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GREENSCAPE CE

Climate-proof landscape through
renaturing urban areas in Central Europe

HANDBOOK FOR FINANCING OF NBS/GI FOR PUBLIC PROJECT DEVELOPERS

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ABBREVIATIONS AND ACRONYMS

CE	Central Europe
CSO	Civil Society Organization
CSR	Corporate Social Responsibility
DFIs	Development Finance Institutions
ES	Ecosystem Services
GI	Green Infrastructure
MDB	Multilateral Development Banks
MoU	Memorandum of Understanding
NbS	Nature-based Solutions
NGO	Non-Governmental Organization
PES	Payment for Ecosystem Services
PPPs	Public-Private Partnerships
ROI	Return on Investment
SME	Small and Medium-sized Enterprise

1. INTRODUCTION

Urban areas across Central Europe are increasingly exposed to the consequences of rapid urbanisation, land-use intensification, and climate change. The expansion of grey infrastructure and loss of natural surfaces have exacerbated heat-island effects, increased surface-water flooding, and deteriorated air quality, while reducing biodiversity and overall liveability. Addressing these interconnected challenges requires integrated approaches that reconnect urban systems with nature.

The GreenScape CE project aims to respond to these challenges by promoting the adoption of Nature-based Solutions (NbS) and Green Infrastructure (GI) as essential components of sustainable urban development. By integrating ecological principles into spatial planning and infrastructure design, the project aims to support cities in adapting to climate change, restoring ecosystem functions, and enhancing the quality of life for their residents.

The project brings together 12 partners from six Central European countries (Austria, Croatia, Hungary, Italy, Poland, and Slovenia) to strengthen multi-level governance and promote transnational collaboration, capacity-building, and participatory decision-making for NbS and GI implementation. **GreenScapes' approach combines the development of five local NbS/GI Action Plans and pilot actions in the Metropolitan city of Milan, Ptuj, Szeged, Warsaw, and Zagreb**, each testing innovative and replicable solutions that merge technical feasibility with co-creation and long-term sustainability.

Key project objectives include:

- Enhancing citizen engagement and co-creation with key stakeholders;
- Developing technical and tendering solutions to facilitate NbS/GI implementation;
- Exploring public, private, and community-based financing models;
- Strengthening policy and planning frameworks for mainstreaming NbS/GI in urban environments.

Building upon the solid methodological and technical foundation established by GreenScape CE, this handbook draws from the following key documents:

- Gap analysis of existing financing mechanisms in partner countries to be used for GI investments
- Summary report on good practice examples of NbS/GI financing in the EU
- Overview of socio-economic long-term benefits of GI/NbS
- Report on Pilot Action – Financing models

About this handbook

This handbook aims to translate the collective experience of the GreenScape CE partnership and its pilot cities into practical guidance for the effective implementation of NbS and GI in urban areas.

It is designed to support public project developers to enable the development of urban NbS projects. The handbook will specially address access to finance for these projects. It helps to navigate and understand which funding sources are available and the most commonly used financing instruments to support the implementation of NbS.

While the handbook recommends the use of a mix of funding sources and instruments, the application of each instrument will depend on the context and capacities of each city.

Although this document focuses primarily on financing aspects, it forms part of a broader and complementary set of outputs of the project:

- *Technical handbook for the implementation of NBS/GI in the urban environment*, which explores technical and operational aspects; and
- *How to co-create urban NbS/GI projects with citizens?* which provides guidance on participatory and co-creation models for community engagement.

Together, these handbooks create a comprehensive knowledge package supporting cities through all stages of NbS/GI development, from stakeholder engagement and financing to technical design, implementation, and long-term management.

Who is it for?

This handbook is primarily designed for **public authorities at all levels of governance** - from municipal departments responsible for urban and green planning, infrastructure, water and environmental management, to local and city councils, neighbourhood administrations, regional and provincial bodies responsible for territorial and environmental planning, and national ministries and agencies. Beyond public authorities, it is also a valuable resource for civil society actors, community organisations, and decision-makers involved in the development and financing of NbS/GI projects.

The document combines technical guidance with practical experience from the GreenScape CE pilot cities and aims to be a reference tool for all stakeholders interested in implementing and replicating NbS in the urban scope.

2. ENABLING CONDITIONS FOR PROJECT IMPLEMENTATION

An enabling environment comprises a set of factors and conditions that support locally the design and effective implementation of a biodiversity project. Collectively, these conditions help minimize risks throughout the project preparation and implementation phases. The main factors contributing to an enabling environment are outlined below.

Supporting regulatory environment

This first essential step is to assess and identify any existing policies or regulations that contribute to the implementation of NbS projects, as well as those that may impede the path to biodiversity investment, and to recommend amendments or propose new policies or regulations to facilitate investment. The Gap analysis of existing financing mechanisms in partner countries for GI investments provides an in-depth review of the current state of NbS finance, highlighting the key international and European policy frameworks and incentives that stimulate funding in this sector.

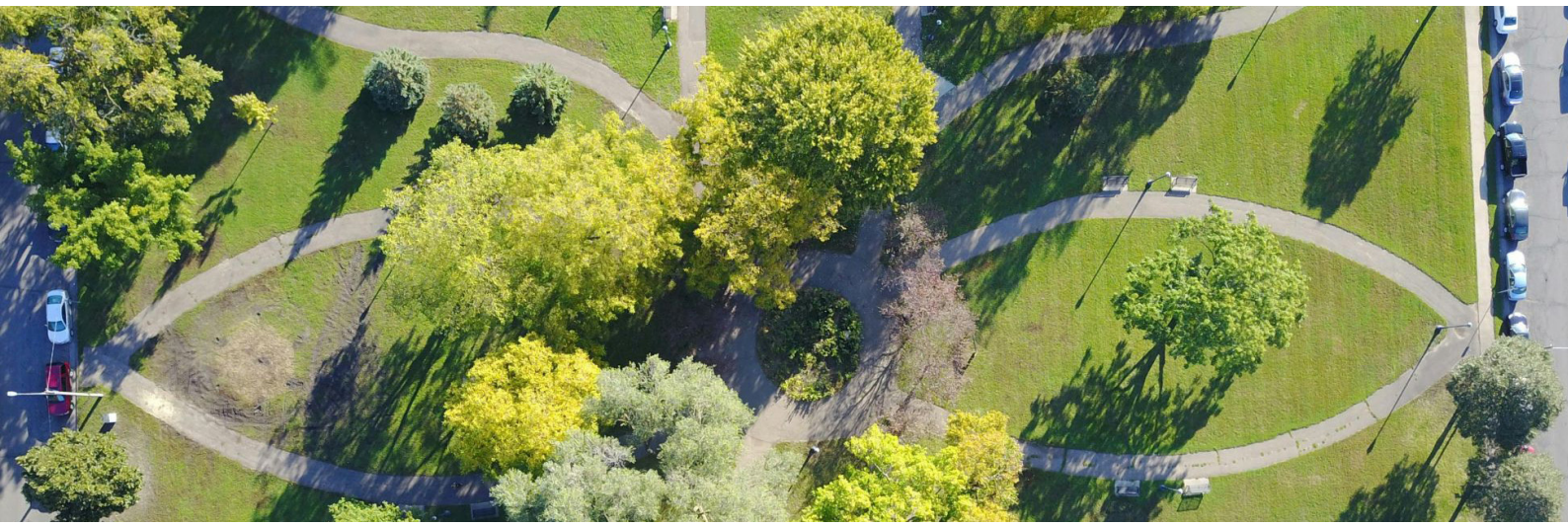
Robust political framework

One of the biggest challenges for local and regional governments is the high risk of administrative change. The timeline for preparing and implementing biodiversity projects can easily exceed the lifespan of a government. The risk can be minimized when the commitment to the project is not linked to one person only, but enjoys the support of many politicians, public administrators and other stakeholders.

Implementation capacity

Projects need steady leadership, clear governance structure, and structured project management for effective decision making, planning, coordination, and implementation of the various workstreams. Defining clear roles and responsibilities helps develop and implement the project as smoothly as possible. A competent team is key to success. The staff engaged should be defined, appointed, and trained early in the process, taking into consideration that different project stages need different skills and expertise. It is advised to plan the needed size and composition of the staff ahead of time.

Together, these enabling conditions create a stable and supportive framework that reduces risks, builds investor confidence, and increases the likelihood of successful NbS/GI project implementation and long-term sustainability.



3. PROJECT DEVELOPMENT

The design of a project is a time-consuming and complex process, which consists of several stages. While the specifics of the project development cycle at each stage can vary depending on the local context, stakeholders, and powers and authorities of the local government, the steps themselves are broadly the same.

From a financing perspective, early integration of financial considerations into the project development cycle is essential, as funding availability, eligibility criteria, and risk allocation can significantly influence project design, scope, and timing.

NbS projects are typically long-term, and therefore, it is possible to finance different stages from different sources. Figure 1 shows the different stages that guide a project from start to finish.

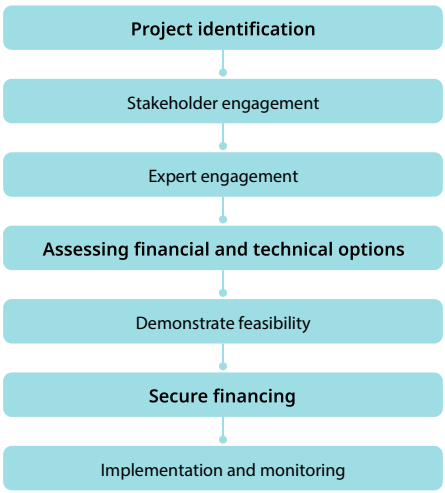


Figure 1: Steps for project preparation[1] (Source: ICLEI, 2023)

Step 1: Project identification

Project development at the local level should be based on existing plans and strategies. The selection of investments shall be guided by comprehensive risk and priority assessments, also considering the local government's budgetary constraints and potential. The most basic classification is prioritizing ideas along their importance and urgency, as shown in Figure 2

Figure 2: Prioritization matrix

[1] ICLEI (2023). Guide to Biodiversity Financing for Cities and Regions https://interactbio.iclei.org/wp-content/uploads/Biodiversity-Finance-Guide_final.pdf.

Step 2: Stakeholder engagement

Each project design should start with a stakeholder engagement plan, which will identify and prioritize key stakeholder groups, provide a strategy and timetable for sharing information and consulting with each of these groups, and describe resources and responsibilities for implementing stakeholder engagement activities.

A concise overview of the fundamental stages of stakeholder engagement is provided below.

For a more comprehensive exploration of these methodologies, the reader is invited to refer to the handbook *How to co-create urban NbS/GI projects with citizens?*, which examines these processes in depth.

2.1 Stakeholder identification and analysis

A good stakeholder engagement plan begins with the systematic **identification of stakeholders who might be impacted by the project or have the power to influence its outputs**.

Examples of potential stakeholders vary according to the scope of the intervention and might include various levels of government authorities, local organizations, NGOs, SMEs, civil society organizations (CSOs) and financial institutions. Vulnerable groups should also be identified, as they might not have a voice to express their interests or needs.

A detailed analysis of each of the identified stakeholder groups, their interests and how the project will impact their activities, as well as how their activities could affect the project, should be described. This can be achieved through different methodologies, depending on the type of stakeholders involved, but usually includes meetings and networking events. It is important to understand the specifics and sensitivities in each of the groups. The outcome of this analysis will inform the next steps of the plan, as well as the prioritization of the key groups that should be consulted during the process. A common approach to do that is through a Power-Interest Matrix (Figure 3).

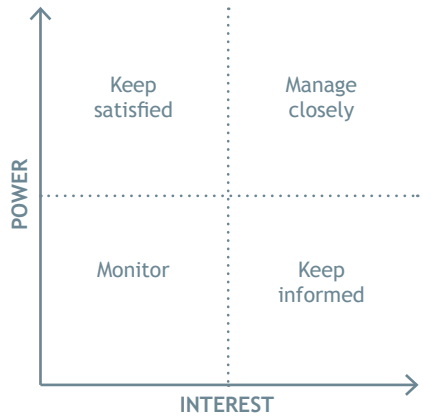


Figure 3: Power-Interest Matrix (Source: own elaboration)

Each quadrant of the Power-Interest Matrix categorizes stakeholders based on their influence and level of interest in the project:

- Manage closely: high influence, high interest. These are key stakeholders to involve throughout the project, as their decisions and input can shape its outcome.
- Keep satisfied: high influence, low interest. They require regular updates to maintain satisfaction but might not be engaged in day-to-day activities.

- Keep informed: low influence, high interest. Provide regular updates, especially at key milestones.
- Monitor: low influence, low interest. Involve only as necessary based on role changes or project evolution.

2.2 Information disclosure

The foundation of effective collaboration lies in providing **accurate information regarding the project's objectives, potential impacts, and any relevant factors influencing stakeholders**. Ensuring that such information is both accessible and transparent is essential to fostering and sustaining long-term engagement. To this end, partners should reach an agreement on the format of the disclosures, the technical depth of the data shared, and the designation of official spokespeople.

This transparency enables stakeholders to critically evaluate how the project may affect their activities, both positively and negatively. During this phase, it is crucial for partners to proactively address sensitive or controversial issues, carefully weighing the risks associated with information disclosure. This proactive approach is a strategic step toward anticipating conflicts and developing measures to minimize opposition. Finally, the methods of dissemination - whether via formal reports, public meetings, or executive summaries - should be carefully tailored to the specific characteristics of the previously identified stakeholder groups.

2.3 Stakeholder consultation

To build constructive relationships with the identified stakeholders, it is important to deploy interviews, polls, workshops and technical meetings as appropriate to listen to their views, concerns about risks, impacts and benefits. The format of the consultation process will depend on the local context and the type of stakeholders previously identified, as well as the nature of expected questions to be posed.

To formalize this engagement flexibly, the use of a **Memorandum of Understanding (MoU)**[2] is highly recommended.

As a good practice tested within the GreenScape CE project, the use of the Memorandum of Understanding proved highly effective. The MoU clearly presented the project and allowed each actor to select their preferred level of participation based on their ambitions and possibilities, fostering transparency regarding mutual expectations. It was then essential to listen to the opinions shared, evaluate how the feedback could improve the technical design of the NBS, and accurately document the results of the exchange process.

2.4 Stakeholder involvement in project monitoring

Involving stakeholders in project monitoring can assist in increasing the transparency of the project, as well as giving a sense of responsibility and empowerment to such actors. A participatory process can also contribute to strengthening the partnership.

In the process, it is important to define methods and indicators that are meaningful to the involved stakeholders. They can also be invited to observe the project implementation and to be engaged in group discussions on how to manage new issues that might arise.

[2] Multi-stakeholder engagement roadmap (available here)

The adopted methodological criteria are discussed in detail in the handbook *How to co-create urban NbS/GI projects with citizens?*

Step 3: Expert engagement

After performing a deep analysis of the main aspects of the project, it is important to **start engaging experts who will support, supervise or work directly on the project**. Depending on the project stage, different skills and positions are needed. The staff engaged should be trained early in the process, taking into consideration that different project stages need different skills. At this moment, it is important to consider factors such as the local government's internal capacity to engage and the complexity of the project. Moreover, projects need steady leadership, a clear governance structure, and structured project management for effective decision making, planning, coordination, and implementation of the various workstreams. Defining clear roles and responsibilities helps develop and launch the project as smoothly as possible.

Step 4: Assessing financial and technical options

Once the desired outcomes of the project have been identified, and all the necessary experts and consultants are on board, it is time to **assess the technical and financial options available for the project**. In terms of technical options and viability, it is important to evaluate the needs of the community, enablers and resources.

Key considerations for selecting the most suitable technology are included in *Technical handbook for the implementation of NbS/GI in the urban environment*.

In addition to selecting the technology, potential funding sources and instruments should be identified as early as possible, based on existing regulatory and policy environments, budget and capital expenditures.

BOX 1
Good practice: Matchmaking meetings

As part of the GreenScape CE project, partners from the five pilot areas (Metropolitan City of Milan, Ptuj, Szeged, Warsaw, and Zagreb) as well as Vienna organised a series of matchmaking meetings bringing together municipalities, financial institutions, SMEs, and knowledge partners active in the NbS/GI field. The aim was to discuss the local project pipeline, identify synergies, and explore concrete opportunities for cooperation in developing and financing those projects.

These matchmaking events proved highly effective in facilitating the early identification of financing options and building relationships with potential investors. They confirmed the added value of structured dialogue as a tool to bridge the gap between project developers and the financial community at a stage when projects are still defining their funding strategy.

The events provided a platform to present pilot projects, discuss available financing mechanisms and instruments, and exchange experiences on implementing NbS and GI across Central Europe. Common challenges - including financing gaps, the complexity of technical integration, and long-term maintenance costs - were openly discussed, while stakeholders confirmed a strong interest in supporting innovative urban greening initiatives. The experience suggests that organising matchmaking events early in the project development process can significantly improve the chances of securing suitable financing.

An economic cost-benefit analysis might be necessary to assess both financial and non-financial factors. Often, external experts are engaged to model the cash flows of the different technical solutions based on different funding models, as well as quantifying the benefits and affordability of each option.

Step 5: Demonstrate feasibility

A project has to demonstrate feasibility. Such requirements could be different for different stakeholders. For NbS, for example, requirements such as the project's impact on the community, and how it aligns with broader development plans and priorities should be considered. External, additional financial partners supporting the project could require that political support for the project at the national or local level be shown, and that the demonstrated development co-benefits are greater than costs, as well as how social and environmental risks will be mitigated, and whether the business model is sustainable.

To ensure projects are holistically sound, it is essential to involve a diverse range of experts—including technical, social, and financial specialists—early in the feasibility assessment. This collaborative approach prevents common pitfalls, such as developing a technically robust project that lacks financial viability or social acceptance. In support of this approach within the GreenScape CE project, partners from all pilot cities collaborated with external experts to create **feasibility studies** with an initial designs for their proposed NbS. These designs were accompanied by a detailed **outline of available and applicable financing models** to ensure economic viability.

It is worth noting that, unlike conventional infrastructure projects, NbS and GI tend to generate increasing value over time - as ecosystems mature, the services they provide (such as urban cooling, stormwater management, or biodiversity support) grow in scope and quality. Feasibility assessments should therefore adopt a longer time horizon to capture this evolving value, avoiding the risk of underestimating the long-term return of the investment. For a comprehensive overview of the benefits and co-benefits provided by NbS in urban areas, as well as the indicators for their assessment, the reader is invited to refer to Overview of socio-economic long-term benefit of GI/NbS.

BOX 2

Monetising co-benefits to support investment decisions - the Zagreb case

One of the key challenges in financing NbS projects is that their full value is rarely captured by traditional financial analysis alone. Environmental and socio-economic co-benefits — such as improvements in air quality, urban cooling, or community wellbeing — are often decisive in justifying an investment, yet they remain difficult to quantify in monetary terms. Dedicated evaluation tools can bridge this gap.

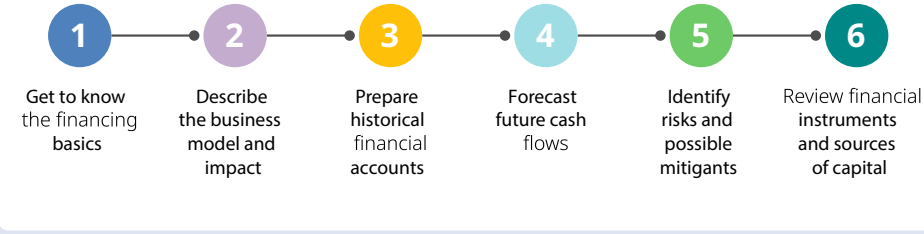
During the preparation of the financial and economic analysis for the feasibility study of implementing NbS for the Trnsko sports playground in Zagreb, the Evaluation Tool developed under the Interreg CE MESTRI-CE project (Smart Management and Green Financing for Sustainable and Climate Neutral Buildings in Central Europe) was used. The tool enables the calculation of financial viability while also monetising environmental and socio-economic impacts (primarily improvements in air quality) that serve as input data for the economic analysis of potential investments.

For the purposes of this study, the Evaluation Tool was further adapted within the GreenScape CE project to also assess potential playground users' financial willingness to support the project's implementation (i.e., the willingness-to-pay).

Step 6: Secure financing

Any funding gaps should be identified as early as possible, already during the design phase. Different funding models require different allocations of roles and responsibilities, as well as the risks and rewards of undertaking the project. These responsibilities span the project development cycle from conceptualizing the project, to construction, performance and operation and maintenance. This is why multilevel cooperation is necessary to make the processes more agile and efficient.

The European Investment Bank[3] developed a step guide to financing biodiversity projects, as seen in Figure 4.



1 Get to know the financing basics, including understanding the most common financial instruments that investors are searching for.

2 It is important to clearly define the expected impact as well as the business model and potential financial restrictions. A summary of the business case will help potential lenders or investors understand the vision and potential environmental and social impact of the activities. Writing a business plan will also force fundamental questions to be asked about the project and future strategy which will make the financing needs much clearer and improve the understanding of relevant risks and opportunities [66].

A business plan usually contains information about the expected impact, market analysis and a detailed financial analysis, including barriers and opportunities.

3 Prepare historical financial statements to describe the current financial standing. Credit profile assessments typically include the evaluation of financial leverage (usually measured by debt/equity ratio from the balance sheet), profitability (tends to be measured by Earnings Before Interest, Taxes, Depreciation and Amortization (EBITDA), or net income margins from income statements), or cash flow generation (shown in cash flow statements).

4 Set up a simple forecast to analyze cash flows. The purpose of this exercise is to understand how much money is needed by when, and the ability of projected revenue streams and cash flows to cover the future financial obligations under various funding structures.

5 Identify key challenges, risks and potential risk mitigants. Compiling a list of the key project risks and running calculations for 'what if this happened' scenarios will help to decide what type of financing is appropriate. Understanding what can affect revenues and cash flows and how one can mitigate such risks will make potential investors or lenders more comfortable and, as a result, help to reduce financing cost.

6 Analyzing different funding structures and sources of capital. Review the pros and cons of various funding sources compared to the project growth objectives, key risks and current stage of development.

Figure 4: Step guide to financing NbS projects (Source: adapted from EIB, 2021)

Step 7: Implementation and monitoring

Monitoring the implementation and operation of the project is the last stage of project development to make sure that the project continues as planned and avoid unnecessary delays, cost overruns or poor management practices.

[3] European Investment Bank (2021), Investing in Nature: Financing Nature-Based Solutions. https://doi.org/10.2867/031133

4. SELECTING FINANCING OPTIONS

Selecting appropriate financing options is a critical step in ensuring the feasibility and long-term sustainability of NbS/GI projects. Public project developers must navigate a complex landscape of investors and financial instruments, balancing public objectives with financial constraints, risk profiles, and regulatory requirements.

From a project developer's perspective, financing needs and suitable instruments vary significantly across the different implementation phases of NbS projects.

- In the **start-up and early development phase**, financing is typically required for project identification, feasibility studies, stakeholder engagement, and preliminary design. At this stage, projects often face higher uncertainty and risk, making grant-based funding, technical assistance, and public support mechanisms particularly relevant.
- In the **investment phase**, once feasibility is demonstrated and project risks are better understood, NbS/GI projects can access a broader range of instruments, including debt finance, blended finance structures, and private sector participation. Clear governance structures, defined revenue streams, and measurable impacts become essential to attract investors.

Understanding this phased approach allows public project developers to strategically combine financing instruments over time, rather than relying on a single funding source.

4.1 Main categories of investors

The landscape of investors for NbS is diverse, and it includes a variety of entities, ranging from the public, private, and quasi-private sectors.

Although there is some overlap, investors can be grouped based on similar attributes (such as ownership, sources of funding, mandate, etc.) into the following categories: governments and municipalities, water authorities and flood managers, development agencies and multi-donor funds, Multilateral Development Banks (MDBs) and Development Finance Institutions (DFIs), foundations and non-governmental organizations (NGOs), impact investors, commercial investors, and businesses.

While categorisation is helpful to draw general conclusions, investors within categories may differ significantly and entities may have multiple strategies with different mandates and profit/impact motives. Table 1 provides a summary of the main categories of NbS investors.

Table 1: Different categories of NbS investors (Source: modified by the author from Van Raalte et al., 2023)

Types of investors	Description and examples	Sector	Profit motive
Local, national, state and regional governments	Domestic public funding is vital for early urban NbS adoption. Due to complex economic assessments and slow investment returns, the public sector dominates the financing landscape. As a result, local governments are typically the most involved in financing and implementing urban NbS.	Public sector	Low
Water authorities Flood managers	Water authorities and flood managers may invest in NbS projects to comply with obligations under the Water Framework Directive (WFD) and Floods Directive.	Public/Quasi-public sector	Low
Development Agencies Multi-Donor Funds	Entities with pooled resources from multiple countries to support development initiatives and projects in various regions or sectors E.g.: Green Climate Fund (GCF), Global Environment Facility (GEF)	Public/Quasi-public sector	Low to medium
Foundations, Philanthropists, NGOs	Private/third sector non-profit entities that work towards addressing social and humanitarian issues through charitable activities and projects. Philanthropic organizations distribute an estimated USD 2-3 billion annually[4], a potentially significant resource for NbS addressing climate change. In addition, local nonprofit and grassroots organizations often have some capacity to finance smaller projects.	Private/ Third Sector	Low
Impact Investors	Private sector organisations or individuals that seeks to invest in projects or companies with the intention of generating positive social or environmental impacts alongside financial return.	Private sector	Varies from low to high
Institutional investors	Institutional investors pool and invest substantial capital in various assets, including commercial banks, insurance companies, pension funds, private equity firms, and asset management companies. Institutional investors can invest in NbS in 3 main ways: lending, bond issuance or trading, and direct investment in projects or assets.	Private sector	High
Businesses	Private sector entities involved in various industries and sectors, providing goods and services to customers. Companies across nearly all supply chains face nature-related risks, particularly concerning water security and local climate. Businesses have various entry points for NbS investment, including operations, collaborations with their business networks, and CSR initiatives.	Private sector	High

4.2 Assessment of costs

Actors who seek funding sources for NbS should consider options and instruments that fit their needs and the specific context of their respective activities. Different instruments, sources, and financial considerations must be applied to guarantee enough support throughout the NbS project, including the planning, implementation, and long-term operation and maintenance of NbS[5]. Three general cost categories need addressing to ensure the success of NbS:

- **Initial investment costs (planning):** NbS projects are often experimental, and even if tested elsewhere, the local context and site specifics can influence their feasibility. In this stage, initial financing is needed to determine the project's overall feasibility, engage relevant stakeholders, and secure financing for implementation. Table 2 presents an indicative overview of the investment cost requirements of selected urban NbS, from low costs to extensive projects requiring significant investments.

Table 2: Example of urban NbS according to indicative cost requirements (Source: adapted from UNEP, 2024)

Lower square meter costs	Moderate square meter costs	Higher square meter costs	Large-scale project with significant investment needs
Filter strips Swales Greening tramway and railroad tracks Community gardens	Rain gardens Retention ponds Permeable pavements Pocket parks Green corridors	Green roofs Green walls Lake restoration Lake restoration Constructed wetlands	Urban forest/large urban park River renaturing

[4] Tobin-de la Puente, J., and Mitchell, A.W. (eds.). (2021). The Little Book of Investing in Nature. Global Canopy: Oxford.
[5] Brears, R. (2022). Financing Nature-Based Solutions: Exploring Public, Private, and Blended Finance Models and Case Studies.

▪ **Implementation-related costs:** This phase involves costs for detailed project design, land acquisition, permits, procurement of technologies and materials, labour and transportation to establish the NbS and the supporting infrastructures.

▪ **Operation and maintenance:** after completion, projects enter the operational phase to deliver the intended benefits. During this phase, expenses are incurred for project management, community engagement, maintenance to ensure long-term project functionality, monitoring and data analysis to enable adaptive project management, secure funding for operation, and building evidence for future NbS initiatives.

Figure 5 provides an overview of the main cost categories, broken down by the project stages listed above.

Project stage		Type of Costs	Explanation
Planning	CAPEX	Feasibility studies	Research and assessment of NbS project feasibility
		Site assessments	Assessment of the project sites, including geological, hydrological, and ecological evaluations
		Risk assessment	Assessment of risks associated with the project implementation
		Stakeholder involvement	Engaging local communities, government agencies, and businesses in the planning process
		Cost-benefit analysis	Evaluation of the project's economic viability
		Monitoring and evaluation plan	Plans for monitoring and evaluating the NbS project
Implementation		Land acquisition	Acquiring land for the NbS projects
		Site remediation	Contamination cleanup and demolition of old infrastructures in case of brownfield sites
		Design	Developing detailed designs and engineering plans
		Permitting	Obtaining permits and complying with regulations
		Construction	Materials, technologies, and equipment for the infrastructure and landscaping
		Human resources	Labour for construction and installation of NbS
		Transportation	Transporting materials, equipment, and labour to the project site
Operation and Maintenance	OPEX	Administrative costs	Staff salaries, administrative tasks, insurance coverage and financial costs
		Community engagement	Outreach and engagement of local communities to ensure the long-term project sustainability
		Vegetation management	Labour and material costs of management of vegetation (e.g., planting, pruning, and weeding)
		Water management	Costs of managing water flows and water quality (e.g., irrigation, sediment removal)
		Building management	Costs of managing amenities and previously existing buildings if the projects were implemented on brownfield sites
		Structural maintenance	Repairing or replacing infrastructure components
		Monitoring	Data collection and assessment for monitoring performance and reporting results

Figure 5: The main types of NbS investment costs (Source: UNEP, 2024)

4.3 Main categories of financing instruments

As mentioned, urban NbS can be funded by various public and private organizations at both international and national levels and can use various mechanisms to channel financing towards NbS investments. The strategic use and combination of diverse sources are essential for scaling up NbS investment with different complementary mechanisms[6]. This section examines the various financing mechanisms and approaches that mobilise and apply funding for urban NbS ajnd it builds upon the findings of the Gap analysis of existing financing mechanisms in partner countries for GI investments.

Table 3 provides an overview of the main categories of financing instruments for urban NbS.

Government fundings

Governments can finance urban NbS projects by allocating funds from their budget. National government ministries, regional authorities, and municipal departments can earmark government funding for urban NbS. Besides using these funds themselves, these entities can also transfer funds to other public bodies, including government agencies and public institutions.

Governments can secure financing for NbS in cities through various approaches, which include:

- Using existing and already available government funds by:

  a. Incorporating NbS objectives into existing infrastructure, environmental, and community programmes.

  b. Integrating NbS approaches in procurement practices by requiring their application in service and utility provision and infrastructure development contracts

  c. Reallocating budgets (e.g., from grey infrastructure projects) to prioritise NbS investments that simultaneously provide public health services or better living conditions.

BOX 3

Good practice: Participatory budgeting as a financing option - the Warsaw case

Among the financing options assessed in the feasibility study for the greening of Wileńska Street in the Praga-Północ district of Warsaw, participatory budgeting emerged as a particularly relevant instrument worth exploring.

The City of Warsaw runs an established participatory budgeting process — known as the "citizens' budget" — through which residents directly decide how to allocate 0.5% of the city's annual budget. For 2027, this amounts to approximately EUR 34.5 million. The process is formally regulated by a City Council resolution and a mayoral order, giving it a solid institutional foundation.

In the context of NbS and GI projects, participatory budgeting represents an interesting financing mechanism for several reasons: it channels public funds towards initiatives that reflect genuine community priorities, it strengthens citizen ownership of green infrastructure investments, and it can complement other funding sources — such as EU grants or municipal budgets — particularly for smaller-scale, neighbourhood-level interventions like street greening.

[6] Falduto, C., Noels, J., and Jachnik, R. (2024). The New Collective Quantified Goal on Climate Finance: Options for Reflecting the Role of Different Sources, Actors, and Qualitative Considerations. OECD. https://doi.org/10.1787/7b28309b-en

- Generating additional revenues for NbS investment by:
  a. Introducing or increasing taxes on activities with significant environmental and social impacts and earmarking these revenues specifically for NbS financing.
  b. Raising revenues via land sales or leases and introducing land value capture mechanisms, such as development charges or tax increment financing, which allow governments to capture a portion of the increased land and property values resulting from public investments
  c. Introducing taxes or user fees for accessing natural areas and green and blue infrastructures.
- Raising funds from external sources to catalyze financing for NbS by:
  a. Using government funds as seed funding to access international funding
  b. Attracting additional investments from private sources by establishing PPPs
  c. Issuing green bonds to mobilise capital for NbS investments

Numerous examples and case studies of successful implementation of financing instruments can be found in the Summary report on good practice examples of NbS/GI financing in the EU which features a range of viable mechanisms - primarily from Central European cities - addressing the challenges identified by the pilot cities of the GreenScape CE project.

Grants

A grant is a transfer of funds to support the development of a project, enterprise, or program, which does not involve a financial return to the granting organization. Besides government spending, grants are the most common type of NbS financing mechanism (UNA 2023).

Grantmakers or the organizations that provide grant funding could be governmental, private, or philanthropic. This type of funding is usually made by organizations whose objectives are not measured only in financial terms but address social and environmental goals. A grant application usually consists of a proposal explaining how the funds will be used in detail. The transfer of funds from the grant organization to the grantee is generally done in advance. Examples of known donors for NbS projects in Europe include **LIFE, Horizon Europe and Interreg programmes**.

Donations and crowdfunding

Donations are one of the simplest but most prevalent mechanisms for funding NBS projects. Local fundraising in cities can mobilise resources from individuals who directly benefit from NbS. Donations can come primarily from philanthropic organizations, as well as through crowdfunding, a community-based, typically online initiative where people interested in supporting a project, make a small individual donation that is collected in a pooled fund. Key crowdfunding types relevant to urban NbS include:

- **Donations:** Financial support provided without expecting a return.
- **Equity-based crowdfunding:** NbS projects or businesses can raise capital from investors by offering equity in exchange for potential return on their investment. For example, a company installing green stormwater infrastructure solutions might raise initial capital via a crowdfunding platform by selling equity in the company.
- **Debt-based crowdfunding**: NbS projects or businesses can obtain loans on crowdfunding platforms,

which they repay with interest over time. Like sustainability bonds, this model allows NbS projects to secure financing for the initial investment costs, such as establishing a green roof on a community building and financing the repayment through cost savings generated by increased energy and water efficiency.

Tax incentives

Tax incentives are regulatory instruments to reduce the tax liabilities of organizations and individuals. As a specific type of subsidy, tax incentives lower tax obligations or grant tax exemptions in exchange for protecting and enhancing ecosystem services (EIB 2023). Several types of tax incentives exists, including:

- **Tax rate reduction:** Lowering tax rates on activities, assets, or revenues related to or linked to the implementation of NbS projects, such as reductions in property tax or VAT.
- **Tax exemptions:** Full exemption of specific incomes or transactions from taxation.
- **Tax deductions:** Applied to taxable income, deductions cover specific costs related to NbS projects, such as expenses incurred from research and development (R&D) for green roofs or installing permeable pavements and bioswales.
- **Tax credits:** Direct reductions from the overall tax liability. For instance, property owners may receive a tax credit for installing a green roof or establishing a green stormwater infrastructure.

Loans

Public budgets and grants are often insufficient to fully fund large-scale urban NbS projects, such as river restoration. Addressing the f inancing gap could involve using loans as an emerging financial mechanism for NbS, building on its established use in climate finance. The following types of loans are relevant for urban NbS implementation:

- **Concessional loans:** These loans are usually offered by MDBs and government agencies and are provided with below-market interest rates and extended repayment periods. Concessional loans often require compliance with specific social and environmental objectives. In urban areas, examples can include loans for nature-based flood protection and wetland restoration to mitigate flood risks.
- **Commercial loans:** Loans issued at market-rate interest, typically by commercial banks. Due to usually longer-term returns on urban NbS investments, these projects are often considered high-risk to meet the regular payment requirements.
- **Microcredits:** Smaller loans are given to small-scale projects or grassroots organizations to implement NbS projects. Microcredits often have flexible terms, such as minimal capital requirements, making them suitable for community-driven urban-NbS activities. For example, microcredits could be used to install a green roof or a rainwater harvesting system on a community building, where the loan can be repaid from savings on energy and water from reduced heating, cooling and water usage.

Sustainability bonds (debt financing instruments)

Sustainability bonds are debt instruments issued by governments, municipalities, corporations, and financial institutions to finance projects with social and environmental benefits. They function similarly

to traditional bonds; however, issuers must also report on the use of proceeds and the resulting environmental and social impacts.

These bonds are often guided by frameworks such as the Sustainability Bond Guidelines, the Green Bond Principles, and the Climate Bonds Standard to ensure compliance with social and environmental goals. Types of sustainability bonds relevant to urban NbS development include:

- **Sustainability bonds:** Finance projects that contribute to broader sustainability goals and deliver environmental and social benefits[7]. In the urban context, these bonds can finance diverse NbS projects, enhancing climate resilience while promoting health, well-being and social cohesion.
- **Green bonds**: they target projects with positive environmental impacts. As such, they can finance various urban NbS projects, including green roofs, green stormwater infrastructures, green corridors or green belt projects.
- **Climate bonds:** they are aimed explicitly at financing projects that address climate objectives. For example, climate bonds can finance urban NbS projects to reduce urban heat stress through increased green canopy cover and enhance flood resilience through urban wetlands and rain gardens that absorb excess water during storm events.

Equity investments

Equity investors offer capital in exchange for (partial) ownership of a project or asset. this type of instrument applies mainly to companies (e.g., nature-based) rather than to projects since it consists of an investor purchasing shares in a company.

However, it is worth to mention impact investing, which focus on generating positive and measurable environmental and social impacts[8]. As such, they often allow extended investment periods and accept lower return-on-investment (ROI). While potentially suitable for various urban NbS projects, impact investing has so far primarily targeted large-scale conservation and reforestation initiatives outside metropolitan areas.

Innovative marked-based instruments

A range of instruments that use markets or price mechanisms can be used to create incentives for private parties to invest in NbS and/or to ensure a more efficient allocation of resources. Some examples of innovative market-based instruments are provided below:

- Payment for Ecosystem Services (PES): these mechanisms aim to connect providers of a service that is not traditionally traded in the market (Ecosystem Service, ES), such as water quality, erosion prevention, or the aesthetic value of a landscape, with potential consumers interested in conserving these services, such as public institutions, water utilities, or private companies. The PES mechanism is also applicable in urban NbS investments and can support activities such as stormwater reduction, tree planting, and maintenance[9].

[7] United Nations Environment Programme Copenhagen Climate Centre (UNEP-CCC). 2024. Business Models for Financing Nature-based Solutions in Urban Climate Action: A Knowledge Resource for Cities in Developing Countries. Copenhagen, Denmark.
[8] The Nature Conservancy (2023). Playbook for Climate Finance. The Nature Conservancy. https://www.nature.org/ content/dam/tnc/nature/en/documents/TNC_PlaybookForClimateFinance.pdf
[9] Richards, D.R., and Thompson, B.S. (2019). Urban ecosystems: A new frontier for payments for ecosystem services. People Nat., 1, 249–261. https://doi.org/10.1002/pan3.20

At a minimum, PES schemes require two actors: buyers (beneficiaries) of ES and sellers (providers) who affect ES supply. Figure 6 provides a schematic illustration of how a PES mechanism for NbS operates.

PES makes the consumer pays the supplier for implementing sustainable agro-environmental practices or conserving ecosystems that provide the ES of interest, which typically involves an opportunity cost for the supplier, who could use his land for commercial purposes. Payments can be in cash or in-kind and made directly between the consumer and supplier or, in some cases, through an intermediary. These types of schemes are a promising source of financing for NbS and GI projects or those that promote regulating ecosystem services.

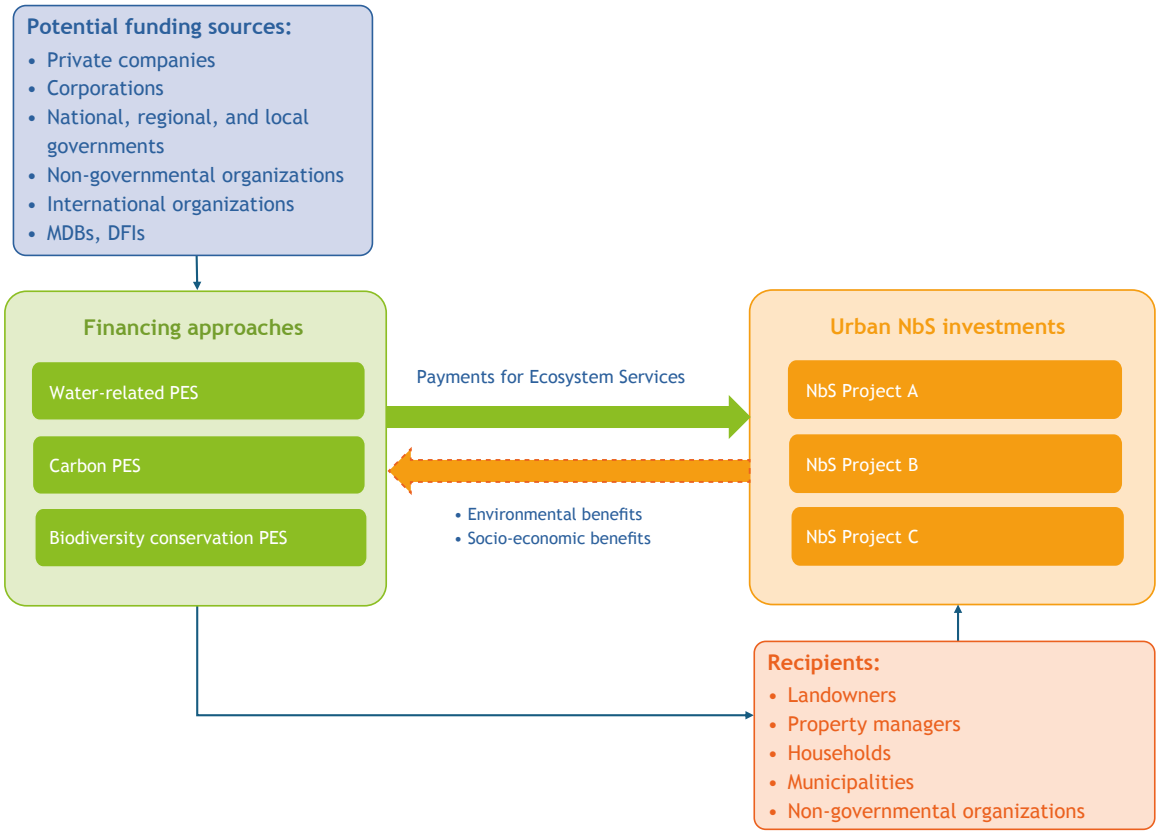


Figure 6: Schematic illustration of PES for urban NbS (Source: UNEP, 2024)

▪ **Biodiversity offset:** Biodiversity offsets refer to actions that compensate for the residual, unavoidable harm to biodiversity caused by development projects – whether from public or private sector – with the goal to achieve no net loss of biodiversity . For example, this is achieved by enhancing biodiversity in another location by securing or setting aside land or water areas for conservation, improving the management of habitats or species, and other defined conservation activities. Biodiversity offsets are used in various public large-scale infrastructure projects and private sector industrial projects, such as transport (roads that pass through natural habitats, large ports, and airports), electrical power (all types of utility-scale generation that can affect natural habitats and biodiversity), etc. Biodiversity offsets can be implemented voluntarily or due to regulatory policies.

▪ **Voluntary carbon markets**: carbon markets are institutions or systems where parties exchange interests in carbon for compliance or voluntary purposes. Interests in carbon are either emission permits or credits. Voluntary carbon markets generate credits (or offset credits) that enable businesses,

governments, non-profit organisations, universities, municipalities, and individuals to offset emissions outside a regulatory regime. Both permits and offset credits are exchanged by sellers and buyers in a carbon market; the purchaser of the offset credit can "retire" it to claim the underlying reduction towards their own GHG reduction goals. Carbon offset credits sold on the voluntary carbon market can be certified by a range of certification standards that ensure that carbon offset projects and their resulting credits are credible.

▪ **Offset credits** are mainly generated from forestry, agriculture, and blue carbon offset projects. Biological sequestration projects usually involve activities that increase sequestration or preserve an area's existing sequestration ability that is under threat.

▪ **Public-private partnerships (PPPs):** PPPs allow governments to attract private sector engagement, intellectual capital, and investments to accelerate green investments and technologies. Through a partnership, it is assumed that the public and private sectors can benefit from combining their knowledge expertise, finances, and other resources to deliver collective goods more efficiently. The main reasons for PPPs include limited financial resources and capabilities of the public sector, increasing demand for public service infrastructure, and the need to improve the quality of public services and reduce delivery costs. In the context of NbS and GI, PPPs can be applied in many ways. For instance, PPPs can be used to implement GI, enhancing the efficiency of large infrastructure investments. These financing models generate interesting synergies, such as making an investment more attractive for the private sector by reducing its risk due to the guarantee of public financing or promoting the use of public funds for innovative activities and market creation, derived from close collaboration with the private sector.

▪ **Ecotourism:** ecotourism is a market mechanism becoming increasingly relevant as a business model for nature-based initiatives. This type of responsible tourism involves enjoying natural or semi-natural areas in a way that supports conservation and minimizes the impact on local communities. Because the main asset of ecotourism is nature, a portion of the revenue from tourism packages or entrance fees is earmarked to manage natural capital and recreational ecosystem services (Tobin-de la Puente, J. and Mitchell, 2021). Typically, ecotourism comprises activities such as agro-ecotourism, which generates incentives for farmers to manage their agricultural land sustainably; wildlife-based tourism, which encourages local communities, tourism companies, or public authorities to maintain the good quality of the ecosystems visited; and community-based tourism, which provides for the association of local communities and the conservation of their traditions and customs.

It is important to mention that the categories of financing instruments presented above should not be seen as mutually exclusive. NbS projects often need to rely on several of them to be sustained over time. This combination of multiple public and private sources of financing is known as *blended finance* and is playing an increasingly important role in financing innovative nature-based projects. Blended finance approaches for NbS and GI can significantly increase the flow of capital to support these types of initiatives in the future.

5. CONCLUSIONS AND RECOMMENDATIONS

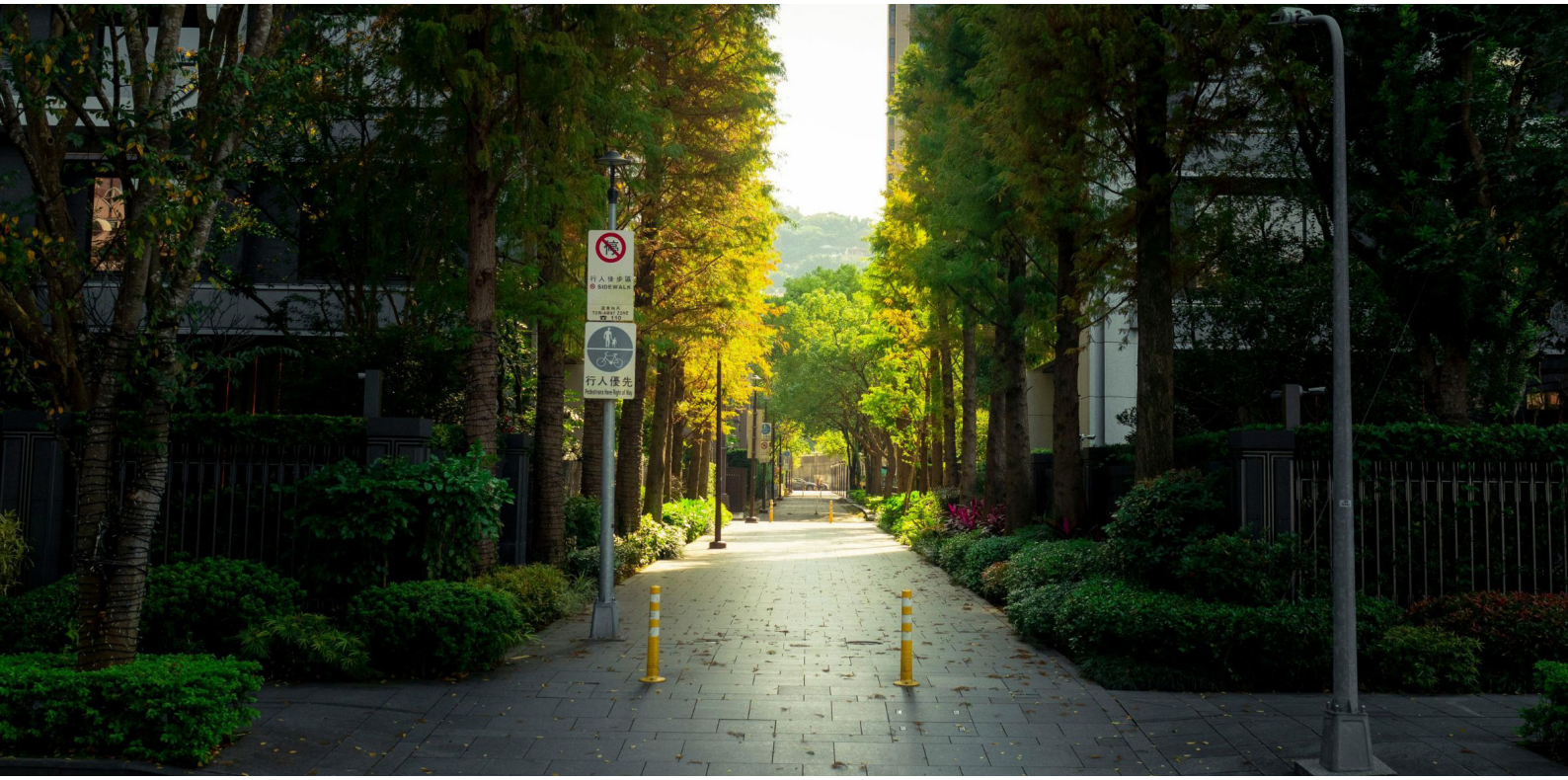
The experiences gained through the GreenScape CE pilot actions in Metropolitan city of Milan, Ptuj, Szeged, Warsaw, and Zagreb demonstrate that there is no one-size-fits-all (co)financing solution for NbS/GI projects. Instead, successful implementation depends on the ability of project developers to adapt financing strategies to local contexts, institutional capacities, and project maturity.

The pilot actions highlighted the importance of combining public funding with innovative financing mechanisms, engaging stakeholders early, and aligning NbS/GI projects with existing planning and policy frameworks. In several cases, public funding played a catalytic role in reducing risk and unlocking additional private or community-based investment.

Based on these lessons learned, the following key recommendations can be formulated:

- Integrate financing considerations from the earliest stages of NbS/GI project development.
- Match financing instruments to different implementation phases, from start-up to capital investment and long-term operation.
- Use blended finance approaches to combine public, private, and citizen-led contributions.
- Strengthen internal capacities within public authorities to structure and manage NbS/GI investments.
- Leverage the multiple environmental, social, and economic co-benefits of NbS/GI projects to broaden the pool of potential investors.

By applying these principles, public project developers and other stakeholders can increase the scalability, financial sustainability, and long-term impact of NbS/GI projects across Central Europe.



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