Taking Action for Urban Nature: Innovation Pathways Directory

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TAKING ACTION FOR URBAN NATURE

Innovation
Pathways
Directory

Led by Durham University, NATURVATION involves 14 institutions across Europe working in fields as diverse as urban development, innovation studies, geography, ecology, environmental assessment and economics. Our partnership includes city governments, non-governmental organisations and business. We will assess what nature-based solutions can achieve in cities, examine how innovation is taking place, and work with communities and stakeholders to develop the knowledge and tools required to realise the potential of nature-based solutions for meeting urban sustainability goals.

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Innovation pathways for nature-based solutions are journeys that involve key drivers, decision-making junctures, agents and opportunities which can combine to facilitate urban sustainability transitions.

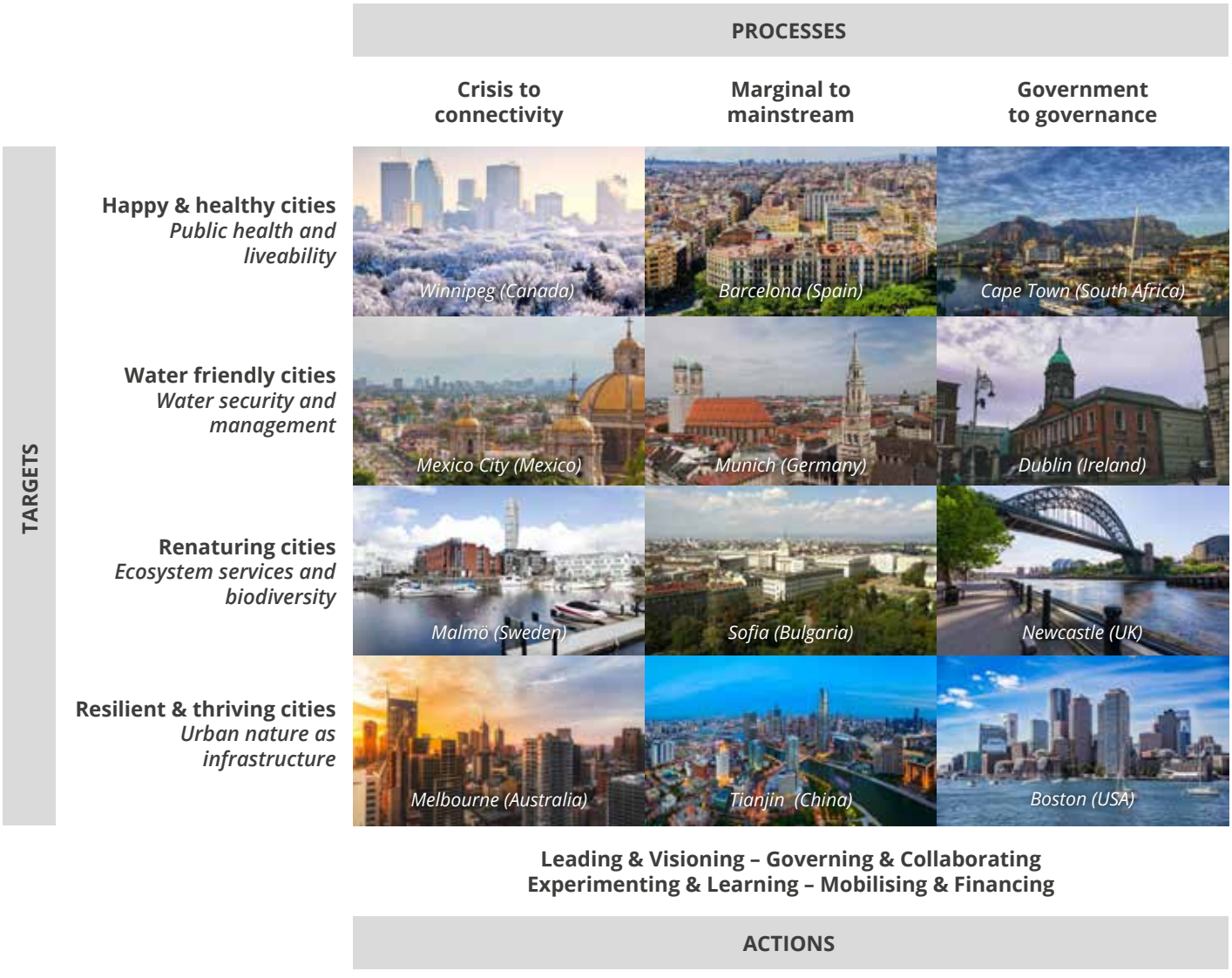
An Urban-Regional Innovation Partnership was established in Utrecht in the NATURVATION project.

INTRODUCING INNOVATION PATHWAYS

What are the enabling conditions and driving forces for nature-based solutions in the context of urban sustainability transitions? And how do innovation pathways play a role for nature-based solutions?

Innovation pathways are a journey: from the initial idea and its demonstration, to its broader uptake within policy, industry and society.

The Urban Nature Innovation Pathways Directory provides an entry point to explore and better understand innovation pathways for nature-based solutions. Building on 54 examples of nature-based solutions in 18 cities, the findings are illustrated here through four targets, three processes and four actions. There are 12 examples of nature-based solutions depicted in the Urban Nature Innovation Pathways Directory that tell the stories of implementation and capture key messages.

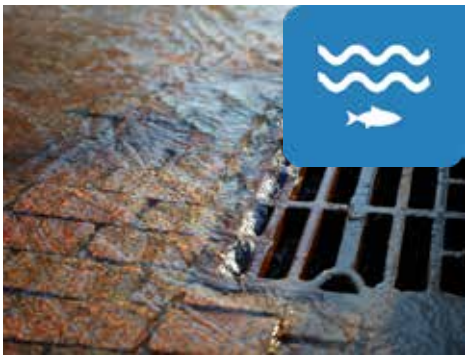


FOUR TARGETS

Nature-based solutions are often used to achieve four main targets that are frequently defined through visions and goals. The targets represent a key political and societal ambition that can act as a driving force for the implementation of nature-based solutions in cities. While the targets are often combined or mixed together, there is in many cases a higher priority applied to a particular focal point.

Happy and healthy cities

Putting public health and liveability in focus!



Water friendly cities

Putting water security and management in focus!

Renaturing cities

Putting ecosystem services and biodiversity in focus!

Resilient and thriving cities

Putting urban nature as infrastructure and economic development in focus!

An Urban-Regional Innovation Partnership was established in Leipzig in the NATURVATION project.

To break the dominance of grey infrastructure, new approaches are needed for the development, implementation and mainstreaming of nature-based solutions.

THREE PROCESSES

The processes observed in innovation pathways for nature-based solutions can broadly be defined into three shifts – crisis to connectivity, marginal to mainstream, or government to governance. Such processes are not a straightforward transition from point A to point B. Instead, they involve a combination of actions, investments and organisations that bring about the implementation of nature-based solutions in the city.

Crisis to connectivity – grabbing opportunities!

Confronting a crisis or "problem" generally invokes a response. Finding a "solution" through nature-based solutions is all about connectivity and connecting the dots between sometimes disparate sectors or organisations.

Marginal to mainstream – up-scaling initiatives!

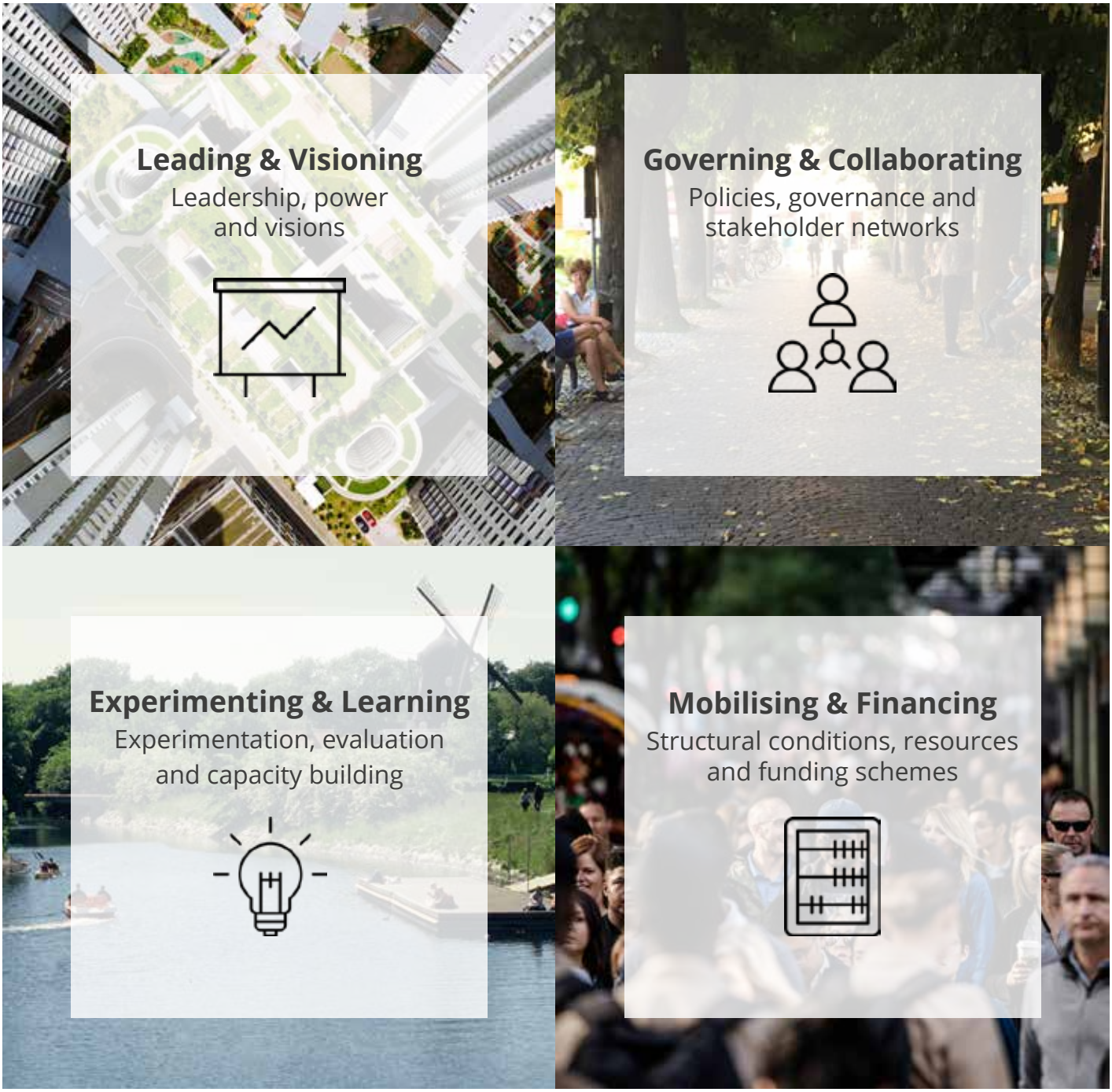
There are many examples of nature-based solutions that constitute niche implementation. Learning from smaller implementation efforts and transferring insights to new projects and larger investments is key to up-scaling or circulating nature-based solutions in urban contexts.

Government to governance – building together!

The expectation on government (including local, regional and national) to play the leading role in nature-based solutions is misplaced. Collaboration is critical to overcoming barriers to implementation across sectoral boundaries and establishing financing.

FOUR ACTIONS

There are four key actions that often act as turning points in the trajectory of innovation pathways for nature-based solutions. First, visioning includes local and regional visions and plans that involve leadership and commitment. Second, collaborating is about governance, policies and stakeholder networks. Third, learning and experimenting are paramount to advancing nature-based solutions. And finally, mobilising resources through funding schemes and local resources is what provides the supporting inputs.



Advancing nature-based solutions requires that we better understand the contexts as well as the key challenges and opportunities that are facing projects on the ground.

An Urban-Regional Innovation Partnership was established in Győr in the NATURVATION project.

UNPACKING INNOVATION PATHWAYS

Nature-based solutions are emerging on the political agenda not only as a potential climate adaptation strategy, but also as a popular means to build urban resilience while tackling the multiple sustainability challenges that cities are facing. For instance, open green storm water management systems, including sunk parks, trees, rain gardens, open canals, permeable surfaces and green roofs can reduce and manage flooding and – at the same time – they can limit heat stress as well as provide recreational spaces for different societal groups. This in turn can secure improved health outcomes and can eventually reduce health costs for society.

The example of storm water management shows that multiple benefits and multiple functions are the key value of nature-based solutions. Yet, despite the recognised benefits and functions, the use of nature-based solutions remains marginal and grey infrastructure and technology-driven solutions continue to dominate urban development. In order to shift this dominance, new approaches are needed for the development, implementation and mainstreaming of nature-based solutions.

Research in the NATURVATION project across 54 examples of nature-based solutions in 18 cities shows that cooperative governance types and forms, innovative financial and business arrangements, and new institutional settings are the foundations for mainstreaming nature-based solutions within urban planning, policy and development across the globe.

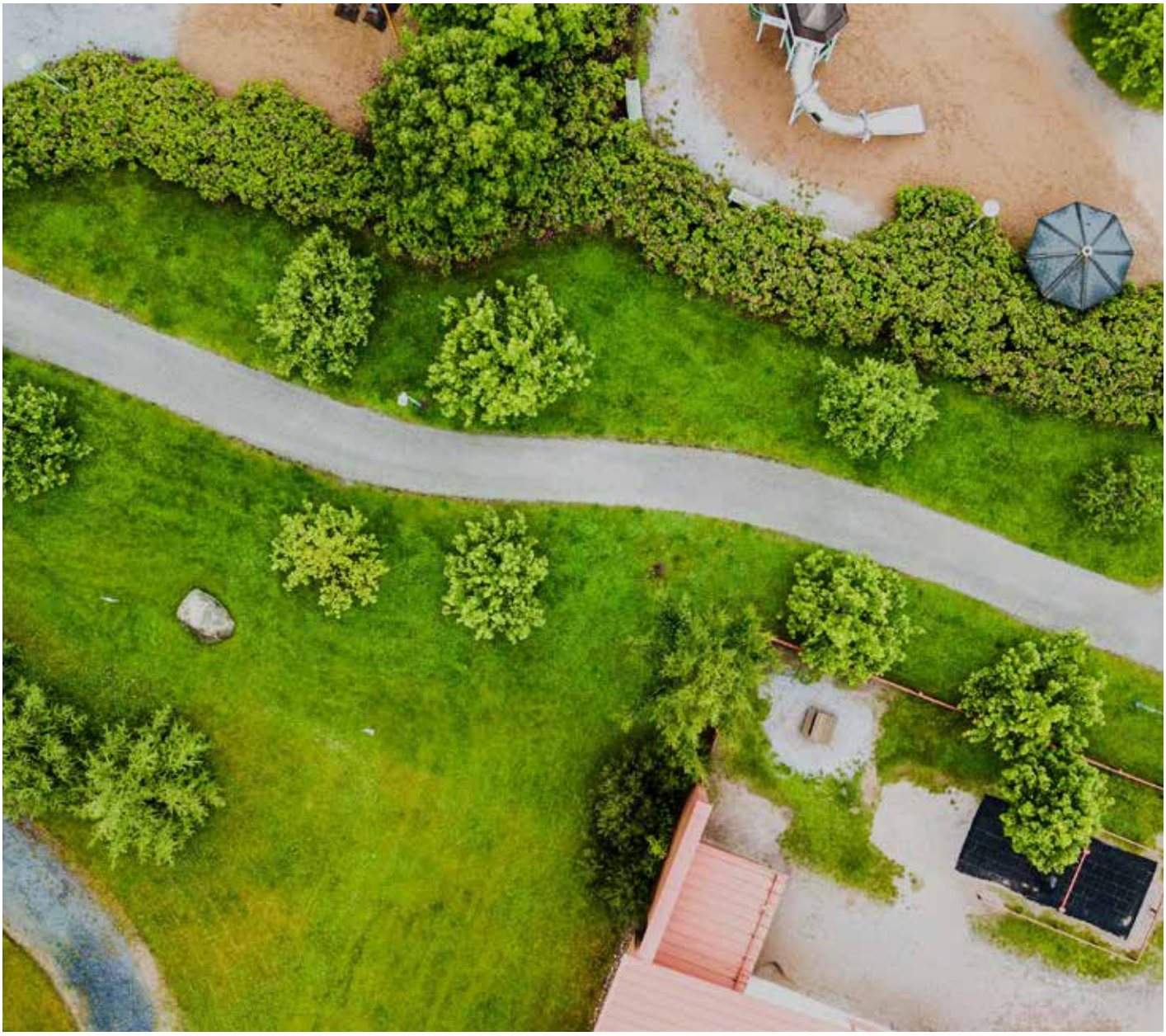
The NATURVATION project involves 14 institutions across Europe working in fields as diverse as urban development, innovation studies, geography, ecology, environmental assessment and economics. The partnership includes city governments, non-governmental organisations and business. This project is assessing what nature-based solutions can achieve in cities, examining how innovation is taking place, and working with communities and stakeholders to develop the knowledge and tools required to realise the potential of nature-based solutions for meeting urban sustainability goals.

Want to learn more about taking action and mainstreaming nature-based solutions?

Check out this collection of reports and outputs.

Any innovation, however, is a journey: from the initial idea and its demonstration, to its broader uptake within policy, industry and society. And along this journey, it is critical to understand not only how innovation is supported through different governance strategies, institutional settings, and business models and financial arrangements, but it is also important to understand the driving forces for nature-based innovations in the context of urban sustainability transitions.

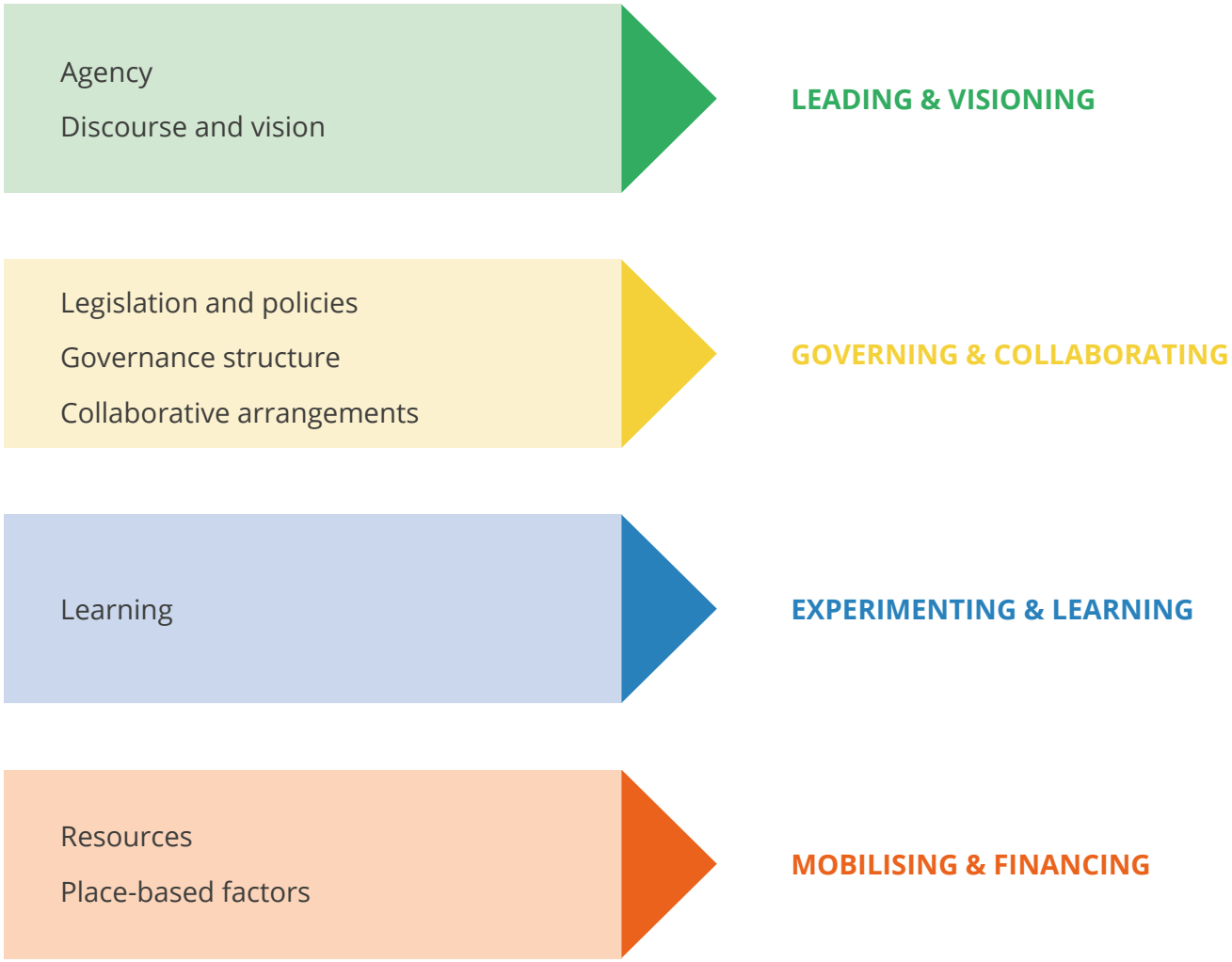
A group of leading cities – Barcelona, Utrecht, Leipzig, Malmö, Győr and Newcastle – are partners in the NATURVATION project and they have convened Urban-Regional Innovation Partnerships (URIPs) with strategic urban government, business and civil society organisations. The URIPs have provided insights into the variety of ways in which nature-based solutions are being designed and implemented in different urban conditions.



So what are the driving forces behind nature-based innovations? With the help of the nature-based innovation systems framework developed through the NATURVATION project, we can explore the different driving forces behind the emergence of nature-based solutions.

This framework categorises innovation drivers in eight dimensions: 1) Agency, 2) Discourse and vision, 3) Legislation and policies, 4) Governance structure, 5) Collaborative arrangements, 6) Learning, 7) Resources, and 8) Place-based factors.

In the Urban Nature Innovation Pathways Directory, we combine the eight innovation drivers under four actions: 1) Leading & Visioning, 2) Governing & Collaborating, 3) Experimenting & Learning, and 4) Mobilising & Financing. These actions can act as key turning points in the trajectory of innovation pathways for nature-based solutions.



Want to learn more about innovation pathways for nature-based solutions?

Check out this full report that analyses 54 examples of nature-based solutions in 18 cities.

LEADING & VISIONING

Leadership, power and visions

Agency

This refers to the capacity for actions that individuals and organisations take to influence the innovation pathways for nature-based solutions. Driven by agents of change, organisations may demonstrate leadership and power in the development and uptake of nature-based solutions. Best practice interventions, particular planning processes and the introduction of new forms of environmental regulations can exemplify institutional commitments to sustainability.

Discourse and visions

While agency plays a key role at individual and group levels, collective worldviews do so at the level of society. Discourses and visions of urban sustainability such as “eco city”, “green city” or “innovative city” often translate into norms of action, which in turn can build up the social momentum for change.

GOVERNING & COLLABORATING

Policies, governance and stakeholder networks

Policies

Discourses and visions also interact with different policies, such as strategic plans, legislation and regulations which can be used to directly and indirectly steer sustainable practices, stewardship, financing and public engagement enhancing nature-based solutions.

Governance structures

The actors involved and the distribution of power and responsibilities across stakeholders strongly influence the degree to which they have a strategic overview, potential budgets and capacity for collaboration. These structures in turn determine innovation pathways for nature-based solutions. They can also influence the institutional capabilities for collaboration and learning in this domain, which are essential to overcoming challenges associated with fragmentation across scales and between sectors.

Collaboration

This takes place in professional networks and partnerships among different stakeholders, but collaboration also refers to public participation, the engagement of citizens, which is becoming an increasingly dominant urban practice. The empowerment of civil society is particularly important in the implementation phase of nature-based solutions, especially in cities with high levels of private land ownership. Citizen engagement has a great potential to improve the public support of sustainability interventions, and ultimately leveraging sustainability transformations.

Want to learn more about the framework for nature-based innovation systems?

Check out this journal article!

EXPERIMENTING & LEARNING

Experimentation, evaluation and capacity building

Learning

This is another key dimension that supports capacity building for nature-based solutions. Education and training can improve understanding of the multiple-benefits of nature-based solutions among different stakeholders. Research and evaluation can improve and refine nature-based solutions, while experimentation can contribute to new forms of governance approaches.

MOBILISING & FINANCING

Structural conditions, resources and funding schemes

Resources

Another critical driver for nature-based solutions is that of resources. As nature-based solutions need to be adapted to socio-ecological contexts, knowledge about local ecological, climatological and social-cultural conditions, and how they interact with nature-based solutions, is crucial. Furthermore, diverse financial sources and sound financial planning are essential to the success of nature-based solutions. Today, institutionalised spending, grant programs and subsidies are prominent financing instruments for nature-based solutions. The development of technologies is another important condition for some types of nature-based solutions, such as green rooftops.

Place-based factors

In addition, place-based factors also strongly influence the availability and scope of nature in cities, as well as the functioning of nature-based solutions. The built environment influences, for instance, the diffusion of green roofs, as cities with large areas of low-rise development are more suitable for extensive green roofs given easier rooftop accessibility and less space occupied by building infrastructure. Natural processes, such as plant productivity is influenced by local soil and climatic conditions, which are important considerations when planning green infrastructure.

Societal processes similarly influence the availability and scope of nature in cities. Urbanisation may lead to environmental degradation, yet could also prompt demand for nature-based solutions by stimulating processes of economic transformation and urban revitalisation. Finally, local cultural frames of reference shaped by historical and geographical processes, as well as consumption habits, entrepreneurial orientation, levels of trust, attitudes to co-production, artistic activities, or aesthetic preferences all influence the diffusion of nature-based solutions.

HAPPY AND HEALTHY CITIES

SEASONALITY OF RIVERFRONTS
Happy and healthy people – Crisis to connectivity

Winnipeg, Canada

Winnipeg is a "river city", yet public waterfront access and development have been limited by increasingly frequent and severe floods, erosion, loss of vegetation and land ownership patterns. However, over the last decade, interest in the city's riverfronts has grown significantly. *"The city really turned its back on its rivers. We only saw the river as a problem. It was time to turn around."*

- Frozen rivers demonstrate innovative urban public space use, spearheaded by a publicly owned development corporation.
- In 2018, a river skating trail was used by at least 700,000 people as a space for outdoor recreation, winter sports, cultural and community events.
- The river trail became an empty canvas, allowing social innovators, communities, artists and entrepreneurs to flourish.
- The river trails "shrink" the city, functioning as a transport route with access points.

Leading & Visioning

The 20-year vision of the city council called *"Go … to the Waterfront"* expands on the entrepreneurial spirit in Winnipeg to use the riverside area all year round.

Governing & Collaborating

The Forks North Portage Partnership connects three levels of government (federal, provincial and municipal) and development companies.

Experimenting & Learning

"Change is constant. It's how you self-learn, how you learn from what works and what doesn't. We're willing to take some risks because it often pays off, and if it doesn't, we kill it real quick, adapt, and we try again."

Mobilising & Financing

The business model for the area is to provide significant space and support for entrepreneurs and social innovators to invest in nature-based solutions.

GREEN CORRIDORS

Happy and healthy people – Marginal to mainstream

Barcelona, Spain

Heavy car traffic in a compact and densely urbanised environment with limited green space presents Barcelona with challenges related to air quality, noise, and heat island effects. Its urban expansion, economic growth, and industrialisation have also posed challenges to biodiversity conservation. "Passeig de Sant Joan" was redeveloped into one of the first green corridors in Barcelona and aimed at increasing ecological and social connectivity within the city.

- Prioritising more integrated nature-based solutions thinking in institutional structures is viewed as a key approach
- This thinking is paired with higher levels of socio-environmental awareness
- There is recognition of direct and experienced ecosystem service benefits of green corridors
- Early civil participation is key for future engagement in nature-based solutions

Leading & Visioning

Despite the challenge of being extremely compact and highly populated, the city has placed greening policies at the centre of its sustainability agenda, introducing the "(re)naturalisation" concept in 2012.

Governing & Collaborating

The implementation of the green corridor was the responsibility of the district administration in collaboration with the urban planning department. It also involved negotiations among many stakeholders within and outside the city administration.

Experimenting & Learning

Changing the way vehicle-dominated urban sites (like roads) are conceptualised and experienced, reflects, exemplifies and cultivates more sustainable ideas about nature in the city.

Mobilising & Financing

The commitment of city council experts and the availability of funds for ecology and sustainability enabled the realisation of the "Passeig de Sant Joan" project and allowed for innovation and creativity in the implementation of the green corridor.

ENVIRONMENTAL EDUCATION TRUST
Happy and healthy people – Government to governance

Cape Town, South Africa

Cape Town is located in a global biodiversity hotspot and it has both stark inequity and high levels of unemployment, all of which make equity, job creation and nature conservation key challenges for the city. *"Particularly in an urban environment, you cannot address the environmental challenges without basing it on the social challenges."*

- This initiative enhances biodiversity while providing economic opportunity and social inclusion in urban nature reserves
- Successful urban biodiversity conservation addresses both social and ecological factors
- An inclusive approach to urban conservation offers opportunities to low income and racialised communities
- Partnerships between non-profit organisations and local authorities can enable innovation

Leading & Visioning

"We're trying to create an awareness that green open space is a place of opportunity ... an opportunity for training and development ... and a place to go to get a job as well. And once you have that shift in mindset, nature reserves start looking something different to that community."

Governing & Collaborating

A non-profit organisation called the Cape Town Environmental Education Trust has partnered with the City of Cape Town to create what they term a "crèche to career" model of environmental education that supports on the ground nature conservation.

Experimenting & Learning

The partnership of the local authority and a non-profit organisation supports a learning approach that recognises the interconnection of social and environmental challenges.

Mobilising & Financing

The Cape Town Environmental Education Trust focuses on low income communities and biodiversity conservation at the same time by repositioning urban nature reserves as opportunities for education and employment in the field of conservation.

WATER FRIENDLY CITIES

WATER FUND
Water friendly cities – Crisis to connectivity

Mexico City, Mexico

Water represents an existential challenge for Mexico City, which is threatened by both water scarcity and flooding. The solutions lie in its existing natural assets. *"The history of Mexico City is associated with a lake basin, but we have completely transformed that reality into one of the largest megacities – but we are still a lake."*

- Working with existing natural assets is an effective way to address large scale challenges
- Varied land tenures, governance structures, and water users requires engagement of many different actors
- When lack of trust is widespread, clear governance mechanisms and good science are essential
- Pricing water has faced controversial reactions, but still appears to be a good way to ensure continued water availability

Leading & Visioning

The lack of financial mechanisms to strengthen water security through protection of ecosystem features was recognised by a variety of actors, which led to the establishment of a Water Fund.

Governing & Collaborating

The Water Fund is governed by a partnership of NGOs, government, and business actors. It addresses a collective need for water security through joint investments guided by sound science.

Experimenting & Learning

Attention is increasingly focusing on opportunities to conserve, restore, and manage existing ecosystems in ways that ensure their capacity to absorb and filter rainwater and to recharge aquifers, thus mitigating flooding and ensuring sufficient quantity and quality of water.

Mobilising & Financing

The Water Fund makes the costs of water more transparent so that good economic decisions can be made. It demonstrates that nature-based solutions show returns with respect to water security.

RESTORATION OF THE ISAR RIVER
Water friendly cities – Marginal to mainstream

Munich, Germany

Munich is the most densely populated and one of the fastest growing cities in Germany. The sustainability goals of the city are challenged by the loss of green space, increased flooding and heat waves. The Isar Plan restoration project began in 1995 to improve flood protection, ecological function and recreational areas. The Isar Plan grew from a close collaboration between several important actors.

- The Isar Plan harmonises interests of flood protection with nature conservation and planning and public use in an urban riverscape
- Its design and implementation relies on multi-level collaboration, an interdisciplinary working group and continuous citizen engagement
- The multifunctional riverscape combines blue, green and grey infrastructure, while integrating ecological values into traditional water engineering
- The Isar Plan is used as a best practice example for river restorations worldwide

Leading & Visioning

The Isar Plan has multiple ambitious aims from climate adaptation through nature conservation to enhanced well-being. *"While flood protection was given strong emphasis, it was seen as important that none of the goals could override any other."*

Governing & Collaborating

A joint interdisciplinary planning group was formed with water engineers, landscape architects, city planners and biologists from the regional and city administrations as well as community groups and the "Isar Alliance".

Experimenting & Learning

"It has been recognised early on that if one wants to be successful, one needs to invite other stakeholders and bring them on board."

Mobilising & Financing

The Isar Plan was jointly financed by the State of Bavaria and the City of Munich. Because many alpine rivers flow through Bavaria, regional water and civil engineering projects have been important and generally well-funded for the past 200 years.

TOLKA VALLEY PARK
Water friendly cities – Government to governance

Dublin, Ireland

Tolka Valley Park suffered from chronic soil and water pollution. Sustainability policy prioritised its environmental remediation, altering the function of this green space for surrounding communities and the city.

- Resource scarcity can drive institutional and technical innovation, resulting in more sustainable solutions
- When the implementation of greenery depends on private developers, it can lead to environmental injustice, lack of transparency and civil engagement
- Top-down education and information should not be conflated with bottom-up participation
- Cross-departmental coordination, consistent project leadership and community consultations are key for sustainable nature-based solutions

Leading & Visioning

The regeneration of Tolka Valley Park aimed to improve ecological quality and enhance biodiversity while opening the park to a diverse public.

Governing & Collaborating

Private-public partnerships for urban regeneration that include nature-based solutions become more prominent at the municipal level, influencing political decision-making.

Experimenting & Learning

Budget shortfalls can catalyse innovative ideas and sustainable choices in materials, infrastructure and design, as well as new ways of funding nature-based solutions.

Mobilising & Financing

Tying nature-based solutions to private developments provides funding in the face of budget shortfalls. Making resources available through private finance has implications for institutional decisions.

RENATURING CITIES

BIODIVERCITY
Renaturing cities – Crisis to connectivity

Malmö, Sweden

Increasing heavy rainfall paired with a malfunctioning storm water management systems, the lack of social integration in a growing and diverse population, and intense densification with weak integration of urban greenery and biodiversity in urban planning are major sustainability challenges in Malmö.

- Smart and space-efficient nature-based solutions, such as greening of buildings and mobile plant systems address the contradiction between densification and urban greenery
- Long-term organisational commitment is essential to integrate nature-based solutions in urban planning
- Competent and engaged property owners and early involvement of maintenance staff are key for implementation of biodiverse nature-based solutions
- Creating ideal conditions for project continuums, learning, and maintenance are critical for nature-based solutions

Leading & Visioning

Supported by the discourse of densification calling for innovative solutions for urban greenery, the BiodiverCity project has delivered more than 30 multifunctional nature-based solutions across Malmö.

Governing & Collaborating

Strong linkages to local policy documents focused on urban greenery, combined with European and national financial resources, strategic project management with committed leadership, and the use of formal and informal communication channels have been critical to the project.

Experimenting & Learning

The green and blue nature-based solutions of the BiodiverCity project carry invaluable social, ecological, and economic benefits and lessons to learn from for further projects.

Mobilising & Financing

Pilot projects, such as BiodiverCity, often engage private companies to participate and encourage them to use the city as a test bed for products and services, which in turn results in a wide range of “best fit solutions” for the particular urban environment.

CITY FOREST
Renaturing cities – Marginal to mainstream

Sofia, Bulgaria

The sustainability challenges in Sofia result from a legacy of a Soviet-era industrialisation with no attention paid to environmental issues, and from currently pressing issues of aligning economic growth with environmentally sustainable urban development.

- A change in the city starts with a change in the way of thinking
- Ecological and social urban development, as well as their sustainability, depends strongly on the experienced sense of belonging
- Nature-based solutions are perceived as more cost efficient and economically desirable, especially in the tourism sector
- Providing information for a better understanding of ecosystem services is crucial for the introduction of an appropriate policy framework and mainstreaming of nature-based solutions

Leading & Visioning

Nature-based solutions are beginning to gain prominence in Sofia indicated by the increase in the reconstruction of parks since 2010, rising numbers of new urban gardens, and new private afforestation initiatives or volunteer work in parks.

Governing & Collaborating

The municipality in Sofia is setting new priorities, searching for more sustainable solutions and best practices to environmental challenges. For this, it is also reaching out to NGOs, start-ups, and citizens.

Experimenting & Learning

The initiative is not only a good example for the multiple benefits of ecosystems in urban areas, but it has a strong emphasis on historical, cultural, and social values as well as on cost efficiency.

Mobilising & Financing

Investing in nature-based solutions is being seen as a “booster” of the local economy and as a conservation strategy. The initiative has a strong emphasis on historical, cultural, and social values as well as on cost efficiency.

INNOVATIVE GOVERNANCE OF PARKS
Renaturing cities – Government to governance

Newcastle, UK

Key challenges facing the city emerge from ongoing processes of regeneration, flood risk due to changing climatic conditions and aging infrastructure, and the issue of governance capacity, both because of the need to join up capacities across different agencies and because of the current climate of austerity.

- New forms of governance and finance are emerging for maintaining established nature-based solutions, such as the Victorian parks of Newcastle
- New governance arrangements are needed, operating across scales to maintain urban parks during changes to local government capacities
- Governance and economic innovations need expertise, capacity, and demonstration before adoption
- Social learning and networking through "innovation intermediaries" takes place through demonstration – "learning by doing" for nature-based solutions

Leading & Visioning

"From the public health point of view, our aim is to re-establish parks ... as a focus for well-being and health in the city, which, in truth, was their original purpose."

Governing & Collaborating

Central to the innovative approach being taken to manage parks in Newcastle has been a new alliance of public and private actors, operating across scales.

Experimenting & Learning

The development of a new business and governance model for parks involves social learning and networking through "innovation intermediaries" at the national level and experiments at the local level.

Mobilising & Financing

The Newcastle City Council sought to engage with a national network of actors and became a demonstration project of an innovative governance and business model where public parks, allotments, and green space are put into a public trust to secure their future maintenance.

RESILIENT AND THRIVING CITIES

URBAN FOREST STRATEGY
Resilient and thriving cities – Crisis to connectivity

Melbourne, Australia

The City of Melbourne is faced with both strong population growth and increasing climate extremes, such as heavy rains, floods, heatwaves, droughts, and bushfires. These challenges affect urban greenspace and undermine the quality of life and well-being of citizens. The Urban Forest Strategy is a systemic knowledge-driven innovation, underpinned by a wide range of academic research and international urban greening strategies.

- The aim of the Urban Forest Strategy is to create a resilient, healthy, and diverse forest that people in Melbourne love
- The strategy links biodiversity with socio-ecological resilience
- The strategy promotes a reflexive, multi-level, and collaborative governance approach
- Its implementation relies on a balance of technical expertise, community's sense of place, and continuous citizen engagement

Leading & Visioning

The Urban Forest Strategy aim is the systematic provision and maintenance of green space in combination with soft and grey infrastructure approaches to improve the liveability of the city and the health and well-being of its inhabitants.

Governing & Collaborating

"The true success in maintaining our urban forest depends on continuing support from the public sector, developers, businesses, and the wider community."

Experimenting & Learning

The Urban Forest Strategy is a systemic knowledge-driven innovation, underpinned by a wide range of academic research and international urban greening strategies. It provides a platform for social learning and supports citizen co-management of urban greenery.

Mobilising & Financing

Business partners are considered as powerful contributors to the expansion and success of urban forestry – through financial support, planting and maintenance of trees on commercial property, and support of civic organisations involved in forestry.

ECO-VALLEY

Resilient and thriving cities – Marginal to mainstream

Tianjin, China

Tianjin is a fast-growing industrial and port city in the north coastal region of China, surrounded by the Bohai Sea, Hebei Province, and Beijing City. Tianjin experienced rapid and large scale urbanisation as its population quadrupled in 40 years to over 15 million, resulting in major environmental challenges.

- The Eco-Valley is the unifying element of the Sino-Singapore Tianjin Eco-City, the most advanced eco-city of China, built in cooperation with Singapore
- The Eco-Valley aims to connect residential districts, commercial zones, sub-centers, and waterside areas as a green spine, providing connectivity and recreation space
- The eco-city is a flagship bilateral project of Singapore and China with large-scale private sector involvement
- The project demonstrates how bilateral cooperation can facilitate policy diffusion and project implementation in support of large-scale green infrastructure development

Leading & Visioning

The Eco-Valley is based on a landscape design metaphor of a valley that residents of the high-rise buildings can come down to for various activities and services.

Governing & Collaborating

The governance of the project is built on a complex partnership that involves several private- and public-sector actors from China and Singapore, embedded in interconnected institutional relationships.

Experimenting & Learning

As the best-known, most advanced, and arguably most successful eco-city in China, its results are of significant importance for the future of urbanisation in China and beyond.

Mobilising & Financing

The aim of the project is to be commercially viable and financially sustainable, where all expenses will eventually be covered from real estate sales. The Eco-Valley, as a unique feature with high added value, substantially contributes to this goal.

RAIL-TO-TRAIL GREENWAY
Resilient and thriving cities – Government to governance

Boston, USA

Boston is undergoing rapid population growth and economic transformation, while struggling to address water pollution and climate change. The newly-adopted climate plan addresses these two key sustainability challenges, while bottom-up initiatives, such as the East-Boston Rail-to-Trail Greenway tackle social inequalities through green space provision.

- The Rail-to-Trail Greenway is a bike and pedestrian pathway linking parks in a mixed-income multi-racial neighbourhood while also increasing access to the waterfront
- Community groups secured the land from the railroad and funding from local, state, and federal agencies
- The bottom-up initiative is innovative in its governance and reuse of resources found in the area
- Gentrification and displacement trends raise concerns over future beneficiaries of the greenway

Leading & Visioning

Community activists successfully lobbied to convert a long-abandoned track into a linear park and multi-use pathway.

Governing & Collaborating

Sections of the Rail-to-Trail Greenway are owned and maintained by different public agencies, while the local community plays a central role in its stewardship.

Experimenting & Learning

Building on a legacy of activism, community members have played a key role in visioning, planning, fundraising, building, and maintaining the Rail-to-Trail Greenway. It is a genuine grassroots development.

Mobilising & Financing

The Rail-to-Trail Greenway was financed by a mixture of private philanthropic, and local, state, and federal government funding.

Want to learn more about the implementation of nature-based solutions?

Check out this collection of snapshots from 18 cities!

URBAN NATURE – A MASSIVE OPEN ONLINE COURSE

Explore our Massive Open Online Course (MOOC) on nature-based solutions in cities!

NATURVATION
cities – nature – innovation

Our course combines both technical knowledge and the social sciences to better understand nature-based solutions in a holistic perspective.

Nature-based solutions have the potential to provide multiple benefits across a range of sustainability challenges facing cities and urban areas.

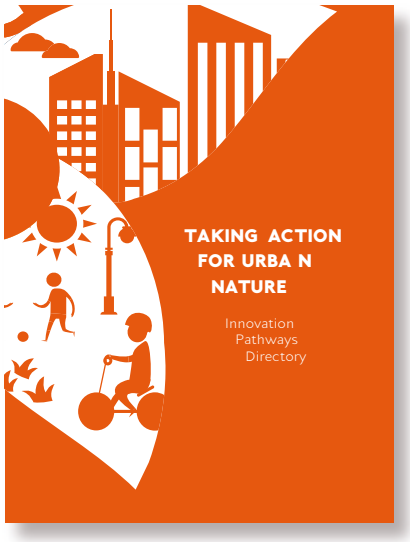
Meet a team of researchers and practitioners from countries across Europe and the world who will provide insights, findings and practical experiences of nature-based solutions.

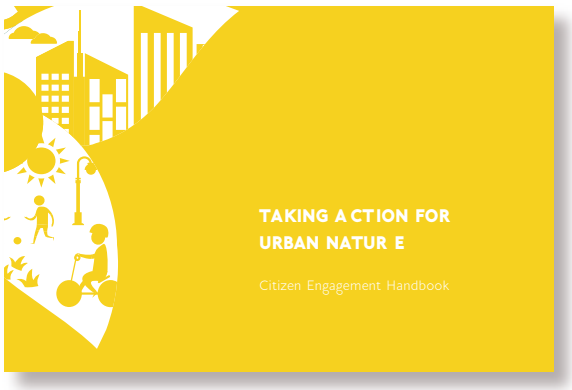
The aim of our course is to create an online learning community on nature-based solutions that connects the key themes of nature, cities and innovation.

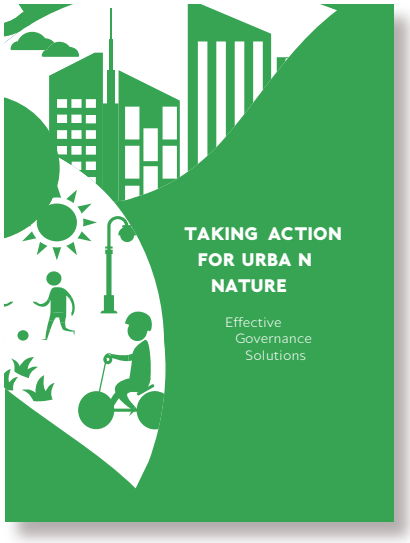
TAKING ACTION FOR URBAN NATURE

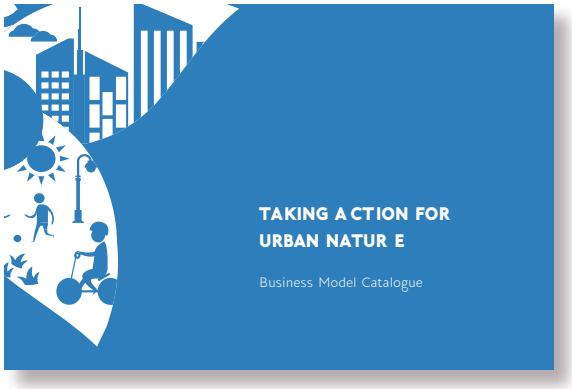
Working with nature-based solutions can offer cities new ways of meeting their goals for sustainable development. Putting these solutions into practice often requires municipal governments, businesses, not-for-profit organisations and community groups to work together and develop new approaches. These NATURVATION guides have been prepared using fifty-four examples from eighteen cities working with nature to identify the innovation pathways, governance arrangements, business models, and citizen engagement approaches that can work to support action for urban nature. They are designed to support cities and their partners take forward their ambitions to work with nature for biodiversity, climate change and sustainability.

To download our guides, please visit: www.naturvation.eu









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