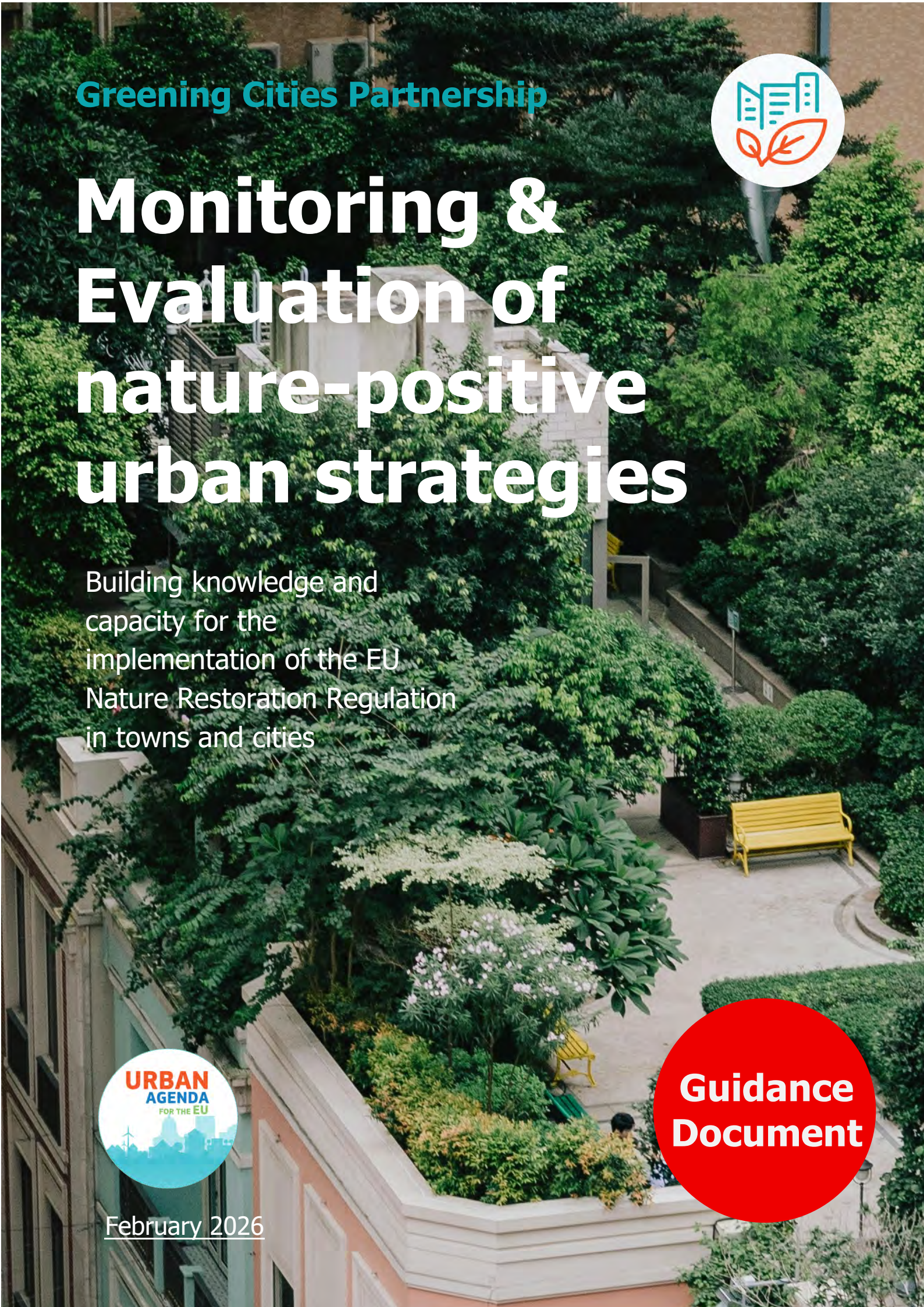


Greening Cities Partnership

Monitoring & Evaluation of nature-positive urban strategies

Building knowledge and capacity for the implementation of the EU Nature Restoration Regulation in towns and cities

URBAN AGENDA FOR THE EU

Guidance Document

February 2026

EUROPEAN URBAN INITIATIVE

Co-funded by the European Union

This publication is supported by the European Urban Initiative, which receives EU funding to provide support to the Urban Agenda for the EU on behalf of the European Commission for the period 2021-2027.

Lead author: Leon Kapetas (EUI External NBS Expert)
Co-authors: Federica Risi and Luis Touriño (Action 2 Leaders, Urban Agenda for the EU Partnership on Greening Cities)
Partnership: Greening Cities

Prepared on: February 2026

Recommended citation: Kapetas, L., Risi, F., & Touriño, L. (2026). Monitoring & Evaluation of Nature-Positive Urban Strategies: Building Knowledge and Capacity for the Implementation of the EU Nature Restoration Regulation in Towns and Cities. Urban Agenda for the EU – Partnership on Greening Cities.

Cover image: *Yard with trees and buildings*. Photo by Yuri Fu. Used under the Unsplash License.

Contact: urbanagenda@urban-initiative.eu

Contents

Executive Summary

Urban Nature Plans (UNPs) and equivalent strategies that integrate nature into urban planning have emerged as crucial tools for towns and cities to become "nature-positive", addressing the twin crises of biodiversity loss and climate change while improving urban livability. At the global level, the Kunming–Montreal Global Biodiversity Framework calls for reversing biodiversity loss by 2030. In Europe, the EU Biodiversity Strategy for 2030 and the new Nature Restoration Regulation (NRR) have placed urban ecosystems at the forefront of policy action. The NRR's Article 8 sets ambitious targets for all Member States: by 2030, no net loss in total urban green space area and tree canopy cover compared to 2024, followed by a continuous increase from 2031 onward. These targets effectively mandate local authorities, including towns and cities, to protect and expand nature within their boundaries, aligning local action with national and EU biodiversity goals.

This document represents one of the key outcomes of the **Greening Cities Partnership** under the Urban Agenda for the EU, which brings together diverse partners to promote natural infrastructure, drive transformative change in urban environments, and empower cities to take the lead on climate adaptation, biodiversity restoration, and enhancing quality of life.

This guidance provides a capacity-building framework to help urban practitioners, Member State policymakers, and EU institutions collaboratively implement and monitor Urban Nature Plans in line with the NRR. It emphasizes that monitoring and evaluation (M&E) is not just a compliance exercise but a tool for adaptive management and learning. Key features of this guide include:

- **Core indicators and methods:** Detailed guidance on measuring Article 8's two core indicators – urban green space area (%) and urban tree canopy cover (%) – using available data (e.g. Copernicus CLC+ land cover and high-resolution tree cover maps). Standard methods for establishing 2024 baselines and tracking changes are outlined, ensuring cities can consistently report progress toward "no net loss" and subsequent net gain targets.

- **Menu of complementary indicators:** A structured library of additional indicators, organised by thematic goals (biodiversity, connectivity, access & equity, climate resilience, etc.), is provided to capture the quality of urban nature and co-benefits beyond the core metrics. These indicators draw from established frameworks – including the European Commission's handbook on evaluating Nature-Based Solutions, the IUCN Urban Nature Index, WHO/EEA green space access metrics, and the Green City Accord – and have been validated through city surveys and expert input. Towns and Cities are encouraged to adopt a "core + menu" approach: measuring the core indicators plus a tailored set of complementary indicators that reflect local priorities.

- **Capacity needs & gaps:** Common challenges faced by urban authorities (e.g. limited funding, technical staff, and data skills) are identified from recent surveys. A "capacity maturity model" is introduced, enabling cities to self-assess their readiness on a scale of 1 (nascent) to 5 (advanced) in areas such as data governance, GIS and remote sensing capability, cross-department coordination, and stakeholder engagement. The guide suggests capacity-building modules – from basic GIS training to advanced indicator design and even emerging topics like natural capital finance and TNFD (Taskforce on Nature-Related Financial Disclosures) – to progressively strengthen local M&E capacity.

- **Implementation roadmap (2025–2031):** A phased action plan is proposed to integrate UNP monitoring into policy cycles. In 2025–2026, cities and Member States should establish governance structures, technical teams, and baseline data for urban nature. By 2026, UNP monitoring frameworks should feed into National Restoration Plans under the NRR. 2027–2029 should see regular tracking, annual progress reports and open data dashboards, fostering transparency and public engagement. 2030 marks the key milestone for no net loss compliance verification, and by 2031 cities should review outcomes and renew their urban nature targets. This timeline aligns with the NRR's review periods and ensures towns and cities contribute effectively to national implementation and reporting.

- **Good practices and case studies:** The guide showcases how leading cities are operationalizing Monitoring & Evaluation of their nature positive strategies and actions. Case studies include the example of Pontevedra which uses data to guide the evolution of car-free streets toward a more comprehensive green infrastructure strategy. Barcelona's "Superblock" program demonstrates integrating nature into urban redesign - by re-organising city blocks to prioritize green space and pedestrians, Barcelona has increased urban greenery and citizen well-being simultaneously. Utrecht has mainstreamed biodiversity across planning sectors (from mobility to health) and was an early signatory of the Berlin Urban Nature Pact, illustrating strong political commitment and use of international networks to boost local action. Bristol in the UK mobilized around an "Ecological Emergency" declaration, setting measurable targets for tree canopy expansion and species recovery, and established a city-wide monitoring partnership to track progress annually. These cases underline the importance of leadership, innovation, and community involvement in successful UNP M&E.

In summary, building capacity for UNP monitoring and evaluation is a shared responsibility. Local authorities must be empowered with knowledge, tools, and funding to implement robust M&E systems; Member States should harmonize definitions and support local data efforts; and EU institutions need to provide clear guidance (without one-size-fits-all rigidity), fostering a community of practice for urban nature restoration. This guide supports stakeholders in ensuring that, by 2030, not only are the NRR targets achieved, but urban nature is delivering biodiversity gains, climate resilience, and a better quality of life for Europe's city dwellers.

1. Introduction

1.1 Why "nature-positive" towns and cities, and why now?

Urban nature is no longer a "nice-to-have" – it is increasingly recognized as essential infrastructure that supports climate adaptation, biodiversity, public health, and economic resilience. Globally, the urgency to halt biodiversity loss by 2030 has been solidified through international agreements such as the Kunming–Montreal Global Biodiversity Framework. Cities, where over 75% of Europeans live, have a pivotal role in this agenda: urban areas can either be refuges for biodiversity or drivers of its decline. Urban Nature Plans (UNPs) (European Commission, 2024) embody the "nature-positive" approach at the urban level by setting out strategies to restore and enhance urban ecosystems. Following the same principles as the UNPs, several cities have adopted Green Infrastructure Strategies or similar frameworks as means to guide nature-positive action across departments and sectors. The aim of such approaches is not to be prescriptive but to strengthen nature's position in planning.

The benefits of urban nature are multifold. Healthy urban green spaces provide ecosystem services that directly improve city life – from cooling heatwaves and absorbing stormwater to filtering air pollution and providing recreational spaces. They also reconnect people with nature, yielding mental and physical health benefits. However, these benefits are at risk. Rapid urbanization has often meant that green areas "lose out in the competition for land" against buildings and infrastructure, leading to habitat loss, fragmentation, and environmental degradation in cities. Reversing these trends requires concerted action now.

The concept of "nature-positive" cities aligns with the idea of not just conserving what remains, but actively regenerating nature. This is reflected in Europe's policy direction. The EU Biodiversity Strategy for 2030 (European Commission, 2020) is a "comprehensive, ambitious and long-term plan to protect nature and reverse the degradation of ecosystems," aiming to put Europe's biodiversity on a path to recovery by 2030. Notably, it includes specific actions for urban ecosystems, recognizing that towns and cities must be part of the solution to biodiversity loss. In practice, this means urban areas are expected to increase green space, enhance habitat quality, and integrate nature-based solutions across sectors.

Towns and cities also stand to gain from embracing nature-positive planning. Investing in urban greening yields co-benefits such as reduced heat island effects, improved stormwater management, increased property values, and enhanced social cohesion. As later sections will show, many European cities are already innovating – from transforming derelict lots into parks, to creating green corridors for wildlife and people, to engaging citizens in tree-planting campaigns. These examples underscore that building nature-positive cities is achievable and can drive a virtuous cycle: as residents experience the benefits of urban nature, public support grows, enabling further ambitious actions.

In summary, the timing for scaling up urban nature action is critical. With global and EU 2030 targets on the horizon, the next few years offer a window to mainstream nature in urban planning. UNPs provide the framework for this, ensuring that city efforts are strategic, measurable, and geared toward a nature-positive future.

1.2 Policy context & EU regulatory drivers

At the EU level, two major policy drivers converge to propel urban nature restoration: the EU Biodiversity Strategy for 2030 (with its call for Urban Nature Plans) and the Nature Restoration Regulation (NRR) adopted in 2024 (European Parliament and Council, 2024). Together, they create both a mandate and a support structure for cities to act.

Under the EU Biodiversity Strategy, all European towns and cities with at least 20,000 inhabitants are encouraged (and under some interpretations, expected) to develop Urban Nature Plans. The strategy explicitly links urban greening to the EU's biodiversity goals, meaning city actions contribute to continental targets. To assist local authorities, the European Commission released guidance (the "Urban Nature Plan Guide" – see Figure 1) outlining steps for establishing a UNP or similar framework. The guide stresses integrating nature restoration with other policy priorities (urban development, climate, mobility, etc.), moving past a siloed approach and towards more holistic, nature-positive urban development. It also emphasizes political commitment and stakeholder collaboration as prerequisites for success.

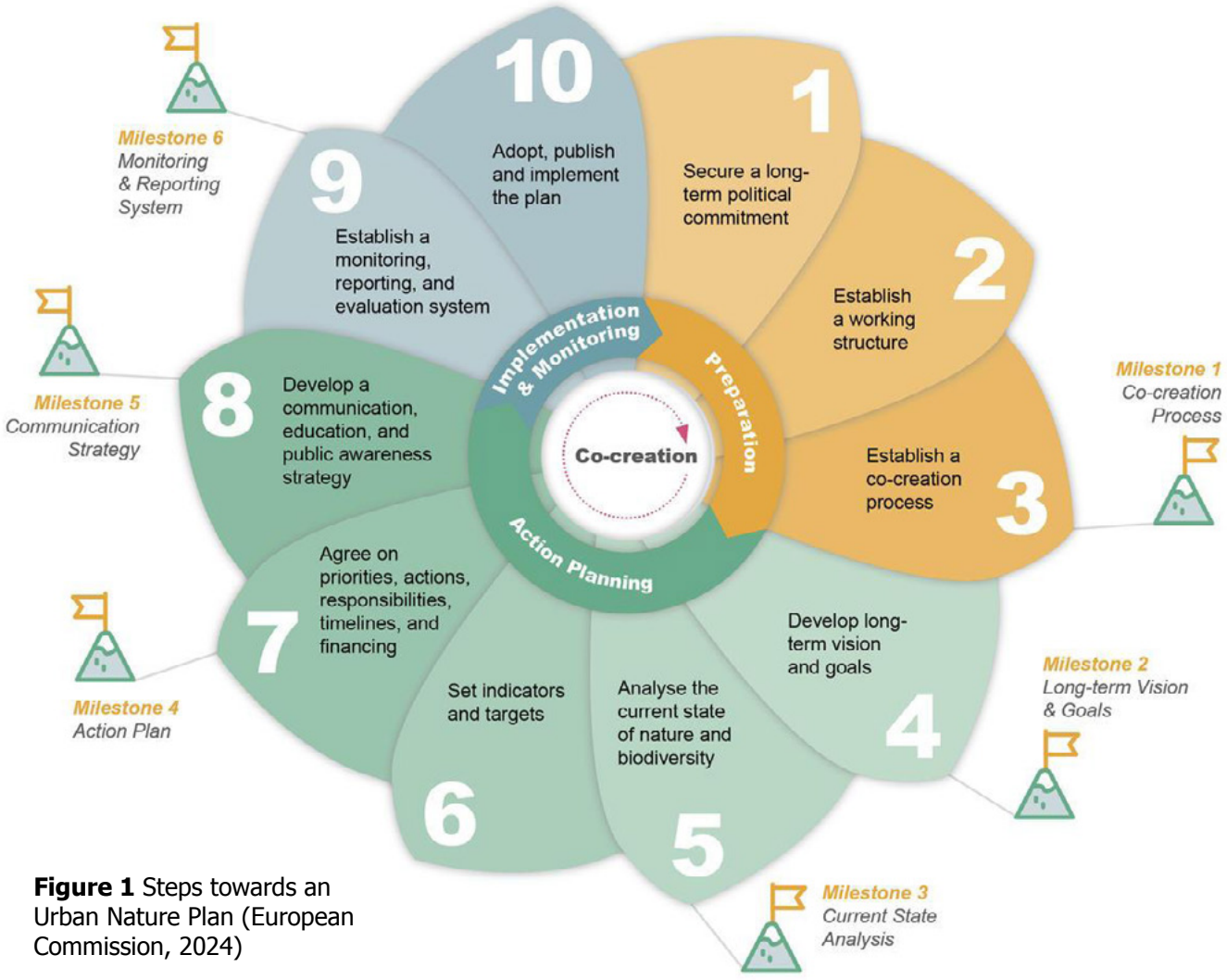


Figure 1 Steps towards an Urban Nature Plan (European Commission, 2024)

The Nature Restoration Regulation (EU 2024/1991) adds a binding dimension, especially via Article 8 on urban ecosystems. Article 8 is focused and outcome-oriented: it requires Member States to ensure no net loss of urban green space and tree canopy by 2030 relative to 2024, and thereafter a progressive increase in these metrics. In practice, this means each Member State must monitor the total area of green space and canopy cover across its urban areas and report on these targets. While the legal duty is on Member States, implementation happens through cities and towns – local authorities will supply the data and undertake actions on the ground. The NRR, therefore, creates a direct compliance driver for local authorities: even if they have not autonomously developed a UNP, they will still need to prevent green space loss and maintain tree cover to contribute to national targets.

Importantly, Article 8 also introduces a multilevel governance challenge and opportunity. Since Member States must compile urban data at the national level, there is an impetus for centrally standardized indicators and methods for towns and cities. The regulation allows flexibility in defining the "urban area" for assessment – either the Local Administrative Unit (LAU) boundary or a functional urban area cluster – to account for different urban definitions. This flexibility acknowledges diverse national contexts, but it also means Member States must clarify the assessment scale to their towns and cities. The survey mentioned earlier conducted by Action 2 of the Greening cities Partnership found that while about one-third of cities expect to use their LAU boundary for NRR monitoring, over 60% where not yet sure what spatial definition would be applied. This highlights a need for clear guidance from national authorities to cities on NRR implementation.

Other EU initiatives complement these primary drivers. The Green City Accord (GCA), a voluntary pledge for cities to meet environmental targets by 2030, includes urban nature and biodiversity as one of its five focus areas. Cities signing the GCA commit to increasing green space and improving ecological quality, and they report on a set of core indicators (which notably overlap with UNP/NRR metrics, such as green space per capita and biodiversity measures). Aligning UNP indicators with the Green City Accord's monitoring framework can thus streamline efforts – something this guide encourages in Section 4. Additionally, funding and disclosure trends are relevant: EU structural funds, the Recovery and Resilience Facility, and programs like Horizon Europe are increasingly financing urban greening projects, often requiring robust monitoring plans to demonstrate results. On the private side, frameworks like the Taskforce on Nature-Related Financial Disclosures (TNFD) are emerging, which will likely influence how urban projects justify investments in nature (e.g. by quantifying nature-related risks and benefits). In short, towns and cities that develop strong M&E systems for their nature-positive urban strategies will be better positioned to access funding and to fulfill reporting expectations across multiple platforms – from EU compliance reports to sustainability disclosures.

Promenade du Paillon in Nice, France. The 12-hectare park located in the heart of the city, designed to reconnect the city center with nature. Designed by Péna Paysages

1.3 About this report

Purpose and Scope

This report is a capacity-building guide for establishing and strengthening monitoring and evaluation (M&E) systems for nature-positive urban strategies (such as UNPs or Green Infrastructure Strategies) in the context of the NRR's requirements. Rather than treating the NRR as a narrow compliance checklist, this guide advocates a "capacity-first" approach: helping towns and cities build robust M&E systems that serve not only NRR reporting, but also local decision-making, other policy agendas (climate adaptation, health, etc.), and public transparency. In other words, if done well, the same data and indicators that demonstrate compliance can also guide better urban planning and community engagement. The guide is written for an audience spanning town and city administrations (from technical staff to sustainability managers), Member State coordinators (responsible for compiling national reports and supporting local implementation), and EU institutions and platforms (like the European Urban Initiative, and the Urban Agenda for the EU, which underpin the Greening Cities Partnership).

Approach

The content synthesizes existing knowledge and tools, building on an extensive review of:

- **EU guidance documents:** notably the official Urban Nature Plan Guide and its associated toolkit, which outline the UNP development process including M&E steps.
- **Relevant frameworks:** metrics from the Evaluating the Impact of Nature-Based Solutions handbook (European Commission, 2021), the IUCN Urban Nature Index, the WHO Urban Green Space indicators (WHO, 2016), and the Green City Accord, among others, have been cross-referenced to assemble a menu of indicators (presented in Section 3 and Annex A).
- **Technical studies:** such as the Greening Cities Partnership's technical note on monitoring Article 8, which provides methodologies for core indicators and suggestions for complementary ones.
- **Survey and consultation findings:** a survey of 89 cities conducted in 2024 by Action 2 of the Greening Cities Partnership on their UNP status, indicator use, and capacity needs, as well as expert workshops on urban nature indicators.

Where possible, the guide uses existing content sources or in adapted form, especially definitions and established indicator methodologies, to ensure consistency with authoritative sources. All such content is cited, and sources are provided for further reading. At the same time, the report adds value by synthesizing across sources and filling gaps with practical guidance – for example, providing a consolidated indicator table by theme, or outlining a stepwise implementation plan (Section 5) that wasn't explicitly in any single source.

Structure

The guide is organised into main chapters (Sections 1–9) followed by Annexes. Below is a summary:

- **Section 1 (Introduction)** sets the stage with context and purpose.
- **Section 2 (State of Play)** surveys existing M&E frameworks and data sources relevant to urban nature (useful for those who want to benchmark against or integrate other initiatives) and explains how UNPs and NRR targets align and provides insights on multilevel governance – including how city monitoring links to funding and disclosure (e.g., TNFD).
- **Section 3 (What to Measure)** represents the heart of the guide, detailing Core Indicators required by NRR (4.1), Complementary Indicators to consider (4.2), and Methods & Data Notes on how to compute them (4.3). This section will be frequently referenced by practitioners setting up indicator tracking.
- **Section 4 (Capacity Gaps & Needs)** identifies common obstacles (financial, technical, organisational) and suggests strategies and resources to overcome them, including capacity-building modules.
- **Section 5 (Implementation Roadmap 2025–2031)** provides a timeline with key milestones and actions for cities and supporting actors to gradually implement and upscale UNP monitoring, aligned with regulatory deadlines.
- **Section 6 (Practice Library)** showcases brief case studies and examples from pioneering cities (e.g., Pontevedra, Barcelona, Utrecht, Bristol) to illustrate how concepts in this guide are put into practice.
- **Section 7 (Linking M&E to Investment & Disclosure)** explores how robust M&E can unlock funding (through grants, green bonds, etc.) and fulfill emerging requirements for environmental disclosure, ensuring that urban nature restoration efforts are financially sustainable and transparent.
- **Section 8 (Recommendations)** wraps up with tailored recommendations for local authorities, Member States, and EU institutions to support each other in this endeavor.

Finally, the Annexes serve as reference material:

- **Annex A:** Indicator library & methods – detailed descriptions of each core and complementary indicator, including definitions, formulas, and method references.
- **Annex B:** Data source catalogue – a compiled list of key data sources and tools (European and global) useful for urban nature M&E (e.g., Copernicus datasets, Eurostat statistics, citizen science databases), with notes on spatial/temporal coverage.
- **Annex C:** Glossary & acronyms – definitions of key terms (from "green infrastructure" to "LAU" to "TNFD") and abbreviations for quick reference.
- **Annex D:** Template M&E plan – an outline that practitioners can use to write their own monitoring plan, ensuring they cover objectives, indicators, baselines, responsibilities, etc.

By design, readers can delve into the annexes for technical depth or use the main text for high-level guidance. The next section begins with a look at the current landscape of urban nature monitoring frameworks and data – setting the baseline onto which this guide builds.

1.4 How to use this guide

This guide is organised as a practical roadmap for different users to quickly find the information they need.

- **Urban practitioners:** Urban planners, environmental officers, and GIS specialists will find hands-on advice in Sections 3 on selecting and measuring indicators, and in Section 4 on addressing common capacity gaps. The Annexes provide templates (e.g. a monitoring plan outline) and technical methods for on-the-ground implementation.

- **Member State policymakers:** Sections 2 and 3 links urban-level monitoring to national and EU reporting requirements, helping national coordinators align local data collection with NRR reporting. Section 5 (Roadmap) outlines timelines and milestones relevant for inclusion in National Restoration Plans. Recommendations in Section 8 include actions for national governments to support municipalities (such as co-funding monitoring systems and standardizing indicator definitions).

- **EU institutions & programs (EUI, EC):** The guide offers insights (especially in Sections 6-8) on how EU bodies can facilitate UNP monitoring – for example, by extending initiatives like the Green City Accord, providing training (as noted in recommendations), and ensuring the EU data ecosystem (Copernicus, Urban Atlas) continues to meet town and city needs. The Practice Library in Section 6 can inform EU-level capacity building by highlighting real examples and innovative tools (some coming from EU-funded projects like the Horizon Europe UNP+ and BioAgora).

Rather than treating the NRR as a narrow compliance checklist, this guide advocates a "capacity-first" approach: helping towns and cities build robust M&E systems that serve not only NRR reporting, but also local decision-making, other policy agendas and public transparency.

Lieven Neighborhood Campus in Amsterdam. A green urban campus combining student housing and collective living, with lush courtyards, roof gardens and wadis that integrate sustainable water management and vibrant public space within a dense urban block. Designed by Bureau B+B urbanism and landscape architecture.
Link to the project page.

2. State of play: frameworks, data & standards

Before defining new indicators or systems, it's important to recognize that towns and cities are not starting from scratch. A variety of frameworks and tools for monitoring urban nature already exist, developed by international organisations, researchers, and city networks. Likewise, there is a growing "data ecosystem" offering open datasets and platforms that local authorities can leverage. This section provides an overview of the key frameworks and data sources relevant to Urban Nature Plan monitoring, to situate our approach in the broader context and facilitate alignment.

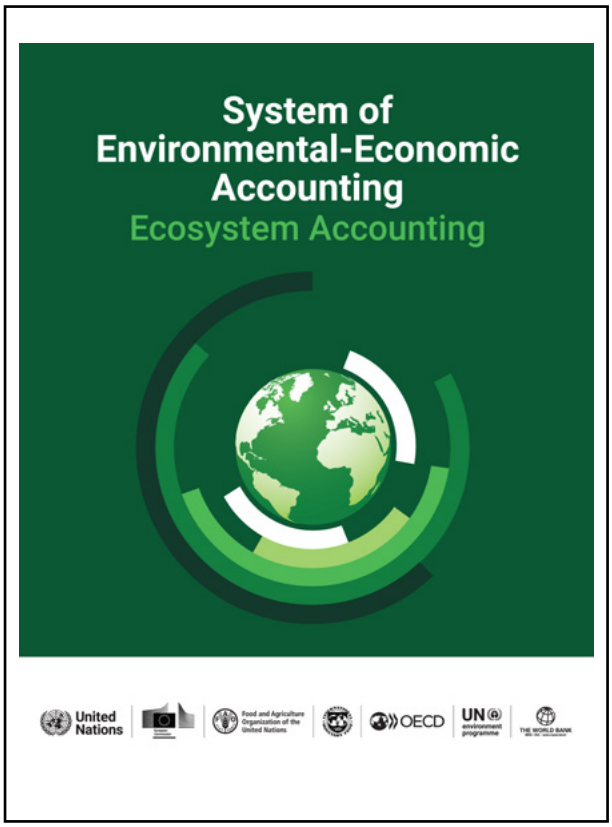
2.1 Existing monitoring frameworks for urban nature

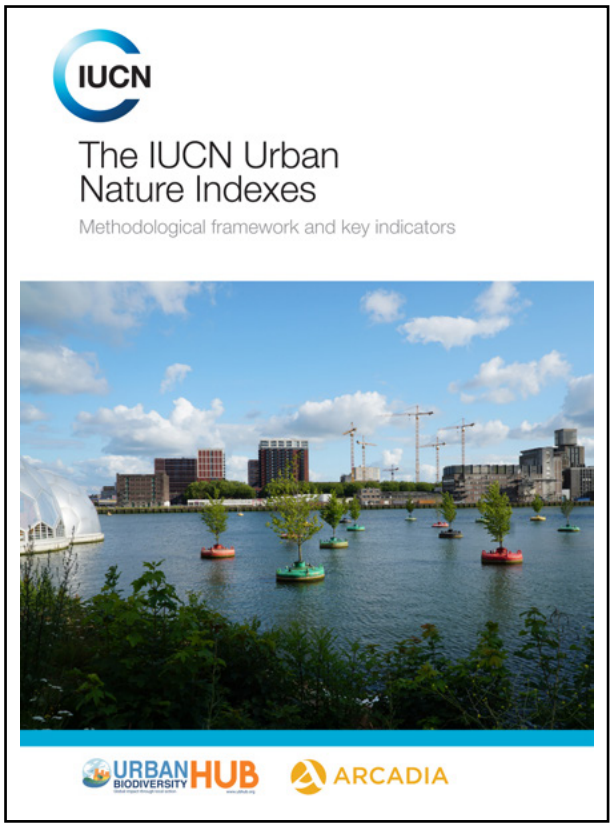
European Commission – Nature-Based Solutions (NbS) indicators: The European Commission's 2021 handbook "Evaluating the impact of Nature-Based Solutions" (DG RTD) is a comprehensive resource that many cities have drawn upon. It offers a catalogue of indicators and methodologies to assess a wide range of NBS impacts – from biodiversity enhancement to climate resilience to social outcomes. For example, it lists indicators like species richness, runoff reduction, air quality improvement, and even social cohesion measures, along with how to measure them. Cities can use this as an "a la carte" menu when selecting complementary indicators for their UNP (and indeed, in a recent survey, several cities reported using the EC's NBS framework as inspiration). The handbook's guidance on developing scientifically sound monitoring plans has informed Section 4.2 of this guide, ensuring that our recommended indicators align with what's already validated in the NBS literature.

IUCN Urban Nature Index (UNI): The IUCN's Urban Nature Index (2021) is a relatively new framework that provides a standardized set of indicators for urban biodiversity, ecosystem services, and governance. It comprises around 30 indicators organised under pillars such as native biodiversity, ecosystem services, and governance & management. Each indicator in the UNI has a scoring system (e.g., 0 to 4) to allow cities to self-assess and track progress over time. For instance, a city might score its native species trend or the extent of green corridors. Some cities (e.g., Lisbon, as cited in case studies) have piloted the Singapore Index/UNI to establish baseline biodiversity scores, adapting indicators to local context. The UNI is useful for UNPs because it emphasizes quality and management effectiveness, not just quantity of nature. In this guide, we incorporate certain UNI-derived indicators (for example, presence of invasive species management, or proportion of natural areas protected) as optional metrics in Section 4.2. Aligning with UNI can also help cities report internationally or compare practices.

United Nations SEEA-EA (System of Environmental-Economic Accounting – Ecosystem Accounting): This is more of a national-statistics framework, but it's worth noting. The SEEA-EA provides a standardized way to account for ecosystem extent and condition, including in urban areas. Some Member States are beginning to use SEEA approaches to report on urban ecosystem extent (e.g., total green space as an "asset"). While not directly used by cities for day-to-day monitoring, being aware of SEEA ensures that city


European Commission
EVALUATING THE IMPACT OF
NATURE-BASED
SOLUTIONS
A Summary for Policy Makers
Independent
Expert
Report
Green space management
Knowledge building for sustainable urban transformation
Place regeneration
Health and well-being
Participatory planning and governance
Climate resilience
Biodiversity enhancement
Water management
New economic opportunities and green jobs
Natural and climate hazards
Air quality
Social justice and social cohesion
Research and Innovation

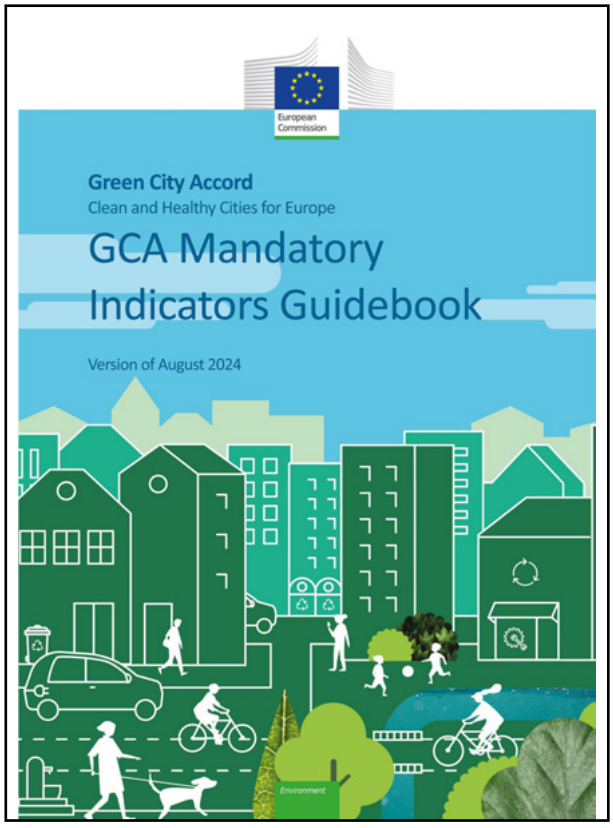

System of
Environmental-Economic
Accounting
Ecosystem Accounting
United Nations
OECD


IUCN
The IUCN Urban
Nature Indexes
Methodological framework and key indicators
URBAN BIODIVERSITY HUB
ARCADIA

data could feed into national accounts. For instance, if a city calculates its green space area and change, those figures can contribute to a country's overall ecosystem extent account. The methodologies we recommend (use of land cover data, etc.) are consistent with SEEA principles of spatially explicit, repeated measurement.

Green City Accord (GCA): The Green City Accord is an EU initiative in which cities voluntarily commit to targets in five areas: air, water, nature & biodiversity, waste/circular economy, and noise. For nature & biodiversity, GCA cities agree to "*considerably improve the state of urban biodiversity, including by increasing the area of green space and enhancing ecosystem connectivity.*" They report on a set of indicators, such as the share of city area that is green space, number of trees planted, and connectivity measures. The GCA monitoring framework is thus directly relevant – it essentially mirrors the UNP core indicators and adds more. In fact, the UNP Guide explicitly advises aligning UNP targets with "*core criteria set out for nature and biodiversity in the Green City Accord*". As of 2025, dozens of cities have signed the GCA, so using its indicators in UNPs can streamline reporting and avoid duplication. (This guide's indicator tables in Section 4 flag which indicators are part of GCA where applicable.)

Other City Networks and Tools: Numerous other frameworks exist. For example, the ICLEI CitiesWithNature platform (ICLEI, 2022) and its Action Agenda include voluntary reporting on nature targets; the Urban Agenda for the EU's Nature-Based Solutions Partnership has produced toolkits for urban renaturing projects; and various national guidelines provide locally tailored indicators (Spain's Urban Agenda includes a chapter on urban greening, etc.). The Spanish "Guía para la medición y seguimiento de indicadores de actuaciones dirigidas a la renaturalización y resiliencia" by Fundación Biodiversidad is one notable example that provided a set of indicators for urban renaturing projects. The Greening Cities Partnership drew on it to form an initial list of complementary indicators, and some Spanish cities in the survey also cited using it. All these frameworks, while differing in scope, generally reinforce a common message: track not just how much green space you have, but also how it's distributed, what quality it is, who has access, and what benefits it provides. This guide aims to unify those threads into a coherent set that fits the NRR context.



2.2 Data ecosystem for urban M&E

One advantage towns and cities have today that they did not a decade ago is the abundance of open geospatial data relevant to urban nature. A core principle in this guide is to harness these existing data sources to reduce effort and increase comparability. Table 2.1 (outlined below) provides an overview of key datasets, their resolution, update frequency, and coverage.

Highlights include:

- **Copernicus Land Monitoring Service:** The EU's Copernicus Earth observation program provides several products invaluable for urban nature monitoring. Chief among them is the CLC+ Backbone land cover map (Copernicus Land Monitoring Service, 2021) as the evolution of CORINE Land Cover, which offers a 10-meter resolution land cover map of Europe. This dataset serves as a baseline for land cover with classes like trees, grass, water, built-up, etc. Urban green space can be calculated by aggregating the natural land cover classes (trees, shrubs, herbaceous vegetation, water bodies) within urban boundaries. As the technical note suggests, one can use CLC+ to measure total urban green space area and then track changes in subsequent releases. Copernicus also has a High Resolution Layer (HRL) for Tree Cover Density, which maps percentage tree cover at 10 m resolution. This is extremely useful for the tree canopy cover indicator, and it's updated on a three-year cycle. By using these standardized EU datasets, local authorities and Member States can ensure that "no net loss" calculations are done consistently. However, it's important to note that local data can complement these; for example, Copernicus might underestimate very small green features or young trees, so some local authorities augment it with their own high-res imagery or LiDAR data.

- **Urban Atlas / Functional Urban Areas:** Under the EU's Urban Atlas program (part of Copernicus for cities), detailed land use maps for Functional Urban Areas (FUAs) are available for many European towns and cities. These have ~10 m resolution and classify urban land uses (e.g., dense residential, sparse residential, parks, industrial, etc.). Urban Atlas data (available for 2012, 2018, and a 2024 edition - to be published a the time of writing) can be used to derive green space metrics and see land use changes over time. Additionally, the concept of FUAs or urban centres (as defined by Eurostat's degree of urbanization or the EU harmonized grid approach) provides a standardized spatial extent for analysis. Some countries may choose these extents for NRR reporting. We include guidance on using Urban Atlas classes to refine green space calculations (e.g., distinguishing public parks from private gardens, if needed for local policy). A data comparison in Annex B outlines differences between spatial units – city administrative boundary vs. urban centre vs. greater metropolitan area – to help clarify reporting choices.

- **EEA & WHO datasets:** The European Environment Agency (EEA) provides relevant data such as the Air Quality Database (for city-level pollution, useful if linking greening to air quality improvements) and layers like the Urban Tree Cover Exposure Map. The World Health Organisation (in collaboration with EEA) has published indicators such as the "share of population with access to green space within 300m." These often use population and land use data to compute metrics. We note in Section 4 how to calculate such access indicators using available data (e.g., combining gridded population maps with land cover). There is

also an experimental EEA Urban Atlas layer on accessibility of green space that some cities have used.

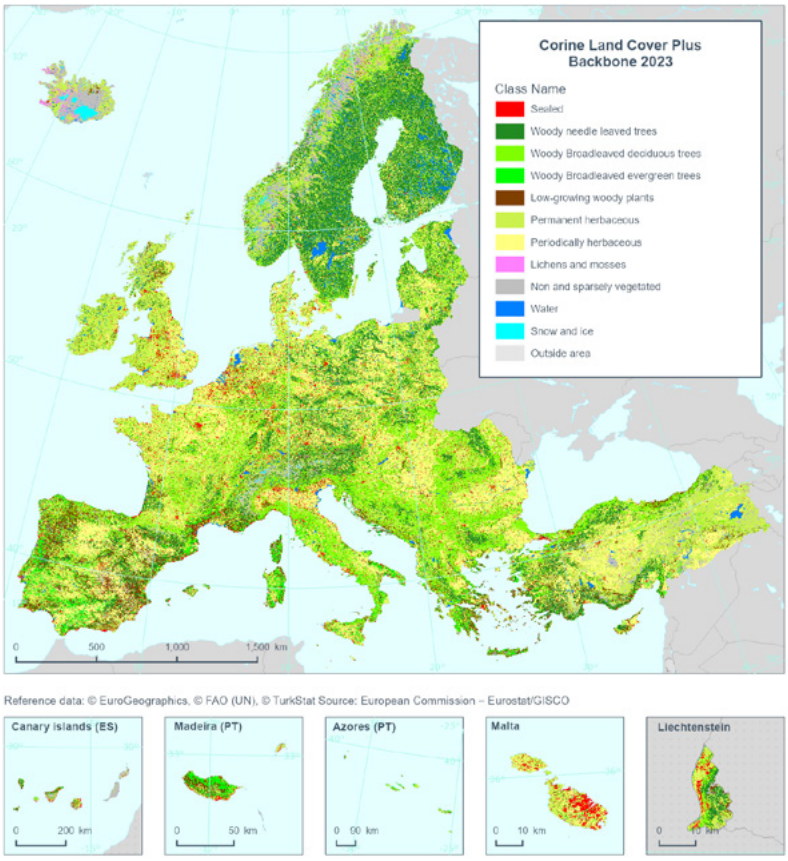
- **National and local data:** While not "open EU data," many towns and cities have their own sources: tree inventories, high-resolution orthophotos, airborne LiDAR surveys, biodiversity observation databases, etc. These can greatly enrich the monitoring. For example, Brussels conducted a local aerial survey which detected low-density tree canopy that Copernicus missed (as noted in a GCP webinar). Dutch cities have access to ultra-high-resolution satellite data (e.g., Airbus Pleiades 0.3 m imagery) through national programs. This guide suggests a "tiered data" approach: use EU data for consistency and broad coverage, and supplement with local data for finer precision and additional indicators. A local authority might use Copernicus to report official numbers for the NRR, but also maintain its own GIS of green spaces for planning and management purposes.

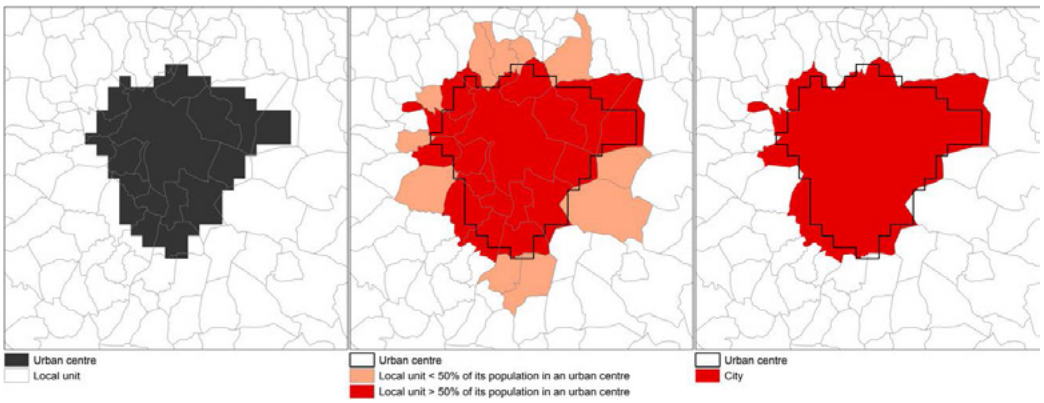
- **Toolkits and platforms:** Beyond raw data, platforms exist to help interpret and share data. Examples include the European Environment Information and Observation Network (EIONET) which gathers and develops data, knowledge, and advice to policy makers about Europe's environment. Some Horizon Europe projects (e.g., BioAgora, Urban ReLeaf, and UNP+) are developing online tools for cities to visualize and analyse urban green data. The BioAgora project, for instance, compiled an inventory of "urban green space tools" – ranging from simple benchmarking tools to complex simulation models. These tools can help with scenario analysis (e.g., modelling the impact of planting trees on local temperature reduction). In Annex B, we list a few such tools (like i-Tree, the Urban Nature Navigator, etc.) and data portals that cities can leverage.

In conclusion, the data ecosystem is rich – which can be an information overload challenge, but overall, it is a huge asset. Section 4.3 will discuss specific methods using these datasets for each core and complementary indicator. The key takeaway is that towns and cities should leverage existing public data and tools as much as possible to save effort and ensure metrics are compatible across cities. This also ties into capacity: not every local authority needs a supercomputer or advanced remote sensing unit; with basic GIS skills, one can utilize Copernicus data (which are free) to derive necessary metrics. Where capacity is lower, national agencies or regional bodies might process data for cities – something Member States may consider providing as support (see Recommendations in Section 9).

See Annex B for detailed descriptions and sources.

This guide suggests a "tiered data" approach: use EU data for consistency and broad coverage, and supplement with local data for finer precision and additional indicators.





Figures 2, 3. The CLC+ Backbone Land Cover Map (Copernicus) and Functional Urban Areas under the EU's Urban Atlas program.

2.3 Connecting policies to M&E

Monitoring and evaluation for urban nature restoration does not happen in a vacuum – it sits at the intersection of various policy requirements and objectives. By designing one coherent M&E system, a city can satisfy multiple policy needs simultaneously. In other words, one well-planned monitoring framework can serve **compliance** (reporting to national/EU authorities), **management** (informing the city's own planning and decision-making), and **investment/ disclosure needs** (attracting funding and demonstrating results to stakeholders).

Translating NRR Article 8 and UNP objectives into indicators

A first step is to translate high-level targets into specific indicators that towns and cities can measure. Article 8 of the NRR gave us clear targets: no net loss of urban green space area and tree canopy cover by 2030 (vs 2024 baseline), and an increasing trend thereafter. However, "no net loss" itself must be interpreted at the local level: What constitutes green space? What geographic area counts as "urban"? Over what time frame should gains/ losses be tracked? This guide, drawing on the technical note and UNP guidance, defines the core indicators as follows (details in Section 4.1):

- **Urban Green Space Coverage** (% of land area): within the defined city boundary or urban area, the share of land that is vegetated or water (i.e., total green and blue space). For NRR, 2024 is the baseline year for this percentage.

- **Urban Tree Canopy Cover** (% of land area): similarly, the percentage of land with tree canopy cover (this often overlaps with green space, but is tracked separately since trees provide unique benefits). The baseline is 2024 as well.

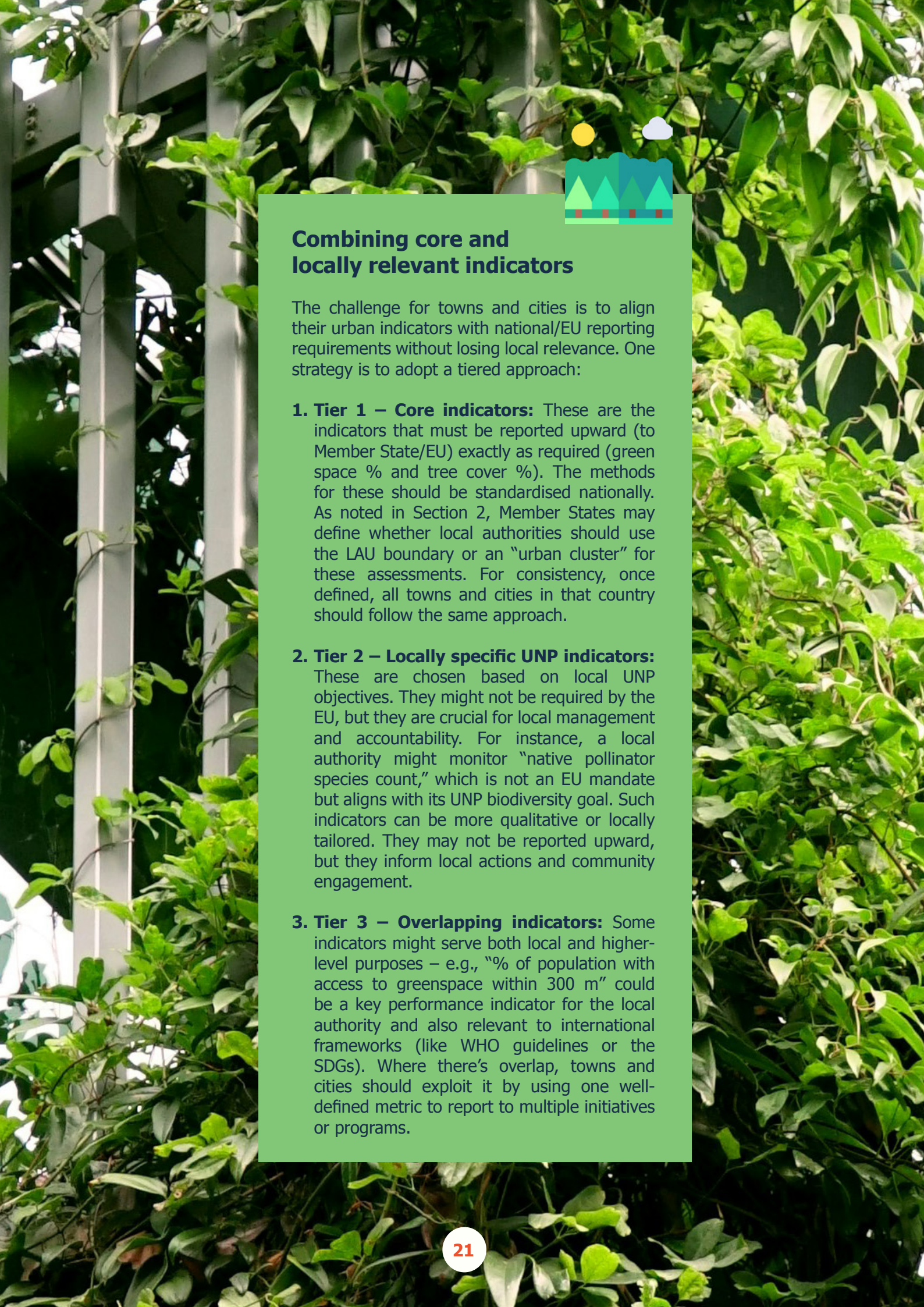
By monitoring these two indicators over time, a town or a city can determine if it is meeting the no net loss requirement (2025–2030 should show no decline) and subsequently achieving net gain (post-2030 should show an upward trend). Later sections explain how to measure these with GIS data. It is important that these indicators also align with UNP objectives: nearly every Urban Nature Plan will include goals like "increase green space" or "plant more trees," so there is a direct correspondence between UNP targets and NRR targets (indeed, the UNP Guide suggests that at minimum UNPs should have targets for % green space and % tree cover).

Beyond the core indicators, UNPs typically have broader objectives – e.g., improving biodiversity, enhancing access to nature, or boosting climate resilience. Translating those into indicators means towns and cities should define how to measure success for each goal. For example:

- If a UNP objective is "improve urban biodiversity," indicators might include species counts (number of species observed citywide), habitat area restored, or an index of ecological quality.

- If the goal is "better access to green spaces for all citizens," indicators could be the percentage of population living within 300 m (or a 10-minute walk) of a public green space, or the number of new parks created in underserved areas.

- For "climate resilience," indicators could include the area of permeable surface added, number of green roofs installed, or reduction in urban heat island intensity in certain zones.



Combining core and locally relevant indicators

The challenge for towns and cities is to align their urban indicators with national/EU reporting requirements without losing local relevance. One strategy is to adopt a tiered approach:

1. **Tier 1 – Core indicators:** These are the indicators that must be reported upward (to Member State/EU) exactly as required (green space % and tree cover %). The methods for these should be standardised nationally. As noted in Section 2, Member States may define whether local authorities should use the LAU boundary or an "urban cluster" for these assessments. For consistency, once defined, all towns and cities in that country should follow the same approach.

2. **Tier 2 – Locally specific UNP indicators:** These are chosen based on local UNP objectives. They might not be required by the EU, but they are crucial for local management and accountability. For instance, a local authority might monitor "native pollinator species count," which is not an EU mandate but aligns with its UNP biodiversity goal. Such indicators can be more qualitative or locally tailored. They may not be reported upward, but they inform local actions and community engagement.

3. **Tier 3 – Overlapping indicators:** Some indicators might serve both local and higher-level purposes – e.g., "% of population with access to greenspace within 300 m" could be a key performance indicator for the local authority and also relevant to international frameworks (like WHO guidelines or the SDGs). Where there's overlap, towns and cities should exploit it by using one well-defined metric to report to multiple initiatives or programs.

When aligning with national reporting, towns and cities should be mindful of data flows. Since the NRR puts the responsibility on Member States, typically a national agency (environment ministry or similar) will collect data from cities for Article 8 compliance. An effective governance setup is to have a national M&E framework for urban nature that towns and cities contribute to. Some countries might provide data centrally (e.g., a national satellite data analysis that covers all towns and cities) so that towns and cities just validate the results. In any case, local authorities benefit from participating in the definition of these processes – through their national associations or directly via consultations – to ensure that definitions of "green space" or "urban area" make sense on the ground. However, if "green space" is defined too narrowly at the national level (say, only counting public parks), a town or city that has many private gardens might appear to lose green space when in fact those gardens were just excluded by the definition. Thus, aligning definitions is key (we return to this point in the Recommendations for Member States in Section 9).

Finally, it's worth noting that while the NRR itself does not legally mandate local authorities to write Urban Nature Plans, it implicitly incentivizes them. The regulation "aligns with the Biodiversity Strategy for 2030 which calls on towns and cities >20,000 to develop UNPs" and promotes improving not just quantity but quality of nature. In practice, many towns and cities treat the NRR targets as the baseline and build a UNP that goes further (e.g., aiming for net gains in green space before 2030, or including social equity targets on top of the core area-based targets). This layered approach – compliance and ambition – is an underlying principle of this guide.

Aligning local indicators with national and EU reporting

Local administrations often express concern about reporting burden: "Will we have to report dozens of indicators to various bodies?" One goal of this guide is to streamline efforts by showing how a well-designed UNP M&E system can feed into multiple reporting channels with minimal extra work. In other words, the same dataset can serve many masters:

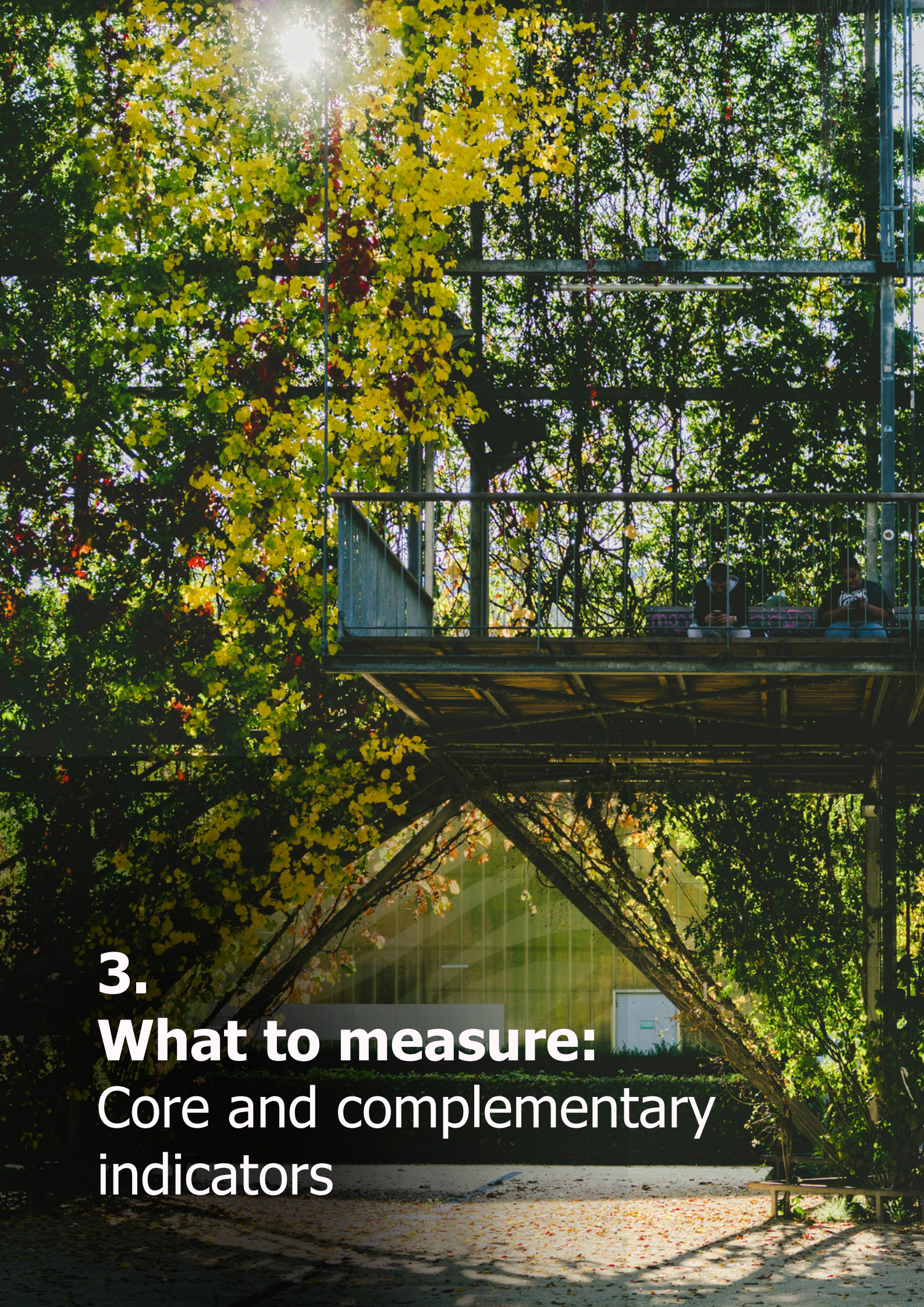
- **National Restoration Plan Reporting (NRR):** Member States will likely require a simple report on the two core indicators. If a local authority maintains annual (or biennial) measurements of green space and canopy, it can provide those to the national level as needed. Our roadmap in Section 6 suggests doing a baseline by 2025 and an update by 2030, aligning with national NRR milestones.

- **EU Level – Green City Accord:** If the city is a GCA signatory, it will periodically report on its nature targets. The overlap here is high. For example, the GCA might ask for the increase in urban green space since the start of the commitment period – which the city will know from the same data used for NRR reporting. Additionally, GCA asks for qualitative actions (e.g., "have you implemented a biodiversity strategy?"); a city's UNP itself is an action that can be reported as contributing to that Accord commitment.

- **Global – SDGs and other initiatives:** Some towns and cities voluntarily report on Sustainable Development Goal 11.7 (access to green space) or participate in networks like CitiesWithNature or CDP Disclosure for Cities. By aligning local monitoring with these frameworks, a local authority could use the same indicator definitions (e.g., the 300 m access rule for green space) in its UNP monitoring. This way, one data collection effort serves local needs and global advocacy at once.

A practical example of alignment

Suppose a local authority's UNP includes an indicator "Number of trees planted annually." This is not directly required by the NRR, but if the city is part of the Tree Cities of the World program or has a climate action plan, that same indicator can fulfil those commitments as well. By tracking it internally, the city can report to multiple audiences (municipal leadership, citizen groups, international networks) with consistency. Conversely, if a Member State decides to require an additional indicator beyond Article 8 (for instance, a "habitat quality" score in urban areas), the city can incorporate that into its UNP monitoring so it becomes part of their own evaluation, not just an external imposition.



3.
What to measure:
Core and complementary indicators

Monitoring begins with choosing the right indicators – those that are meaningful, measurable, and manageable. This section provides guidance on selecting a balanced set of indicators for an Urban Nature Plan's M&E framework. We distinguish between:

- **Core indicators (NRR-linked):** a minimal set that every town and city should monitor and report, tied directly to Article 8 targets (these are common across all local authorities and enable aggregation at national/EU levels
- **Complementary indicators (optional menu):** a broader list from which towns and cities can select, based on local priorities and capacities, to capture additional dimensions of urban nature progress.
- **Methods & data notes:** for each indicator (core and complementary), outlining standard methodologies, recommended data sources, and technical considerations.

By covering both core and complementary indicators, we ensure towns and cities fulfil their obligations and also capture co-benefits and context that pure compliance metrics might miss.

Core indicator 1:
Urban Green Space Area (% and trend)

Definition: The total area of urban green space as a percentage of the city's or town's land area (or defined urban area), and its trend over time (change compared to the 2024 baseline). In absolute terms, one can also report the area in hectares. *Urban green space* is defined, following the technical note and EU guidance, as *"the total area covered by vegetation (trees, bushes, shrubs, lawns, herbaceous plants) and water features (ponds, streams) within the urban boundary"*. Essentially, it includes all **green and blue spaces**, whether public or private, that are not built-up. This comprehensive definition matters: it's not just parks, but also street trees, private gardens, riverbanks, etc., as captured in land cover data.

Measurement: Use remote sensing data as the primary tool. The recommended approach is to use the Copernicus CLC+ Backbone land cover map for 2018 or 2024 as the baseline, which classifies land cover in 10 m pixels. By summing all pixels classified as natural (vegetated or water) within the town or city boundary, one gets the total green space area. The percentage is that area divided by total town or city area. For updates, new Copernicus data releases (e.g., 2024, 2030) can be analysed the same way. Changes (trend) are simply the percent difference or hectares gained/lost since 2024. If CLC+ is not readily available or up-to-date, alternatives include national land cover datasets or the Urban Atlas, but those should be cross-checked for consistency.

Considerations: Spatial boundary: Ideally, use the same boundary for baseline and follow-up. If using LAU (town or city administrative) boundaries, note that town or city expansions could increase total area (which might dilute the % green space metric). If using a functional urban area definition, be consistent over time. **Seasonality:** Land cover products typically represent an annual composite; ensure that comparisons use comparable definitions and timeframes (e.g., if calculating green space from NDVI-derived imagery, account for seasonal differences in vegetation cover). **Baseline year:** 2024 is the official baseline per NRR. Some datasets (like CLC+) have 2018 as the most recent prior data; changes 2018–2024 can be observed but the target is defined as no net loss from 2024 onward. **Verification:** Ground-truthing or local data (like a GIS layer of parks or green parcels) can validate the remote sensing result. If there are systematic differences (e.g., Copernicus misses narrow street green or small gardens under tree canopy), towns and cities can adjust but should document their methodology when reporting to the national level.

Reporting: At minimum, report the baseline percentage and any change (increase or decrease) over the period. For internal use, towns and cities may break this indicator down further – e.g., green space per district or green space per capita – but for NRR reporting, likely just the citywide aggregate matters. The UNP Guide and Green City Accord also encourage setting targets for this indicator, such as *"increase green space by X% by year Y."* Many towns and cities have done so (e.g., aiming to go from 45% to 50% green cover in a decade). Setting a target beyond "no net loss" demonstrates ambition and can galvanize local action.

Core indicator 2:
Urban Tree Canopy Cover (% and trend)

Definition: The proportion of the town or city (urban area) covered by the vertical projection of tree crowns, expressed as a percentage, and its trend over time. In simpler terms, if you look at the city from above, what percent of the ground is shaded by trees? This focuses specifically on tree cover, recognizing the unique ecological and cultural value of urban trees. The NRR target calls for an "increasing trend of urban tree canopy cover in each urban area from 2031 onwards", meaning by 2030 towns and cities should at least hold the line (no loss) and then achieve net increases thereafter.

Measurement: The Copernicus High Resolution Layer (HRL) **Tree Cover Density (TCD)** product is tailor-made for this indicator. The TCD provides a percentage tree cover value for each 10 m pixel. One can derive canopy cover area by summing the pixel areas weighted by these density values. For example, a pixel with 50% tree cover contributes 50% of its area to total canopy area. However, a simpler method is often used: apply a threshold to define a "tree-covered area." Commonly, any pixel with >10% tree cover is considered "tree canopy present," and summing those yields a canopy extent. Alternatively, directly averaging the TCD values over the urban area gives an overall percentage. Either approach, if applied consistently, yields a trend. Copernicus TCD is updated every 3 years (e.g., data for 2018, 2021, 2024 are or will be available), so local authorities can track changes at that interval. Some towns and cities also use LiDAR or local tree inventories for finer analysis, but for NRR reporting the Copernicus method ensures comparability.

Considerations: Alignment with green space: Note that tree canopy is often a subset of green space (most trees are located within vegetated areas), but not entirely – a town or a city could increase tree canopy (e.g., by planting street trees) even if total green area stays the same, and vice versa (a new lawn increases green space but not canopy). So the two core indicators are related but distinct, which is why both are required. **Urban forestry nuances:** Young trees or very sparse canopy might not register strongly in remote sensing initially. Over time, as they grow, canopy % should rise. Towns and cities may want interim metrics like "number of trees planted" (which we include as a complementary indicator) to track effort leading to future canopy change. **Local high-res data:** If a local authority has a LiDAR scan or high-resolution aerial imagery, they can compute canopy at, say, 1 m resolution, which might capture small yard trees missed at 10 m resolution. If doing so, they should still align or calibrate with Copernicus values for official reporting. Some towns cities found local surveys yield higher canopy figures (e.g., Brussels found more trees in low-density areas with local data than Copernicus did). This isn't an "error" but a resolution difference. The city can report the Copernicus-based figure for consistency and also internally note the local figure for their own use (and possibly inform the national level if significant).

Reporting: Similar to green space, report the baseline % canopy (2024) and changes over time. Many towns and cities set their own canopy targets (e.g., *"30% canopy by 2030"* has been popularized by some networks). If the town or city has such a target, it's wise to reconcile it with the NRR baseline method. For instance, if a city's local method showed 25% canopy in 2024 and their UNP aims for 30% by 2030, they should check what the Copernicus baseline is (it might be slightly lower or higher) to ensure progress is demonstrable in the official figures. The NRR requires an *"increasing trend"* but not a uniform target for all; local targets are beneficial to set ambition.

Core indicator 3 (recommended): Protected Natural Areas (% of area)

While not explicitly mandated by Article 8, the UNP Guidance and Toolkit suggests including an indicator on protected areas or high-biodiversity-value areas in the town or city in question. Many towns and cities have such areas (nature reserves, local nature areas of interest, urban forests under legal protection, etc.). The presence and extent of these areas indicate a commitment to quality, not just quantity, of nature. We recommend a core (or near-core) indicator of **"Area of protected or designated natural habitats as a percentage of the municipal area."** This was also listed as a core target in the UNP Guidance. It aligns with the EU Biodiversity Strategy goal of legally protecting 30% of EU land (though a towns or a city's contribution to that is relatively small). It's also in the Singapore Index/City Biodiversity Index (which has an indicator for % of city area protected).

Measurement: Towns and Cities can use their land-use plans or national databases of protected sites. A spatial GIS analysis involves overlaying the city boundary with polygons of protected areas (international, national, or local designations) and calculating the area. The indicator can be broken down by designation level if needed (e.g., *X% under Local Nature Area of Interest, Y% under municipal nature reserves*). Even if the percentage is small for a highly urbanized city, tracking this can encourage cities to designate more sites or at least maintain the ones they have.

Reporting: This indicator might not be required by the NRR, but it could be part of reporting under the Green City Accord or simply published in local sustainability reports. If many towns and cities report it, Member States might aggregate it informally. The point is to show the *quality aspect* – ideally, as urban green space increases, some of it should be secured for the long term via protection such as through Local Nature Areas of Interest.

In summary, the core indicators focus on the extent of urban nature (and to a degree, its formal protection). They respond to the fundamental question: are we losing or gaining nature in the city? From a compliance perspective, they are straightforward and few. Towns and cities should prioritize getting the data and processes right for these, as they form the backbone of both local and higher-level assessments.

Complementary indicators selected based on local priorities

Local authorities are encouraged to select a suite of complementary indicators to monitor additional dimensions of urban nature that are relevant to their context and goals. These indicators are "complementary" in that they go beyond the minimum required, allowing towns and cities to capture the quality, functionality, and co-benefits of urban ecosystems. One size does not fit all – each town or city should choose indicators that match its UNP objectives (e.g., a city focusing on climate adaptation might emphasize flood mitigation and heat reduction indicators, while another focusing on community might emphasize access and engagement).

To assist in selection, we present a menu of potential indicators organised by theme, drawn from authoritative sources and city inputs. The themes include:

- Biodiversity & Habitat Enhancement
- Green Space Access & Equity
- Climate Change Adaptation & Resilience
- Air and Water Quality
- Ecological Connectivity
- Citizen Engagement & Education
- Social Co-benefits & Health
- Circular Economy & Resource Efficiency
- Governance & Planning (for plan implementation)

This list is synthesized from frameworks like the EC NbS handbook, the IUCN Urban Nature Index, the Green City Accord, and especially from what cities themselves reported as useful in the 2024 survey. Table 1 below provides an overview of these thematic areas with example indicators for each, as frequently mentioned or recommended.

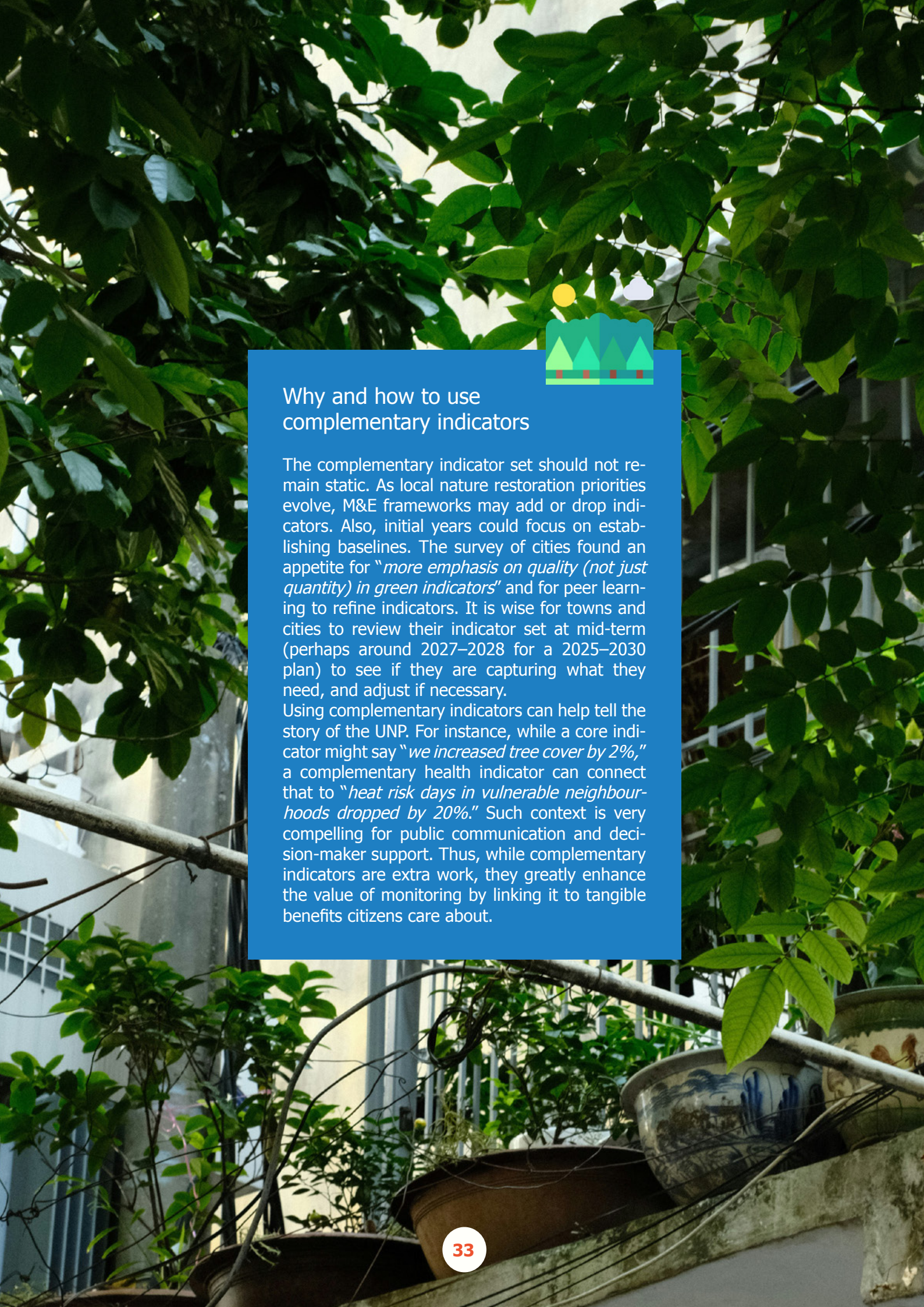
Each town or city should choose indicators that match its UNP objectives (e.g., a city focusing on climate adaptation might emphasize flood mitigation and heat reduction indicators, while another focusing on community might emphasize access and engagement).

Thematic area	Example indicator	Description/measurement approach
Biodiversity and Habitat	Native species diversity	*Number of native flora/fauna species observed (biodiversity surveys, citizen science).*
	Habitat area restored or created	*Area of renaturalised or new habitat (e.g., wetlands, meadows), in hectares.*
	Invasive species control	*Trend in presence/area of invasive species managed or removed.*
Green Space Access and Equity	Green space per capita	*Total public green space per resident (m^2 per inhabitant). (European Environment Agency, 2023)*
	Proximity to green space	*% of population within ~300 m / 5–10 min walk of a public green space.*
	Area of new green spaces added (ha)	*Count of new green spaces created or brownfields converted per year.*
Climate Change Adaptation and Resilience	Urban heat island reduction	*Difference in surface/air temperatures between greened and built-up areas, or change in hot days mitigated.*
	Climate-adapted species in plantings	*% of municipal plantings that use climate-resilient or drought-tolerant species.*
	Stormwater retention	*Volume of stormwater captured/infiltrated through green infrastructure (m^3), modelled or measured.*
Air and Water Quality	Air pollutant reduction	*Changes in $PM_{2.5}$, NO_2 etc. in greened areas vs. non-greened areas, or modelled pollutant removal by vegetation.*
	Urban water body quality	*% of streams/rivers/lakes with "good" ecological status; water quality test results (e.g. BOD); days recreational waters meet standards.*
	Pollution/Carbon absorption	*Annual CO_2 or pollutant uptake by vegetation (e.g., tonnes/year), modelled tools such as i-Tree.*
Ecological Connectivity	Length of ecological corridors	*Kilometres of continuous or stepping-stone green corridors supporting wildlife movement in urban areas*
	Landscape connectivity index	*Metric of connectedness between green patches (e.g., Probability of Connectivity index).*
	Continuity of tree canopy	*% of urban area with contiguous canopy above a minimum patch size.*

Thematic area	Example indicator	Description/measurement approach
Citizen Engagement and Education	Public participation	*Number of participants/volunteer hours in nature-related activities or community projects.*
	Environmental education	*Number of school programs, workshops, or students reached annually.*
	Citizen satisfaction	*% of residents rating parks/nature as "good" or "excellent" (survey-based).*
Social Justice and Health	Accessibility for vulnerable groups	*% of green spaces that are barrier-free and/or actively used by elderly/disabled/low-income groups.*
	Health outcomes linked to nature	*Indicators such as heat-related incidents reduced, physical activity rates, or green prescriptions issued.*
	Inclusion and safety perception	*Surveyed sense of safety and welcoming environment across genders, ages, and communities.*
Circular Economy and Resource Efficiency	Green waste recycling	*% of landscaping/maintenance green waste composted or reused.*
	Use of sustainable materials	*Share of green infrastructure projects using recycled or sustainably sourced materials.*
	Green jobs created	*Number of jobs in urban greening, restoration, or NbS sectors (FTE estimate).*
Governance and Planning	Budget for urban nature	*Annual municipal spending on nature/biodiversity (per capita or % of total budget).*
	Monitoring system in place	*Existence and frequency of indicator tracking/reporting (e.g., updated annually Y/N).*
	Integration in planning	*Extent to which UNP indicators are referenced in other city strategies or policy* decisions.

Sources: The above examples are adapted from city survey results (frequently mentioned indicators), the Greening Cities Partnership's initial list of indicators, and various established frameworks (EC NbS Handbook, Green City Accord, IUCN UNI, etc.). Local authorities should select and customize complementary indicators relevant to their specific goals. The considerations below should be taken into account:

- **Prioritisation:** It's neither feasible nor necessary to track everything. Many cities in the survey highlighted a handful (5–10) additional indicators that mattered most to them. For example, one city might pick: native species count, green space per capita, heat island index, air quality, and citizen participation – and focus on doing those well. It's better to have a solid, usable set of indicators than an over-ambitious list that overwhelms staff.
- **Data and effort:** Some indicators are relatively easy (e.g., green space per capita comes directly from core data plus population stats), while others are complex (like quantifying urban heat island reduction or calculating ecosystem service values). Consider the capacity: if a local authority lacks in-house environmental monitoring staff, it might start with simpler ones (area counts, participation rates, basic biodiversity counts) and gradually add more complex ones (modelling cooling effects or measuring pollinator populations) as capacity grows. In Section 5 we discuss capacity-building for things like GIS analysis or partnering with universities for biodiversity surveys.
- **Outcome vs. output indicators:** The menu mixes both outcomes (e.g., species diversity – an outcome of habitat quality) and outputs (e.g., number of trees planted – an output or action that leads to outcomes). A robust M&E plan may include some outputs to track implementation progress (like *trees planted, green projects completed*) **in addition** to outcomes that show actual impact (like *canopy cover increased, species counts increased*). Both have value: output indicators help in yearly progress reporting, while outcome indicators show long-term effect. It's often useful to monitor both categories: outputs to ensure activities are on track, and outcomes to verify those activities are achieving the desired changes.
- **Verification and citizen science:** Several biodiversity indicators can be supported by citizen science. For instance, using iNaturalist or local wildlife organisations to gather species observations can not only provide data but also engage the community. Many cities are doing this – some survey respondents track bird or butterfly counts through volunteer programs. Similarly, perception and usage indicators often require surveys – partnering with local universities or using online survey tools can gather that information periodically. This engagement can enhance data quality and public buy-in at the same time.



Why and how to use complementary indicators

The complementary indicator set should not remain static. As local nature restoration priorities evolve, M&E frameworks may add or drop indicators. Also, initial years could focus on establishing baselines. The survey of cities found an appetite for "*more emphasis on quality (not just quantity) in green indicators*" and for peer learning to refine indicators. It is wise for towns and cities to review their indicator set at mid-term (perhaps around 2027–2028 for a 2025–2030 plan) to see if they are capturing what they need, and adjust if necessary.

Using complementary indicators can help tell the story of the UNP. For instance, while a core indicator might say "*we increased tree cover by 2%,*" a complementary health indicator can connect that to "*heat risk days in vulnerable neighbourhoods dropped by 20%.*" Such context is very compelling for public communication and decision-maker support. Thus, while complementary indicators are extra work, they greatly enhance the value of monitoring by linking it to tangible benefits citizens care about.

3.3 Methods & data notes for core indicators

Figure 4 illustrates the roadmap for implementation of Article 8 of the NRR by national and local governments. Exemptions for local administrations apply for LAUs or City Centres where the urban green space or the urban tree canopy cover exceed 45% and 10% of the total area respectively. To evaluate progress against these targets, Member States, through municipalities or local authorities will need to monitor indicators on urban green spaces and tree canopy cover. This section provide guidance on how this can be achieved using publicly available data, and also make suggestions for complementary assessments.

3.3.1 Monitoring the extent of urban green spaces

Assessing urban green space coverage requires consistent data collection obtained through remote sensing and/or field surveys, and processing in Geographic Information Systems (GIS). Tracking changes over time helps urban areas measure compliance with no net loss targets and identify areas for restoration.

The assessment is carried out using the CLCplus Backbone powered by Copernicus' Land Monitoring Service[3]. The product constitutes the baseline land cover product for Europe providing comprehensive, seamless, and accurate land cover information for multiple domains and applications such as environmental monitoring, land use planning, climate change-related assessments and emergency management. It has a raster format and a resolution of 10 meters, showing the dominant land cover among 11 basic land-cover classes. Urban green space is considered the total area covered by trees, bushes, shrubs, permanent herbaceous vegetation, lichens and mosses, ponds and watercourses found within cities or towns and suburbs. **Figure 5** shows land cover for the city of Padova: agrregating the abovementioned cover types results in the total urban green space area. Changes can be detected and measured between years in a GIS application.

3.3.2 Monitoring urban tree canopy cover

The Copernicus Land Monitoring Service also provides the High Resolution Layer Tree Cover Density product which offers information on the percentage of tree cover in a given area[4]. With its three-year update cycle and high-resolution data, this product is one of best publicly available European tree cover maps. The product has a 10 meters resolution.

While the Copernicus openly available products provide a satisfactory resolution for the monitoring and evaluation of the proposed NRR targets, local surveys (e.g. of passive high resolution optical imagery and/or active airborne LiDAR remote sensing[5]) or other data platforms can often provide a better resolution. By extension, results may differ between the two analyses. This is the case for the Metropolitan Region of Brussels particularly for low tree cover density areas which are better detected by a locally carried survey (**see Figure 6**). Similarly, Dutch local authorities can access the Pleiades Neo data of Airbus at a resolution of 0.3m through a service made freely available to them by the Netherlands Space Office (NSO).

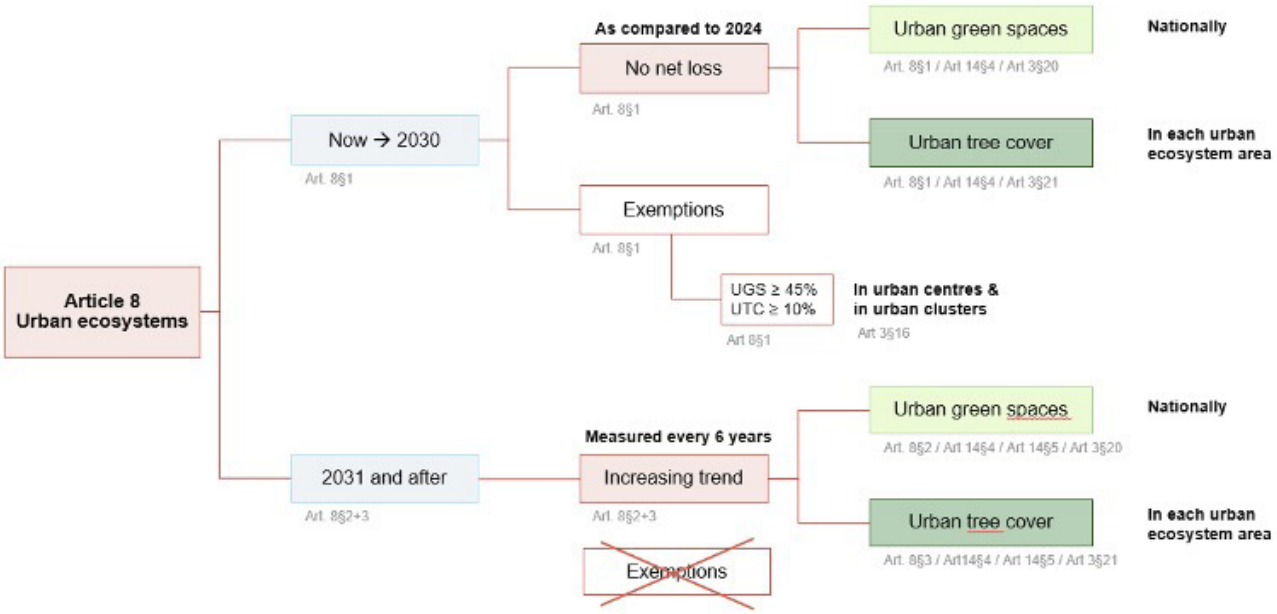


Figure 4. Roadmap of implementation of Article 8 (Source: Anne Franklin, Brussels Institute of Statistics and Analysis, Perspective Brussels - webinar series Greening Cities Partnership) [2]

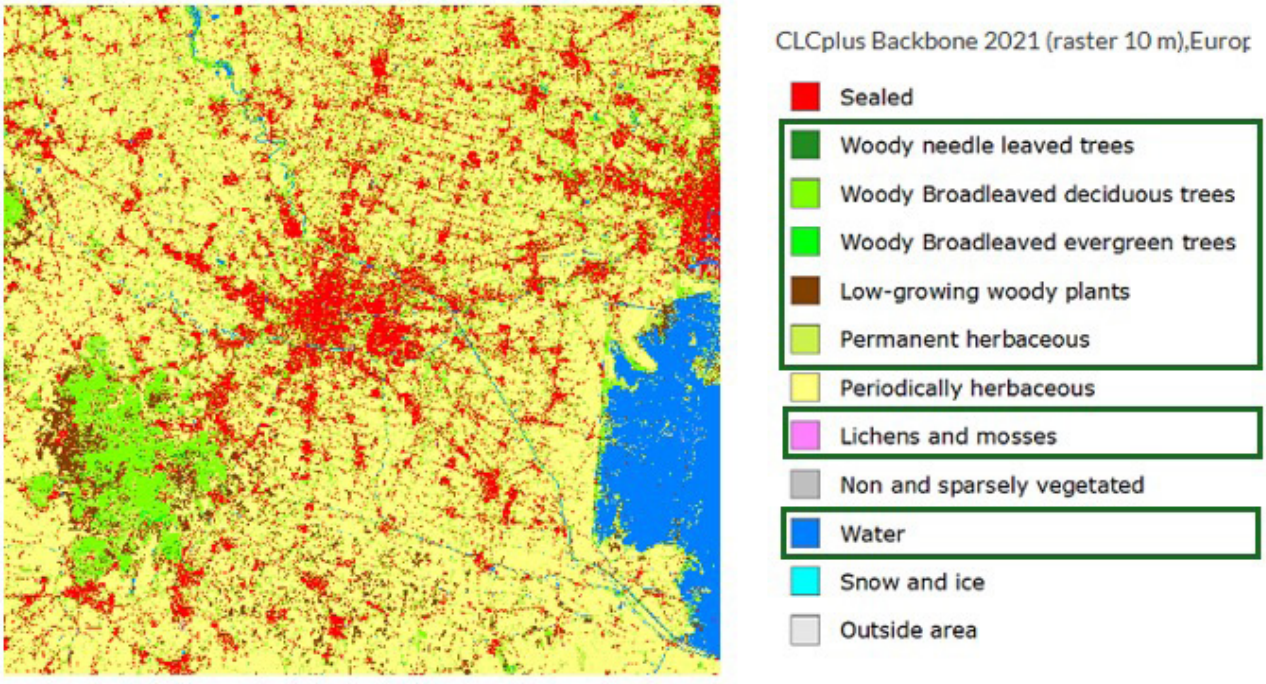


Figure 5. Land cover for the city of Padova, Italy. In green boxes in the legend those cover types contributing to urban green spaces (Source: Produced by Gracia Zulian, consultant, JRC - webinar series Greening Cities Partnership)

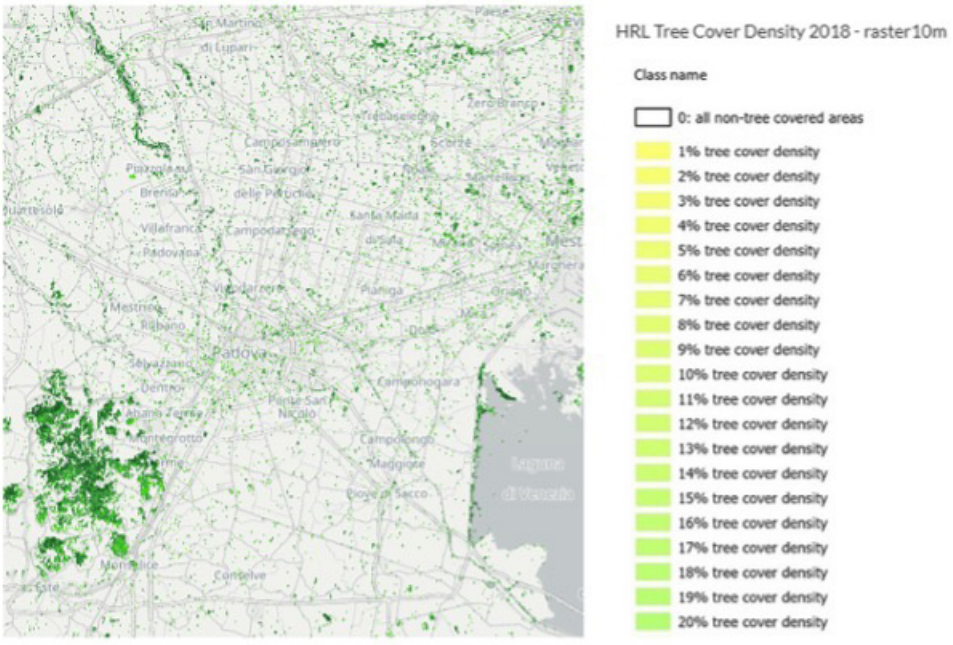


Figure 6. Tree density cover for the city of Padova, Italy (Source: Produced by Gracia Zulian, consultant, JRC - webinar series Greening Cities Partnership)

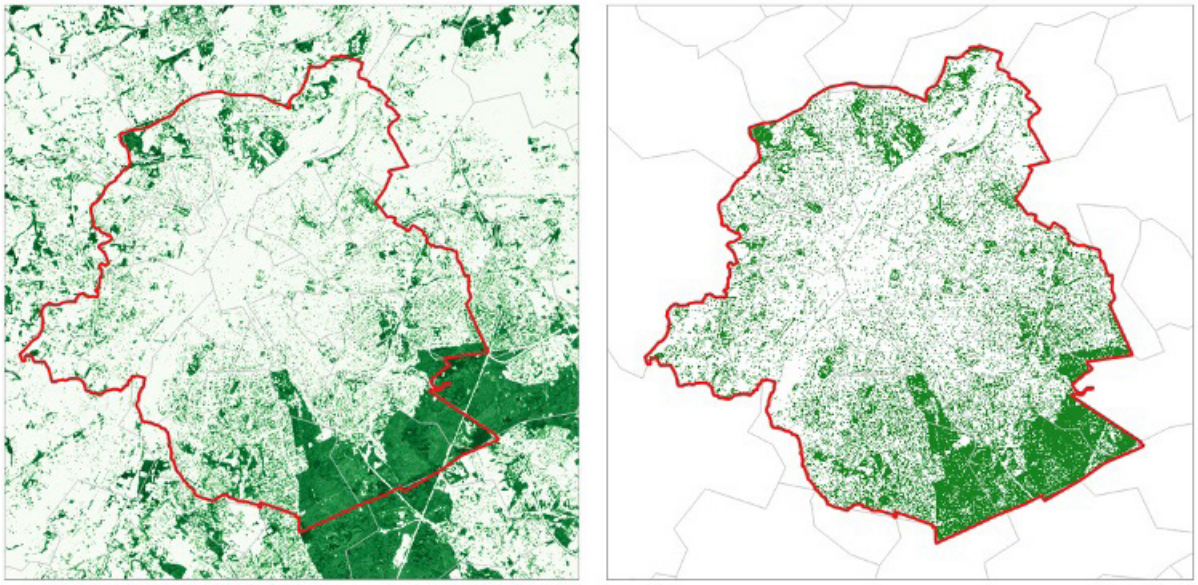


Figure 7. Brussel tree cover density using Copernicus data (left) and using local aerial survey data (right). Source: Produced by Anne Franklin, Brussels Institute of Statistics and Analysis, Perspective Brussels - webinar series Greening Cities Partnership)

3.3.3 Spatial scales for monitoring and evaluation

The choice of the reference urban ecosystem area will have implications on the outcomes of the assessment. Member States are able to choose whether the assessment is performed at the Local Adminstrative Unit (LAU) level or in agrregated spatial extents represented by Urban Centres or Urban Clusters. In the latter case, it is evident that averaging takes place over a larger area. Such clusters are based on grid-based analysis at 1000 meter resolution, considering each cell's population density. More information can be found in this interactive resource (see figure 8)[6]. Moreover, as shown in Figure 1, exemptions apply for LAUs or Urban Centres where the urban green space or the urban tree canopy cover exceed 45% and 10% of the total area respectively.

Figure 8. Definition of urban centres and towns based on grid density analysis (Source: DG Regional and Urban Policy)[6]

Each town or city should choose indicators that match its UNP objectives (e.g., a city focusing on climate adaptation might emphasize flood mitigation and heat reduction indicators, while another focusing on community might emphasize access and engagement).

4. Capacity gaps and needs

Implementing a robust M&E system for Urban Nature Plans can be challenging, especially for towns and cities that may not have dedicated environmental monitoring units or that face resource constraints. Through surveys and consultations, a consistent message has emerged: capacity gaps – both human and financial – are the main barriers to effective monitoring. This section identifies the common capacity gaps and outlines strategies to build the needed capacity. It also introduces a simple "maturity model" to help local authorities self-assess their current state and plan improvements.

4.1 Common capacity gaps

Financial resources: The main challenge (as cited by ~75% of cities in the GCP Survey) is lack of funding for green initiatives, including monitoring. M&E tasks (surveys, satellite imagery, analysis) need dedicated budgets often absent in project plans. With limited capital funds for monitoring, projects proceed without evaluation. Without earmarked funds, monitoring is often omitted or done ad hoc by overstretched staff.

Technical skills: Many towns and cities lack in-house expertise (ecologists, data/GIS analysts) focused on urban nature. Planning staff are busy with other duties, so monitoring falls behind or requires external consultants. Staff may also need new skills (e.g. handling satellite data or specialized software) that current teams lack.

Data fragmentation: Relevant data often exist but are siloed across departments (parks, utilities, health) and formats. Towns and cities lack a centralized data system. This leads to limited coordination and inaccessible information.

Knowledge & guidance: Towns and cities report uncertainty on how to measure indicators and meet EU requirements (e.g. "tree canopy cover"). Guidance on best practices (tools, methods, data quality) is scarce, making staff hesitant or prone to duplicating efforts.

Political & organisational support: Even willing staff need a formal mandate and time. If no one is explicitly assigned (e.g. a coordinator or inter-department committee) and backed by leadership, M&E is deprioritized. Clear accountability and political buy-in are often missing.

Community engagement: Local authorities often underutilize citizens, NGOs and universities in monitoring. Protocols for reliable citizen science are lacking. Engaging these partners could greatly expand capacity but is often an untapped opportunity.

In summary, a town or city starting the UNP M&E might say: "We lack budget, skilled staff, and clear methods, so our data may not meet EU requirements." Towns and Cities can assess their M&E maturity level (see Box 3) to identify next steps. The red box on page 37 illustrates levels from ad-hoc to advanced monitoring (Levels 1–5).

M&E Capacity maturity model (Levels 1–5):

Level 1 – Ad hoc: No formal M&E plan; data collection is sporadic and reactive (e.g. only during external projects). Towns and cities rely on national/regional agencies for most data.
Level 2 – Basic compliance: Core indicators are collected occasionally (e.g. annually) with minimal staff (often one person's spreadsheet). Analysis is limited and serves basic reporting needs.
Level 3 – Structured monitoring: An Urban Nature Plan exists with defined indicators. Some staff time is allocated and data come from multiple sources. The local authority produces internal reports or dashboards, though data may still be fragmented.
Level 4 – Integrated and open: A central system (database or GIS) integrates data from multiple departments. A dedicated (even small) M&E team and budget are in place. The town or city publishes dashboards or annual reports, enabling transparency and comparisons with peers.
Level 5 – Strategic and innovative: M&E is fully embedded in governance. Data drive decisions (e.g. budgeting). Advanced tools (AI, sensors, predictive models) are used. The local authority may integrate nature metrics with financial accounting (TNFD) and mentor others.

4.2 Building capacity: strategies and resources

Addressing the gaps involves a mix of training people, improving processes, and leveraging partnerships/tools. Here are recommended strategies corresponding to the gaps identified:

Financial capacity: Embed M&E costs in all projects (e.g. allocate 5–10% of greening budgets to monitoring) and include M&E work packages in funding proposals. Seek co-funding from national/EU programs (e.g. Technical Support Instrument) to finance town and city monitoring (such as national satellite data analysis). Promote cost-sharing consortia: towns and cities can pool resources to hire shared experts or purchase data (e.g. a GIS analyst or LiDAR survey used by multiple cities).

Human skills: Organise or attend specialized training (GIS mapping, biodiversity survey methods, using tools like QGIS, i-Tree Eco, ENVI). Designate or hire a UNP Monitoring Coordinator (even part-time) with analytical skills; consider fellowships or secondments (e.g. from universities) to bring in expertise. Encourage peer learning: partner with experienced towns and cities for knowledge exchange (site visits, webinars) on approaches like citizen science.

Data systems & tools: Centralise data management: use a shared spreadsheet or database/GIS to log all indicators. Leverage city data platforms or open-data portals for visualization. Use available toolkits (e.g. BioAgora Urban Green Space Toolkit, Singapore Index, Green City Toolbox, NBS Handbook – see Annex B/C) to adapt proven methods. Engage citizen science and automation: involve volunteers (e.g. bird or tree surveys) and deploy low-cost sensors or apps. Automate data flows: use scripts or APIs (e.g. Copernicus Urban Atlas) to update indicators.

Guidance & knowledge: Develop a local "Monitoring Manual" listing indicators, data sources, methods, frequency and responsibilities. Clarify reporting expectations: work with national authorities for NRR methodology (if none by 2025, towns and cities can coordinate via associations for common approaches). Utilize networks: tap the Greening Cities Partnership, UNP+ and other forums (webinars, publications, workshops) for guidance and peer advice.

Organisational buy-in: Embed UNP M&E in official town and city processes (e.g. include indicators in annual sustainability or climate reports) to make it routine. Show quick wins: highlight concrete outcomes (e.g. trees planted, park users, temperature drops) in public communications to demonstrate value. Identify champions: engage political leaders or department heads to advocate for M&E by linking it to city goals.

Capacity building timeline (2025–2030): Align efforts with the implementation roadmap. For example:

- **2025:** Train key staff and establish a basic monitoring framework; conduct a needs assessment of tools.
- **2026:** Pilot new methods (e.g. citizen science projects, satellite analyses) and complete the first baseline report.
- **2027–28:** Strengthen data systems (invest in databases or analysts) and hold peer exchanges; continue advanced training.
- **2029:** Review capacity progress and institutionalize routines (e.g. set schedules for regular data updates and surveys).
- **2030:** Prepare for the no-net-loss compliance check; ensure data and narratives are ready for reporting.

Cities in the survey expressed a strong appetite for knowledge exchange, funding and capacity-building. Early obstacles can be overcome by 2030 with steady effort. As cities see the value of their data (identifying needs, engaging stakeholders, attracting resources), momentum will build. Next, Section 5 outlines the implementation timeline.

Many towns and cities lack in-house expertise (ecologists, data/GIS analysts) focused on urban nature. Planning staff are busy with other duties, so monitoring falls behind or requires external consultants. Staff may also need new skills (e.g. handling satellite data or specialized software) that current teams lack.

5. Implementation roadmap

This roadmap provides phased guidance for implementing the UNP M&E framework, aligned with NRR and EU Biodiversity Strategy milestones. It outlines actions for towns and cities, Member States and EU initiatives.

Phase 1: 2025 – Establish baselines and governance

- **Objectives:** Organise internally and establish baseline measurements for core indicators.
- Governance: Form an internal UNP M&E team (cross-department working group with an M&E sub-team) and assign clear roles (data collection, reporting, etc.). Secure political buy-in (e.g. formal approval of the M&E framework by the Town and City Council or Mayor).
- **Capacity:** Conduct initial training (e.g. using Copernicus data, refining indicator methods) and appoint a part-time M&E coordinator. Invest in building the team's skills early.
- **Baselines:** Acquire 2024 data for key indicators (urban green space, tree canopy). If delayed, use latest available data (2018/2021) temporarily. Conduct baseline biodiversity surveys (e.g. BioBlitz) and complementary metrics (e.g. percentage of population within 300 m of green space).
- **Plan refinement:** Use baseline results to adjust targets (e.g. if green space is 40%, revise the 2030 target) and address data gaps (e.g. improve tree inventory).
- **National coordination:** By end-2025, clarify Member State guidance (e.g. urban boundary definitions, reporting templates). If none is provided, towns and cities should coordinate (via municipal associations) on a common approach.

Phase 2: 2026 – Integration into National Restoration Plans

- **Objectives:** Ensure town and city targets and data feed into Member States' National Restoration Plans.
- **Contribute to NRP:** Provide baseline data and UNP commitments to national authorities. Town and City targets (e.g. +5% green space) should bolster national urban targets. Flag challenges (e.g. major development projects) so they can be mitigated.

- **Local alignment:** Embed UNP indicators into local authority reporting (e.g. annual sustainability or environmental reports) and planning processes. Make M&E routine.
- **Capacity sharing:** Hold a "Year One" workshop to share experiences (e.g. one city on canopy analysis, another on biodiversity surveys).
- **Tool piloting:** Test new tools or software using baseline data (e.g. set up an online dashboard with baseline figures).
- **Community engagement:** Publish baseline findings (reports, infographics) to raise awareness and rally support (e.g. highlighting neighbourhoods lacking tree cover to prompt action).

Phase 3: 2027-2029 – Regular tracking and adaptive management

- **Objectives:** Institutionalize monitoring and use data to adjust actions.
- **Updates:** Update core indicators annually or biennially. (Tree canopy changes mainly with new Copernicus data; interim years can use proxies like tree planting counts.)
- **Dashboards:** By 2027, establish an internal dashboard or data portal (even a simple spreadsheet) for tracking. Consider a public dashboard for transparency (survey respondents showed interest).
- **Mid-term review (2027/28):** Evaluate progress. If an indicator (e.g. green space) is off track, adapt the plan (accelerate greening, revise strategies). If targets are met early, consider raising them.
- **Adaptive management:** Use data to guide decisions (e.g. prioritize planting in under-served areas, increase maintenance if canopy gains lag). Ensure governance allows reallocating resources as needed.
- **Capacity growth:** Aim to reach an integrated system (Level 4). Upgrade tools or formalize M&E roles; expand citizen science (e.g. volunteer monitoring programs). Embed monitoring capacity as it proves its value.
- **Peer learning:** Share progress and lessons via city networks (national/EU) – for example, compare canopy gains between cities to learn effective policies and inform higher-level guidance.

Phase 4: 2030 – Compliance check and final sprint.

- **Objectives:** Prepare final data for the no-net-loss evaluation and review outcomes.
- **Final data collection:** Ensure 2030 measurements for green space and canopy are completed (preferably in early 2030) for comparison with 2024 baselines. Document methods. Report any exemptions (e.g. cities with very high initial green share).
- **Summative evaluation:** Assess 2025–2030 performance. Which targets were met or missed, and why? Involve stakeholders in reviewing successes and failures (e.g. which projects delivered results, which indicators proved challenging).
- **Compliance outcome:** Ideally report compliance (no net loss or a gain). If there were losses (e.g. due to development), note them and plan equivalent restoration actions. Use the findings to plan catch-up measures in the next cycle.
- **Celebrate successes:** Publicise achievements (e.g. trees planted, area restored, citizen involvement) aligned with EU biodiversity goals to build support.Identify remaining gaps: Note any qualitative gaps (e.g. ecosystem quality, equitable access) for the next plan. These insights will guide UNP 2.0 priorities.

Phase 5: 2031 and beyond – Next cycle and scaling-up

- **Objectives:** Shift to the net-gain phase (per Article 8) and launch a new target cycle.
- **New targets (2031–2036):** In 2031, update targets (e.g. "increase total urban green space by X% by 2037") in line with Member State goals. Towns and cities should use 2025–2030 data to propose ambitious yet feasible targets (for example, a town or city that achieved no net loss might aim for +3% by 2037).
- **Next UNP:** In 2030–31, draft the next Urban Nature Plan using the 2025–30 experience. Adjust priorities (e.g. "we did well on quantity, now focus on quality and access"). Carry forward the monitoring system, refining it as capacity grows.
- **Institutionalization:** By 2031, nature M&E should be mainstreamed: annual budgets allocated for monitoring, permanent staff roles defined, and monitoring included in routine town or city reporting (similar to financial or sustainability reporting).
- **Long-term integration:** Integrate monitoring with broader town and city systems. For example, deploy real-time environmental sensors feeding into town and city dashboards. The data habits built in the 2020s ensure any future smart-city tools are effective. Emphasize that monitoring is a continuous, evolving process.

Plaza Enric Granados (Jardí Illa) in Barcelona. Part of Barcelona's Superilles programme, this former traffic junction is transformed into a green public square with more trees, biodiversity planting and rain gardens that cool the city and naturally manage stormwater.
Designed by LANDLAB, laboratorio de paisajes.
Link to the project page.

6. Practice library:
Case studies and examples

This section showcases real-world examples of cities that have integrated monitoring and evaluation into their nature-positive strategies. Each case highlights a distinct strategy, from sectoral integration to citizen science. Cities featured include Utrecht, Barcelona, Pontevedra, and Bristol.

Utrecht, Netherlands:
Mainstreaming nature indicators across city plans

Utrecht integrates its **Green Structure Plan** (2017-2030) with broader agendas, including climate and mobility. A GIS-based system tracks green infrastructure, overlaying heat stress and demographic data to target tree planting. Collaboration with universities enhances biodiversity monitoring (e.g. habitat indicators). Results are shared at public "Urban Nature Days" using interactive maps.

Key takeaway: Embedding nature indicators in broader city performance metrics (climate, health) has secured political buy-in. Monitoring is seen as essential, not optional, leading to data-driven interventions such as green roof expansion and targeted cooling strategies.

Barcelona, Spain:
Data-driven planning and superblocks

Barcelona uses baseline and follow-up data (pollution, heat, noise, user perception) to guide and assess its **Superblock** model and major greening projects like Parc de les Glòries. Resident surveys and high-resolution data guide decisions. The city also uses crowdsourced inputs and anonymized mobile data to understand how green spaces are used post-intervention.

Key takeaway: A strong before-and-after monitoring approach created a feedback loop—data justifies interventions, which produce measurable results, bolstering public and political support for further action.

Pontevedra, Spain: Public-space transformation through a green-infrastructure lens

The reforms of Pontevedra's public space place green infrastructure at the heart of urban design, combining pedestrianisation with more trees, permeable surfaces and restored river corridors, and recovering underground sections, such as the Gafos River. The city is committed to public spaces that focus on people, good air quality, noise reduction and pedestrian safety in order to quantify environmental and social benefits. Its urban transformation model was recognised by UN-HABITAT in 2014. Emerging work under the **Rede-Verde** programme supports this initiative with the mapping of ecological corridors and small-scale renaturalisation projects. Participatory elements, such as guided environmental tours and a map viewer to be launched soon, allow citizens to give their opinion on accessibility and ecological quality.

Key takeaway: By aligning mobility and environmental monitoring with early ecological indicators, Pontevedra shows how data can guide the evolution of car-free streets toward a more comprehensive green infrastructure strategy.

Bristol, UK: Linking monitoring to policy commitments

Following its Ecological Emergency declaration, Bristol launched a **Wildlife Index** using species surveys and acoustic monitoring, complemented by remote sensing for tree canopy. Citizen science projects like "Bristol Breathing Spaces" enrich city data. Findings influence budget allocation and policy—e.g., shifting focus from planting to protecting mature trees. Nature indicators are used by multiple city boards, including health.

Key takeaway: Framing biodiversity as part of broader city resilience led to integrated governance and new monitoring tools. Community and expert data together create a more holistic picture, reinforcing policy alignment.

7. Linking M&E to investment and disclosure

Monitoring and evaluation of urban nature plans isn't just an internal exercise for local governments or a duty to report to higher governments – it can be a powerful tool to unlock funding and to meet the growing demands for transparency from financial and public stakeholders. This section explores how towns and cities can leverage their M&E systems to attract investment, align with emerging frameworks like the TNFD (2022) for disclosure, and in general make the business case for urban nature through solid evidence.

7.1. Using indicators to access funding (public and private)

Historically, urban nature initiatives have faced difficulties in securing funding when competing against conventional "grey" infrastructure investments. However, as the benefits of nature-based solutions (NbS) become increasingly quantifiable, towns and cities can leverage monitoring and evaluation (M&E) data to strengthen their financial arguments:

EU and national funding programmes

Many European and national funding instruments now require proposals to include a clear results framework and measurable indicators. For instance, applications to EU LIFE or Horizon Europe calls on urban greening must specify expected outcomes and how these will be monitored. Towns and cities with established UNP M&E systems are therefore better positioned to respond effectively to such requirements. Moreover, several EU structural funds (e.g., ERDF) are gradually linking allocations to climate- and nature-related objectives. Demonstrating quantified co-benefits (e.g., tonnes of CO_2 sequestered, reduced flood damages expressed in economic terms) can substantially increase the competitiveness of funding proposals.

Performance-based grants and incentive schemes

There is an emerging shift toward performance-based financing in national and subnational environmental programmes. Under such schemes, municipalities may receive **additional funding** upon achieving pre-defined environmental outcomes. Some countries already provide financial incentives for demonstrated improvements in air or water quality. Comparable incentives for biodiversity and urban greening could plausibly develop in response to initiatives such as the Green City Accord or the proposed EU Nature Restoration Regulation. Municipalities with robust M&E systems will be best prepared to participate credibly and benefit from such mechanisms.

Innovative municipal finance instruments.

Towns and cities increasingly issue **green or sustainability bonds** to finance nature-based and climate-related investments. These instruments require transparent reporting of environmental outcomes to bondholders. For example, commitments such as "X hectares of green roofs installed" or "Y m^3 reduction in stormwater runoff" must be verified over time. Strong monitoring systems provide the evidence base required to maintain investor confidence, support compliance with

reporting frameworks, and potentially improve borrowing conditions by reducing perceived performance risk.

Cost-benefit analysis and avoided-cost assessments.

Systematic environmental monitoring enables municipalities to quantify avoided public expenditure, which is often decisive in municipal budgeting. Examples include reduced healthcare costs due to heat mitigation and improved air quality, or avoided flood damage due to restored wetlands. Such cost-benefit evidence can reframe NbS from discretionary amenities to cost-effective infrastructure investments. Cities in our 2024 survey noted that establishing targets within UNPs helped them access external funding; integrating monitoring closes the loop by demonstrating that funded interventions deliver measurable returns.

Public-private and cross-sector partnerships.

Private actors are increasingly willing to support urban greening for corporate responsibility, carbon accounting, or community engagement purposes. However, sustained partnerships require transparent reporting of outcomes such as tree survival rates, estimated carbon sequestration, or community participation. Reliable M&E therefore strengthens partnership proposals, supports ongoing engagement, and enables towns and cities to articulate the value generated for external stakeholders. Should biodiversity crediting mechanisms advance in the future, credible monitoring would also be foundational for participation.

7.2. Connecting to TNFD and ESG disclosure

The Taskforce on Nature-related Financial Disclosures (TNFD), finalized in 2023, encourages organisations to disclose how they depend on and impact nature. Though designed for corporates and investors, towns cities are beginning to align with TNFD as part of broader ESG (Environmental, Social, Governance) strategies.

Why M&E Matters for Towns and Cities?

Nature as asset and risk: Urban nature provides vital services—cooling, flood prevention, recreation. If degraded, these benefits decline and risks rise. Through UNP monitoring, towns and cities quantify natural assets and detect trends. For example, declining canopy may signal rising heat risk. Robust M&E helps local authorities issue "state of nature" reports aligned with TNFD principles.

Investor and credit rating relevance: Towns and cities increasingly face scrutiny from investors and rating agencies. As with climate, nature-related risks may soon affect municipal creditworthiness. A local authority showing active restoration and measurable outcomes—e.g. wetland creation to reduce flood risk—can strengthen investor confidence.

Transparency builds trust: Public disclosure of M&E results fosters accountability and builds political support. Towns and cities can integrate UNP indicators into sustainability reporting or green budgeting, making progress visible and tangible.

Efficiency across frameworks: UNP data can support other reporting tools like GRI or CDP. TNFD's categories (land, species, ecosystems) align with many urban indicators, such as % natural habitat protected or biodiversity trends.

Unlocking new finance streams: With growing interest in biodiversity credits and ecosystem payments, towns and cities that monitor outcomes (e.g. CO_2 sequestered, species gains) may access emerging funding. Monitoring enables participation in schemes like urban carbon markets or biodiversity offsetting.

EU sustainable finance taxonomy alignment: Urban nature projects that contribute to climate adaptation or biodiversity can qualify as sustainable investments under EU rules. Measured outcomes (e.g. increase in green cover, improved water retention) help meet eligibility criteria and attract green finance.

Lesson: Good M&E reframes urban nature from a cost to an asset. Municipalities can report not just that they "planted 500 trees" but that this action generates energy savings, sequesters carbon, and improves public health. Transparent reporting attracts funding, reduces risk, and supports long-term resilience. However, with disclosure comes scrutiny and honest reporting builds trust and invites support (e.g. from residents, funders, and higher levels of government). Early adopters in linking nature data with finance will be well-positioned for future opportunities.

Cities in our 2024 survey noted that establishing targets within UNPs helped them access external funding; integrating monitoring closes the loop by demonstrating that funded interventions deliver measurable returns.

Drawing together the insights from this guide, we conclude with targeted recommendations for the key actors involved in implementing and supporting Monitoring & Evaluation of Urban Nature Plans. These recommendations aim to ensure that efforts are coherent across governance levels and that the necessary support and harmonization are in place for success. They are grouped by actor: Towns and **Cities**, **Member States**, and **EU Institutions and platforms** (including programs like the European Urban Initiative and the Urban Agenda for the EU).

8. Recommendations

A. For towns and city governments

A1. Adopt a core + menu indicator approach:

Every town or city developing a UNP or equivalent strategy should monitor the two core NRR indicators (urban green space % and tree canopy %) without exception, using the standard methods described. This ensures basic compliance and comparability. On top of that, select a tailored set of complementary indicators from the "menu" to reflect local priorities (biodiversity, access, climate resilience, etc.). Aim for a balanced set covering environmental, social, and governance aspects of the UNP. Formally include these indicators in your UNP document and dedicate resources to monitoring them. (In other words, don't just list indicators on paper – plan who will collect the data and how.)

A2. Invest in capacity and systems:

Don't treat monitoring as an afterthought or unfunded mandate. Allocate sufficient part of the UNP budget to it. Train or hire staff in key skills like GIS, data analysis, and community engagement for monitoring. Establish an internal coordination mechanism (e.g., a monitoring working group or designate a coordinator) so it's clear who does what and data isn't siloed. If possible, invest in basic tools – even if just good GIS software and time to develop a simple database. These investments will pay off by making your actions more effective and fundable (as Section 8 argued, data helps unlock resources).

A3. Integrate M&E into decision-making:

Use the data you gather. Include M&E results as a standing item in annual reviews or budget planning meetings. For instance, if canopy monitoring shows a decline in a certain district, that should trigger a management response (like increased tree care funding or a policy change on tree protection). Monitoring is only as useful as the actions it informs. Also integrate nature indicators into broader municipality strategies (climate action plans, public health plans, etc.), so they get attention outside of the environmental department. Leverage positive results to celebrate and communicate (building public support), and use negative results to transparently address challenges – this builds credibility and trust.

A4. Embrace transparency and participation:

Publish your findings in an accessible way (open data portals, municipality dashboards, community meetings). Consider involving citizens in monitoring (via citizen science programs) to both augment capacity and build stewardship. When citizens see progress (or the lack thereof) themselves, it can motivate community action and compliance (e.g., people take better care of new green spaces if they understand their value). Being open also means you can learn from peer towns and cities – share your data and methods in city networks to get feedback and advice.

A5. Plan for the long term:

Politically, administrations change, but nature restoration is a long game. Institutionalise the UNP M&E so it survives beyond election cycles. For example, get a City Council resolution that mandates a biannual "Urban Nature Report," or embed indicator requirements into local ordinances (some cities have done this for tree counts, biodiversity assessments in planning, etc.). Create a "living" indicator library or database that can be updated and used in future plans (the Annex A format can serve as a template for documentation). Essentially, make M&E part of the city's DNA in urban planning, not just tied to one project or one political term.

B. For Member State governments

B1. Provide clear guidance and harmonise definitions:

Member States should issue clear technical guidance to towns and cities on how to monitor Article 8 targets – i.e., define "urban green space" and "urban tree canopy" in a uniform way nationally, clarify the spatial reporting unit (LAU vs. other), and provide methodological notes. This prevents confusion and saves each municipality from figuring it out alone. Harmonized definitions ensure that when data rolls up nationally it's consistent and fair. Engage with towns and cities in creating this guidance (perhaps via national city associations or a consultation process) so it's practical and addresses on-the-ground realities. For example, if your national context has common types of urban green (private courtyards, rooftop gardens), clarify if those count. Do this early (2025) to guide baseline assessments.

B2. Co-fund shared monitoring infrastructure:

National governments have a vested interest in local data (for NRR compliance), so they should help lighten the load. This could include funding a central data platform where towns and cities upload their stats (possibly building on existing environmental portals), or providing subscriptions to high-resolution data services, or co-financing LiDAR flyovers for urban areas, etc. Even small grants earmarked for urban nature monitoring (capacity-building grants, equipment grants) can make a big difference for a medium or small city. Just as some countries fund local climate adaptation measures, consider funding local nature restoration tracking. A recommended action is to use some of the EU funds (like Recovery and Resilience funds or environmental funds) for a capacity program on urban nature monitoring – e.g., training sessions, pilot projects in a few cities that develop best practices to be scaled.

B3. Facilitate data sharing and technical support:

National agencies (geographic institutes, environmental agencies) often hold relevant data – high-res aerial imagery, national biodiversity databases, climate model outputs. They should ensure towns and cities have easy access to these. For example, make available a processed dataset of urban green space and canopy for all cities as of 2024 (some countries' stats offices or env agencies can do this centrally). Additionally, consider setting up a small technical helpdesk or forum that towns and cities can consult with questions on indicator methods – akin to how some countries support municipalities on climate reporting or air quality management. A little support can prevent multiple municipalities from struggling separately with the same issue.

B4. Encourage standard reporting and aggregation:

Develop a simple template for towns and cities to report their Article 8 progress (and possibly a few key complementary indicators) up to the national level. This could be an annual or biennial survey or an online form. By standardizing it, Member States can easily aggregate the data for national reporting. It will also highlight which municipalities might need extra help (if some are not meeting targets or not reporting). Moreover, seeing town or city data side by side can help identify structural issues – e.g., if all local authorities in one region are struggling with canopy cover, maybe a regional policy or support program is needed. Treat municipality data as an integral part of national monitoring, not a footnote. In practice, this might mean including an urban ecosystems section in national State of Environment reports, etc.

B5. Leverage legal and policy instruments:

Member States can reinforce town and city efforts by aligning other policies with UNPs. For instance, integrate urban nature indicators into national urban development or health strategies, so other ministries also champion them. Use regulatory levers – e.g., in planning law, require that cities above a certain size have an Urban Nature Plan with measurable targets (some countries might do this to implement the EU Biodiversity Strategy's intention that cities develop UNPs). Or tie certain funding to having a monitoring system: for example, to receive a national green infrastructure grant, the local authority must show how it will monitor outcomes. These approaches ensure that what is recommended here becomes standard practice across the board, not just in pioneering cities.

B6. Promote peer learning and recognition:

Member States can reinforce town and city efforts by aligning other policies with UNPs. For instance, integrate urban nature indicators into national urban development or health strategies, so other ministries also champion them. Use regulatory levers – e.g., in planning law, require that cities above a certain size have an Urban Nature Plan with measurable targets (some countries might do this to implement the EU Biodiversity Strategy's intention that cities develop UNPs). Or tie certain funding to having a monitoring system: for example, to receive a national green infrastructure grant, the local authority must show how it will monitor outcomes. These approaches ensure that what is recommended here becomes standard practice across the board, not just in pioneering cities.

C. For the European Commission and EU-level bodies

C1. Provide training and guidance materials:

The EU, through instruments like the European Urban Initiative (EUI) and other funding programs, should continue and expand capacity-building offerings on urban nature M&E. This guide itself is one product – more like it (webinars, online courses, detailed technical manuals) could be developed. In particular, a "light harmonized framework" for urban nature monitoring at EU level would be valuable. This could be a set of recommended indicators (aligned with what we have here) and suggested methods, which towns and cities across Europe are encouraged to use. It should be flexible (not imposed by law, as contexts vary – hence "light"), but enough to steer everyone in a common direction. Essentially, the Commission can set the tone that monitoring urban nature is expected and provide the toolkit to do it.

C2. Support a city indicator platform:

Building on ideas like the Green City Accord (Green City Accord Secretariat, 2021) and the existing Urban Data Platform, the EC could establish a platform where cities can report/upload their urban nature indicators and compare with peers. This might tie into existing portals (the GCA's monitoring framework is a starting point, currently covering some nature indicators). Ideally, such a platform would allow dynamic maps or benchmarking – e.g., a city could see where it stands relative to national/regional averages on green space per capita, canopy cover, etc. If confidentiality is a concern for some data, an opt-in approach could be used – but many cities would appreciate such tools. The Commission could also use aggregated city data to track progress towards EU goals (since collective city actions matter for the 2030 targets).

C3. Ensure data availability and innovation:

The EC's Copernicus program and related research should continue to tailor products for urban use. For example, consider developing a dedicated "Urban Green Monitor" product that annually provides green space and tree cover stats for all European towns and cities (this could potentially be done with existing Sentinel satellite data plus AI classification). Also, Horizon Europe research can be directed to improve urban biodiversity indicators and monitoring techniques (some projects are already doing this, e.g., those referenced in the BioAgora toolkit on citizen science, remote sensing for urban biodiversity). By advancing the state of the art, the EC helps towns and cities leapfrog in monitoring capability (especially those with fewer resources to develop new methods in-house).

C4. Financial support and incentives:

The Commission (and institutions like the EIB) should consider tying funding to solid M&E. For example, under the European Urban Initiative or Covenant of Mayors, provide bonus points or earmarked grants for cities that demonstrate robust monitoring systems. The Commission might also explore a technical assistance facility specifically for nature monitoring (similar to ones for energy management). Additionally, include urban ecosystem indicators in the tracking of NRR implementation at EU level – and ensure any EU "scoreboard" or progress report highlights city contributions, giving them recognition at European level (town and city leaders can use that recognition to get local buy-in).

C5. Encourage Member State action:

The Commission can use its coordinating role to encourage Member States to actively support towns and cities, per the above recommendations. Through the Committee of the Regions or other channels, highlight the need for multilevel cooperation on urban nature monitoring. Possibly include specific guidance or even requirements in implementing acts of the NRR that Member States must consult and involve municipalities in monitoring and capacity building (the NRR text already implies multilevel coordination). Essentially, push Member States to not leave towns and cities on their own – perhaps convene annual meetings on Article 8 implementation where city reps are present.

C6. Foster a community of practice:

The EC and EUI can help sustain networks like the Greening Cities Partnership beyond the immediate project timeline. Create a lasting community of cities, experts, and officials who continuously exchange on UNP development and monitoring. This could be through an online platform, regular workshops, or integration into existing urban forums (like expanding the Covenant of Mayors to include nature, or establishing a subgroup for urban biodiversity). The value is collective problem-solving – e.g., if many towns or cities struggle with a certain indicator, the community can devise a solution once rather than each city in isolation.

References

1. Copernicus Land Monitoring Service (2021–2024). CLC+ Backbone (10 m land cover) and High Resolution Layer: Tree Cover Density (TCD) datasets. European Environment Agency & European Commission Joint Research Centre.
2. European Commission (2020). EU Biodiversity Strategy for 2030: Bringing nature back into our lives. COM(2020) 380 final. Brussels: European Commission.
3. European Commission (2021). Evaluating the impact of nature-based solutions: A handbook for practitioners. Luxembourg: Publications Office of the European Union.
4. European Commission (2024). Urban Nature Plans – Guidance for Cities (Working guidance release). Brussels: Directorate-General for Environment and Directorate-General for Regional and Urban Policy.
5. European Parliament and Council (2024). Regulation (EU) 2024/1991 on nature restoration. Official Journal of the European Union, 12 July 2024.
6. European Environment Agency (2023). Access to urban green spaces in Europe: Mapping public health opportunities. EEA Report No 07/2023. Copenhagen: EEA.
7. European Environment Agency (2020–2024). Urban Atlas (settlement scale land use dataset). Copenhagen: EEA.
8. Green City Accord Secretariat (2021). Monitoring framework and reporting guidance for signatory cities. Brussels: European Commission.
9. ICLEI – Local Governments for Sustainability (2022). CitiesWithNature Action Platform: Guidance and indicator support for cities. Bonn: ICLEI.
10. International Union for Conservation of Nature (IUCN) (2021). Urban Nature Index: A framework for measuring the state of urban biodiversity. Gland: IUCN.
11. Taskforce on Nature-related Financial Disclosures (TNFD) (2023). TNFD Recommendations and guidance v1.0. London: TNFD Secretariat.
12. World Health Organisation Regional Office for Europe (2016). Urban green spaces and health: A review of evidence. Copenhagen: WHO Europe.

Image and illustration credits

p. 7 — Photo by NiceMatin on flourish.studio

p. 13 — Photo: © Bureau B+B urbanism and landscape architecture. Used with permission.

p. 19 — Photo by Nate St. George on Unsplash. Free use under the Unsplash License.

p. 21 — Photo by Jörg Angeli on Unsplash. Free use under the Unsplash License.

p. 22-23 — Photo by Claudio Schwarz on Unsplash. Free use under the Unsplash License.

p. 31 — Photo by Khanh Do on Unsplash. Free use under the Unsplash License.

p. 37 — Photo by Brett Wharton on Unsplash. Free use under the Unsplash License.

p. 45 — Photo: © Jordi Otix and LANDLAB, laboratorio de paisajes. c
p. 51 — Photo: © Design: Buro Harro, Foto: Jeroen Musch. Used with permission.

Icons: Icons used in this document are sourced from Flaticon.com.

Annexes

(The following annexes provide supplementary resources and templates to aid in implementing the guidance from the main report. They can be used as reference material and adapted to local needs.)

Annex A
Indicator library and methods

This annex provides structured technical definitions, methodologies, and data sources for both core and complementary indicators referenced in Section 4. These entries align with recognized methodologies (e.g., EU NBS Handbook, IUCN) and support operational consistency in city-level monitoring systems.

Core indicators

Indicator	Definition	Methodology	Data Sources	Frequency	Notes/ References
Urban Green Space Coverage (% of land area)	Proportion of city covered by vegetated or water surfaces	GIS analysis using high-res land cover (e.g. Copernicus CLC+). Classify land cover into green/blue vs. other; compute area	Copernicus CLC+, Urban Atlas, national datasets	~Every 5 years	Align with EU technical note on Article 8; exclude agriculture unless intra-urban
Urban Tree Canopy Cover (% of land area)	% city area under tree canopy (vertical projection)	Use Copernicus HRL Tree Cover Density; apply ≥30% mask or weighted average	Copernicus TCD, local LiDAR (if calibrated)	Every 3 years	Exclude agricultural trees; include urban forests, parks, street trees
Protected Natural Areas (% of city area)	% city area legally protected for conservation	GIS overlay of protected areas with city boundary	Local Nature Areas of Interest GIS, national PA registries, local plans	As designated	May report by designation type (EU/local); overlap acceptable

Selected complementary indicators

Indicator	Definition	Methodology	Data Sources	Notes/ References
Native Species Diversity	Number of native species record-ed (e.g., birds, butter-flies)	Standardized field surveys or citizen science data filtered by city	iNaturalist, GBIF, eBird, NGO sur-veys	Standardise by effort/site; EC NBS Handbook
Habitat Area Restored (ha)	Area of de-grad-ed/natural habitat restored	Area-based analysis via GIS and city project records	City reports, NDVI change maps	Define "restored" clearly; Urban Agenda guidance
Invasive Spe-cies Managed	Area or number of invasive spe-cies controlled	Annual report-ing from parks/logs; citi-zen alerts	City maintenance logs, IAS tracking systems	Track trends; EU Restoration Law suggests inclusion
Green Space per Capita (m^2/person)	Total green space ÷ popula-tion	Use core green space estimate; divide by census data	National statistics offices	WHO ≥9 m^2 rec-ommendation
Access to Green Space (% pop. within 300 m)	% residents liv-ing within 300 m of green space ≥0.5 ha	GIS buffer analy-sis around green areas + popula-tion overlay	City parks data, 100 m population grids	EEA/WHO stand-ard
Urban Heat Is-land Intensity (°C)	Urban–rural temp. differential on hot days	LST analysis from satellite imagery or in-situ sensors	Landsat-8, MO-DIS, local weath-er net-works	ΔT metric used by cities and CRU
Stormwater Re-tention (m^3/year)	Volume retained by green in-fra-structure	Hydrological models com-par-ing pre/post scenarios	Rainfall, runoff coef-ficients, SuDS/green roof data	Cleveland GI Plan method
Air Quality Im-provement (e.g., $PM_{2.5}$)	Modelled or ob-served pollut-ant removal by vegeta-tion	i-Tree mod-el or monitor com-parison pre/ post green-ing	i-Tree Eco, city air monitors	Report kg/yr pol-lutant removal
Urban Water Quality (% or index)	% urban wa-ter bodies with "good" status or composite index	Annual moni-to-ring or offi-cial ecological status from WFD	EEA water data, local samples	EU SoE reports include this
Ecological Conectivity Index	Connectivity of habitat patches (e.g., cohesion, meff)	Use GIS habi-tat map + soft-ware like Conefor, GUIDOS	Land cover maps, dispersal models	Ghent's Green Fabric; meff stan-dard

Indicator	Definition	Methodology	Data Sources	Notes/ References
Public Partici-pa-tion (# vol-unteers/year)	Residents par-tici-pating in urban nature activities	Count of regis-te-red volunteers in events/citizen science	Parks/NGO re-ports	Normalize by population; Sin-ga-pore Index
Environmental Education	# of nature events or partic-ipants reached annually	Sum of work-shops, events, school visits	Parks dept re-cords, NGOs	EU Green Capital benchmarks
Citizen Sat-isfaction (% satisfied with parks)	% of residents rat-ing parks satisfac-tory	City survey or feedback mech-anisms	Municipal survey programs	Quality of life indices standard
Accessibility for Vulnerable Groups	Proportion of low-income/ disability groups with access	GIS overlay of access buffers with socio-demo-graphic layers	Accessibility au-dits, census	No standard yet; equity focus
Health Out-comes (na-ture-related)	Proxy indicators of physical or mental health ben-efits	Public health surveys; corre-late to greening exposure	Health depart-ment data	WHO indicators: usage, activity
Green Waste Re-cycling (% com-posted)	% organic green waste compost-ed or reused	City waste re-ports; parks department data	Waste statistics	Circular economy indicator
Use of Sus-taina-ble Mate-rials	% of green project materials that are certified sustaina-ble	Procurement review in parks/ green infra proj-ects	Project logs	Approximate if data sparse
Green Jobs Cre-ated (# FTE)	New urban na-ture-related jobs from UNP	HR counts in parks/NGOs; lo-cal hires in green projects	Budget/employ-ment data	EU Green City Accord qualitative ask
Budget for Ur-ban Nature (€ or %)	Budget amount or % allocated to na-ture-based inter-ventions	Compile all bud-get lines relevant to ur-ban nature	City finance de-part-ment	Shows prioriti-za-tion, political commitment
Monitoring Sys-tem in Place (Y/N)	Whether a struc-tured UNP M&E process exists	Binary self-report based on check-list	City review sys-tem	UNP Guide com-pliance indi-cator

Each town and city may select context-relevant complementary indicators beyond those listed, but all should be documented consistently. Additional guidance can be drawn from the EU NBS Handbook, UGP Toolkit, and standard biodiversity frameworks.

Annex B
Data source catalogue

This annex compiles key data sources and tools useful for urban nature M&E, with descriptions and access information, spatial/temporal coverage, and how it links to indicators.

Data Source/ Tool	Description	Coverage	Use for indi-cators	Access/Notes
Copernicus Land Monitor-ing Ser-vice – CLC+	Europe-wide 10 m land cover dataset, up-dat-ed ~every 6 years	EU (wall-to-wall)	Green space %	Copernicus web-site (GeoTIFF). Com-bine with local data for detail.
Copernicus HRL – Tree Cover Density (TCD)	10 m raster of tree canopy den-sity and mask	EU (2012–2024)	Tree canopy %	Free via Copern-icus portal. 2024 update expected.
Urban Atlas (EEA, 2020-2024)	Land use maps for FUAs (>100k pop.) with detailed green classes	~800 EU cities	Green space clas-sification, spatial equity	EEA site (shape-files). Updates: 2006, 2012, 2018, 2024 (on-going).
Global Human Settlement Layer (GHSL)	Gridded pop-ulation data (100–250 m reso-lution)	Global / Europe	Green space ac-cess, per capita green space	Eurostat/JRC. Use local cen-sus blocks when available.
EEA Air Quality Database (Air-Base)	Annual data from ur-ban air moni-toring sta-tions	EU	PM☐.☐ / NO☐ trend analysis	CSV format. Ur-ban background stations preferred for city-level data.
WHO/EEA Green Access Map	Experimental dataset on prox-imity to green space	Some EU pilot cities	Green space ac-cess	Access via EEA studies. Can be repli-cated using GIS.
National Geo-por-tals (Or-thopho-tos, LiDAR)	High-res imagery and 3D data for cano-py/street trees	Varies (coun-try-specific)	Fine-scale green space/canopy val-idation	Example: Neth-er-lands PDOK. Check local map-ping agen-cies.
iNaturalist / GBIF	Crowdsourced species data (real-time)	Global	Biodiversity in-di-cators	Download from GBIF by bounding box/taxon. Vali-date for accuracy.

Data Source/ Tool	Description	Coverage	Use for indi-cators	Access/Notes
i-Tree Eco / Can-opy	Urban tree eco-system services models (car-bon, pollution, canopy area)	Requires local data	Air quality, car-bon storage, tree canopy	Free software. Many cities have past stud-ies available.
EUI Knowledge Platform	EU resource hub for urban green-ing prac-tices	EU	Best practic-es, possible bench-marking	Urban Agenda/ EUI site. This guide will be list-ed there too.
BioAgora Urban Green Toolkit	Tool invento-ry: UNI Index, Green City Toolbox, CLEVER co-monitoring, etc.	EU (project cities)	Discovery of tools, indicator alignment	Available via Bio-Agora or Horizon project partners.

This catalogue is not exhaustive – towns and cities should list national data portals, local open data, and project-specific sources here as well. The goal is to have a one-stop list for where to get the data for each indicator, with references like [6][7] etc. showing linked sources provided in this document.

Annex C
Glossary and acronyms

Biodiversity: The variability among living organisms from all sources including terrestrial, marine, and other ecosystems. In an urban context, refers to the variety of species (plants, animals, microorganisms) found in the city. Note: Biodiversity is often measured by species richness or indices of diversity.

Green Infrastructure (GI): A strategically planned network of natural and semi-natural areas designed to deliver a wide range of ecosystem services. In cities, GI includes parks, green roofs, street trees, wetlands, greenways, etc. It is "infrastructure" because it is planned and managed like other city systems, but it is "green" as it consists of living, natural elements. (Source: European Commission definition, as footnoted in the UNP guide.)

Urban Nature Plan (UNP): A strategic plan developed by a city to enhance and restore nature (green and blue spaces) as part of implementing the EU Biodiversity Strategy. It typically sets targets for increasing green space, improving biodiversity, and integrating nature-based solutions into urban development.

Nature Restoration Regulation (NRR): The EU Regulation (EU 2024/1991) on nature restoration, adopted 2024. Article 8 of this regulation specifically addresses urban ecosystems, requiring no net loss of urban green space and tree canopy by 2030 compared to 2024, and a net gain thereafter. It obliges Member States to monitor and report these indicators.

Local Administrative Unit (LAU): A local level of administrative boundaries in EU statistics – typically the city or municipality boundary (LAU Level 2 in many countries corresponds to municipalities). In reporting urban indicators, Member States may choose LAU boundaries or functional areas.

Functional Urban Area (FUA): A concept defining a city and its commuting zone (the urban core plus surrounding areas with high integration, often by travel-to-work flows). Many data sets (like Urban Atlas) use FUA to capture the broader metropolitan area.

NbS (Nature-based Solution): According to IUCN, "Nature-based Solutions are actions to protect, sustainably manage, and restore natural or modified ecosystems that address societal challenges effectively and adaptively, simultaneously benefiting people and nature."

TNFD (Taskforce on Nature-Related Financial Disclosures): An initiative (global, voluntary framework as of 2023) encouraging organisations to disclose their dependencies and impacts on nature, similar to how the TCFD does for climate-related financial risk. Relevance: Cities might also align their reporting with TNFD as part of ESG commitments.

NDVI (Normalised Difference Vegetation Index): A satellite-derived index (ratio of near-infrared to red reflectance differences) that indicates vegetation greenness. Ranges from -1 to +1, higher values mean more live green vegetation. Use: Often used in remote sensing to identify vegetated areas or monitor vegetation health.

LiDAR (Light Detection and Ranging): A remote sensing method using laser pulses to measure distances; produces high-resolution 3D data (point clouds). Use in cities: LiDAR is used to map ground elevation and structures, and importantly tree heights and canopy structure (detect individual trees, canopy

cover at very fine scale). Many cities have LiDAR surveys which can refine canopy measurements beyond what 10 m satellite can do.

EUI (European Urban Initiative): An EU instrument (2021–2027) under Cohesion Policy to support urban authorities with innovative actions, capacity-building, policy development and knowledge-sharing. It continues some roles of the Urban Innovative Actions and URBACT programs. In this guide: EUI is mentioned as a platform for capacity building and sharing best practices on UNP monitoring.

GCA (Green City Accord): A voluntary initiative by the European Commission launched in 2020 for cities to commit to environmental improvements by 2030 in five areas: air, water, nature & biodiversity, waste/ circular economy, and noise. Relevance: Signatory cities report on nature indicators like green space per capita, etc., which align with UNP indicators.

ESG (Environmental, Social, Governance): Criteria used to evaluate organisations (often companies, but increasingly public bodies) on sustainability and ethical impact. Context: Town and city M&E results can feed into ESG disclosures (especially environmental, and indirectly social via health or access to nature indicators).

Berlin Urban Nature Pact: An international declaration (2021) initiated by cities to enhance urban biodiversity and implement the post-2020 Global Biodiversity Framework locally. Utrecht being an early signatory indicates political commitment to these goals.

Annex D
Template M&E plan

This annex provides an outline structure for a city's Monitoring & Evaluation Plan document. Towns and cities can use this template to create their own plan, ensuring they cover all necessary components such as objectives, indicators, data sources, responsibilities, and reporting schedule. Essentially, it is a fill-in-the-blank template formalizing the advice given in the main guide about governance and process. Towns and cities can customize this outline as the idea is to formalize monitoring in a document that can be approved by leadership, thus securing mandate and continuity.

Template for a UNP Monitoring & Evaluation (M&E) Plan:

Section	Description
1. Objectives of M&E	Describe why the town or city is monitoring the UNP. Example ob-jec-tives include: tracking progress toward 2030 targets; enabling adaptive management; fulfilling national and EU reporting require-ments; and demonstrating environmental, social, and economic co-benefits.
2. Indicators Over-view	Include a table listing all indicators, with baseline and target values. Sug-gested columns: Indicator; Definition; Baseline (2024); Target (2030); Data Source and Method; Responsibility.
3. Data Collection Methods	Describe how each indicator is measured and what tools will be used (e.g., GIS, surveys, remote sensing, sensors). Mention quality assur-ance protocols such as field verification or peer review.
4. Roles and Respon-sibilities	Define which departments, teams, or partners are responsible for each indicator. Example: GIS Unit for spatial metrics; Environment Depart-ment for biodiversity; Parks Department for urban forestry; Public Health for health-related indicators.
5. Data Management	Describe where data will be stored, how it is managed, and wheth-er it will be published. Include software platforms used (e.g., QGIS, Excel, dashboards) and version control procedures if applicable.
6. Reporting and Communication	Outline the timeline and format of reporting. Example: Annual M&E re-port each March; a mid-term review workshop in 2028; public dash-board updates; internal briefings to city leadership.
7. Adaptive Manage-ment	Describe how monitoring results will inform planning and deci-sion-making. For example: results reviewed annually to identify off-track in-dicators, with corrective actions proposed by the Monitoring Working Group.

Section	Description
8. Resources and Budget	Summarize staff time, financial resources, tools, and any external support committed to M&E. Mention co-funding opportunities or pending pro-posals for EU-level support.
9. Risks and Mitigation	Identify foreseeable risks (e.g., data gaps, staff turnover, technology fail-ure) and strategies to mitigate them (e.g., backup data sources, documen-tation, training).
10. Alignment with National/EU Reporting	Explain how the municipality's data aligns with national restoration plans and EU frameworks, including Article 8 reporting, the Urban Nature Plans Guide, and contributions to shared platforms like the European Urban Initiative.