

Concept to Delivery Innovation Programme

**Sustainable finance, business
models and nature-based
entrepreneurship strategies
for Nature-based Solutions**

gogreenroutes.eu



**GO GREEN
ROUTES**



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Abbreviations:

GGR: GoGreenRoutes

BMC: Business Model Canvas

NBS: Nature-based solution(s)

NBE: Nature-based enterprise(s)

Chapter 1: Introduction



Castletroy Greenway, Limerick
Source: Diarmuid Greene Photography

Introduction

What are Nature-based Solutions?

The European Commission defines nature-based solutions as “solutions that are inspired and supported by nature, which are cost-effective, simultaneously provide environmental, social and economic benefits and help build resilience. Such solutions bring more, and more diverse, nature and natural features and processes into cities, landscapes and seascapes, through locally adapted, resource-efficient and systemic interventions.” Nature-based solutions must therefore benefit biodiversity and support the delivery of a range of ecosystem services.



Source: Silvia Robertelli, Cartoonbase

About Go Green Routes

The GoGreenRoutes (GGR) project is focused on implementing nature-based solutions (NBS) - such as green corridors, linear parks, pocket parks, healthy forests and shared walkways - to enhance the physical and mental health of urban residents in six

“Cultivating Cities”: Burgas (Bulgaria), Lahti (Finland), Limerick (Ireland), Tallinn (Estonia), Umeå (Sweden) and Versailles (France). The project creates ecologically valuable spaces for people to use and move around their city more actively, enjoy their free time and interact with others.

GoGreenRoutes’ unique approach shifts the traditional focus of nature-based solutions towards its co-benefits for biological, psychological, social and environmental health (360-Health). The aim is to enhance, identify and monitor positive effects of green spaces on reduced stress levels, mental resilience and social behaviour while using digital innovation to investigate how green corridors impact physical activity.

Go Green Routes is a H2020 funded Innovation Action running from 2020-2024.

Aim of this Guidebook

Designing, delivering and managing nature-based solutions at a level that provides environmental, social and economic benefits while building resilience and benefitting biodiversity is complex. There are many issues to consider and many different stakeholders involved at all stages of the process. When the focus of the NBS is shifted more towards the co-benefits outlined above it is perhaps even more important to get the basics right.

An earlier project to GGR, called Connecting Nature (2017-2022) identified 7 different building blocks that are essential for sustainable NBS.

These building blocks are:

Co-production	Technical Solutions
Finance	Governance
Entrepreneurship	Impact Measurement
Reflexive Monitoring	

This guidebook, focuses on the financing, and creation of sustainable business models for NBS. We also examine how nature-based enterprises can support cities in designing, delivering and managing NBS and how NBS in turn can help stimulate a local nature positive economy¹. We also briefly consider governance as part of business modelling and introduce the concept of reflexive monitoring as a useful tool for cities to track progress and adapt action plans as they move towards scaling NBS across cities and regions.



Source: Adobe Stock

The GGR project has also concentrated on a number of these elements, looking at new and novel forms of co-production and stakeholder engagement; examining impact measurement related to health and wellbeing and incorporating baseline indicators measures.

¹ A nature-positive economy is one where by 2050 we have halted and reversed the loss of nature and is so doing recognise and capitalise on the economic opportunities that the restoration of nature presents. (Source:UN FAO)



Co-creation in practice in Umea
Source: Aine MacBeth, Connect the Dots

Novel forms of co-creation and co-production were used in GGR with the creation of Seedbed interventions (a type of test bed to gauge reaction of different types of stakeholders on what the final NBS might look like) and the establishment of Local Task Forces in each city to work alongside the city partnering in the design and implementation of the NBS for the city. Further information about these co-creative techniques can be found on the www.gogreenroutes.eu.

The value of data collection to capture impact measurement should not be underestimated. In GGR for example, it provides an opportunity to better understand the environmental and health outcomes achieved through sustainable NBS, which can in turn inform NBS design to achieve better outcomes. Related to this, defining health and environmental indicators that reflect the concerns and priorities of key stakeholders can then be measured and prioritised as part of the NBS design process.

In Part 2 of the guidebook, we introduce the Concept to Delivery Innovation Programme and the step by step guide towards its implementation. In GGR, we are working with the Cultivating Cities on the co-design and delivery of this programme. The ambition is for our cities to scale NBS for health and wellbeing beyond the exemplars of the GGR project. The Concept to Delivery Innovation Programme helps achieve that by:

- Identifying a NBS proposal to be delivered which aligns with city priorities
- Establishing the teams required to help execute delivery
- Considering potential alternative forms of financing for the NBS and its long term sustainability.

Concept to Delivery Innovation Programme

Innovation is incorporated all along the chain as we work with and encourage cities to think more broadly about how the NBS can work for the city not just in terms of meeting climate change and biodiversity targets but how the NBS can contribute to other city strategies and priorities that include health and well being, economics and so on.

NBS can be a catalyst for sustaining and creating “green” jobs; kick-starting a local nature-based economy, empowering citizens, finding new forms of engaging and working with internal departments and external stakeholders.

As economies around the world transition towards nature-positive economies that work with and for nature, the role of NBS in this transition has powerful and profound implications.

We hope that cities and urban practitioners find this guidebook a useful tool in supporting your city in the adoption and upscaling of sustainable NBS through the application of proven financing and business models and novel approaches to supporting nature-based entrepreneurship.

This guidebook is a living document and will be populated with more case studies and experiences from our GGR cities that continue to implement the programme. An updated version is planned for August 2024.

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Source:
Ville de Versailles

Chapter 2: Finance, business models and nature-based entrepreneurship



Tallinn. Source: Kerson on Unsplash

Financing, business models and nature-based entrepreneurship - what do they mean for NBS?

Financing refers to the sourcing of funds to plan, create and sustainably maintain a nature-based solution. The implementation of a nature-based solution typically consists of three phases with different capital requirements and timeframes: planning, capital investment, and operational costs or maintenance (Figure 1).

Regardless of the size and scale of the NBS (it could be a small scale pocket park or a more complex infrastructure heavy NBS like a sustainable urban drainage system (SUDS)), the phases remain unchanged.

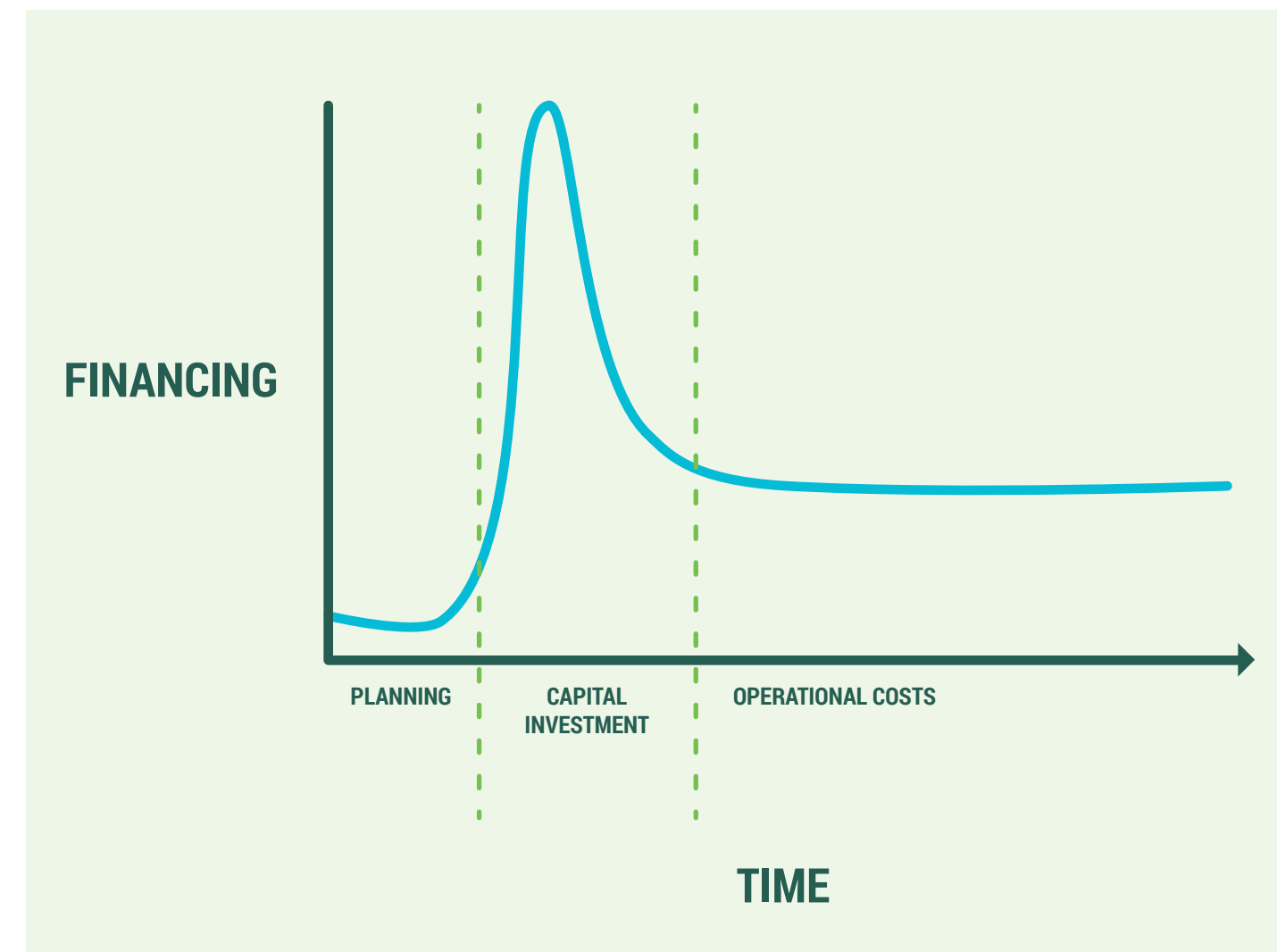


Figure 1: General financing phases for Nature-based Solutions (Mayor et al., 2021; McQuaid & Fletcher, 2019)

The first phase includes the planning and design of the NBS, including co-creation activities. This could involve co-production processes with many different stakeholders and can be a lengthy process which may be expensive¹.

The second phase focuses on the actual delivery of the NBS, i.e., the construction works. The capital investment costs for the initial implementation are usually the highest costs associated with NBS projects and are generally incurred over a short period of time.

The third phase of NBS implementation consists of the maintenance and monitoring – this is where most of the NBS impact is created. The operational costs related to this phase are often considerable and occur over a long period of time. This phase also presents an opportunity to examine revenue potential from the NBS and related activities.

All three phases need to be considered in planning for a sustainable financing and business model for the NBS.

¹ Co-creation is a process involving collaborative knowledge sharing between local policymakers, researchers, citizens, practitioners, entrepreneurs, and practically any kind of actor bringing in specific knowledge about local needs and solutions. (Alexander van derJagt, Utrecht University 2019 Naturvation)

Co-production is a novel governance method for developing nature-based solutions where there are a lot of actors involved. Co-production is about collaboration, empowerment, and producing shared results, such as policies and visions. ([Connecting Nature CoProduction Guidebook](#), DRIFT, 2021)

Funding Sources for NBS

NBS can be funded in a number of different ways usually through the public sector, the private sector, third sector or a combination of the above. When funding sources are combined together, this is commonly known as blended or hybrid financing.

Almassy et al. (2018) found that local authority budgets primarily fund NBS projects in European cities, supplemented to a lesser extent by regional, national, and EU funding. Public funding mainly consists of dedicated public budgets, grants, subsidies, and sometimes tax exemptions, from international, EU, national, regional, or local government funding programmes.

Private and third sector funders include investors, businesses, philanthropy / charities, NGOs, citizens, etc. Finance can come in different forms such as: equity funding, green bonds, loans, donations, membership or entrance fees. Offsetting mechanisms like carbon or biodiversity credits, and payment for ecosystem services may also come under this category.



Source: Crowdfunder. Credit: St Mary's Primary School, Dunblane

While public funding remains the predominant source of financing for NBS, there is a growing movement towards bringing in alternative forms of investment. Blended forms of finance appear to be more easily available for smaller scale community led NBS like allotments or community gardens, where instruments like crowdfunding, donations, memberships and philanthropic grants etc can provide investment. As the scale of the NBS increases in size, the dependence on public financing for NBS in urban settings tends to increase.

Private investors tend to be more risk averse at this larger scale and the recent report published by the European Investment Bank (2023) confirms that in fact just 3% of large scale NBS are financed by private investors (where their investment represent more than 50% of the total costs) and even then the ecosystems in which they invest are primarily in forestry and water management.

Why is this?

There are a number of factors contributing to a lack of large scale private investment in urban NBS.

1. **Scale:** Quite often the scale of urban NBS is just too small for large scale institutional investors to consider financing. We see these types of investors investing in NBS related to forestry and water where the scales are much greater (>€100m) but as most urban NBS come in under this figure, the appetite for investment is not yet there.
2. **Quantifying the benefits of NBS:** We know that NBS brings multiple benefits and co-benefits to the environment, to the health and well being of citizens and also benefits local economies. However, quantifying these benefits in monetary or economic terms for private investors is difficult and investors

will continue to prioritise investments that have a clear cost-benefit analysis until the ongoing research on quantifying the societal benefits of NBS establishes an evaluation framework that meets the needs of investors.

3. **Unclear return on investment:** Seeing a return on investment in NBS can take a long time and it is unclear what that return might yield given the complexities of NBS where the benefits may be shared by many users. As a result, NBS can be considered high risk and as such private investors may choose to avoid them. However, the increased use of business models designed specifically for nature-based solutions is helping identify sustainable revenue streams and hopefully with increased uptake will help de-risk the investment for investors.

4. **Public private collaboration:** Financing of NBS remains very much rooted in the public sector and quite often is the “automatic” go-to source of funding for urban NBS. There is a lack of know-how and experience among public sector bodies in approaching and collaborating with different partners to deliver NBS. Having clear regulatory and legal frameworks could help support these collaborations.

Sustainable business models for NBS

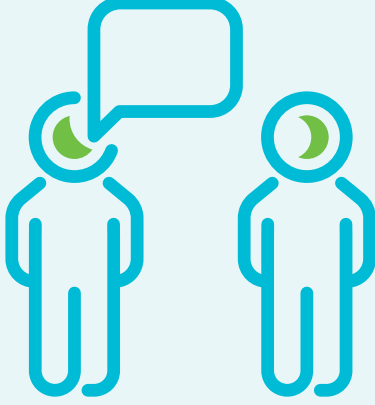

Up to quite recently, much of the focus on the financing of nature-based solutions has been on the delivery phase. While essential, it is equally important to consider from the outset how the NBS will be managed over the long term (governance model) and what finances or revenue can be generated to fund the ongoing



operational costs of the NBS (McQuaid & Fletcher, 2019; Mayor et al., 2021). Planning for long term financing and governance early contributes to the long term sustainability of the NBS project.

What are business models?

Business models for NBS are a way of telling the story of your NBS in a visual way that clearly demonstrates how the NBS can create, deliver and capture value. One of the most commonly used business model tools is the Business Model Canvas developed by Osterwalder and Pigneur².

The Benefits of using a Business Model Canvas for NBS

	<p>COMMUNICATION: Explaining NBS concepts to people unfamiliar with them can be difficult. With a NBS Business Model Canvas, you have a simple, visual way of sharing with others what you want to do and why, who needs to be involved and how you're going to make it happen. The NBS Business Model Canvas uses language which is understood by people from many different backgrounds.</p>
	<p>PLANNING: The NBS Business Model Canvas is a useful first step for individuals or groups in planning the implementation of a NBS project. It helps everyone involved to consider the basic building blocks required to build a successful long-term sustainable project.</p>



	<p>PARTNER IDENTIFICATION: By considering the value that NBS may offer to different groups of people, the NBS Business Model Canvas helps identify potential new partners or beneficiaries that may be interested in getting involved in the planning, implementation or ongoing operation of the NBS.</p>
	<p>SEARCH FOR NEW FINANCE SOURCES: Combining reflections on the value of NBS with the identification of new partners helps to identify potential sources of initial NBS financing and/or partners who could assist with financing ongoing costs or contributing to cost reduction.</p>




In addition to being a helpful communication and planning tool, developing a Business Model Canvas for your NBS can also help address some of the more challenging roadblocks that can sometimes hinder a NBS project when it comes to financing and governance of a NBS.

² Osterwalder, A., Y. Pigneur and C. Tucci (2005). "Clarifying Business Models: Origins, Present, and Future of the Concept." Communications of the Association for Information Systems 16(1).

Business Model Canvas workshops have been identified as a useful co-production tool to help bring different actors together as part of the process of planning for NBS (van der Have et al, 2022).

How does a BMC do this?

	<p>FOCUSING ON BUSINESS MODEL PLANNING: The NBS Business Model Canvas reverses the focus on financing capital investment first and starts with business model planning for sustainability.</p>
	<p>BROADENING THE VALUE PROPOSITION: The NBS Business Model Canvas considers environmental, social and economic value created by the NBS, leading to the identification of new stakeholders and alternative ways of capturing value. This may also lead to the identification of new sources of financing.</p>

	<p>BRIDGING 'SILO' GAPS: The NBS Business Model Canvas provides a visual communication tool and a common language to bridge communication gaps in particular between environmental planners and the finance, business and investment community but also between local government and community representatives. Sometimes an intermediary or bridging organisation is helpful in facilitating multi-stakeholder NBS discussion (Kampelmann 2016)</p>
	<p>IDENTIFYING KNOWLEDGE GAPS: The NBS Business Model Canvas leads to the identification of knowledge gaps in the business model process and facilitates follow up actions related to capacity building and reflexive learning.</p>
	<p>GOVERNANCE MODELS: The NBS Business Model Canvas enables the clear identification of key stakeholders to be involved in ongoing operations and management. It questions the optimal governance structure required to engage the identified stakeholders.</p>

What NBS BMC to use?

The Business Model Canvas for Nature-Based Solutions (NBS) was originally created by the H2020 Connecting Nature project in 2019 and tested with 10 different cities. Since then the BMC for NBS has been adapted by different organisations to reflect their interpretations of how the BMC might best serve their user groups. Users of this guide can download the GGR Finance and Business Model Canvas for NBS from the project website:

www.gogreenroutes.eu

NBS Finance and Business Model Canvas

Societal challenge:

Key Activities	Key Resources	Value Proposition	Key Partners	Key Beneficiaries
		Environmental: Social: Economic:		
Cost Structure		Cost Reduction	Governance Model	
Planning: Delivery: Stewardship:	Value Capture			
Capital Expenditure Costs		Sources of Capital Investment		

Figure 2: The GGR Finance and Business Model Canvas

Steps to using the NBS Business Model Canvas



Castletroy Greenway, Limerick
Source: Diarmuid Greene Photography

1. Begin with the societal challenge that the chosen NBS has been selected to address. For example, if the challenge is a busy, polluted, roadway with poor pedestrian and cycling infrastructure, the NBS might be the creation of a green mobility corridor that reduces car users on the road and provides

citizens and provides them with a safer, cleaner route to schools, retail, work etc. that promotes active travel.

2. Next, look at the value proposition the NBS offers different beneficiaries. It is essential to consider what value the NBS offers in terms of environmental, social and economic value e.g will the green mobility corridor provide increased planting contributing to biodiversity or connect with other biodiversity corridors? Will it lead to increased shade and improved air quality?



Source: Cottonbro Studio

From a social perspective, will the new corridor improve the health and wellbeing of users? Active travel leads to fitter, healthier people which could lead to a reduction in cardiovascular disease, improved mental health and even reduced incidence of asthma if air quality improves. In terms of the economic value, what opportunities might be created? The mobility corridor could lead to increased footfall to local retailers, could improve the attractiveness of the area, thereby increasing property values and associated taxes.

- Finally consider any trade offs or potential negative consequences: would the mobility corridor unless properly lit at night lead to anti-social behaviour which could mean public safety concerns (negative social impact); could increased footfall and perhaps loose animals (uncontrolled dogs) affect the local biodiversity (negative environmental impact), could increased property values lead to gentrification?

3. Now it's time to look at the key activities and key resources required to deliver the value proposition. This is also called value creation. Again, looking at the environmental, social and economic value propositions of the example being used; the green mobility corridor, what do you need to do to realise each of these. For example, do you need to introduce air quality monitoring in the area? What activities are required to deliver the social and economic value propositions identified?



Source: Limerick City and County Council

4. Once the key activities have been identified what are the resources required to deliver on the activities identified? Take the air quality monitoring as an example, to deliver on the environmental value proposition; air quality monitors, installation, regular measurement and interpretation of results leading to decision making on other related infrastructures (e.g additional tree planting) may all be activities to be delivered. Technical advice, installation and resources to analyse data will all be required in addition to budget for installation, maintenance and replacement of the monitors as needed.
- **Note:** Don't forget to work your way through the social and economic value propositions in the same way.
5. Moving to the other side of the canvas, who are the key partners needed to deliver on the activities and resources that have been identified? It helps if you can be as

precise as possible at this stage (if you can identify specific organisations and /or key individuals do so) as this will facilitate potential connections with collaborators and partners. Looking at the activities and resources you have identified, who do you need to connect with to make these happen? For example, when it comes to air quality monitoring, have you identified specific companies who can tender to supply the equipment; do you need to speak to the Finance Department about the procurement process? Can the Environmental Department provide advice and guidance on air quality monitoring etc.

- **Note:** Don't forget to work your way through the social and economic value propositions in the same way.

6. Who are the key beneficiaries of this NBS and its value proposition? Don't forget to think about direct beneficiaries e.g

users of the green mobility corridor, local community residents directly connected and indirect beneficiaries e.g local schools and businesses. Remember that the beneficiaries may also include plants and animals! Look at the value propositions and think how the beneficiaries might actually benefit.

For example: improved air quality from decreased traffic definitely impacts on the community around the green mobility corridor, the green mobility corridor could contribute to flood reduction due to increased planting in the area which in turn leads to an increase in biodiversity. Indirectly, the local Department of Transport will benefit as they have an active mobility programme contributing to decreased traffic volumes which impacts their strategies and targets. From an economic perspective, perhaps local business will see an upturn in revenue due to increased footfall to their business as a result of the NBS and

taking social considerations into account, beneficiaries might include local residents who are fitter and healthier as a result of an increase in their own physical activity and the associated mental benefits that brings and indirectly the health services may benefit due to a decrease in air quality related conditions like asthma due to the improved air quality that has resulted as a direct result of introducing the active mobility corridor to the area.

7. Who is going to manage and maintain the NBS on an ongoing basis and how will this be done? This is called governance and when it comes to NBS, there are a number of different types of governance structures that can be applied. The most appropriate form of governance quite often is determined by the different partners, beneficiaries and activities that have been identified. In short, there are 5 basic governance models identified. They are:

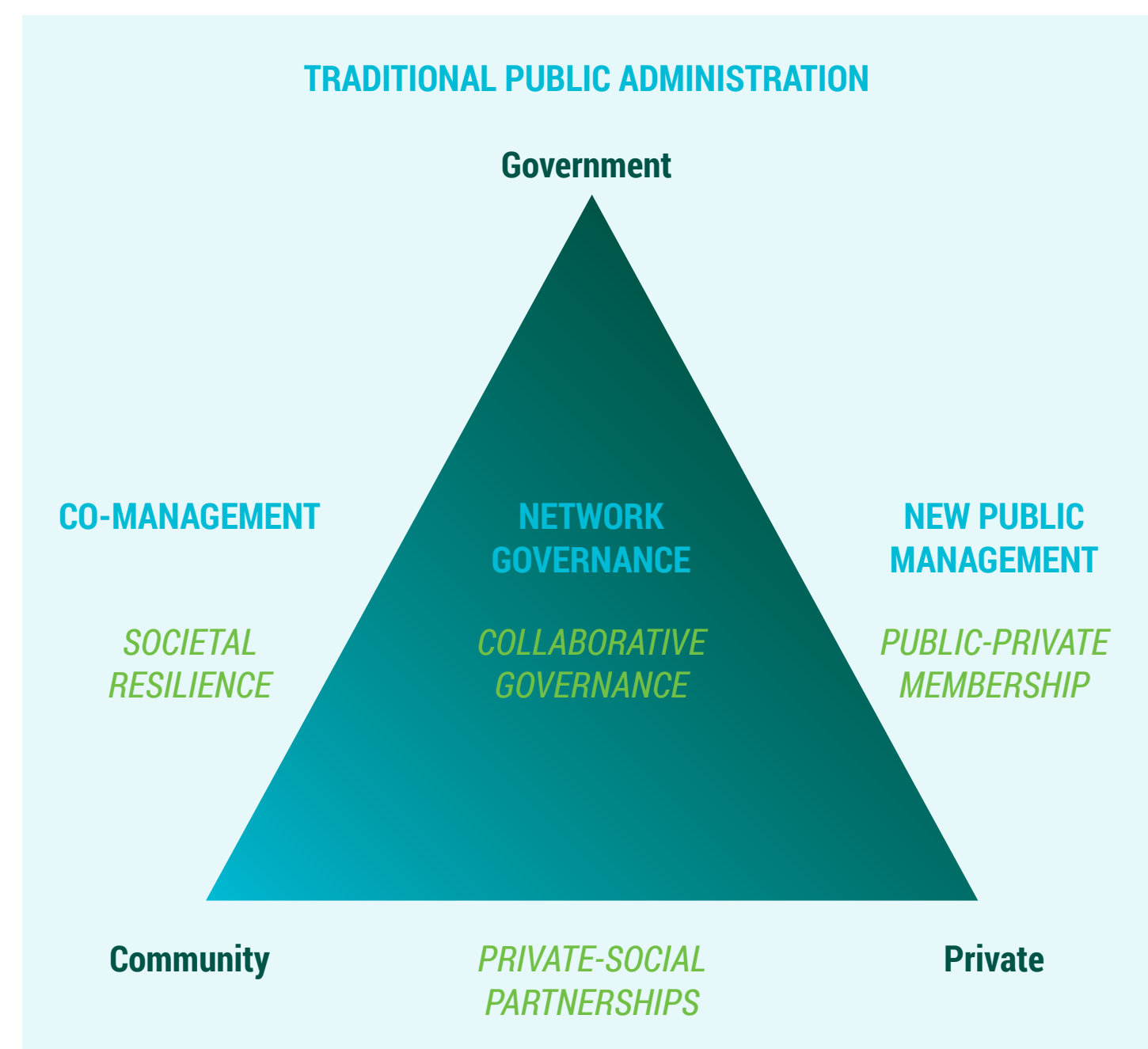


Figure 3 Governance Models, Adapted from McQuaid et al, 2021

- Traditional public administration where the public sector (e.g city municipality) is responsible for the NBS right through the planning, implementation and management phases of the NBS. There may be a level of citizen participation through participatory planning processes.

- New public management model is where the public and private sector partner in the implementation and management of the NBS. Are there the necessary legal frameworks in place to enable this type of governance model?
- Private -social partnership is where the public sector steps back from management of the NBS and facilitates the transfer of management to private sector and / or community organisations. Again, are there the necessary legal frameworks in place to enable this type of governance model?
- What about co-management models of governance? This is where the public sector and community share the management of NBS? Over time this can transition towards a model of societal resilience where the leading organisations are the community sector and the public sector steps back and takes a low level supporting type role.

Are there the necessary legal frameworks in place to enable this type of governance model?

- Finally, network governance models include several different types of actor - public, private and community who may all be involved to some degree in the implementation and management of the NBS. Collaborative governance is similar to network governance but the public sector continues to play an important role, usually as the NBS is delivering an important public service. Are there the necessary legal frameworks in place to enable this type of network governance model?

It is worth considering how these different models of governance might work for your NBS depending on size, scale and beneficiaries and how to transition from one governance model to another. It is common for NBS to start with top-down traditional

governance models and evolve towards more collaborative or co-management models over time (Driessen et al. 2012). However this is now always an easy process and needs to be carefully planned (Wilk et al 2021) For more information on governance in NBS see the Connecting Nature handbook on Governance for NBS (Vanderkert et al, 2021)

8. Moving towards the bottom of the Canvas, we now turn the focus to the Cost Structure and to looking specifically at what the most important cost categories are in terms of delivering on the value propositions. For example, on the greenway, ongoing costs could include personnel employed for maintenance; resources to replace and repair planting and equipment along the routes; perhaps there are publicity and marketing costs promoting the greenway and active travel in the city and it is also important to factor in costs like citizen engagement especially at the planning stage

as this can be as costly as time consuming. Experienced community facilitators may need to be brought in to deliver this part of the process.

9. How could costs be reduced? Are there any ways that savings in the operational costs could be realised? Consider perhaps linking with voluntary organisations like the [Tidy Towns](#) to maintain the greenway; what about bulk buying to avail of discounts?
10. Finally how can the value attributed to the NBS be captured? This can be quite challenging for some NBS particularly where the NBS might be considered as a shared public good like a green mobility corridor. There may be few or no opportunities to generate revenue from the NBS (e.g some parks may be able to generate revenue through hosting events such as concerts, markets etc where the revenues generated are directed back into the park

upkeep but in other cases there may be legal limitations on use of public spaces for private sector activities). How can you capture value if there are no revenue generating opportunities? This is where the importance of indicators comes in - it is important to think about 2 or 3 indicators that can capture the impact of the NBS and prove to funders that the NBS is delivering in terms of environmental, social and economic benefits. An example of an environmental indicator would be improved air quality, a social indicator could be measuring impact on health and well being for using the mobility corridor and finally in terms of economic indicators, increased footfall to local business from users of the NBS. Increasing work is being done on measuring the monetary and non-monetary values of NBS so that their full value can be appreciated.

These last sections of the Business Model Canvas are all related to Capturing Value; how the costs linked to the activities and delivery of the NBS are identified. Don't forget to look back at the key partners and beneficiaries - there may be some key actors in there who can fund, contribute to reducing costs or even be key to revenue generation for the NBS.

Completing the Business Model Canvas by following these steps will aid you in capturing the story of your NBS and serve as a communication tool to help you to tell that story to others. It has also, if completed, aided you in identifying the steps needed to plan for the ongoing costs of the NBS and to create a sustainable path for funding into the future.

At the bottom of the Business Model Canvas we have added some criteria to help you identify sources of funding for the capital investment costs of the NBS that are needed for the initial development of the NBS. When completing this exercise it is important to

consider alternative sources of financing and try to avoid becoming "path dependent" on the same sources of funding year on year. If specific funding programmes dry up or are reduced, then NBS are at risk of being put on hold sometimes indefinitely.

NBS Finance and Business Model Canvas

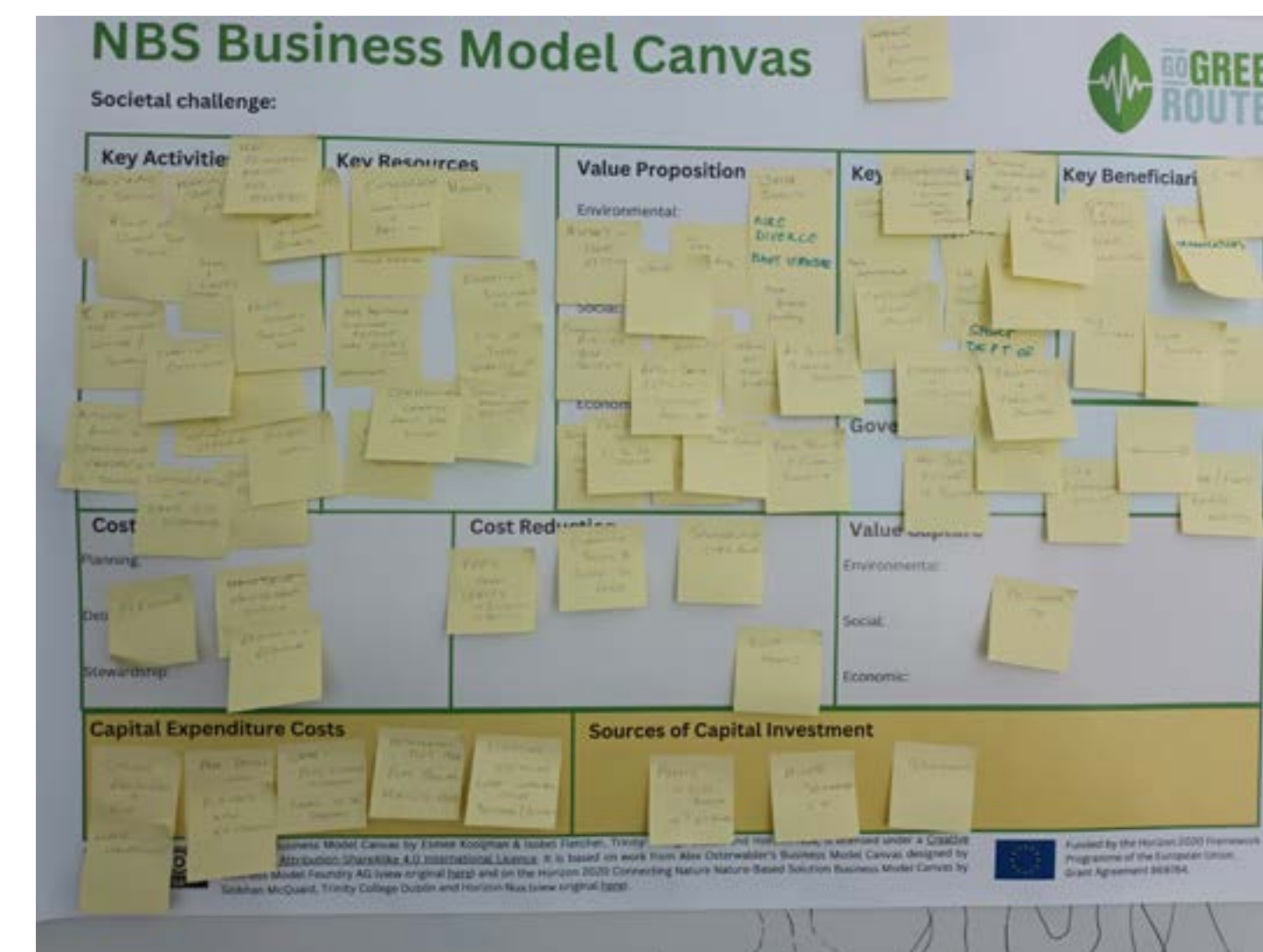
Societal challenge:

Key Activities	Key Resources	Value Proposition Environmental: Social: Economic:	Key Partners	Key Beneficiaries
Cost Structure Planning: Delivery: Stewardship:		Cost Reduction	Governance Model	
Value Capture Environmental: Social: Economic:		Value Proposition to Environmental: Social: Economic:		
Capital Expenditure Costs		Sources of Capital Investment		

Figure 4 Financing capital investment costs of NBS

Using the NBS Business Model Canvas can help stimulate thinking beyond 'business as usual' approaches.

It helps to consider how other sources of funding could contribute to the implementation of the NBS. These sources could come from philanthropic means, corporate CSR programmes or other private sources like crowdfunding for example.



The GGR city of Lahti BMC for the restoration of Launa Park. Source: Isobel Fletcher

Take a look at the Value Proposition, the key partners and beneficiaries and see if there are any potential partners that might invest in the NBS?

Nature-Based Enterprises (NBEs)

We have read that nature-based solutions are complex and consequently not all organisations and local authorities have the skills and capacity to design, deliver and manage them. Sometimes external expertise is needed at different stages of the NBS process. As demand for NBS increases exponentially, so too does demand for the expertise required to deliver them and this has been identified as a major challenge potentially hindering the wider uptake of NBS at scale (Unalab, 2020).

This is where nature-based enterprises can have a critical role to address this challenge and work with cities and organisations in the planning, implementation and ongoing management (also called stewardship) phases of NBS across a range of landscapes e.g. urban, peri-urban, coastal, rural.

What is a nature-based enterprise?

Nature-based enterprises (NBEs) use nature in a sustainable way as a core element of their service offering to address climate change and biodiversity challenges while simultaneously generating spin off benefits for local economies, communities and the wider environment. With this they contribute to the regeneration or restoration of nature – they are “nature-positive”.

The term “nature-based enterprise” is used as an umbrella term and includes enterprises working across many existing economic sectors (Figure 5). Nature-based enterprises can be further categorised as using nature directly e.g. Sustainable Tourism, Health and Wellbeing include the use of nature for leisure and health and well-being, e.g., eco-tourism and forest bathing activities.

Other NBE sectors are Ecosystem Restoration, Green Buildings, NBS for Public and Urban Spaces (incl. parks, infrastructure, etc.), NBS for Water Management and Treatment, Sustainable Agriculture and Sustainable Forestry.

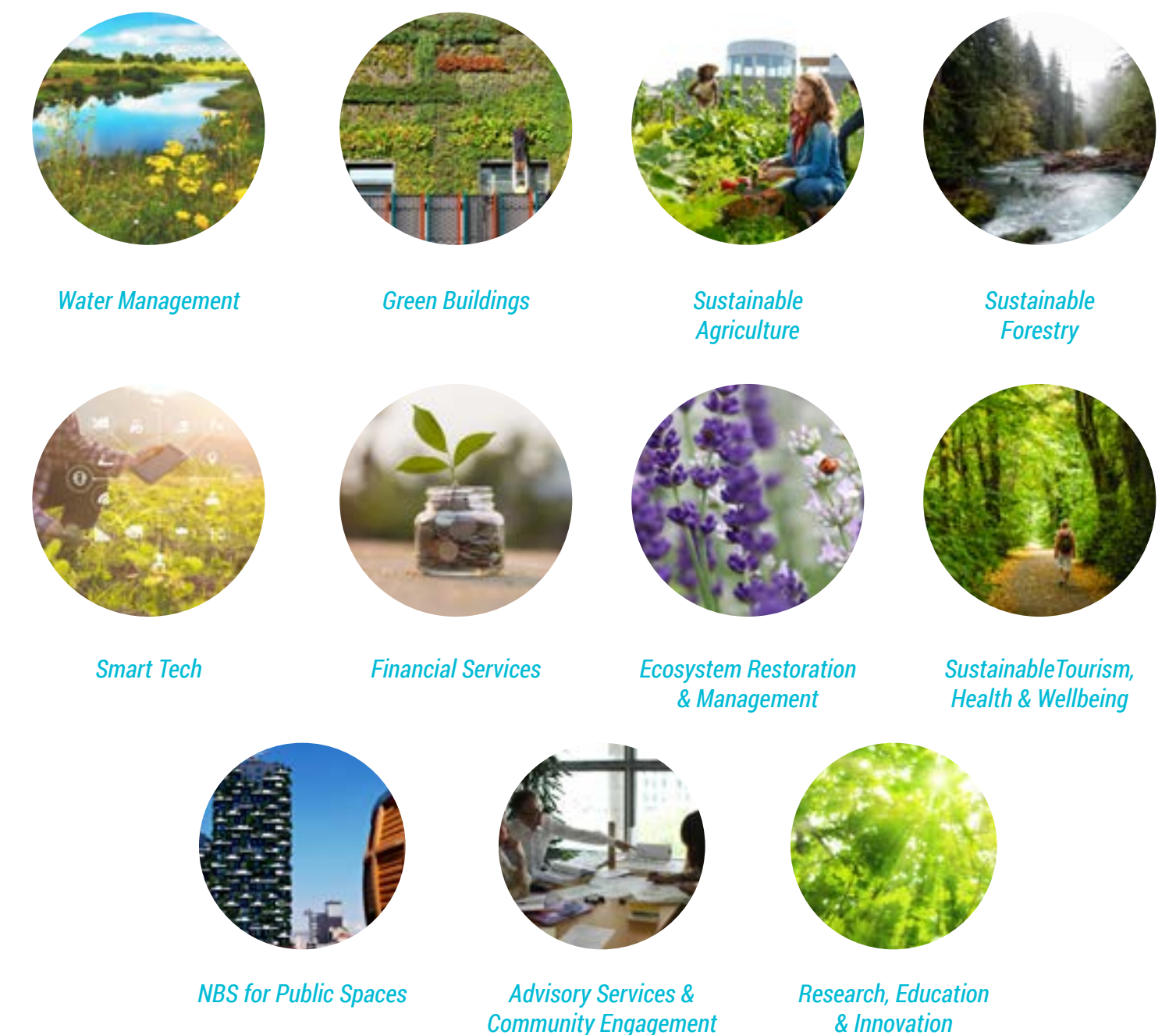


Figure 5: The economic activities of nature-based enterprises

In addition, NBEs are also involved in indirect activities, such as advisory services (including community engagement), education and research, financial services and smart technology and monitoring.

Some examples of how nature-based enterprises can support cities include the following:



Source: Roisin Byrne Nature Based Landscape Architecture

Landscape architects work with cities to co-design and plan technical aspects of the NBS. They aim to promote climate resilience and support multiple functions in the design of NBS as well as provide a range of ecosystem services.

This multidimensional approach ensures a net gain for nature and biodiversity, for local communities and the wider environment. Many landscape architects now incorporate co-creation and co-production principles in their practice working with local communities and stakeholder to co-create a multifunctional design that incorporates input from the end users at the outset.

Horticultural contractors and gardeners create bespoke living walls, roofs and specially designed green infrastructure installations to meet specific demands and planning requirements. They are often highly skilled in botany and ecology and knowledgeable

about the best plants for biodiversity aligned with local habitats. Sometimes they are also qualified in landscape design.



Source: Jonathan Muller, Helix Pflanzensysteme.

Sustainable tourism and health and well being enterprises use nature in a sustainable and responsible way to provide community based activities that in turn can create new business opportunities and lead to new job creation in a variety of contexts.

Concept to Delivery Innovation Programme

They are careful to ensure that their activities 'do no harm' to nature and often aim to enhance local habitats which in turn increase aesthetic and cultural values.



Source: Taru Suutari, City of Lahti

Nature-based solutions such as urban tree projects are often expensive up-front investments. A new breed of smart technology companies employing satellite data, sensors and modelling software help improve the planning and monitoring of nature-based solutions to increase long term viability and to measure long term effectiveness. Sensors can be used to capture when trees need water or nutrients and they can also measure how effective healthy trees are in capturing carbon and filtering air pollution.



Source: soilmania

Chapter 3: The Concept to Delivery Innovation Guide



Source: Jonathan Muller, Helix Pflanzensysteme.

Now that we have introduced the concepts of financing, business models and nature-based entrepreneurship as essential components to support cities in the design, implementation and long term management of nature-based solutions, we introduce a step by step guide which cities, regional bodies and organisations can choose to use when delivering NBS within their catchment areas.



Source: Silvia Robertelli, Cartoonbase

Step One: Raise awareness, secure political support and align with policy.

NBS Awareness Raising

As previously mentioned, NBS are complex. Not everyone inside the organisational structure has a clear understanding of what NBS are and how their multifunctional co-benefits can impact on their own lives, jobs and the city's strategic priorities. Beyond the city structures, other stakeholders including citizens, businesses, local innovation agencies, investors, community groups, research and educational institutions also may not realise how well considered, inclusively designed NBS can impact their communities beyond improved infrastructure, e.g., green mobility corridors can improve

active travel but also sustainable well managed solutions can lead to new job creation and economic opportunities and measurable benefits in terms of health and well being and other positive social impacts.

This lack of awareness can contribute to a lack of support in securing public sector finance for NBS projects. Raising awareness and securing political support at a cross party level, among department heads and senior administration is a critically important first step to unlocking public sector financial support which in turn can be used and to leverage finance from other sources of funding including the private sector.

To elicit this high level support, a recommended starting point is to review the different strategies and assess how NBS can support the city's or organisational goals.



The strategies examined ideally should not be confined to purely environmental policies but should include social, health and economic policies. Nature-based solutions also align with the UN

Sustainable Development Goals. A useful guide for cities to use when embarking on this process is called [Aligning nature-based solutions with strategic priorities: a practical guide](#).

We recommend gathering all the NBS related interventions into one overall document and link them back to the particular strategies. It becomes easier to see at a glance how the potential NBS can deliver across multiple strategies. Being able to demonstrate clear policy alignment simply and clearly can

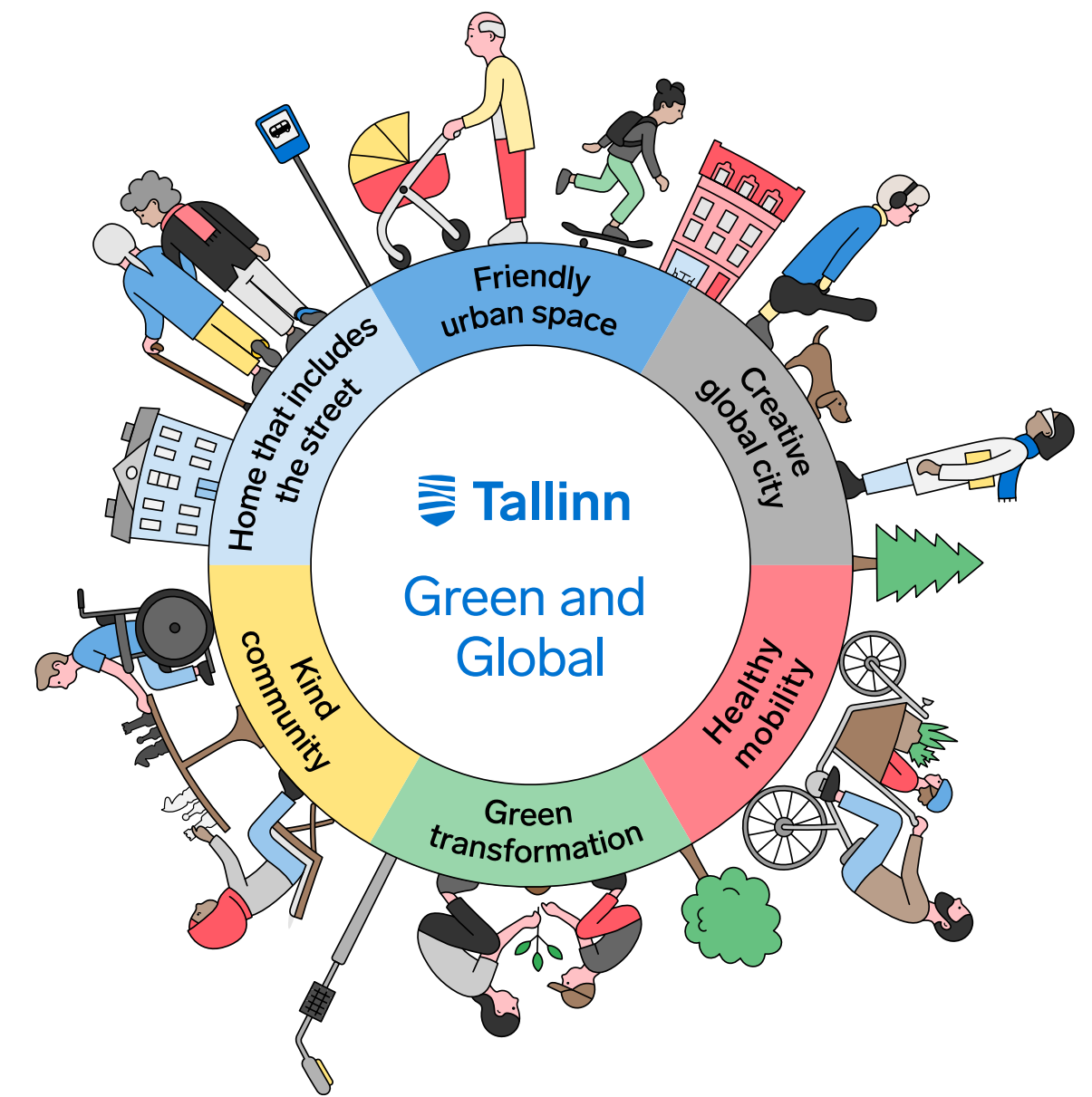
help win over all important political and organisational support for financing nature-based solutions. In GoGreenRoutes, we use the umbrella term of a “Healthy Strategy and Urban Well Being Plan” for this integrated document.

Two examples of an integrated strategy from among Go Green Routes cities of Lahti and Tallinn is (1) the Nature Step to Health Programme (2022-2032) which incorporates the health and environmental goals of the Päijät-Häme region of which Lahti is the main city. In addition to the City of Lahti being a key stakeholder in the delivery of this programme, other collaborators include Päijät-Häme Joint Authority for Health and Wellbeing and the Lahti University Campus.

(2) In Tallinn, the city’s Green and Global Development Strategy 2035 is based on 6 principles that will lead to “a lively and green city that has dared to develop into an environmentally-friendly, creative and people-

centred place” (Mihhail Kõlvart, Mayor of Tallinn)

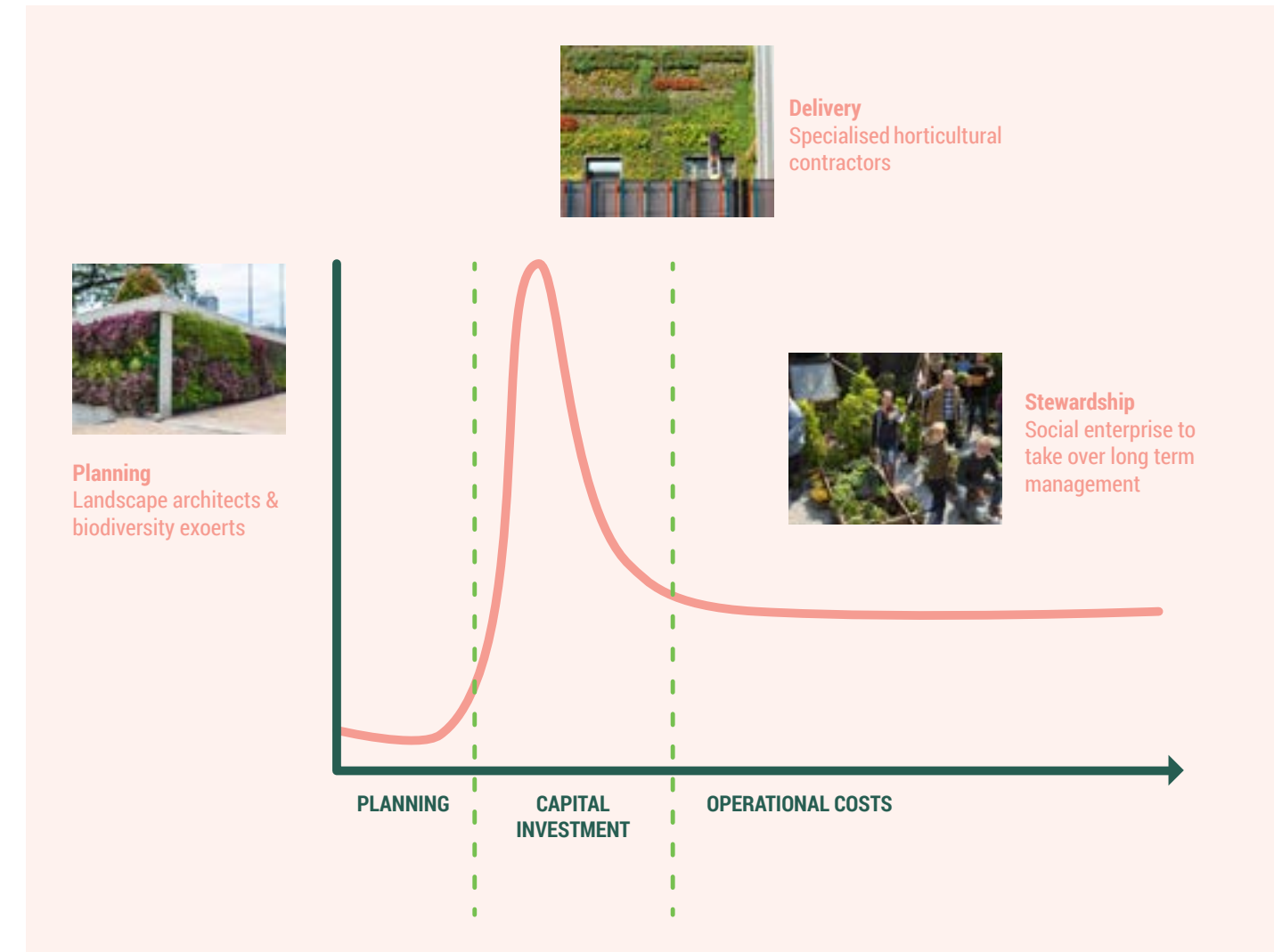
The city’s vision will be implemented through six strategic goals, working in cooperation with the entire city organisation, its citizens, communities, entrepreneurs, and neighbouring local authorities in the urban region, state and international partners.



NBE Awareness Raising

Nature-based solutions present enormous potential to support a culture of entrepreneurship in a city or region, and in particular nature-based entrepreneurship. As nature is increasingly central to the delivery of climate mitigation strategies and policies, in order to meet this increased demand we need to ensure that there are enough skilled suppliers of nature-based solutions who can deliver solutions locally and at scale.

Supporting the emergence and growth of enterprises related to NBS in health and well being is a core objective of GoGreenRoutes. Equally the steps presented here can support the growth and emergence of nature based enterprises across different NBS sectors.



However, adding nature-based entrepreneurship and entrepreneurship support adds a layer of complexity and therefore it is useful to look at running the NBE mapping exercise in parallel with the NBS mapping above when considering the strategic priorities of the city.

Where to start?

Similar to NBS, the starting point for cities and regions is to consider how nature-based enterprises can contribute to the strategic goals and economic development priorities of the city. Supporting the start-up and growth of nature-based enterprises is highly likely to align well with economic development strategies to support innovative SMEs.

Following policy alignment, consider how NBE's can contribute in a practical way to challenges faced in the planning, delivery and sustainable management of the nature-based solutions planned in each city.

Securing awareness among and support from political leaders and department heads for nature-based solutions and more specifically the value that nature-based enterprises can provide in delivering these solutions is of paramount importance.

Here are some guiding questions that can help you address this first step of the strategy alignment awareness raising on both NBS and NBE:

- What are the priorities for economic development in your city? E.g. priority sectors for development, priority geographical areas for economic development, other economic priorities?
- How can the planned NBS contribute to these economic development priorities?
- For each NBS being implemented, consider, how could NBEs contribute to the planning, delivery, maintenance and sustainability of these solutions
- What are the challenges and enablers from a city perspective in involving NBEs in the implementation of NBS?

Step Two: Mapping stakeholders and establishing partnerships

In some organisations it can be difficult to identify the people who can support the process of securing finance for the nature-based solution. Identifying someone within the organisation that is familiar with nature-based solutions and their complexity, and has knowledge of how they could be financed may not be possible. Therefore, it is important that relationships and alliances are formed between departments (internal silo busting) to build collaboration in developing funding proposals and programmes.

Building external alliances to support the financing of NBS is also critically important and capacities within the organisation should be developed to enable core team members to approach external collaborators

and pitch for some new sources of funding. This is particularly relevant when it comes to developing pitches to private funders. Check the Resources section of this guide for links to training on NBS financing.

The starting point towards building any team to manage the process of NBS design, implementation and stewardship begins with mapping the key stakeholders who can partner with you in this process. Depending on the context, the societal challenge being addressed by the NBS and the scale, the stakeholders can vary from project to project.

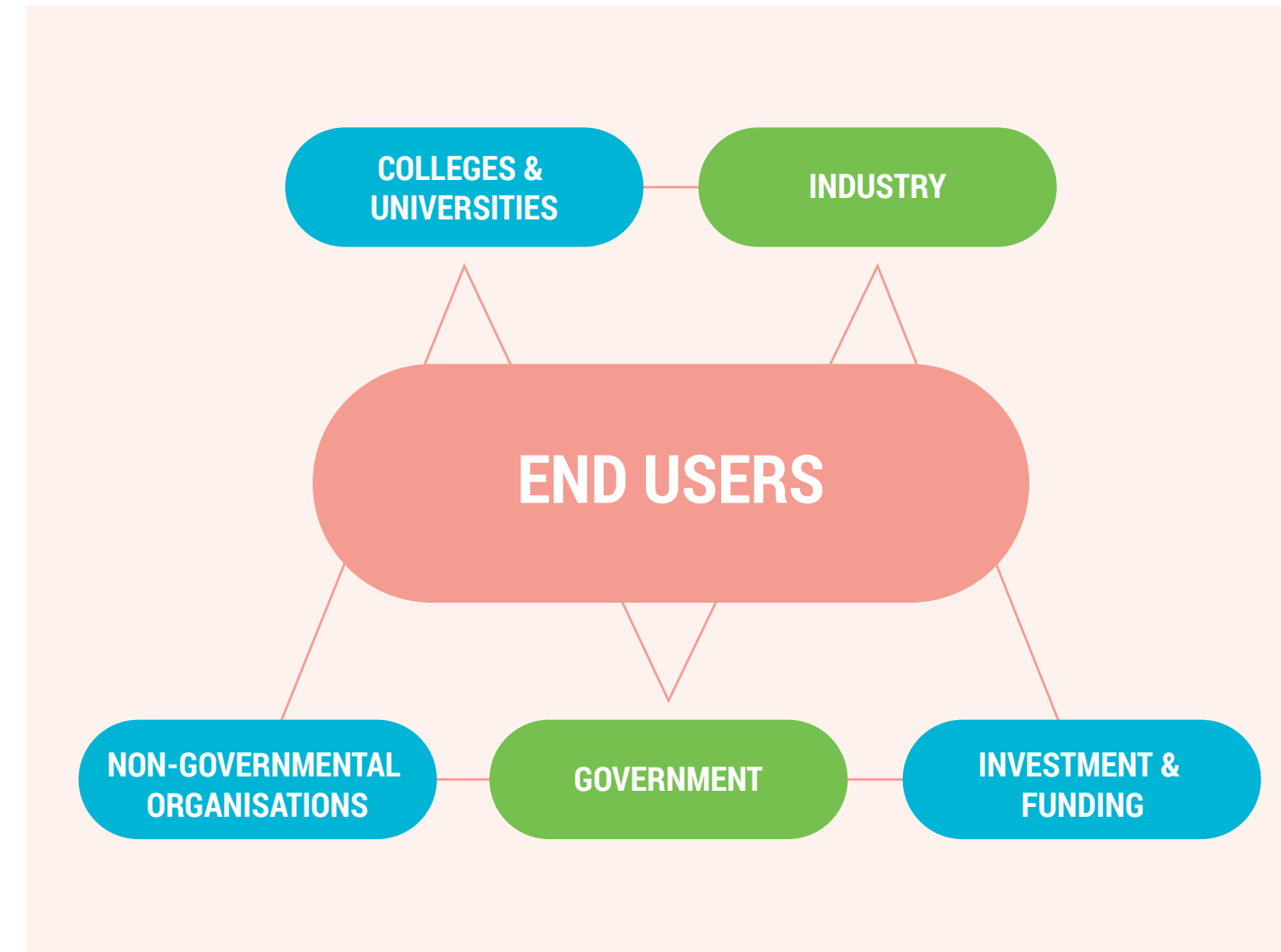
In GoGreenRoutes, this stakeholder mapping process was prioritised in each of the Cultivating Cities and resulted in the establishment of a Local Task Force in each city to work with the city partner on the NBS project and has yielded a suite of tools and strategies for cities to use when doing stakeholder mapping including a Rainbow Diagram and the Interest-Influence Matrix.

In addition a Stakeholder Engagement Guide was also developed; all of which will be made available at the [GoGreenRoutes website](#).

Once again, be aware that, adding nature-based entrepreneurship and entrepreneurship support adds a layer of complexity.

Identifying and addressing the challenges and barriers faced by nature-based enterprises in the local context will require specific expertise from a range of experts and should include nature-based enterprises themselves as part of the process.

It is essential therefore to include the Innovation Ecosystem Actors in the Stakeholder mapping process.



Innovation Ecosystem

These include:

- End users - the nature-based enterprises
- Colleges and Universities including innovation experts and business supports such as accelerators and incubators
- Industry partners including Chambers of Commerce

- Non - governmental organisation - third sector support agencies
- Investment and funding such as business angel networks to support scaling and growth

Some guiding questions here to help identify the innovation ecosystem actors as part of a Local Task Force are:

- From an NBE perspective, what are the challenges and enablers to start-up and growth of NBEs?
- What are the internal and external barriers faced by nature-based enterprises?
- Do NBEs face specific challenges or enablers?

- Who are the main actors in the innovation ecosystem of each city?
- How will multiple actors be empowered in building a common vision and plan?
- How can these actors be engaged to stimulate a culture of nature-based entrepreneurship and support the emergence and growth of NBEs?
- What is the level of knowledge and skills of the NBS team in your city in terms of supporting the emergence and growth of NBE? If skills gaps have been identified, how do you plan to address them?

Step Three: Co-create sustainable finance and business models and entrepreneurship support strategies for nature-based solutions

Using the Go Green Routes Business Model Canvas and following the steps on pages 14-19, the NBS project promoters along with the members of the Local Task Force for the NBS can create and plan a long term sustainable business model for the particular NBS.

The best time to complete this stage is as part of the planning stage of the NBS before designs are finalised.



Source: Taru Suutari, City of Lahti

The Business Model Canvas can help identify costs at all 3 phases of the NBS and can prompt thinking about what kind of nature-based enterprises might be needed at each stage of the NBS design, development and management and how to involve them.

Ideally when taking this approach, think about the activities required first and then consider how nature-based enterprises can be involved particularly if the in-house resources are not readily available.

As a planning tool, the Business Model Canvas for nature-based solutions provides a good basis from which to identify sources of financing for your NBS project and to identify potential partners through which elements of this funding can be raised.

Customising a nature-based entrepreneurship support programme

The specific measures to be put in place to support nature-based enterprises will vary by context as informed by Steps 1 (Awareness and strategic alignment) and Step 2 (Building alliances). However, knowledge and responsibility for nature-based solutions and enterprise support are often in different departments which can then pose the question on who should lead on the

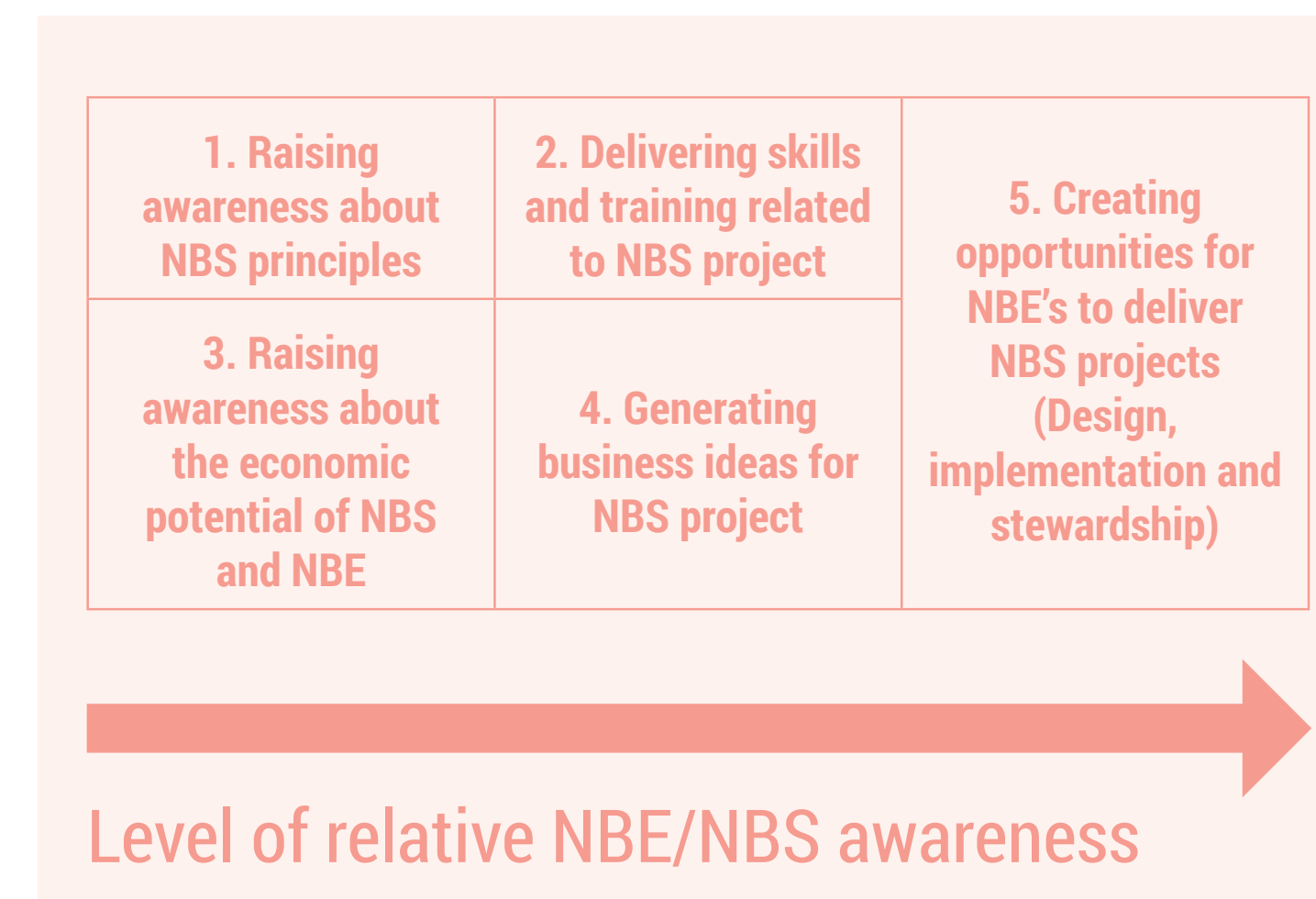
planning, implementation and monitoring of an NBE support programme. Ideally, this would be a department with cross-cutting priorities. If not, high-level support from other departments or agencies is needed from the outset.

The design, implementation and monitoring of a nature-based entrepreneurship support programme should be collaborative. It is recommended to prepare the nature-based enterprise strategy with input from both internal and external stakeholders as part of a co-creation process.

The co-creation process should involve experts in NBS, and economic development or enterprise support and other ecosystem actors as identified in Step 2 - specifically nature-based enterprises - to ensure the support measures planned meets actual needs.

Objectives of NBE Support Strategies

Depending on the individual context, NBE Support Strategy Objectives can be summarised as follows:



- Raising awareness about NBS principles at city council level and among entrepreneurs and innovators

- Raising awareness of the economic potential of NBS and NBE at city council level, with innovation ecosystem actors and the broader community
- Delivering skills and training related to NBS project targeted at city council and nature based enterprises (including startup entrepreneurs)
- Generating business ideas for NBS projects targeted at nature based enterprises and entrepreneurs
- Creating opportunities for NBE's to deliver NBS projects targeted at nature based enterprises and entrepreneurs

Based on the overall goal of the NBE strategy, it might help cities and regional bodies to break down the NBE Strategy goals into support programmes with specific goals. Cities with high awareness of NBE can plan for more than one support programme.

These cities start with a particular goal, for example to identify NBE, and then focus on a more impactful programme to increase uptake of NBS / NBE. Taking small steps to experiment with what works and what doesn't work in the specific context of a city is essential for creating a successful NBE support strategy.

In summary: start with a pilot entrepreneurship support programme, evaluate, and then plan a more impactful follow - on programme.

Examples of City led Nature-based Entrepreneurship Support programmes:

Poznań (PL)



Source: City of Poznan

Exemplar: The creation of a network of nature-oriented playgrounds throughout the dense city centre

Challenges: Lack of knowledge about NbS and local requirements for NbS in the City Council and among the private sector, as well as a dependency on a small number of external contractors from other regions of Poland.

NBE support strategy:

- Training programme on NbS for the creation of nature-oriented playgrounds aimed at landscape architects, gardening companies and local decision makers and potential contractors, including district and city councillors. (Objective 3)
- Development of catalogue of local NBS with guidelines on implementation and indicators on how to measure environmental, social and economic impact. (Objective 1, 2 and 4)
- Following the training programme on nature-oriented playgrounds, a similar programme - The NbS Academy - was planned for other flagship NbS in Poznań: floating gardens (water management), eco-demonstrators (ecological education), Family Allotment Gardens (opening and sharing greenspace with citizens) with the aim of the programme being to promote NBS and their economic/entrepreneurial potential in terms of creating demand and supply (Objective 5)

Glasgow (UK)



Source: Connecting Nature

Exemplar: Glasgow's Open Space Strategy aims to ensure well-managed, well-located, and well-connected open spaces that operate as part of a wider green network.

Challenges: With the increase in green spaces in the city, private sector and community involvement is required for the governance and sustainability of these spaces.

NBE support strategy:

- Pilot of a NBE accelerator programme. Participants developed and pitched a business plan for their nature-based enterprise by the end of the programme. (Objective 2 and 4)
- Full scale roll-out of the NBE accelerator programme, focused on the delivery and stewardship phase of the Open Spaces Strategy. Following on the success of the pilot programme in Glasgow, the city council has supported 3 further rounds of the NBE accelerator programme in Glasgow. (Objective 4)
- Collaboration with NGOs to upskill community groups to manage open spaces for NBS in the long term. In this way community groups focused on NBS stewardship can be considered voluntary NBEs. (Objective 3 and 5)

Málaga (ES)



Source: Horizon Nua

Exemplar: NbS-led regeneration of the Lagunillas neighbourhood, an area with many derelict and vacant spaces that are often walled up.

Challenges: Lack of funding to redevelop these spaces, issues with ownership, and the fear of gentrification.

NBE support strategy:

- Climathon for the Lagunillas neighbourhood – an idea generation event, particularly aimed at students. The main objective was to raise awareness about NbS and their economic potential and generate interest in entrepreneurship related to NbS. As follow up to this, the aim is to develop and implement a NBE incubator programme to create business ideas and nature-based enterprises. (Objective 1 and 2)
- Opportunities for NBE to tender in the development of the City's green corridors including Lagunillas. (Objective 5)

Impact Measurement

The indicators selected can be both qualitative and quantitative and consider monetary and non-monetary value delivered by nature. An example of monetary indicators would be the cost reduction from NBS reducing flooding of homes and businesses or the cost of reduction of heat stress and hospitalisations from NBS reducing air temperatures and the heat island effect in dense urban city centres. Examples of non-monetary indicators would be the level of increase of different species of flora and fauna (biodiversity), indicators of increased social cohesion from measurement of increased use of NBS by different socio-economic, ethnic or vulnerable groups.

Data should be gathered at all stages of the programme from a baseline collected at the design stage through to maturity. Specific indicators relating to nature-based enterprises may include number of enquiries received, number of enterprises supported, number of new jobs created, contribution to city or regional strategic goals etc.



Castletroy Greenway, Limerick
Source: Diarmuid Greene Photography

Step 4: Creating an action plan for financing NBS and supporting NBE's

Putting in place an action plan identifying the key steps necessary to secure NBS financing and support nature-based entrepreneurship is essential to effectively and efficiently maintain momentum towards implementation, scaling and support of the nature-positive economy over the medium to longer term. In addition to providing a clear timeline, the action plan identifies key people who can take responsibility for specific tasks and provides a level of accountability across the organisation.

The most straightforward way to do this is to take the completed BMC and financing plan and translate it into an actionable implementation plan by identifying from a

resource perspective, who will be following up specifically on the plans for implementation of the financing and business models of the NBS identified in Step 3 and to set out a timeframe and actions for implementation.

Implementation actions may involve follow up on:

- Preparation of applications/bids for funding/ financing (where relevant).
- Engagement with investors and other stakeholders for alternative sources of financing.

Example of a Financing & Business Model Action Plan:

Name of NBS	Action to be undertaken (arising from BMC & financing plan)	Responsible person	Timeframe for implementation

It can be helpful to break the financing plan into 2 parts; one looking at the Capital Financing and the second looking at the Business Model for the NBS.

Securing capital funding for NBS involves the following:

- Examining avenues that could facilitate the co-funding or co-financing of NBS with different public sector agencies or departments
- Preparing applications and bids for financing. This can include public sector financing such as grant financing from

local, national and EU sources as well as applications to charitable and /or philanthropic organisations

- Developing and introducing new financial instruments to support investment in nature-based solutions e.g taxes and subsidies
- Engaging with the private sector to identify new financing opportunities.

It is important that cities try to avoid the same route of financing time and again. Over reliance on the same source of financing may stifle innovation and could cause issues in project delivery should that source of funding cease for any reason. The Business Model Canvas provides an opportunity to examine alternative sources of financing for the nature-based solution that align to the different value propositions of the NBS.

Operational finance and governance of the NBS

The Business Model Canvas is also a great way to begin to think about the long term sustainability of the nature-based solution and how the ongoing costs for its maintenance and upkeep can be identified. It provides city authorities with an opportunity to think strategically about where these costs might come from and how the NBS could be managed in the future.

When developing the action plan for ongoing costs, consider the following:

- Identification of alternative sources of external funding (private or third sector and revenue generation) - and preparation of pitches and proposals

- Cost reduction measures - how can these be implemented?
- Continued engagement of all stakeholders in preparation for implementation of the business model
- What capacity building measures need to be to enable communities assume a more active role in the operational management of the NBS
- Governance model - what form might this take? What measures need to be put in place to support any potential transition of governance model
- Internal management - who currently has responsibility for the management of NBS - does it lie within a specific department or departments or even agencies? Can a complex governance structure be simplified? How might this happen?

Action Plan for Nature-based Entrepreneurship

Here are some guiding questions that can help you develop a customised nature-based entrepreneurship support programme and action plan:

- What are the primary objectives of your NBE strategy?
- How will NBE contribute to the implementation of your NBS?
- What measures are you putting in place to stimulate the emergence of a culture of nature-based entrepreneurship and to support the emergence and growth of NBEs?

- What innovation ecosystem actors have been engaged in the development of your NBE strategy and what actors are engaged in the implementation of the strategy?
- How will you know if your NBE objectives have been achieved? How will impact be measured?
- How did you translate your NBE strategy into an actionable implementation plan?
- Who will be following up with ecosystem actors and on specific measures to support the emergence and growth of NBEs?
- With what timeframe?
- What are the goals of a nature-based enterprise support plan?

- How do these align with broader strategic goals, in particular the large-scale implementation of nature-based solutions?
- Who needs to be involved to deliver this plan?
- How will innovation ecosystem stakeholders be involved?
- Who is going to lead on planning, development, and monitoring?
- Have an adequate budget and resources for piloting or full-scale implementation been assigned?
- What specific support measures will be put in place locally to address challenges and enablers?

- How will these connect with national or international support measures and platforms?
- How will success be measured?
- What are the impact indicators?

Step 5 Reflexive Monitoring

It is strongly recommended that when implementing action plans for finance and business models and nature-based entrepreneurship that a monitoring programme for implementation of the action plan takes place.

Concept to Delivery Innovation Programme

If the city is part of a project like GoGreenRoutes, this process can be facilitated by an experienced partner; but equally city teams can meet themselves to review actions, identify critical turning points and make adaptive changes as necessary.

There are a myriad of reflexive monitoring tools and guidebooks listed in the Resources sections available to support teams in this process.



Chapter 4: References and Resources



Yoga Platforms at Lahti's Healthy Forest, their GGR NBS
Source: Taru Suutari, City of Lahti

Almassy D, Pinter L, Rocha S, Naumann S, Davis M, Abhold K, Bulkeley H (2018) Urban Nature Atlas: A Database of Nature-based Solutions across 100 European Cities

Bah Miryam, Gäckle Julia, Chapman Eleanor, (2021) Go Green Routes Deliverable 3.2: Stakeholder Mapping Report in each of the Cultivating Cities

Driessen, Peter P. J., Carel Dieperink, Frank Laerhoven, Hens A. C. Runhaar, and Walter J. V. Vermeulen. 2012. "Towards a Conceptual Framework for The Study of Shifts in Modes of Environmental Governance - Experiences From The Netherlands." *Environmental Policy & Governance* 22 (3):143-160. doi: 10.1002/eet.1580.

European Investment Bank (2023) " Investing in nature-based solutions; State of play and way forward for public and private financial measures in Europe"

Kooijman Esmee, (2021) Connecting Nature Deliverable 24: Nature based entrepreneurship strategies and recommendations

McBeth Aine, O'Driscoll Emma (Connect the Dots) (2023), Stakeholder Engagement Guide - forthcoming

McQuaid Siobhan, Rhodes Mary-Lee, Ortega Aitizber Egusquiza, (2021) "A Key Actors Governance Framework for nature-based solutions to societal challenges" p171, *Handbook of Collaborative Public Management*

Osterwalder, A., Y. Pigneur and C. Tucci (2005). "Clarifying Business Models: Origins, Present, and Future of the Concept." *Communications of the Association for Information Systems* 16(1).

Vandergert Paula, Holscher Katharina and McQuaid Siobhan. 2021. *Connecting Nature Governance Guidebook*

Vandergert Paula, Em|Path (2022) [Aligning nature-based solutions with strategic priorities: a practical guide.](#)

Van der Have Carien, Holscher, Katharina and Lodder Marleen, 2022 ["A practical guide to using co-production for nature-based solutions"](#)

Wilk, Bettina, Ina Säumel, and Daniela Rizzi. 2021. "Collaborative Governance Arrangements for Co-creation of NBS." In *NbS for More Sustainable Cities – A Framework Approach for Planning and Evaluation*, edited by Edoardo Croci and Benedetta Lucchitta, 125-149. Bingley: Emerald Publishing Limited. Training Resources

[Investing in Nature](#) - a webinar series; EIB (2019)



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