

**Integrating
Nature-Based
Solutions in Policy
and Planning:
Findings and Lessons
from INTERLACE Cities**



Executive Summary

Urban areas around the world are facing significant challenges related to climate change, biodiversity loss, and the need for sustainable development. These issues are exacerbated by an inadequate integration of nature-based solutions (NbS) into urban planning, insufficient financial support, and a lack of inclusive community engagement. The INTERLACE project addresses these challenges by empowering cities to restore and rehabilitate urban ecosystems through NbS, not least by equipping them with the necessary tools and frameworks to integrate NbS into urban governance. In doing so, the project aims to create more liveable, resilient, and inclusive environments.



In this context, the INTERLACE project – supported by the cities of Chemnitz (Germany), Granollers (Spain), Krakow Metropolis (Poland), CBIMA (Costa Rica), Envigado (Colombia), and Portoviejo (Ecuador) – focused on several key research questions relating to NbS policy and governance:

- How can NbS be effectively integrated into urban planning and in land-use policies?
- What are the multifaceted benefits of NbS, and how can they address urban challenges?
- How can financial barriers to NbS implementation be overcome?
- What role does community engagement play in the success of NbS?
- How can data-driven decision-making enhance the effectiveness of NbS?

This brief highlights nine key findings emerging from the project based on conducted research and the partner cities’ experiences as a basis for policy- and decision-makers, as well as administrative staff. The lessons learned around enhancing policy coherence in urban ecosystem restoration, rehabilitation, and green space planning are applicable across INTERLACE cities and globally. Each insight is elaborated in more depth throughout this paper, but can be summarised as follows:

- 1. Integration into urban planning:** Successful NbS integration requires embedding these solutions into formal urban planning frameworks. Incorporating NbS into land-use plans can ensure long-term protection and the effective management of biodiversity, while contributing to urban resilience.
- 2. Multifaceted benefits of NbS:** NbS provide comprehensive ecological, social, and economic benefits. A number of initiatives demonstrate that NbS can simultaneously address climate change, enhance biodiversity, and improve public health.

- 3. Community engagement and ownership:** Community involvement is crucial for the sustainability of NbS. Community-driven green space design and management can foster local ownership, thereby enhancing the long-term success of these projects.
- 4. Overcoming financial barriers:** Financial constraints are a major challenge to the implementation and upscaling of NbS. Financial support search engines and other tools can help municipalities access funding for NbS, demonstrating the need for similar mechanisms in other regions.
- 5. Technical expertise and knowledge sharing:** The success of NbS is supported by technical expertise and knowledge exchange. Collaboration with research institutions and regional networks can facilitate innovation and the effective implementation of NbS.
- 6. Monitoring and evaluation:** Effective NbS relies on robust monitoring. Tools show the value of tracking impacts and adjusting strategies with real-time data, ensuring long-term effectiveness.
- 7. Education and cultural integration:** Educational and cultural activities strengthen NbS by raising awareness and building connections between residents and the environment.
- 8. Cross-sector collaboration:** NbS success requires collaboration across sectors. Initiatives show how cross-departmental groups and governance frameworks integrate NbS into urban planning.
- 9. Long-term sustainability and flexibility:** NbS need long-term planning and adaptability. Projects show the importance of flexible, sustainable urban planning for lasting resilience and improved quality of life.

Furthermore, based on the findings, we provide the following recommendations:

- 1. Institutionalize NbS in urban planning frameworks:** Mandating NbS integration into urban planning and land-use policies ensures long-term protection of biodiversity and urban resilience. This includes incorporating NbS into zoning laws, land use plans, and infrastructure projects.

- 2. Develop financial mechanisms for NbS implementation:** Governments should establish dedicated funds, grants, and incentives to help cities, especially those with limited resources, implement NbS. Addressing financial constraints is essential for scaling urban resilience and biodiversity projects.
- 3. Foster cross-sector collaboration for NbS:** Promoting collaboration across sectors like health, education, and urban planning enhances NbS integration and impact. Creating interdepartmental groups and partnerships ensures cohesive urban strategies and long-term sustainability.
- 4. Enhance data collection and monitoring systems for NbS:** Governments should invest in data collection systems, including citizen science and advanced technologies, to support evidence-based NbS strategies. Effective monitoring ensures NbS are tailored to local needs and remain impactful over time.
- 5. Promote inclusive participation in environmental governance:** Policies should prioritize inclusive citizen engagement in NbS planning and management, with a focus on marginalized groups. This fosters community ownership, social equity, and strengthens urban ecosystem resilience.





1. Introduction

The INTERLACE project has been dedicated to empowering and equipping European cities (Chemnitz, Granollers, and Krakow Metropolis) as well as Latin American cities (CBIMA, Envigado, and Portoviejo) to restore and rehabilitate (peri)urban ecosystems, aiming for more liveable, resilient, and inclusive urban environments through nature-based solutions (NbS). In this context, NbS governance, policy and planning are thought to be key enabling factors. As such, the following research questions were amongst those addressed in the project:

- How can NbS be effectively integrated into urban planning and in land-use policies?
- What are the multifaceted benefits of NbS, and how can they address urban challenges?
- How can financial barriers to NbS implementation be overcome?
- What role does community engagement play in the success of NbS?
- How can data-driven decision-making enhance the effectiveness of NbS?

In this context, each of the six partner cities developed at least one impulse paper (IP), which provided insights and shared lessons learned throughout the project's development. These IPs were tailored to each city's local context and offer recommendations for enhancing policy coherence in urban ecosystem restoration, rehabilitation, and green space planning. We utilized these insights to extract and consolidate lessons learned and a set of recommendations directed at policy- and decision-makers as well as administrative staff in municipalities. In addition to the comprehensive analysis of the seven IPs, we compiled this report considering the wealth of additional products, tasks and insights emerging from the project.

2. Key findings and lessons learned

The successful integration of NbS across cities involves strategic planning, community involvement, financial support, technical expertise, and continuous evaluation. By leaning on these elements, cities can enhance their ecological resilience, improve public well-being, adapt to climate change and foster sustainable urban development. The key findings and lessons learned related to the integration and effectiveness of NbS across cities are:

- 1. Integration into urban planning:** Successful integration of NbS into urban planning is exemplified by initiatives like the Local System of Protected Areas (SILAPE) in Envigado and the comprehensive framework developed in Granollers. Incorporating NbS into formal land-use plans and management strategies, ensures long-term protection and effective management of biodiversity. Similarly, Granollers' approach, including the development of Sustainable Urban Drainage Systems (SUDS) and restoration projects, highlights the importance of embedding NbS in strategic urban frameworks for enhanced resilience and adaptability.
- 2. Multifaceted benefits of NbS:** NbS deliver comprehensive benefits across ecological, social, and economic domains. Urban green space and programs like Envigado Florece provide climate change mitigation, adaptation, improved biodiversity, and enhanced public health. Projects in Chemnitz and CBIMA, such as the renaturation of watercourses and the ecological restoration of parks, demonstrate how NbS can address multiple urban challenges simultaneously, including heat island effects, flood management, and social well-being.





- 3. Community engagement and ownership:** effective NbS integration relies heavily on community involvement. In cities like Portoviejo, community engagement in green space design, such as the Mamey Ecological Park, ensures that solutions address local needs and foster a sense of ownership. Programmes that involve residents in planning and managing NbS, such as the “Guardians of the Ayurá” and the mini forest in CBIMA enhance the sustainability and effectiveness of these solutions as well as communities’ well-being and stewardship of the environment
- 4. Overcoming financial barriers:** financial constraints are a major challenge for NbS implementation. The development of tools like the financial support search engine in Krakow Metropolis addresses this issue by providing detailed, accessible information on funding opportunities. Cross sector collaboration could also be a tool to overcome financial limitations like in CBIMA Urban Ecological Restoration case.
- 5. Technical expertise and knowledge sharing:** the success of NbS is supported by technical and scientific expertise, as seen in Chemnitz’s use of modeling tools and technical studies. Collaborations with research institutions and participation in regional networks, facilitate knowledge exchange and innovation. The INTERLACE project’s resources, including the Urban Governance Atlas and the Evaluation framework for the development of NbS in CBIMA provide valuable guidance for decision-makers and practitioners.
- 6. Monitoring and evaluation:** robust monitoring and evaluation are crucial for demonstrating the effectiveness of NbS. Initiatives like assessment tools developed in Krakow Metropolis and in CBIMA illustrate the importance of quantifying impacts and adjusting strategies based on real-time data. Continuous evaluation ensures that NbS interventions remain effective and relevant over time.

- 7. Education and cultural integration:** educational and cultural activities enhance the effectiveness of NbS by raising awareness and fostering a deeper connection between residents and their environment. Programms like “Fem un jardí” in Granollers and community art projects in Portoviejo integrate cultural and educational aspects, promoting broader support and understanding of NbS initiatives.
- 8. Cross-sector collaboration:** successful NbS implementation involves collaboration across different sectors and departments. Cross-departmental working groups and participatory processes ensure that NbS are integrated into broader urban governance frameworks. In Krakow Metropolis, tools for stakeholder engagement and governance frameworks support effective collaboration and project alignment with community needs, and in Chemnitz, a cross-departmental working group on urban nature was established.
- 9. Long-term sustainability and flexibility:** NbS require long-term vision and flexibility to adapt to changing urban conditions. The adaptability demonstrated in projects like La Sabanita’s holistic urban restoration in CBIMA highlights the need for responsive and sustainable planning. By incorporating NbS into urban planning and policy frameworks, cities can achieve enduring improvements in resilience and quality of life.





3. Global applicability of findings

Building on the overarching lessons learned outlined in chapter 2, this chapter presents key findings that are applicable globally.

3.1. Integrated and adaptive governance

Effective governance is essential to ensure the longevity and success of NbS. Integrating these strategies into municipal plans safeguards them from potential shifts in local government, ensuring their continued effectiveness. For example, the urban protected areas in Envigado demonstrate how embedding NbS within local policies can protect these initiatives from political changes.

Additionally, effective communication is crucial. It is important to convey not only the environmental but also the cultural significance of these initiatives to the public. The Ayurá water corridor in Colombia serves as a prime example of how highlighting both the natural and cultural value of environmental restoration can elevate its priority on political agendas.

3.2. Data-driven decision making

Data plays a critical role in developing robust, outcome-based approaches to address the climate crisis and other environmental challenges. Initiatives like Envigado Florece emphasize the need to fill data gaps and apply evidence-based strategies that are tailored to community needs.

Citizen science is another powerful tool in this context. The Citizen's Biological Monitoring Network (CBIMA) exemplifies how collaborative efforts between authorities, civil society, and stakeholders can produce reliable scientific data for policymakers while fostering public engagement and ownership of local policies.

Moreover, spatial modelling is invaluable for identifying areas best suited for biodiversity conservation, managing environmental challenges in an integrated manner, and monitoring outcomes. The SILAPE initiative in Envigado and the mapping of the hottest neighbourhoods in the same city illustrate the effectiveness of this approach.

3.3. Inclusive participation

A people-centred approach in environmental decision-making places citizen well-being at the forefront. This strategy not only protects local nature but also fosters a sense of ownership, strengthens social cohesion, and enhances public health. The Bürgerpark Gablenz project in Chemnitz, Germany, is a notable example of this approach.

Engaging citizens of all ages and socio-economic backgrounds is vital for the successful implementation of NbS. Diverse and creative methods, such as video games, art, books, biotours, and workshops, have been employed in Envigado, Portoviejo, and Granollers to educate and involve the public in these efforts. Additionally, engaging sceptical stakeholders, such as those in the agricultural sector, is important to explore synergies and align NbS with broader economic and social goals, as demonstrated by the strategic plan for Palou in Granollers.

3.4. Equity and justice in environmental policies

Ensuring that environmental measures are socially just and inclusive is paramount. Policies must address the needs of marginalized groups and actively encourage their participation in decision-making processes. This approach not only promotes fairness but also enhances the overall effectiveness and sustainability of environmental initiatives.

3.5. Cross-sectoral collaboration and resource mobilization

Developing coherent strategies for implementing NbS requires cooperation across different sectors, such as health, education, and the environment. Such collaboration fosters synergy and ensures that NbS are integrated into broader societal frameworks.

Moreover, securing financial support is crucial, particularly for economically weaker municipalities. Initiatives like the financial support search engine in Krakow Metropolis are instrumental in mobilizing resources for blue-green infrastructure, enabling these municipalities to implement and sustain NbS effectively.





4. Recommendations

The following recommendations are designed to leverage the strengths of various levels of governance while addressing the specific needs of cities and communities. By institutionalizing NbS, securing financial support, fostering cross-sectoral collaboration, enhancing data-driven decision-making, and promoting inclusive participation, these policies can contribute to more resilient, sustainable, and equitable urban environments.

1. Institutionalize NbS in urban planning frameworks

Mandating the integration of NbS into urban planning and land-use policies can enable cities to ensure the long-term protection and effective management of biodiversity and urban resilience, as demonstrated by initiatives like SILAPE in Envigado and the comprehensive framework in Granollers. This can include requirements for municipalities to incorporate NbS into zoning laws, land use plans, and infrastructure projects.

2. Develop and support financial mechanisms for NbS implementation

National and local governments should establish dedicated funds and financial support mechanisms to aid municipalities, especially those with limited resources, in implementing NbS. This could include grants, low-interest loans, and tax incentives for projects that contribute to urban resilience and biodiversity. Financial constraints are a significant barrier to the implementation of NbS. Tools like the financial support search engine in Krakow Metropolis provide a model for how targeted financial support can enable cities to undertake ambitious NbS projects, fostering greater ecological and social resilience.

3. Foster cross-sectoral collaboration for NbS

Governments at all levels should promote and facilitate collaboration across various sectors, including health, education, environment, and urban planning, to develop and implement NbS. This could involve creating interdepartmental working groups and public-private partnerships. Cross-sectoral collaboration ensures that NbS are integrated into broader urban governance frameworks, enhancing their impact and sustainability. The experience of Chemnitz, where cross-departmental working groups were established, highlights the effectiveness of this approach in achieving cohesive and comprehensive urban strategies.

4. Enhance data collection and monitoring systems for NbS

National and local governments as well as cities alike should invest in developing robust data collection and monitoring systems that support evidence-based decision-making for NbS. This includes expanding the use of citizen science and advanced technologies like GIS and remote sensing. Data-driven decision-making is critical for the success of NbS, enabling cities to tailor strategies to local needs and monitor their effectiveness over time. Initiatives like the Citizens' Biological Monitoring Network (CBIMA) demonstrate the value of involving communities in generating relevant data, which can guide policy and improve public engagement.

5. Promote inclusive participation in environmental governance

Policies at the national and local level should prioritize inclusive participation in environmental governance by mandating citizen engagement in the planning, implementation, and management of NbS. Special attention should be given to involving marginalized groups and ensuring that their needs are addressed. Inclusive participation fosters community ownership and enhances the effectiveness of NbS, as seen in projects like the Bürgerpark Gablenz in Chemnitz. Ensuring that all segments of the population are engaged in environmental decision-making promotes social equity and strengthens the resilience of urban ecosystems.

In summary, the successful implementation of NbS hinges on integrated governance, data-driven decision-making, inclusive participation, equity, and cross-sectoral collaboration. By embedding these strategies into municipal plans, mobilizing resources, and actively engaging the public and various stakeholders, cities can enhance their resilience to climate change, protect biodiversity, and improve the well-being of their communities. The case studies from Envigado, CBIMA, Chemnitz, Granollers, Portoviejo, and Krakow Metropolis offer valuable insights and serve as models for other cities aiming to adopt similar approaches.

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