP Project, implementing the tool Simulsoil by 2.0 version. This enables the assessment and visualisation of soils' capacity to provide ecosystem services and how this suitability varies under different land-use and soil management scenarios.

The use of ES serves as a source of knowledge on soil ecological and environmental conditions and as a tool for strengthening SEA, supporting the assessment of different planning scenarios. The methodology envisages selecting a pool of ES and simulating alternative land-use/land-cover and planning scenarios. Attention is paid to areas suitable for mitigation and compensation through naturalisation and de-sealing, while supporting the design of the local ecological network.

The Brandizzo case study demonstrates that an integrated approach grounded in ES can serve as an effective operational tool for aligning urban planning strategies with the EU's climate and biodiversity goals.

Keywords: Ecosystem Services, Urban Planning, Land-use Scenarios, Strategic Environmental Assessment, Mitigation and Compensation

22. Plural Valuation and Inclusive Governance for Urban Nature: Insights from Korea and Germany through the Nature Futures Framework

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Urban green spaces (UGS) deliver ecological, social, and cultural benefits, yet governance can face challenges in fully incorporating the diverse values held by different actors. This study applies the Nature Futures Framework (NFF) to examine how experts in Korea and Germany prioritize different and sometimes competing values of nature in UGS planning, revealing culturally and institutionally distinct governance approaches. Based on 32 professionals interviewed through semi-structured interviews, we analyze narratives using NFF's three perspectives: Nature for Nature, Nature for Society, and Nature as Culture. Korean experts predominantly emphasize relational and instrumental values linked to wellbeing and heritage, while German experts highlight ecological integrity supported by legal frameworks. These patterns suggest opportunities to better align planning practices with recognized values. By adopting NFF for qualitative analysis, this research provides a structured approach to interpret plural values and explore how cultural and institutional contexts may influence governance priorities. As one of the first applications of NFF in Korea and a rare qualitative use globally, the study enhances cross-cultural comparability and informs pathways for integrating diverse values into urban planning.

Keywords: Nature Futures Framework, plural valuation, urban green spaces, governance, Korea–Germany comparison

23. Reconciling Densification and Urban Green in the Context of EU No Net Land Take and Nature Restoration Policies

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European cities are increasingly confronted with overlapping policy ambitions related to land use, housing, climate adaptation and biodiversity restoration. These ambitions are often developed and implemented in parallel, but at different stages of operationalisation. This paper examines the spatial interactions that emerge from the parallel pursuit of No Net Land Take (NNLT) and ambitions for increased urban green, as articulated within the Nature Restoration Law (NRL), and explores their implications for urban densification strategies and urban quality of life. The analysis builds on insights from the European Urban Initiative (EUI) project REWILD.

While NNLT promotes densification and the more efficient use of already urbanised land, the NRL introduces emerging ambitions for the protection, expansion and qualitative improvement of urban green and nature-based solutions. Although the concrete implementation of the NRL—particularly in urban contexts—remains under development, these ambitions are already beginning to interact with existing land-use, housing and densification policies. As a result, cities are increasingly confronted with the challenge of accommodating higher densities while simultaneously reducing soil sealing and enhancing urban ecosystems under conditions of structural spatial scarcity.

Using Ghent as a case study, the research explores how these evolving policy ambitions intersect and how they are currently interpreted and addressed in spatial planning practice. The study combines policy analysis with spatial mapping of Ghent's No Net Land Take ambitions, densification and housing strategies, and nature-related objectives such as de-sealing and canopy cover. This integrated approach enables the identification of both tensions and opportunities within the existing regulatory, economic and morphological context.

By systematically analysing these interactions, the paper contributes to a more nuanced and constructive understanding of

how densification and urban greening can be jointly pursued. It identifies the conditions under which compact urban development can support nature restoration ambitions and urban quality of life, thereby informing integrated spatial planning approaches that seek to align European land, climate and biodiversity objectives within constrained urban environments.

Keywords: NNLT, Densification, Urban green, Land-use policy integration, Land-use conflicts