

In collaboration
with Oliver Wyman



Nature Positive: Guidelines for the Transition in Cities

INSIGHT REPORT

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Foreword



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Urban environments shape and are shaped by the natural world. Throughout history, cities have been anchored in resource-rich areas because all organisms, human beings included, require sunlight, food, water, oxygen and space for survival.

The intertwining of cities and planetary health reveals that the loss of nature not only imperils human lives but also the future of the global economy. An estimated 44% of global GDP in cities (\$31 trillion) is projected to be at risk of disruption due to biodiversity loss, ecosystem collapse and shortages of natural resources. Meanwhile, four out of five cities globally are now confronted with climate-related crises such as heatwaves, floods and droughts.

Designing cities in harmony with nature reduces environmental degradation while also repurposing and regenerating services and spaces to help residents live, work, move and thrive. This transition requires increased public–private cooperation across multiple sectors, including real estate, energy, mobility, commerce and beyond.

The World Economic Forum and Oliver Wyman joined forces in 2023 to help advance the nature-positive movement globally, convening expert dialogues and community meetings to rally support for a growing network of cities leading the way forward with robust urban nature action plans.

Sustained multistakeholder engagement has been vital to instil a sense of stewardship and accountability, and to increase awareness of the role of nature as a key ally of climate action and local resilience.

This report is the first of a series of publications that make the case for regenerating nature in cities. Through guiding frameworks and practical tools, it is designed to help local decision-makers develop and implement comprehensive strategies that rethink urban planning, regulations, incentives, economic value, cost-benefit analyses and public–private collaborations for the benefit of nature and society.

By establishing specific nature-preservation goals, cities can integrate the conservation and restoration of natural habitats with efforts to enhance mobility, improve energy efficiency and alleviate poverty, among other pressing urban challenges.

We invite readers to embark on a journey to explore the intricate connections that cities have with the natural world, the impacts of urbanization on biodiversity loss, the need for cities to establish a nature action plan and the opportunities to rehabilitate nature in the built environment.

This global effort will help to shape the future of cities and our relationship with the natural environment. Making nature natural in cities is more than simply a call to action for greener communities, it is a vital imperative for a better, more sustainable future.

About the Nature Positive Transitions series

Nature Positive: Guidelines for the Transition in Cities is published by the World Economic Forum in collaboration with Oliver Wyman. It is part of the World Economic Forum's **Nature-Positive Transitions report series** that outlines the different pathways to halt and reverse nature loss by 2030 – the mission at the heart of the Global Biodiversity Framework.

The series consists of two parts: sector transitions and city transitions. These reports highlight the relevance of nature-related risks, identify the impacts and dependencies of the economy and

society on nature, and provide guidelines for city and business leaders on key actions to accelerate the nature-positive transition.

The Nature-Positive Transitions report series builds on the [New Nature Economy Report series](#).

For more information, please visit:

- [Nature-Positive Cities](#)
- [Sector Transitions to Nature Positive](#)



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Executive summary

Cities are called on to lead the charge of the Kunming-Montreal Global Biodiversity Framework, a historic agreement committing nations to halt and reverse nature loss by 2030.

A vibrant, thriving natural world is essential for the health of people, the economy and the planet. In December 2022, 196 countries agreed to halt and reverse biodiversity loss by signing the Global Biodiversity Framework (GBF), an agreement setting global goals for the sustainable use of biodiversity by 2030, and thoroughly safeguarding it in the years that follow.

Coordinated city action for nature is not only vital to achieving the global goals set by the GBF, but also strategically necessary given the climate-, health-, economic- and infrastructure-related challenges resulting from nature loss.

Urban centres are the primary drivers of the global economy, contributing 80% of the world's gross domestic product (GDP). However, their rapid expansion has adversely affected natural ecosystems. An estimated 44% of global GDP – \$31 trillion – generated in cities is vulnerable to disruption due to nature loss. Despite this, only 37% of the world's 500 most populous cities have developed a dedicated strategy focused on nature or biodiversity preservation.

Several prominent organizations have been considering the concept of nature positive for a number of years. At its heart lies the idea of encouraging society to move past simply minimizing harm to nature to ensuring its continued recovery. But to be truly effective, this will require a concrete determination of the level of ambition and the baseline from which this ambition should be measured in support of the GBF's mandate to halt and reverse biodiversity loss by 2030 and beyond.

Although there is a growing consensus on the urgent need to reconcile the impact of urban development on biodiversity loss, there is still no

standardized guidance for cities to track progress on their own restorative path towards nature. Progress in setting biodiversity targets has been significantly slower than the headway made in defining methodologies and setting science-based climate targets for companies and subnational governments. Only in the past two years have new recommendations on Science Based Targets for Nature (SBTN) and the Taskforce for Nature Related Disclosures (TNFD) come to light.

In the context of valuable yet fragmented efforts by cities to safeguard biodiversity, this report aims to provide clarity on the strides of the global biodiversity agenda and support local governments and businesses in understanding their role as positive agents of change.

Cities looking to address biodiversity loss and begin their nature-positive transition should:

- 1 Commit to act to the benefit of nature and leave it in a better state than it was before, both within and beyond their own city boundaries.
- 2 Translate this commitment into formal objectives and clear science-based targets tailored to their context, detailed in a nature strategy that also addresses the required enablers.
- 3 Implement actions to deliver on set targets, and monitor and report on their impact.

The first step entails a commitment from city leadership to include nature in their urban development agenda. This step is fundamental to ensuring alignment across city departments and creating clear pathways in cases of competing strategic priorities.

The second step entails the development of a nature strategy, which should complement any existing climate strategy, considering the synergies between both agendas and the potential for mutually reinforcing actions.

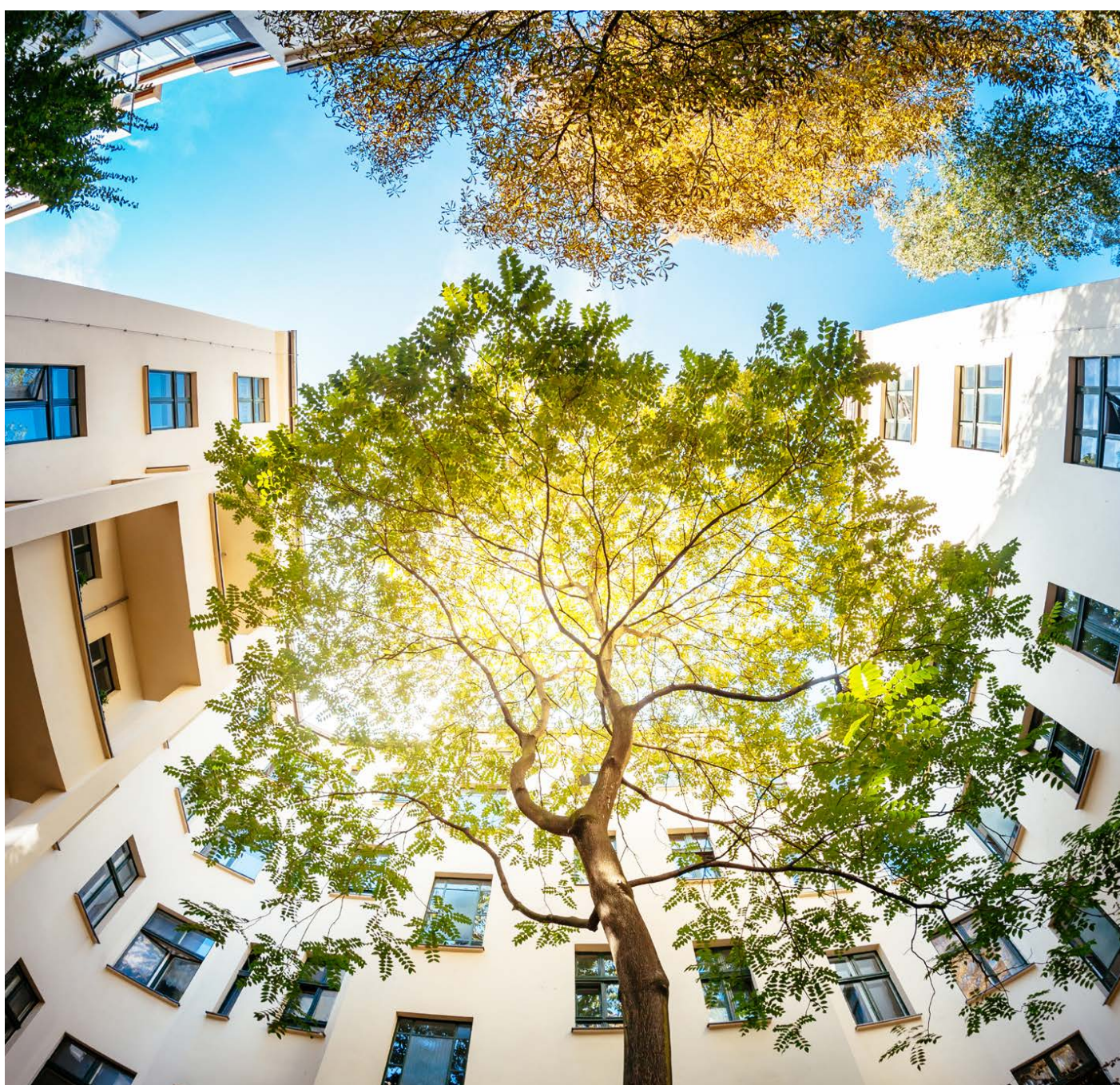
At the most basic level, the nature strategy should include:

- A clear outline of the city's vision for nature stewardship.
- Coherent objectives in relation to nature, and related targets, informed by an assessment of the city's key dependencies on nature, the impacts on nature caused by the city's operations, and the nature-related risks and opportunities.

- An improvement plan to create a solid enabling environment in which to undertake nature-positive initiatives (including governance, policy and regulations, financing, data and analytics, stakeholder engagement and capabilities).
- A list of nature-positive actions, either policy-based measures or nature-based solutions, to deliver on set objectives.

The last step in the nature-positive transition journey defines an implementation roadmap for actions with positive outcomes for nature, including an impact-monitoring and disclosure framework.

By following these three steps, cities can make material contributions to halting and reversing global biodiversity loss while addressing critical development challenges and ultimately producing more resilient, equitable and prosperous cities.



1

A global call for nature-positive action

The message of the Global Biodiversity Framework is simple: the next decade must be one of regeneration and restoration of ecosystems, habitats and species.



In December 2022, the Kunming-Montreal Global Biodiversity Framework was adopted by 196 governments. The agreement was the result of more than four years of negotiation and marks the start of a new global commitment to halt and reverse biodiversity loss by 2030.

To contribute to protecting and restoring nature at the scale and speed necessary, the whole of society, including governments and businesses, must first become familiar with the attributes and components of nature and recognize its contributions to social systems and the economy. Cities – as formally governed, semi-permanent and organized centres of population – are expected to evaluate their impacts and dependencies on nature and the opportunities that will arise from restoring ecosystem health, just as companies are starting to track theirs.

For decades, discourses and actions related to urban sustainability have predominantly focused on mitigating climate change by cutting greenhouse gas (GHG) emissions. More recently, adaptation to climate change has come to the fore due to the increasing frequency of floods, hurricanes, droughts and heatwaves, highlighting the interdependence between nature and climate and between the biosphere and the atmosphere.

The guidance in this report focuses on the urban level. While guidance exists for cities to assess climate-related impacts and define mitigation and adaptation targets, a unified methodology is needed to define and assess the impacts on nature and outline city-level science-based targets (see Figure 1).

Private-sector:

- Significant progress has been made in defining methodologies and setting science-based climate targets for companies. As of 2023, 66% of the world's 500 largest companies have set carbon-emissions targets.¹ Progress on setting biodiversity targets has been significantly slower, with only 1.6% of US S&P 500 companies

committing to biodiversity no net loss or net positive targets, although recent guidance from the Taskforce on Nature-related Financial Disclosures (TNFD) and Science Based Targets Network (SBTN) is making significant strides to address this gap.^{2,3}

Public sector:

- National level: climate targets were established in the 2015 Paris Agreement at COP21 (2015), while nature targets were addressed in the landmark Kunming-Montreal Global Biodiversity Framework at the 2022 UN Biodiversity Conference, known as COP15. The GBF sets out four global goals and 23 targets to guide countries in their efforts to safeguard biodiversity and promote sustainable development.
- Urban level: guidance to set clearly defined targets to reduce cities' GHG emissions has been developed, yet an equivalent and comprehensive framework on nature is still to be developed.

While urban centres serve as the primary drivers of the global economy, contributing 80% of the world's gross domestic product (GDP), their rapid expansion in recent decades has adversely affected natural ecosystems. It is estimated that 44% of the global GDP generated in cities, amounting to \$31 trillion, is vulnerable to disruption due to the loss of biodiversity. Despite these alarming statistics, initiatives aimed at aligning urban development with nature stewardship and mitigating nature-related risks have been inconsistent. For instance, among the top 500 most populous cities worldwide, only 37% have developed a dedicated strategy focused on nature or biodiversity preservation.

The case for integrating nature into urban development strategies is becoming increasingly clear, yet a crucial shift in objectives and tools is required to guarantee effective action that benefits nature.⁴

FIGURE 1 Internationally recognized frameworks

Stakeholder		Climate	Nature
Private sector	Companies	Recommendations by SBTi (2015) and TCFD (2017)	Recommendations by SBTN (partial release in 2023) and TNFD (2023)
	National level	UN Paris Agreement (2015)	UN Kunming-Montreal GBF (2022)
Public sector	Urban level	SBTs Guide for Cities (2020)	Focus of this report

Note: SBTi = Science Based Targets Initiative; TCFD = Task Force on Climate-related Financial Disclosures, SBTN = Science Based Targets Network; TNFD = Taskforce on Nature-related Financial Disclosures.

Sources: 5, 6, 7, 8, 9, 10, 11



1.1 The concept of nature and its contributions to cities

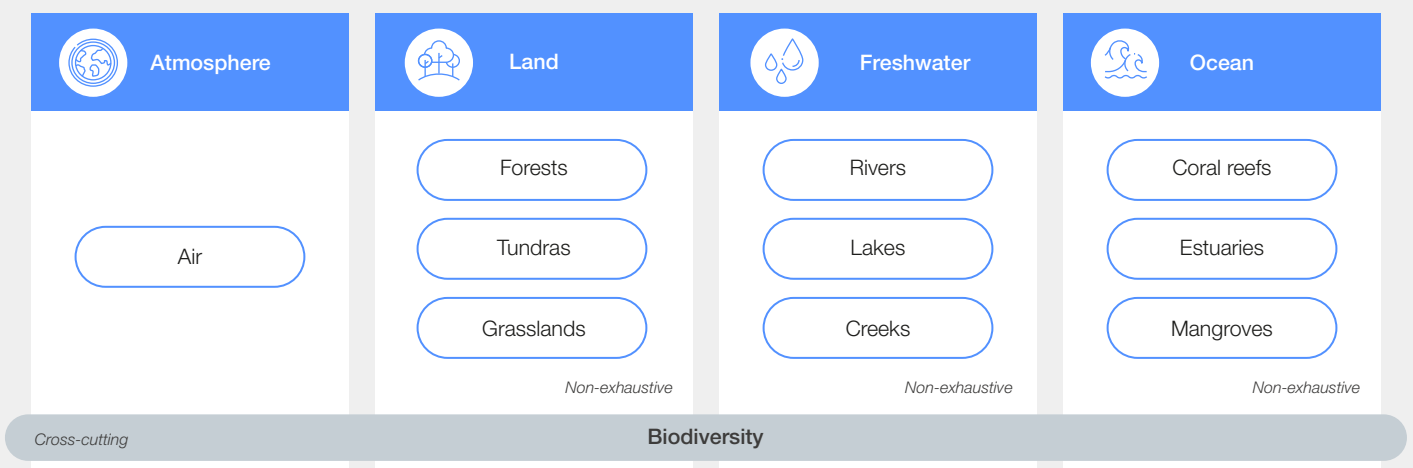
According to the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), nature comprises all non-human living entities and their interaction with other living or non-living physical entities and processes.¹²

With the aim of advancing the identification of urban actions benefiting nature, this report aligns with existing frameworks, including those of the International Union for Conservation of Nature (IUCN),^{13,14,15} and breaks nature down into four realms: atmosphere, land, freshwater and ocean; biodiversity is added as a cross-cutting grouping (see Figure 2). The

consideration of biodiversity (living organisms and their variety) as a cross-cutting category highlights the importance of prioritizing the diversity of species in city-level action across each realm. This approach will allow cities to report on subnational contributions to the GBF.

Other frameworks and definitions consider human beings to be part of nature,¹⁶ but this report adheres to the IPBES consideration of focusing on actions capable of transforming non-human elements of nature, noting that actions with nature-positive outcomes are also beneficial for society and the economy.

FIGURE 2 Nature realms



Sources: World Economic Forum and Oliver Wyman

IPBES outlines 18 contributions that nature provides to people and socioeconomic systems such as cities.¹⁷ These are traditionally known as ecosystem services and include temperature regulation, air quality, water quality and resilience to extreme weather events.

While nature's contributions to people (NCPs) can be valued in economic terms, these are insufficiently accounted for in today's economic indicators, pricing systems and regulatory models. Any negative impact from human activity on these contributions can create damaging losses to socioeconomic systems, which exceeded over 10% of global GDP a decade ago.¹⁸ Without factoring in the environmental impacts and externalities of economic activities, nature will continue to be harmed by short-term material gain, creating a negative feedback loop affecting prosperity and resilience.¹⁹

The built environment in cities provides a clear example of this pattern, where the prioritization of cost efficiency has severely damaged nature.²⁰ As cities rapidly expand to provide their burgeoning populations with the utilities, services and facilities needed for good urban living, much consideration is given to minimizing cost and maximizing the structural integrity and service value of built structures. This means that the impact of these structures on immediate and surrounding ecosystems is not always accounted for.

A number of initiatives are making it easier for cities to recognize their environmental endowments in the short and long term. Efforts in natural capital accounting and valuation are emerging to help cities track changes in the stock of natural resources over time, inform environmental policies and payments for ecosystem services, measure the performance of city departments and track socioeconomic progress more holistically.^{21, 22}



Ultimately, embedding natural capital considerations into economic and financial decision-making requires changing measures of socioeconomic success.



1.2 Why cities should act on nature

This section outlines why cities should prioritize the creation and implementation of a plan to proactively address threats to nature and achieve their core mandate to improve citizens' well-being, maintain financial stability and ensure prosperity and resilience.

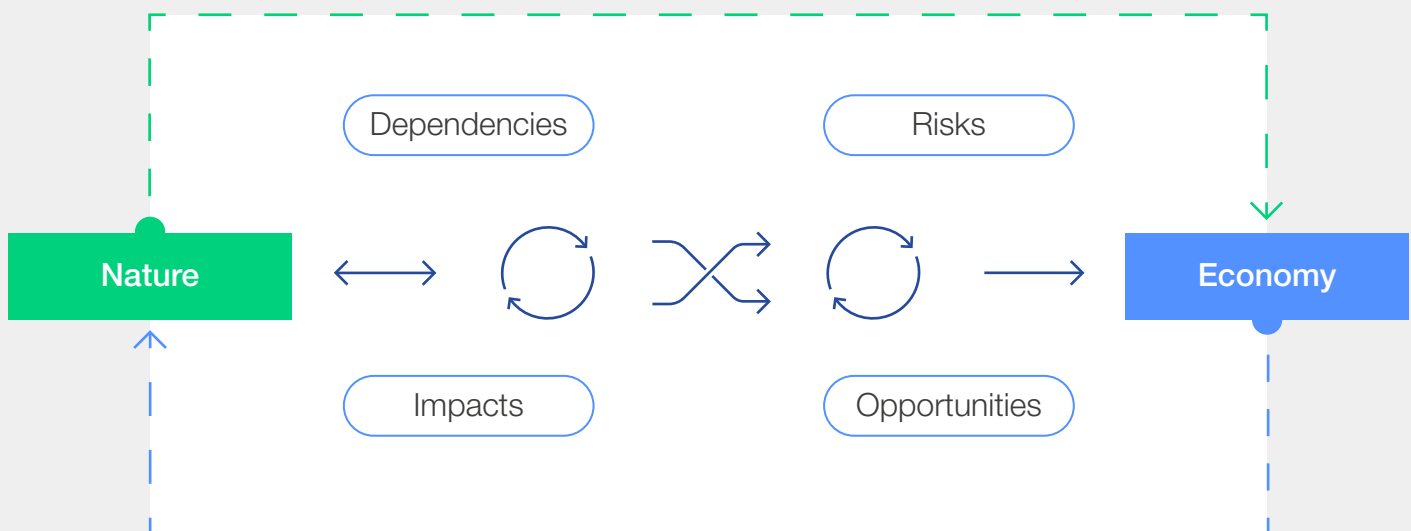
Dependencies, impacts, risks and opportunities

The foundational structure of a city and its attractiveness to residents and investors relies on dependable and economical access to nature and its derived contributions. Immediate effects on nature can lead to subsequent short-, medium-, and long-term ramifications for the vitality and adaptability of

socio-ecosystems. In essence, the impacts on nature today can shape the dependencies and risks faced by cities in the future.

The TNFD, a widely recognized cross-industry framework for businesses to assess, report and take action on their impact on nature, provides a solid foundation for businesses pursuing a nature-positive transition, and can be adapted and applied to the urban context (see Figure 3).^{23, 24, 25}

FIGURE 3 Nature-related dependencies, impacts, risks and opportunities



Source: Adapted from TNFD²⁶

Dependencies

Dependencies are the interconnections between cities and nature's values – on which cities rely to function (see Table 1).

Based on the many contributions provided by nature, there is a significant interdependence between the urban economy and nature. It is estimated that 44% of the GDP generated by cities worldwide is susceptible to potential disruptions from nature loss.²⁷

Impacts

Impacts refer to changes in the state of nature contributed to or caused by the city or its operations, whether positive or negative, that affect quality or quantity (e.g. the impact on the amount of water available, or the impact on the quality of the water). Impacts may affect the capacity of nature to provide services, which, in turn, affects the city's stability given its dependencies on nature (see Table 2).

TABLE 1 | Cities' dependencies on nature

Nature realms

	Atmosphere	Land	Freshwater	Ocean	Biodiversity
Direct physical inputs	<ul style="list-style-type: none"> – Air quality 	<ul style="list-style-type: none"> – Minerals 	<ul style="list-style-type: none"> – Surface and ground water – Hydropower 	<ul style="list-style-type: none"> – Seawater 	<ul style="list-style-type: none"> – Fibres and materials from plants and animals – Animal-based energy
Enabling factors	<ul style="list-style-type: none"> – Pollination – Water flow maintenance 	<ul style="list-style-type: none"> – Soil quality 	<ul style="list-style-type: none"> – Water quality – Pollination – Soil quality – Water flow maintenance 		<ul style="list-style-type: none"> – Pollination – Soil quality – Ventilation by natural or planted vegetation
Mitigating factors	<ul style="list-style-type: none"> – Dilution of gases produced by human activity 		<ul style="list-style-type: none"> – Heat mitigation – Dilution of fluids and solid waste produced by human activity 	<ul style="list-style-type: none"> – Heat mitigation – Dilution of fluids and solid waste produced by human activity 	<ul style="list-style-type: none"> – Heat mitigation – Noise and light pollution control – Bio-remediation – Filtration of pollutants by vegetation
Protecting factors	<ul style="list-style-type: none"> – Climate regulation by winds 	<ul style="list-style-type: none"> – Long-term storage of carbon dioxide in soils – Buffering and attenuation of mass flows – Mass stabilization and erosion control – Flood and storm protection 		<ul style="list-style-type: none"> – Long-term storage of carbon dioxide in oceans 	<ul style="list-style-type: none"> – Disease and pest control – Flood and storm protection – Mass stabilization and erosion control through vegetation cover

Source: Adapted from ENCORE framework on materiality assessment²⁸

TABLE 2 | Cities' impacts on nature

Nature realms

	Atmosphere	Land	Freshwater	Ocean
	Biodiversity			
	Direct city-level activity (examples)			
Impact drivers of nature change	Use change of land, water and sea			<ul style="list-style-type: none"> – Urban sprawl – Terrestrial ecosystem use (e.g. agriculture) – Freshwater ecosystem use (e.g. water purification, flood barriers, water infrastructure such as dams and bridges)
	Resource exploitation/replenishment			<ul style="list-style-type: none"> – Species consumption (e.g. wild-caught fish, crops) – Mineral extraction – Surface and groundwater use
	Climate change			<ul style="list-style-type: none"> – Greenhouse gas emissions release
	Pollution/pollution removal			<ul style="list-style-type: none"> – Non-GHG air pollutants release – Soil pollutants discharge – Water pollutants discharge (e.g. heavy metals and chemicals) – Solid waste discharge – Light and noise disturbances
	Invasive alien species introduction/removal			<ul style="list-style-type: none"> – Increased alien species introduction and invasiveness

Sources: IPBES, ENCORE

Risks

Nature-related risks are potential threats faced by cities that stem from their dependencies and impacts on nature. These can be classified as physical (e.g. extreme weather events affecting lives), systemic (e.g. large-scale loss of agriculture yield, creating food insecurity) or transition risks (new emerging regulations, policy risk, market risk, technology risk).²⁹

Opportunities

Understanding nature dependencies and impacts can provide information not only about nature-related risks, but also about opportunities. Opportunities are activities that improve the state of nature and significantly reduce nature dependencies, impacts and thus risks. These activities simultaneously create positive socioeconomic outcomes (see Figure 4).³⁰

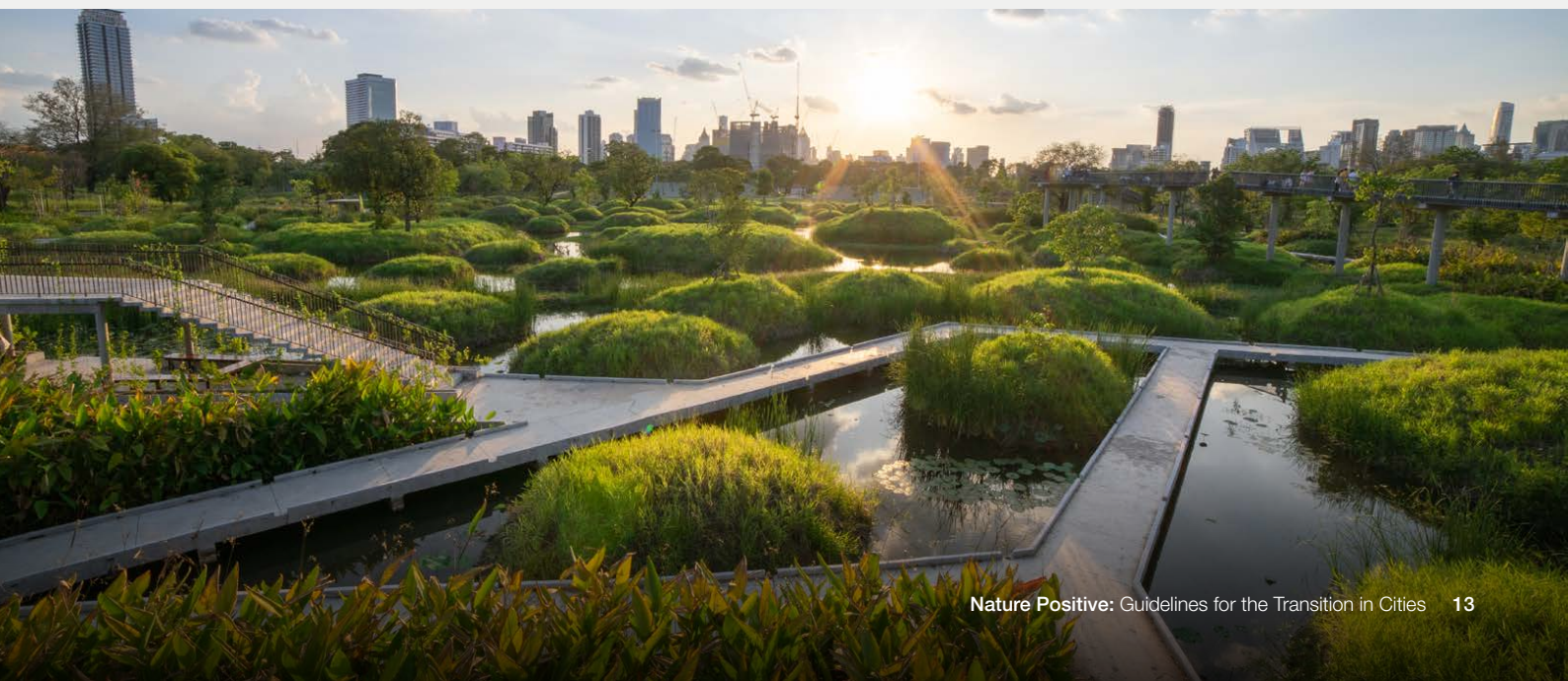
FIGURE 4 Examples of opportunities to enhance nature and reap socioeconomic benefits

 <p>Creating pocket forests</p> <p>Ambient air temperature regulation, air filtration, improved physical and mental well-being, stormwater regulation, biodiversity recovery</p>	 <p>Recovering wetlands and mangroves</p> <p>Water excess regulation, water filtration, soil and sediment stabilization, erosion control, economic diversification</p>	 <p>Increasing green space area</p> <p>Improved physical and mental well-being, improved air quality, ambient air temperature regulation, increased recreational services</p>
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Sources: World Economic Forum and Oliver Wyman

TABLE 3 Examples of the impact of cities on nature include:

Atmosphere	Land	Freshwater	Ocean
<p>Air pollution:</p> <ul style="list-style-type: none"> 41% of cities in the world have pollution that is more than 7 times higher than the World Health Organization's recommendation.³¹ 	<p>Habitat loss:</p> <ul style="list-style-type: none"> Urban expansion has resulted in more than 80% of natural habitat loss in local areas.³² 	<p>Water availability:</p> <ul style="list-style-type: none"> In New Delhi, an increase of 17% in the built-up area over a 10-year period led to a total reduction of 53% in waterbodies area.³³ 	<p>Wastewater management:</p> <ul style="list-style-type: none"> Half of the world's coastal sewage pollution flows from just 25 human settings.³⁴



Nature's primary pressures

Local and global pressures are eroding the functionality of ecosystems and diminishing their ability to support the well-being of both human and non-human life. A recent 50-year review on the state of nature conducted by IPBES provides evidence of nature's degradation and the human activities fuelling it. Declines in the state of nature occur in the form of change or loss of ecosystems and species.

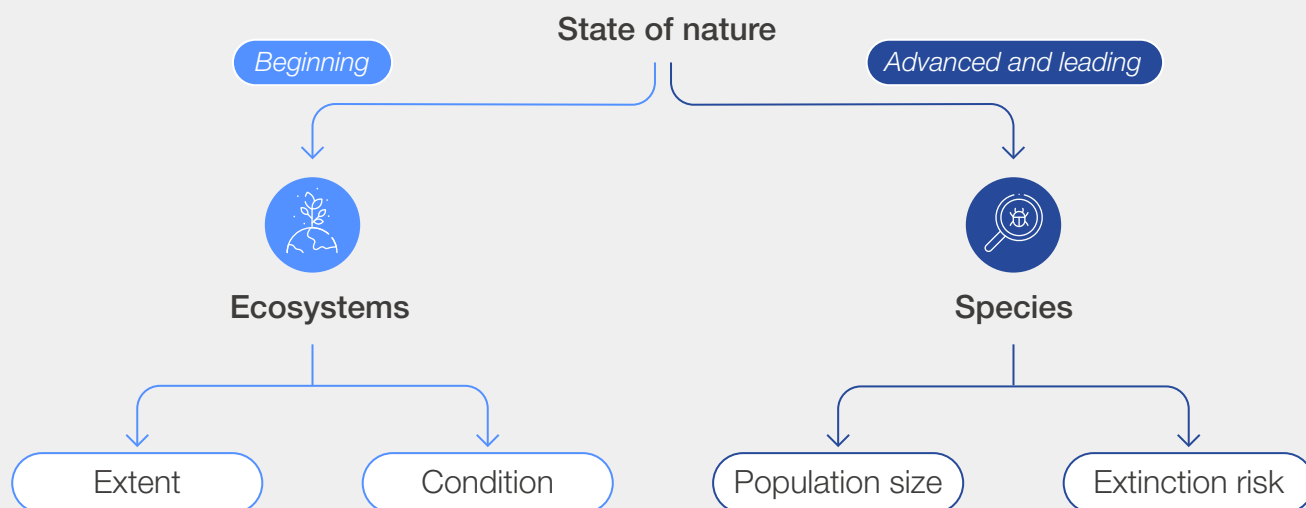
Five primary pressures have been identified as the main factors responsible for the degradation of ecosystems: land and sea use, direct exploitation of organisms, climate change, pollution and invasive alien species.³⁵ These pressures arise from socioeconomic drivers such as consumption patterns, population growth, trade dynamics, technological advancements, and governance of access to and ownership of natural resources.

When committing to a nature-positive transition, cities are encouraged to measure the state of nature and track their impact on ecosystems by looking at components such as extent and condition (see Figure 5).

A more advanced and leading practice entails measuring the impact on species (through diversity and extinction risk). This, however, requires an extensive amount of data and well-established monitoring systems.

Further guidance on measuring the state of nature, including ecosystem condition and species, as well as details on advanced topics such as ecosystem accounting, is provided by the IUCN Urban Nature Index and the Natural Capital Protocol, among other references.^{36, 37}

FIGURE 5 Maturity levels of state-of-nature measurement



Source: Adapted from Recommendations of the Taskforce on Nature-Related Financial Disclosures³⁸

1.3 What it means for cities to be nature positive

The nature-positive concept

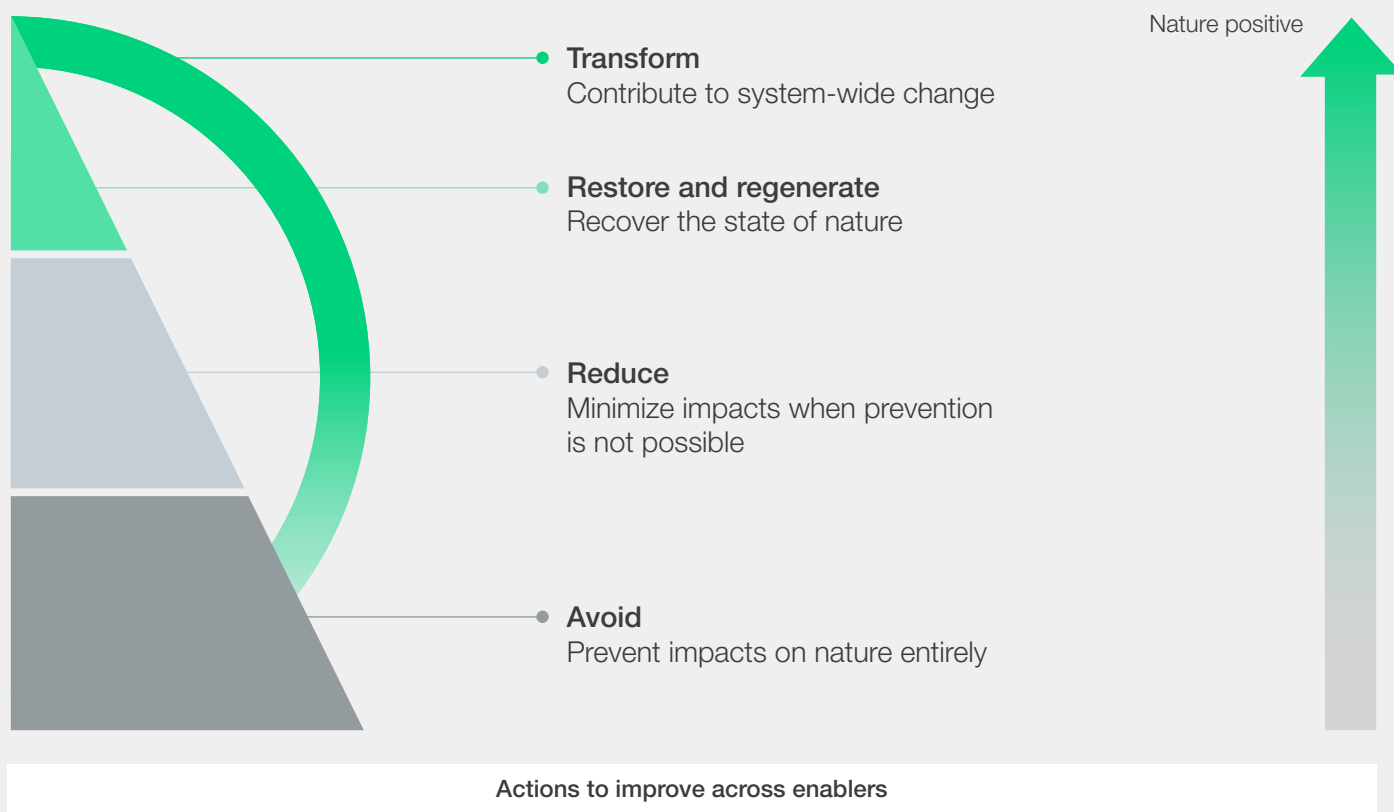
Prominent organizations have been discussing, researching and promoting the concept of nature positive for a number of years.³⁹ In essence, the concept has been developed with the idea of encouraging society to move past simply minimizing harm to nature to ensuring its continued recovery by 2030 and beyond.

The nature-positive concept as an aspiration is not precise enough, however. A more concrete determination of the level of ambition and the baseline from which the progress on this ambition should be measured is needed. Nature-positive commitments should directly support the GBF's

mandate to halt and reverse biodiversity loss by 2030 and ensure that by 2050 biodiversity is valued, preserved, restored and used wisely, in turn maintaining ecosystems services, sustaining a healthy planet and delivering benefits essential for all.⁴⁰

As previously discussed, local action is of paramount importance when seeking to safeguard nature and ensure its sustainable recovery in the long term to the benefit of society and the economy. Cities' efforts in that direction can be categorized under four levels, following the AR3T framework developed to inform private-sector transitions to nature-positive business models: avoid, reduce, restore and regenerate, and transform (see Figure 6).^{41, 42, 43}

FIGURE 6 The AR3T framework



Sources: Adapted from Business for Nature and Science Based Targets Network^{44, 45}

In order for cities to embark on this transition, they should:

1 Commit to act to the benefit of nature and leave it in a better state than it was before, both within and beyond their own city boundaries.

2 Translate this commitment into formal objectives and clear science-based targets tailored to their context (see Section 1.4), ideally detailed in a nature strategy that also addresses the required enablers (see Section 2.2).

3 Implement actions to deliver on set targets (see Section 2), and monitor and report on their impact.

Committing to nature preservation and restoration is a good starting point, albeit insufficient. To avoid greenwashing and to promote the realization of nature-positive ambitions, it is advisable that cities translate commitments into science-based targets for nature that are specific, measurable, achievable, relevant and time-bound (SMART). These targets should not come from top-down mandates but rather be set by each city, taking into account their local context, given the wide variety of nature frameworks, metrics and indicators, a lack of agreement on the definition of city boundaries (especially since relevant physical boundaries often go beyond governance limits) and how to address impacts outside the confines of cities.

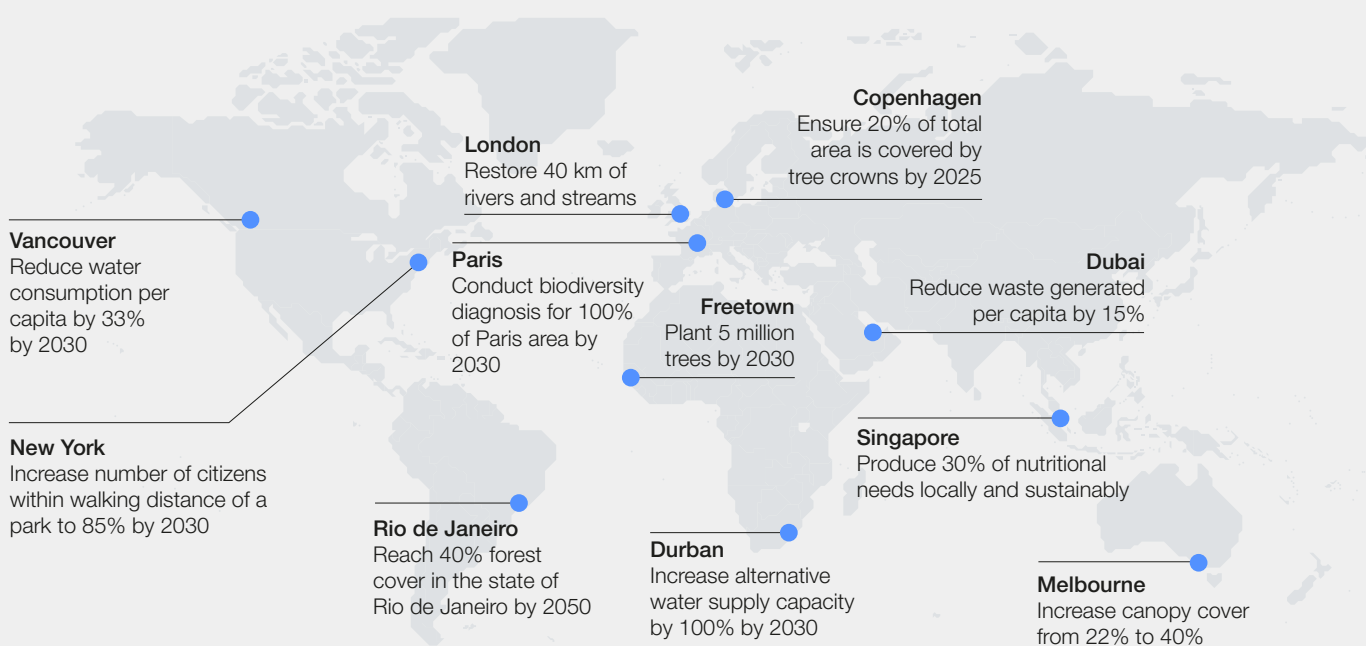
Some international organizations have led valuable efforts and proposed indexes and tools that allow baselines to be drawn in support of a robust methodology for setting targets that are not only science-based but which also align with global biodiversity goals.⁴⁶

- **Berlin Urban Nature Pact by ICLEI:** building on the Edinburgh Declaration and following an extensive consultation process with dozens of cities worldwide, the pact proposes a set of SMART targets, defined in the CitiesWithNature Action Platform.^{47, 48}
- **Science-based Targets Network (SBTN) guide to setting nature targets for cities:** the SBTN is developing a comprehensive guideline to assist cities in navigating the existing frameworks and methodologies, and the complexities of setting science-based targets for nature.⁴⁹
- **Singapore Index on Cities' Biodiversity:** suggests a scoring system for cities to self-assess their biodiversity conservation efforts, aligning with the Aichi targets.^{50, 51}
- **Urban Nature Indexes by IUCN:** provides a systematic approach to measuring urban biodiversity and ecosystem health in cities using a list of science-based indicators, expanding the Singapore Index based on the GBF and also assessing peripheral-urban impact. Although the indexes do not set any specific targets, they include comprehensive guidelines to gauge the impact on nature and call for cities to progress on their metrics.⁵²
- **CitiesWithNature Action Platform by ICLEI:** provides a self-evaluation and reporting platform for cities to set commitments and specify actions to address in alignment with the targets of the broader GBF.⁵³
- **Earth System Boundaries by Earth Commission:** these boundaries set critical thresholds to sustain ecosystem services in key environmental domains and effectively represent science-based targets, some of which take place at city level.⁵⁴ The Earth Commission recently released principles to translate these boundaries to cities.⁵⁵
- **Edinburgh Declaration:** calls on parties to the Convention on Biological Diversity to recognize the vital role of subnational governments, cities and local authorities in implementing the GBF. This statement was signed in 2020 by the governments of Scotland, Wales and Quebec and subnational organizations such as ICLEI, Regions4 Sustainable Development and the Group of Leading Subnational Governments toward the Aichi Biodiversity Targets (GoLS).⁵⁶
- **Urban Nature Accelerator by C40 Cities:** some in this global network of cities pledged to support greener and more resilient cities by 2030, with interim qualitative commitments and two non-science-based targets on green/permeable spaces and access to green spaces.⁵⁷





FIGURE 7 Examples of targets set by cities



Sources: 58, 59, 60, 61, 62, 63, 64, 65, 66

2

Guidelines for a nature-positive transition: Cities as agents of change

To drive a nature-positive transition successfully, cities will need a sound nature strategy underpinned by a solid enabling environment and robust financing.



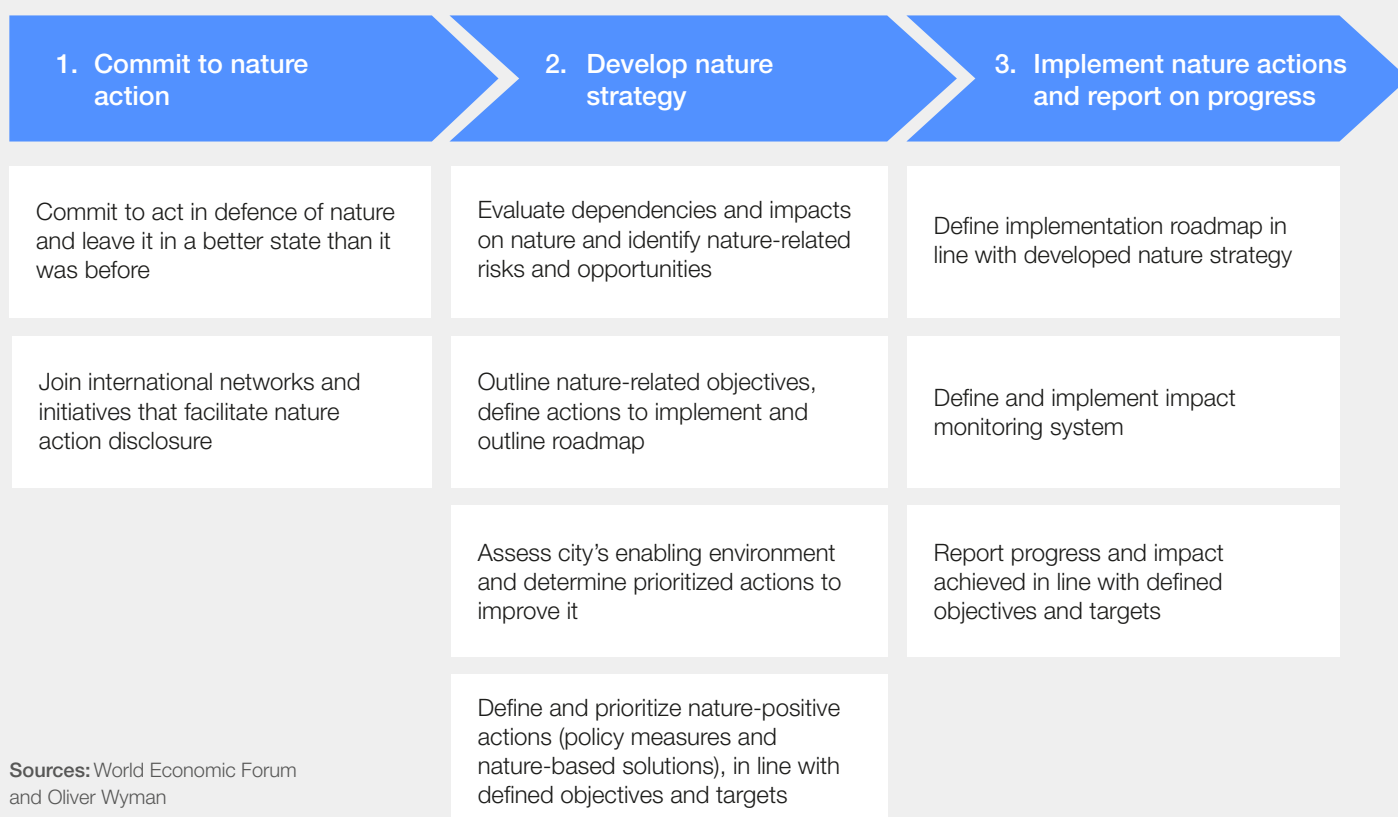
Action that benefits nature is often delayed until the risks have clearly materialized – in particular, climate risks such as extreme weather events affecting the city’s infrastructure or population in a way that could have been prevented. The urgency of addressing climate and nature-related risks is increasingly determined by the higher costs cities shoulder when

no action is taken. In this context, local governments are challenged to extend their focus beyond the immediate impacts of climate on cities and embrace a broader agenda that aims to rehabilitate nature and allow it to thrive in a low-carbon and nature-positive environment.

2.1 The urban journey towards nature-positive action

Cities looking to address biodiversity loss and begin their nature-positive transition should address three key steps as highlighted in Figure 8.

FIGURE 8 Overview of cities’ nature-positive transition journey



City commitment to actions that benefit nature

While there is increasing attention on the need for sharper climate and nature action, and cities are starting to recognize the impacts of biodiversity loss on their own resilience and sustainability, the breadth and ambition of cities’ commitments vary widely.

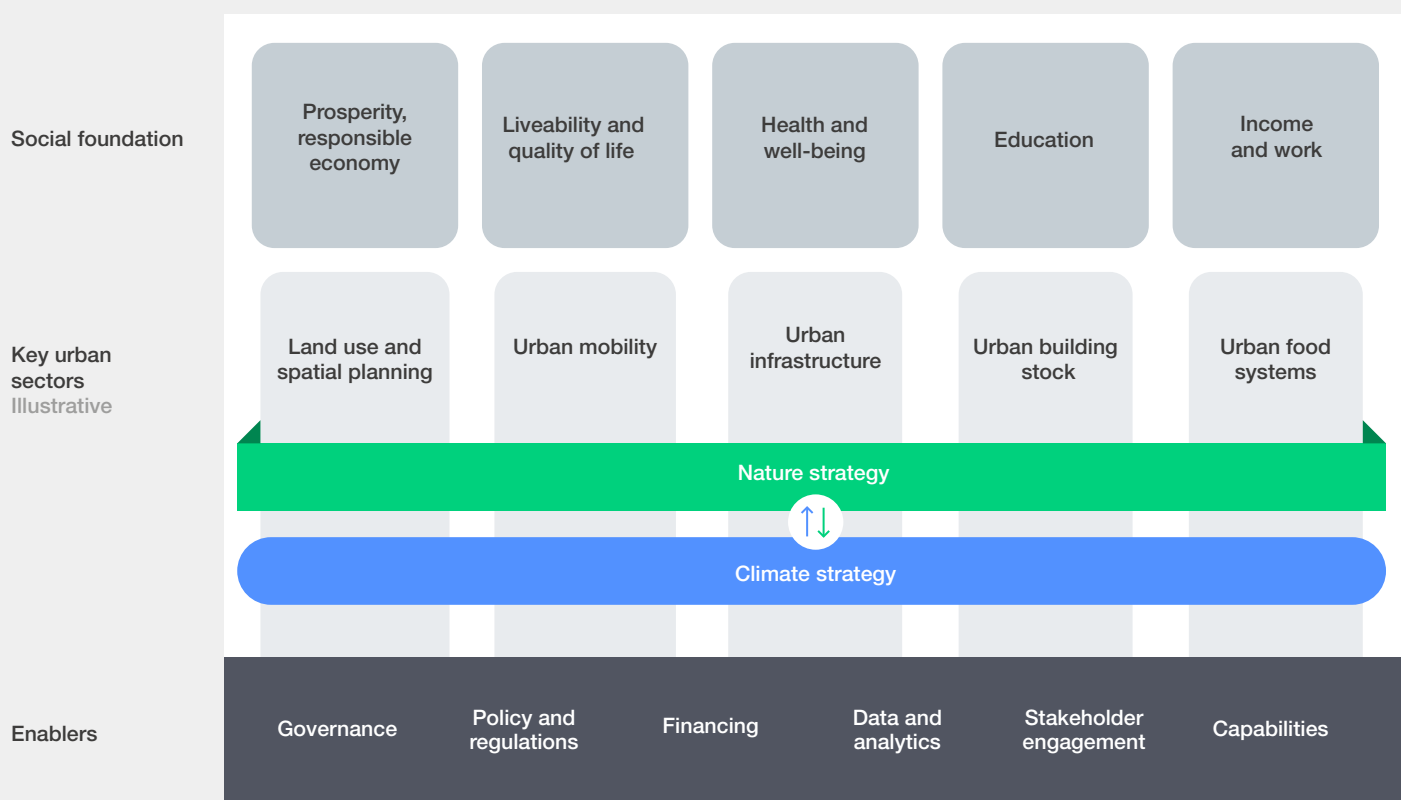
Resources such as ICLEI’s CitiesWithNature Action Platform, the Urban Nature Accelerator by C40 Cities and the global disclosure system by CDP can prove useful as pledging and disclosure platforms for cities looking to initiate their nature-positive journey.^{67, 68}

Nature strategy development

A fundamental next step in a city’s nature-positive transition journey is to translate pledges and commitments into tangible action through the development of a city nature strategy.

A city’s nature stewardship vision should directly cascade down from the country’s broader nature strategy as well as individual sectoral strategies. Additionally, the nature strategy should complement the climate strategy, considering the synergies between both issues and the potential for mutually reinforcing actions (see Figure 9).

FIGURE 9 | Overview of cities' strategic framework



Sources: World Economic Forum, Oliver Wyman and European Environment Agency

At the most basic level, a city's nature strategy should include (see Figure 10):

- A clear outline of the city's vision for nature stewardship
- Clear objectives in relation to nature and related nature targets, informed by a self-assessment of the city's key dependencies on nature, the impacts on nature caused by the city's operations, and the risks and opportunities
- A list of planned nature-positive actions, including policy-based measures and the implementation of nature-based solutions

Nature strategy development: assessing cities' enabling environment

Establishing a robust enabling environment that mitigates risk and maximizes the potential of private investment is a fundamental step towards facilitating nature-positive urban development and fostering private-sector participation in nature-related initiatives at the city level. Cities' actions can be oriented towards six essential enablers: governance, policy and regulations, financing, data and analytics, stakeholder engagement and capabilities (see Table 4).

BOX 3 | Durban's nature stewardship vision

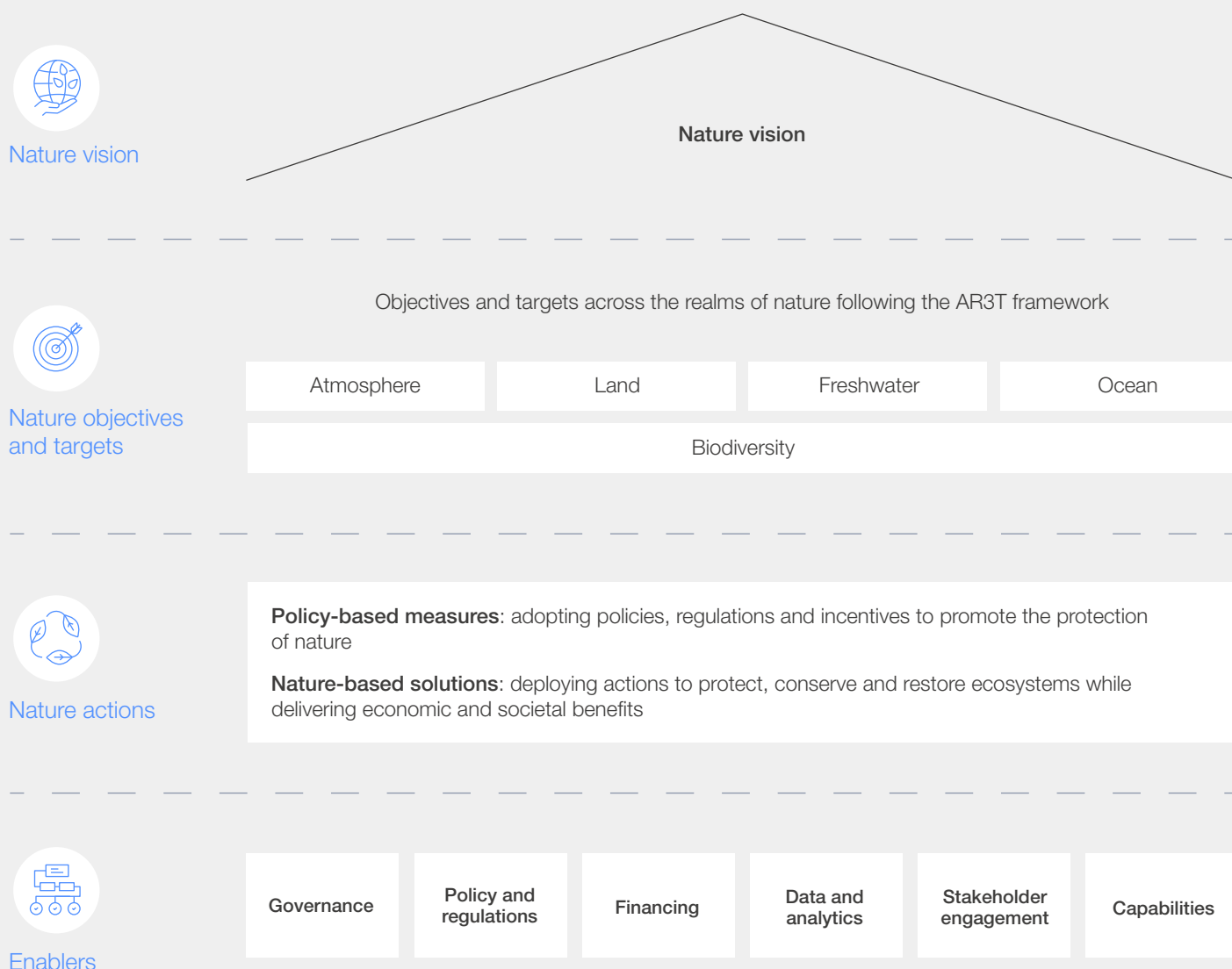
Part of the development of a nature strategy involves the creation of a concise and inspiring vision statement that articulates the city's long-term aspirations for nature and biodiversity.

The vision statement should capture the desired future state of the city's natural environment and the benefits it brings to residents and ecosystems.



The citizens of Durban are proud custodians of the City's remarkable biodiversity located in one of 35 global biodiversity hotspots. Durban's network of green open spaces, comprising nature reserves and other biodiversity rich public and private open spaces, is actively preserved by the people of Durban due to their understanding of its importance to their health and well-being. The uncontrolled transformation of natural areas is prevented through well-resourced impact assessment processes, robust spatial planning, an informed citizenry, and effective enforcement and monitoring. The management of Durban's biodiversity is successfully implemented through partnerships with academic institutions, non-governmental organisations, conservancies, and other interested entities and individuals. An integrated, innovative, and inclusive approach to biodiversity conservation results in Durban being recognised locally, nationally, and internationally as South Africa's flagship city with respect to biodiversity conservation.⁶⁹

FIGURE 10 | Nature strategy framework



Sources: World Economic Forum and Oliver Wyman



TABLE 4 | Overview of cities' key enablers and subcomponents

Enablers	Governance	Policy	Financing	Data and analytics	Stakeholder engagement	Capabilities
Definition	Structures, units, official roles and processes in place to oversee nature-related efforts	Incentives and requirements that guide and promote the implementation of nature-positive solutions	Resources and mechanisms to obtain sufficient and timely funding to implement nature-positive actions	Processes and systems to gather and manage data on nature risks and impacts and to use analyses to inform decision-making	Strategies and channels used to engage relevant stakeholders and communicate the benefits of nature-positive solutions	Availability and talent of human resources and adoption of a culture of innovation and continuous research
Subcomponents	Governance structure and processes	Policy and regulations	Funding	Data management	Communication	Human capital
			Financing processes	Risk and impact analytics	Community engagement	Research and innovation

Sources: World Economic Forum and Oliver Wyman

When evaluating aspects of the enabling environment, cities should begin by conducting a self-assessment of the maturity level of each

component, identifying pertinent challenges and devising actionable strategies for improvement within each component (see Table 5).

TABLE 5 | Mapping cities' enabling environment for nature action and maturity levels across enablers (non-exhaustive)

Enabler	Subcomponent	Maturity level	
		Starting and developing	Advanced and leading
 Governance	Governance structure and processes	<ul style="list-style-type: none"> – Management position overseeing sustainability, nature or climate actions – City governance structures are not specialized 	<ul style="list-style-type: none"> – Management positions are trained on connection between nature and wider environmental, social and governance (ESG) risks – Advanced, specialized city governance structures exist – Integrated and standardized processes for managing, reporting and overseeing climate and nature risks and actions are in place
 Policy	Policy and regulations	<ul style="list-style-type: none"> – Environmental regulations are adopted to promote nature/green infrastructure 	<ul style="list-style-type: none"> – Regulatory frameworks are in line with the nature action plan and tailored to local needs – Adoption and compliance measures for nature stewardship are in place – Policy consultation process for nature topics involves all relevant stakeholders – Incentives to encourage nature/blue-green infrastructure initiatives are in place – City procurement processes include nature and climate considerations
 Financing	Funding	<ul style="list-style-type: none"> – City budget accounts for the nature agenda 	<ul style="list-style-type: none"> – City identifies and maintains active sources of funding (e.g. grants, loans) to advance the nature agenda – Pricing of nature's services and adaptive local regulations (e.g. usage charges or permits, tax on damages) are in place
	Financing processes	<ul style="list-style-type: none"> – Financing processes for nature projects are assessed based on a standardized approach and economic and social benefits are considered 	<ul style="list-style-type: none"> – Procedures and methods to receive external funding (development finance institutions, bilateral cooperation agencies) are structured – Financing mechanisms for small-scale nature-related projects (e.g. small and medium-sized enterprises [SMEs], residential communities) are available – Standardized and tested public-private partnership mechanisms are incentivized
 Data and analytics	Data management	<ul style="list-style-type: none"> – Climate/nature data is gathered from within the city area only – Data is used for internal departmental purposes or by city government only – Initial information/data on nature is being maintained on a case-by-case basis and is scattered across city departments, private entities, NGOs – Basic monitoring framework is implemented where key performance indicators (KPIs) and key risk indicators (KRIs) are pulled together manually in an ad-hoc manner 	<ul style="list-style-type: none"> – Digitalized and aggregated database from several sources (e.g. collected by the city, national government, companies) is in place – Nature data is easily accessible by city officials, academia and the public (e.g. via dashboards) – A comprehensive monitoring framework is implemented, including third-party contributions, and aligned with priorities of the nature strategy

TABLE 5 | Mapping cities' enabling environment for nature action and maturity levels across enablers (non-exhaustive) (continued)

Enabler	Subcomponent	Maturity level	
		Starting and developing	Advanced and leading
 Data and analytics	Risk and impact analytics	<ul style="list-style-type: none"> Initial quantifiable nature-related targets are outlined within the nature strategy Standard Microsoft Office tools are used for data analytics Existing analytics roles address analytics needs for nature, supported by temporary external resources Initial assessments of nature-related risks are conducted No/few nature-related policies are currently driven by data insights 	<ul style="list-style-type: none"> Advanced nature-related analytics are performed using cutting-edge techniques, such as AI and geographic information systems (GIS) Nature analytics resourcing and capability needs are fully fulfilled to support nature strategy and risk management Impact across nature targets is monitored, with clear and standardized KPIs Data analysis is fully embedded in decision-making processes
	Communication	<ul style="list-style-type: none"> City's communication strategy includes messages on climate hazards and the impacts on nature Basic educational campaigns are launched to increase the public's sensibility to nature risks 	<ul style="list-style-type: none"> Regular reporting on nature action and progress across set targets takes place Nature is a key component of city's communication strategy to showcase impact, raise public awareness, and instil a sense of environmental stewardship Extensive educational campaigns are in place
 Stakeholder engagement	Community engagement	<ul style="list-style-type: none"> Feedback mechanisms are in place to gather input from citizens and other stakeholders Partnerships to promote and stimulate the uptake of nature-based solutions (NbS) with community organizations and other stakeholders are encouraged 	<ul style="list-style-type: none"> Nature is a core part of the city's identity, fostering a sense of environmental stewardship Citizens are engaged in co-creating and implementing nature-related projects through participatory workshops, community partnerships, etc. Citizens' perspectives on nature are incorporated in urban planning processes Knowledge-sharing practices are in place, such as partnering with other cities affected by similar nature risks
	Human capital	<ul style="list-style-type: none"> Nature and climate topics are included in city officials' basic training Environmental specialists are hired to support planning and implementation of nature projects 	<ul style="list-style-type: none"> Nature and climate are well integrated in training curricula across public institutions Structured incentive systems are in place to attract and retain the talent required for environmental action Capacity-building programmes are conducted with city networks and through project preparation facilities
 Capabilities	Research and innovation	<ul style="list-style-type: none"> International events are used for learning and showcasing efforts 	<ul style="list-style-type: none"> City leadership upholds a culture of continuous learning and innovation on nature and climate topics Regular engagements with universities and research institutions for technical expertise are conducted Dedicated centre for research and open innovation to analyse, develop and inspire solutions that help advance the nature vision is in place

2.2 Actions to improve the enabling environment

Following the self-assessment process, urban leaders will require guidance on concrete actions to address challenges and improve the enabling environment. While prioritized actions should be tailored to each city's local context, outlined below is a list of actions that cities can consider as a potential first step to advance their nature-positive journey.

Governance

Actions at city level:

- Ensure that chosen governance framework (specialized committee vs. integrated sustainability function across departments) has flexible and coordinated mandate to oversee, report on and promote nature-positive initiatives.
- Establish service level agreements (SLAs) or memoranda of understanding (MOUs) with other city departments to standardize nature-related systems and processes across city government.
- Integrate strategic nature objectives within broader development planning frameworks.⁷⁰
- Ensure streamlined governance processes for the approval of nature-positive action, aligning with Target 14 of the GBF.
- Define community-based engagement structures and feedback and grievance-resolution mechanisms specific to nature-positive action.
- Engage specialized external subject-matter experts to refine resolutions and roadmaps.
- Adopt a cross-sector approach for implementing solutions, ensuring coordination among key stakeholders that could be mostly affected by inaction (e.g. disaster-management authorities).⁷¹
- Include dedicated capacity within city government to interface with NGOs, multilateral development banks (MDBs), philanthropies and other organizations.



Reference action: Governance
Single department leading sustainability initiatives (Vancouver) vs. integrating sustainability across city units (Sydney)

Vancouver and Sydney are both leaders in their sustainability commitments. Both have developed ambitious plans yet have different operating models to deliver (see Figures 11 and 12).

Vancouver commissioned its Planning, Urban Design and Sustainability department to lead the implementation of the Greenest City Action Plan, coordinating with other relevant departments – such as Engineering Services, Development, Real Estate, Environment and Facilities Management – as needed.⁷² Sydney, on the other hand, does not have a dedicated sustainability department; instead, all units are responsible for leading their projects in alignment with the overarching city vision, Delivering Sustainable Sydney 2030–2050, which fully integrates sustainability considerations.⁷³

Despite the different structure models, common governance principles include:

- A clear mandate from city leadership to prioritize sustainability across all city operations
- The participation of cities' nature and climate-action networks
- A data-driven approach, with clear KPIs for each target and monitoring frameworks
- Standardized processes and service-level agreements (SLAs) in place for collaboration with other city-level departments
- The participation of cities in collaborative entities created by the national government
- Transparency and accountability, with regular disclosures and reporting

FIGURE 11 Operating model in Vancouver

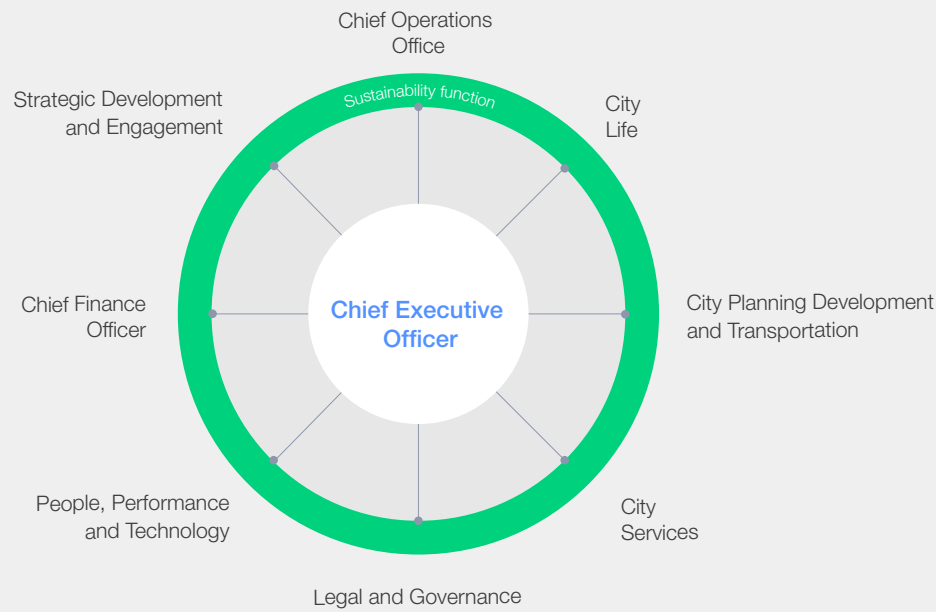
Vancouver organizational chart



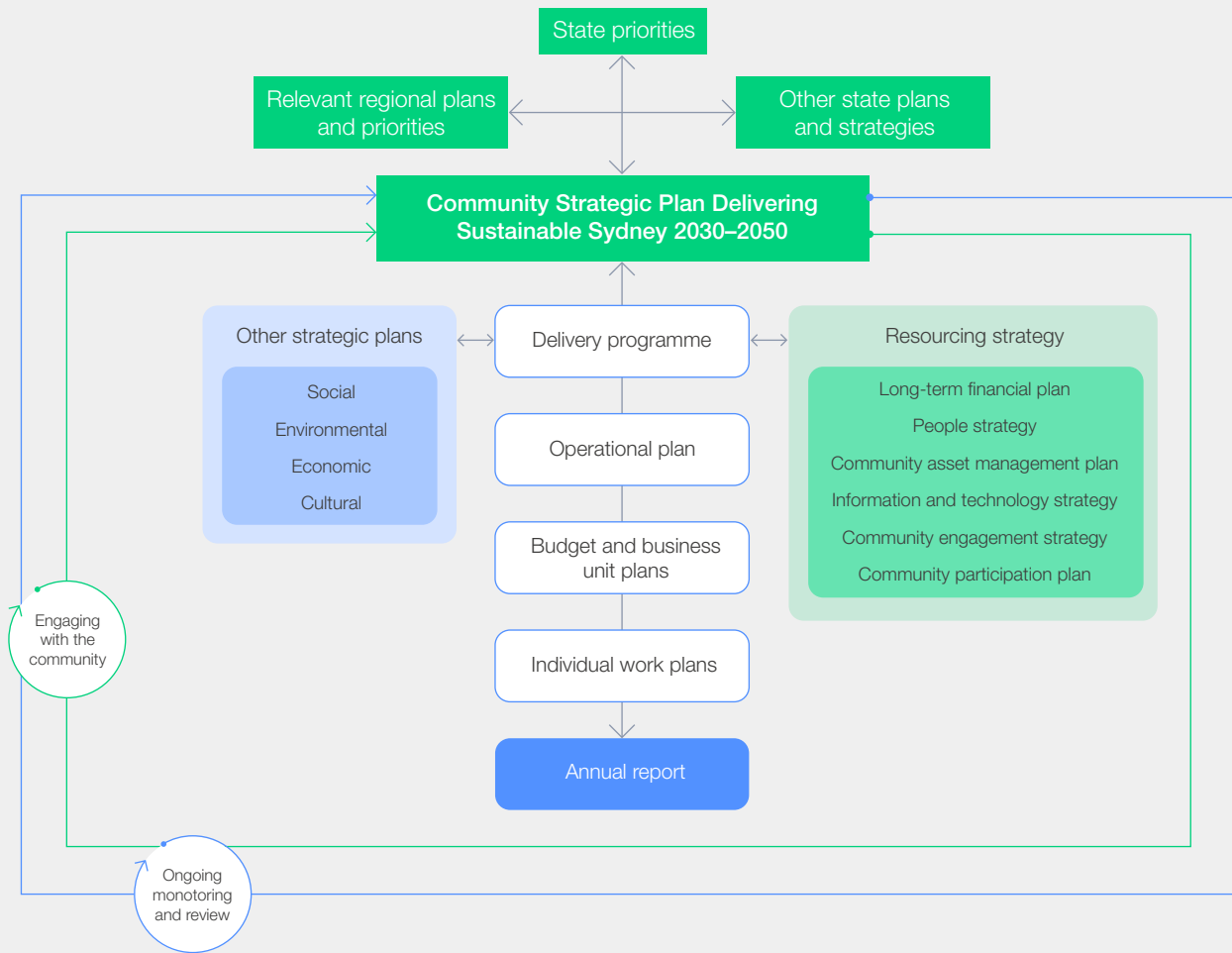
Source: City of Vancouver⁷⁴



Sydney organizational chart



Sydney integrated planning and reporting framework diagram



Source: City of Sidney^{75, 76}

Policy

Actions at city level:

- Develop nature-focused policy roadmaps, employing what has been learned from compiling climate-related policy roadmaps.
- Collaborate with local or metropolitan authorities where ecologically relevant resources go beyond city boundaries, such as water basins.
- Integrate nature-positive principles and incentives into building codes and urban-planning policies and schemes with a cross-sectoral lens – including urbanization, mobility, landscape and energy – in alignment with Target 12 of the Global Biodiversity Framework.⁷⁷
- Address policy failures in public procurement, which can prejudice nature-conscious innovation.
- Implement policy measures that support the piloting of new solutions and outline a transparent pathway to adoption once the technology has been successfully demonstrated (e.g. measures to raise investment in innovation, prioritize innovation policy elements and create a superior innovation environment).

- Eliminate harmful subsidies (e.g. those that place excessive demands on the natural ecosystem) and transfer those funds to nature-positive incentives in alignment with Target 18 of the GBF.
- Engage in city-level nature networks to ensure policy learning, cooperation and greater efficiency in project preparation.

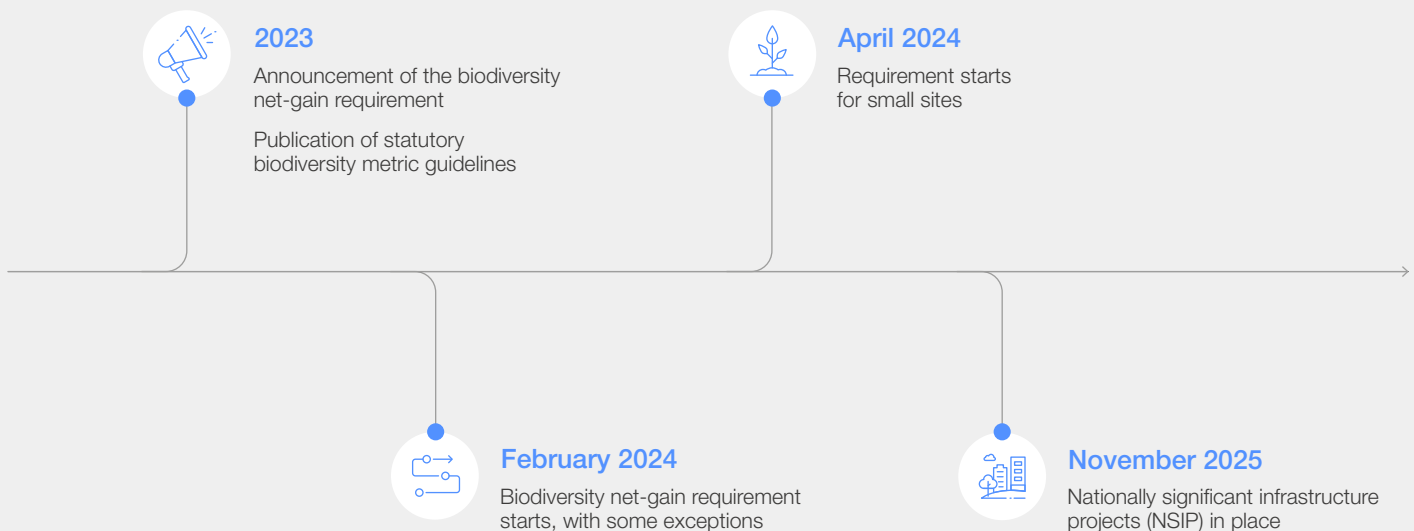
Reference action: Policy

UK government support for local authorities to develop and implement policy changes for the benefit of biodiversity

Starting in 2024, the United Kingdom will require property developers to deliver 10% biodiversity net gain using the statutory biodiversity metric when building new housing or industrial or commercial developments.^{78, 79}

This policy will be applied and overseen by the 300-plus local planning authorities in the country. Local planners will need to act on six themes: review, communication, resources and skills, strategic approach, development management and monitoring, enforcement and reporting. To support them in this new task, the national government has allocated £15 million and will also provide resources such as a readiness checklist, guidelines for key actions, capacity-building programmes and events.^{80, 81, 82}

FIGURE 13 Implementation timeline for the UK's biodiversity net gain requirement



Source: UK Department for Environment, Food & Rural Affairs^{83, 84, 85}



Financing

Actions at city level:

- Implement payment mechanisms for ecosystem services such as city nature credits, feed-in tariffs and quota schemes to create incentives for the uptake of nature-related projects.
- Explore existing funding sources to carry out nature-positive interventions at city level, leveraging the commitments in Target 19 of the GBF.
- Communicate city commitments on nature-positive infrastructure spending and the pipeline of relevant investments likely to be supported in order to provide long-term stability for institutional investors and insurers.
- Use project aggregation when developing investment plans to address ticket-size barriers (i.e. on projects too small to be considered for investment).
- Explore opportunities with national government to enable mechanisms that allow consumer preferences to be expressed through markets, such as certification schemes, in alignment with Target 16 of the GBF.
- Consider introducing natural capital principles into city accounting (where allowed by regulation).
- Look at innovative funding sources, such as green bonds, debt-for-nature swaps, and land-value capture mechanisms.⁸⁶
- Address creditworthiness barriers.
- Embed criteria for compliance with ESG quality goals into financing mechanisms.
- Introduce de-risking measures aimed at first-mover financiers, such as measures taking on innovation risk and lower-interest-rate financing.
- Include incentives for the private sector to contribute to nature conservation, such as tax rebates for private green areas that contribute to protecting and sustaining the natural ecosystem.
- Introduce policies aimed at reducing the investment risk for financial institutions investing in nature projects.
- Develop measures to reduce insurance-related costs associated with innovation risks of nature-positive interventions through equipment or performance guarantees.
- Promote the diversification of capital sources, including funds from a range of public and private financial institutions.
- Encourage incorporating the value of ecosystems into resource management and investment decisions.

Reference action: Finance
Sustainable Finance Framework by the City of Auckland

In 2018, Auckland Council established its Sustainable Finance Framework, as part of the city's commitment to adapt to the impacts of climate change and achieve net-zero emissions by 2050.

The Sustainable Finance Framework was developed with the intention of raising capital for sustainable projects via the issuance of:

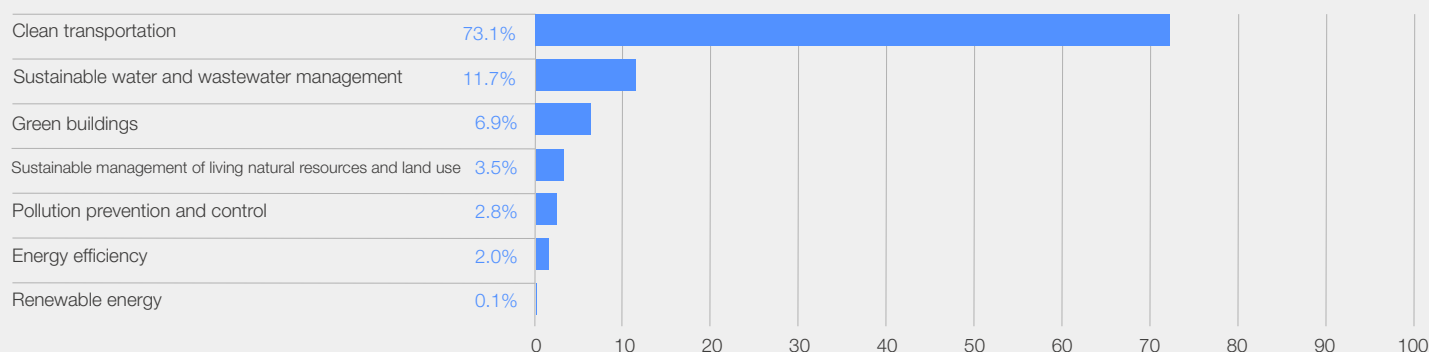
- Green bonds and green loans (use of proceeds products), i.e. bonds and loans

established to finance projects or assets that deliver positive environmental outcomes or refinance corporate debt that supports these projects or assets.

- Sustainability-linked bonds and loans, i.e. debt issued for general corporate purposes linked to the company's achievement of sustainability performance target KPIs such as GHG emissions reductions.

Through green bonds alone, the council has raised a total of NZ\$ 2.3 billion since 2018, which have been used to finance assets such as the rehabilitation of Puketutu Island, Central Rail Link, and water and wastewater infrastructure.⁸⁷

FIGURE 14 Auckland's use of proceeds from green bonds 2022–2023 (allocation by sector)



Source: Auckland's Green Bond Annual Report 2022/2023⁸⁸

Data and analytics

Actions at city level:

- Establish baseline data and define metrics/indicators linked to nature-related targets.⁸⁹
- Collect and organize relevant key data that informs decision-making.
- Map current and most pressing climate risks aligned to a broader nature action plan, identifying mitigation and adaptation actions.
- Develop and maintain a central data-and-information portal on nature and biodiversity that can be accessed by the public to facilitate informed decision-making and that takes into consideration national mechanisms, in alignment with Target 21 of the GBF.
- Maintain a list of species and their conservation status, similar to the Singapore Red Data Book.
- Ensure transparency of nature-related risks and dependencies relating to the public and promote disclosure from the private sector in alignment with Target 15 of the GBF.

- Implement a digital tool to provide up-to-date information on the state of implementation of actions and a targets dashboard to showcase progress to the quantified targets set by the strategy.
- Review decision-making processes to ensure they are driven by data and analytics.

Reference action: Data and analytics
Three-tiered data and tech initiative by eThekweni Municipality

The City of Durban, South Africa, recognizes data as critical infrastructure for sustainable development and co-governance. In 2022, the city launched the eThekweni Strategic Hub (StratHub),⁹⁰ a public-facing platform for informed decision-making based on updated and reliable data. This system improves transparency on municipal service delivery regarding progress on SDGs, budget allocation at district level, climate risk and the municipality's efforts to restore ecosystems and increase local resilience. The data can then be combined with key insights from Durban EDGE, another such platform but focused primarily on economic data.⁹¹

Stakeholder engagement

Actions at city level:

- Launch extensive educational and awareness campaigns on nature-related issues aimed at influencing preferences that safeguard the state of nature, and the proven benefits of nature-based solutions.
- Address contrarian messages from parties opposed to nature-positive action.
- Seek benefit-sharing and build consensus around nature-positive solutions as the best path to address urban development challenges.
- Identify and engage with local organizations and other stakeholders (e.g. NGOs and academic institutions) to align on the main nature goals and messaging.⁹²
- Encourage cross-sector public-private collaboration, engaging local, state and national governments, especially with businesses most affected by nature risks (such as real estate and insurance companies).
- Establish community action boards for citizens to take ownership of nature initiatives.⁹³
- Seek to empower groups particularly dependent on ecosystem services or affected by their degradation, including women, Indigenous peoples, youth and elderly people, in alignment with Target 23 of the GBF.

Reference action: Stakeholder engagement *City Nature Challenge*

The City Nature Challenge started in 2016 as a competition between the San Francisco Bay Area and Los Angeles County to photograph, catalogue and identify observations of wildlife using the iNaturalist app. It has since expanded to 450 cities worldwide, with 65,000 participants registering more than 1.87 million observations in 2023 alone.⁹⁴

This biological census, known as Bioblitz, is a way of engaging the public to create a sense of environmental stewardship, while providing valuable data for conservation efforts. For instance, during the 2017 City Nature Challenge, participants in Salt Lake City discovered the presence of firebugs for the first time in North America.⁹⁵ More than 750 scientific studies published in 2022 used data from iNaturalist.⁹⁶

Capabilities

Actions at city level:

- Assess internal capacity, detect skills and knowledge gaps and implement reskilling and upskilling strategies.
- Provide extensive training for committee board members and leadership officials on nature-related topics.
- Include nature topics in basic training addressed to all city officials.
- Hire environment specialists, including **landscape architects** and academics, to support the delivery of nature-related initiatives.
- Develop plans to strengthen nature education, including guidelines on integrating nature conservation into school curricula.
- Encourage research on nature and biodiversity at an urban level by encouraging investment, promoting the adoption of pilots and supporting public-private cooperation in alignment with Target 20 of the GBF.
- Promote knowledge transfer between universities and other organizations on nature-related issues in alignment with Target 21 of the GBF.
- Contribute to advancing the understanding of the relationship between nature, health and well-being.
- Promote partnerships with regional and international organizations such as the ASEAN Centre for Biodiversity and the Secretariat of the Convention on Biological Diversity as an indication of commitment to biodiversity conservation at the global level.

Reference action: Capabilities *City Academy by UrbanShift*

UrbanShift works with 23 cities in Asia, Africa and Latin America to reduce carbon emissions and conserve biodiversity while fostering sustainable, equitable growth.

Recognizing the limitations many cities face in terms of technical capacity and resources to plan and finance sustainable infrastructure projects, the programme developed City Academy, a set of in-person and peer-to-peer trainings for city officials to gain a deeper understanding of project structuring and presentation, increasing their chances of effectively connecting with potential investors, financial institutions and project preparation services. The trainings are combined with a one-stop hub aimed at enabling trainees to better conceptualize bankable climate projects and generate knowledge that contributes to sustainable development on a regional scale.⁹⁷

2.3 The benefits of an improved environment

The previous section proposed a set of actions cities can undertake to enhance their enabling environment and increase their readiness to address nature stewardship integrally. Although these changes are valuable in terms of a nature-positive transition, they can also deliver additional benefits to the city:

Operational efficiencies from enhanced processes and transparency: by streamlining their operations, cities can achieve more efficient resource allocation, reduce administrative burdens and improve decision-making processes. This can have a positive impact on other services provided by the city and facilitate collaboration with private-sector companies.

Risk-reduction opportunities: by improving their risk-management frameworks, cities will be better prepared to address other emerging risks, such as large-scale emergencies and long-term disruptions.

Increased investment from ESG-aligned investors: by introducing a facilitating policy environment, a city can increase the financing received from DFIs/MDBs, bilateral development agencies, private-sector investors and philanthropies to conduct other relevant initiatives that deliver value to the city.

Enhanced spirit of innovation: pushed to respect nature boundaries and limit urban sprawl,

cities will be compelled to accommodate the rise in urbanization by adopting strategies used by compact, mixed-use cities. This will require innovation stimulus and greater efficiency for cities to effectively function within their boundaries.

Streamlined governance and communication mechanisms: the engagement mechanisms created for nature topics can easily be replicated for other undertakings by the city, laying the foundations for subnational cooperation more broadly. A similar case can be made for the communication channels and resources used to increase the outreach of nature-positive interventions. Ultimately this will contribute to developing a greater sense of community within the city.

Talent and culture: Cities showing a pioneer spirit on climate and nature will start to be seen in a more general sense as purpose-driven hubs – places that have a clear future vision, foster experimental culture and engage ground-breaking solution providers. This environment is particularly appealing for companies, start-ups and talented people seeking a forward-looking place in which to live.

In summary, improving a city government's capacity to address nature issues is likely to position the city to take on many other urban issues better.



Conclusion

This report shines a spotlight on the material opportunity for cities to step up and embrace nature as a fundamental pillar of their growth and expansion.

There is a global call to rethink the urban economy and its interdependence with nature and a healthy biosphere. Much can be learned from the many cities around the world that are already responding to the growing expectations regarding nature stewardship. Some have already risen to the challenge of a nature-positive transition: avoiding, reducing, restoring and regenerating nature, and contributing to a system-wide change that will transform the way they interact with nature.

In doing so, these cities have become an inspiration for other cities and for the development of this publication, which sets three main steps for any city to embark on this transition:

- Committing to act to the benefit of nature.
- Defining a nature strategy whereby commitments are translated into concrete objectives and targets.
- Implementing actions to deliver on the targets set.

Acknowledging that cities cannot navigate this transformative journey alone is crucial. The private sector, civil society and international financial institutions are encouraged to strengthen collaboration with local governments and act as catalysts by providing innovative solutions, expertise and funding. Only then can clear opportunities for rehabilitating nature in the urban context materialize.

With a robust network of purpose-driven stakeholders, cities can be transformed into hubs of nature stewardship. These are the cities of the future: places where both human beings and nature thrive together, fostering inclusive growth and shared prosperity.

This report marks the start of a series of publications advocating for the regeneration of nature in – and by – urban areas. The series will help local leaders internalize nature's values into macro- and microeconomic decisions, and provide best practices and further guidance on governance arrangements, incentives, regulations, stakeholder engagement, capacity-building priorities, impactful solutions and funding opportunities for more resilient, prosperous and equitable cities.

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