

Nature- Based Enterprises Guidebook



Bringing Cities to Life,
Bringing Life into Cities

Acknowledgments

Nature-Based Enterprises Guidebook

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Glossary

Third sector organisations is a term used to describe the range of organisations that are neither public sector nor private sector. It includes voluntary and community organisations (registered charities and other organisations such as associations, self-help groups and community groups), social enterprises, mutuals and co-operatives. (Source: National Audit Office, UK)



1 Introduction

What are Nature Based Solutions?

The European Commission defines nature-based solutions as solutions to societal change 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 benefit biodiversity and support the delivery of a range of ecosystem services.

What is the Connecting Nature Framework?

Designing and implementing Nature-Based Solutions on a scale that delivers economic, environmental and social co-benefits, while also building resilience and benefiting biodiversity is complex with many different issues to consider.

Many questions arise and need answers.

Who will manage it?

How will it be financed?

What is the best solution for the area?

Who needs to be involved in the planning, delivery and stewardship?

Will it support innovation and generate jobs?

How to measure the economic, environmental and social impact?

How can we manage change?

Even identifying where to start can often be a challenge!

In response to this uncertainty, Connecting Nature has developed a process tool to help cities and other organisations navigate the path towards implementation of Nature-Based Solutions on a large scale: the **Connecting Nature Framework**. The Framework identifies **three distinct phases of development** for a nature-based solution: planning, delivery and stewardship.

Throughout each phase there are **seven separate elements** that cities and other entities need to consider when shaping their individual nature-based solution: technical solutions, governance, **impact assessment**, **finance**, **entrepreneurship**, **co-production** and **reflexive monitoring**.

Cities may choose to start with any element of the Framework process and consider the others in the order that suits their context. What emerges from the Framework process is a comprehensive 360° overview of each stage of development of the nature-based solution.

Guidebooks

To assist you in developing your nature-based solution, Connecting Nature has produced a series of guidebooks. The overall Connecting Nature Framework Guidebook is a good starting point. There is also a guidebook for each element of the framework process describing the implementation steps and providing case studies to show how it works in practice. A step-by-step how-to manual on the Connecting Nature Framework process is also available.

All the Connecting Nature guidebooks and the manual may be downloaded from www.connectingnature.eu.

Connecting Nature Framework



2 | What is a Nature-Based Enterprise?

Demand for nature-based solutions has increased exponentially in recent years as the concept has become widely accepted and encouraged by organisations from the European Commission to the UN.

Nature-based solutions are complex, however, and many organisations do not have the capabilities in-house to design, deliver and manage them. Recent reports (UnaLab 2020) have shown that finding skilled and experienced suppliers is a major roadblock in the wider uptake of nature-based solutions.

Nature-based enterprises can help to meet this challenge. They support cities, private-sector and third-sector organisations in the planning, delivery and management or stewardship of nature-based solutions in urban, peri-urban (immediately adjacent to a city or urban area) and rural contexts. This guidebook helps to clarify what a nature-based enterprise is, how to find skilled and experienced nature-based enterprises and how to stimulate and support the start-up, financing and growth of nature-based enterprises.

Nature-based enterprises (NBEs) use nature as a core element of their product/service offering.

Nature may be used directly by growing, harnessing, harvesting or restoring natural resources in a sustainable way and/or indirectly by contributing to the planning, delivery or stewardship of sustainable nature-based solutions.

What is a nature-based enterprise?

We distinguish between nature-based enterprises and nature-based organisations. Drawing from the EC definition of a small or medium-sized enterprise, nature-based enterprises are independent entities which are engaged in an economic activity i.e. 'the sale of products or services at a given price, on a given/direct market'. Nature-based organisations are similar to nature-based enterprises in that they use nature directly or indirectly as a core element of their product service offering. They differ from nature-based enterprises in that they may not operate independently or have a trading income as is the case with nationally owned and operated parks or nature reserves for example.

Nature-based enterprises support the implementation of climate change and biodiversity policy while simultaneously generating spin-off benefits for local economies, communities and the wider environment.

Nature-based enterprises are highly varied in nature. Some examples include:

- Landscape architects and biodiversity experts help cities to design and plan the technical aspects of nature-based solutions to promote climate resilience and multifunctionality in their design and provide a range of ecosystem services. This ensures an optimal net gain for biodiversity, for communities and for the wider environment.

- Specialised gardeners and horticultural contractors customise living walls, roofs or green infrastructure solutions to bespoke planning requirements for indoor and outdoor spaces.
- Sustainable water and wastewater management enterprises use nature in the planning and delivery of cost-effective solutions such as sustainable drainage systems and phytoremediation wastewater treatment plants.
- Sustainable agriculture, sustainable forestry and sustainable tourism enterprises use nature in a responsible way to support new business models, often supporting new skill development and job creation in rural and suburban contexts.
- New models of governance are facilitating the emergence of community interest companies and other forms of social enterprise being set up to take over the long-term stewardship, management and maintenance of nature-based solutions such as community gardens and parks.
- A new wave of smart technology companies is using satellite data, sensors and modelling software to better plan and monitor nature-based solutions.

Typology of Nature-Based Enterprises:

| Direct use of nature | |
|--|---|
| Sector | Sub-sector |
| Ecosystem creation, restoration and management | Ecological & landscape restoration Ecosystem conservation and management Biodiversity conservation Reforestation Marine and freshwater ecosystem restoration Marine and freshwater ecosystem conservation and management |
| NBS for green buildings | Living green roofs and facades Living green wall indoor Living green walls outdoor |
| NBS for public and urban spaces | Green areas, parks and gardens Green infrastructure Green space management Urban forestry Urban regeneration projects |
| NBS for water management and treatment | Natural flood & surface water management Urban green and blue infrastructure Urban water management Wastewater management |
| Sustainable agriculture & food production | Agroforestry Beekeeping Horticulture Plant and soil improvement Regenerative farming |
| Sustainable forestry and biomaterials | Sustainable forestry Biomaterials for construction Biomaterials for food preservation |
| Sustainable tourism and health & wellbeing | NBS for health & wellbeing Agritourism Eco-tourism and nature-based tourism Forestry tourism |
| Indirect use of nature | |
| Advisory services | Biodiversity and ecosystems Urban greening design & planning Landscape architecture Water management Community engagement for NBS |
| Education, research & innovation activities | Ecological research Environmental awareness education Research & innovation projects Vocational & skills training |
| Financial services | Carbon offsetting Investment for biodiversity and conservation Natural capital accounting |
| Smart technology, monitoring and assessment of NBS | Smart technology solutions for NBS Environmental monitoring Spatial tools for environment |

Source: Kooijman, E.D.; McQuaid, S.; Rhodes, M.L.; Collier M.J.; Pilla, F. (2021) "Innovating with nature: from nature-based solutions to nature-based enterprise" Forthcoming.

This typology is based on the findings of a literature review and survey undertaken in 2020. For further information on the survey and research publications visit <https://connectingnature.eu/innovations/nature-based-enterprises>

How to find nature-based enterprises?

As the concept of nature-based solutions, and consequently nature-based enterprises, is still relatively new, understanding what is and what isn't a nature-based enterprise can be difficult. Public and private sector organisations wanting to procure nature-based solutions often don't know where to start. There is a large degree of uncertainty about the levels of skills and experience required to plan, deliver and manage nature-based solutions and the standards in operation in this industry sector. The sector is highly fragmented and it can be difficult to reach nature-based enterprises. It can also be difficult for private and public sectors to implement nature-based solutions and make use of new opportunities. To respond to this challenge, the Connecting Nature Enterprise Platform was developed with five key objectives:

1. Connect buyers with skilled and experienced suppliers of nature-based solutions.

The Connecting Nature Enterprise Platform aims to encourage new ideas for nature-based solutions at an early stage of concept development, thus increasing the quality and variety of interventions.

City councils or private companies looking for nature-based inspiration at pre-tender stage can post an open challenge on the platform and get some ideas from the different communities of interest.

Buyers with finalised tenders or job opportunities or any other kind of clearly defined opportunity can post this in the opportunity section of the platform to receive one-to-one responses from nature-based enterprises.



Case study of a nature-based enterprise: Helix Pflanzensysteme GmbH

Helix Pflanzensysteme GmbH is a pioneer in the development of nature-based solutions. It creates products such as green walls which provide solutions for landscaping, back yards and building facades, reducing the impact of noise and absorbing dust and pollutants. Silvia Weidenbacher

from the local government of the Stuttgart region described Helix Pflanzensysteme's solutions as "Compelling examples of nature-based solutions with inherent multi-purpose benefits. Green walls and green roofs can mitigate heat stress in cities; they contribute positively to urban biodiversity and they can reduce storm water run-off. Both can be installed in the densely built environment and can thus contribute effectively to urban resilience."

Photo credit: Helix Pflanzensysteme GmbH

2. Connect with the latest industry developments and showcase industry leaders.

The Connecting Nature Enterprise Platform aims to showcase industry best practice. Nature-based enterprises are connected with academic and technology partners so as to raise general awareness and knowledge about innovations and existing quality standards across this industry sector.

3. Connect like-minded communities.

Bringing together specialised communities of nature-based enterprises is at the core of the platform. Each community is moderated by an industry leader, a kind of enterprise ambassador, who seeks to raise awareness of the benefits and risks of nature-based solutions and share sector-specific training and opportunities.

4. Connect with funding opportunities

From grant funding opportunities to investment training and opportunities, the Connecting Nature Enterprise Platform brings nature-based enterprise to the attention of potential partners and investors including non-conventional partners from other sectors. Many funding opportunities for nature-based solutions involve agencies and organisations from different sectors and different scales.

Funding opportunities may bring collaboration opportunities for enterprises with local, regional

and national administrations, as well as research partners and civil society. The platform encourages enterprises and policy makers to engage together and experiment with new, innovative business and financing models.

5. Connect offline too!

Connecting on-line is great but meeting face-to-face is even better! Communities of interest will be invited to come together in a series of offline awareness-building, peer-to-peer learning, training and investment events.

To connect with nature-based enterprises, visit the **Connecting Nature Enterprise Platform** on www.naturebasedenterprise.eu or www.connectingnature.eu

Welcome to the **Connecting Nature Enterprise Platform**



3 | Supporting Nature-Based Enterprises

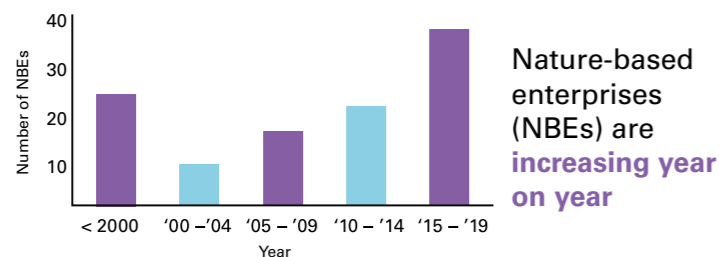
Nature-based enterprises deliver economic value by developing new skills, stimulating innovation and creating new jobs in local economies. This part of the guidebook aims to:

- Increase understanding of the wider value of nature-based enterprises;
- Raise awareness of the specific challenges and enablers faced by nature-based enterprises;
- Propose steps that can be taken to stimulate the start-up and growth of nature-based enterprises;

Why support nature-based enterprises?

In response to the increased market demand for products and services relating to nature-based solutions, a Connecting Nature survey of 148 nature-based enterprises has shown that an increasing number of nature-based enterprises have emerged to meet this demand in recent years (see Figure 1).

Figure 1



Nature-based enterprises create significant environmental and social value from increasing biodiversity and improving air and water quality to contributing to the health and wellbeing of communities (see Figure 2).

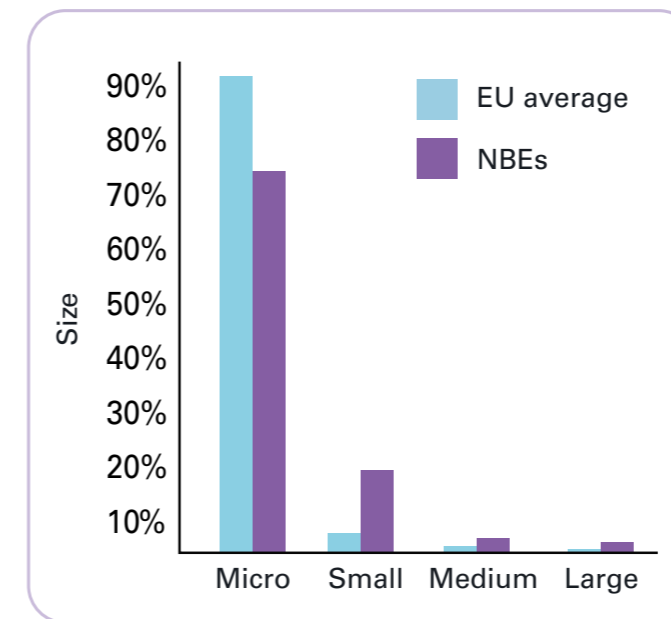
Figure 2



Nature-based enterprises also contribute significant value to local economies.

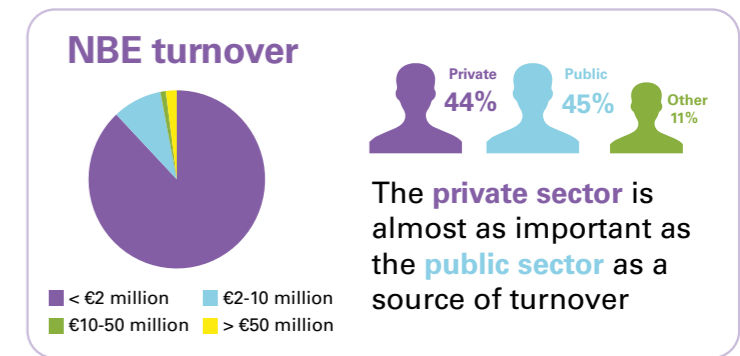
A Connecting Nature survey of nature-based enterprises (2020) shows that nature-based enterprises typically employ more people than the average European small and medium-sized enterprise (SME) (see Figure 3). Among survey respondents, there are significantly less micro enterprises (employing fewer than 10 people) and significantly more small enterprises (employing 10-49 employees) in comparison with the EU average.

Figure 3



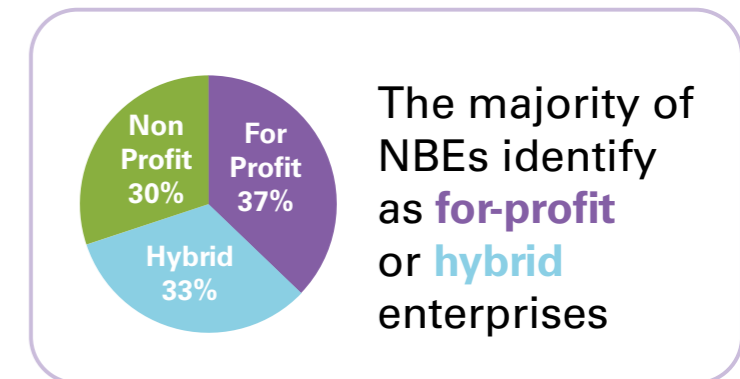
The majority of nature-based enterprises generate less than €2million in turnover. A minority generate €2-10 million in turnover and a very small number have turnover in excess of €50 million. Interestingly the private sector is almost as important as the public sector in terms of a source of turnover. This finding shows the importance of the private sector in investing in nature-based solutions. The third sector in contrast is a less significant source of turnover for nature-based enterprises.

Figure 5



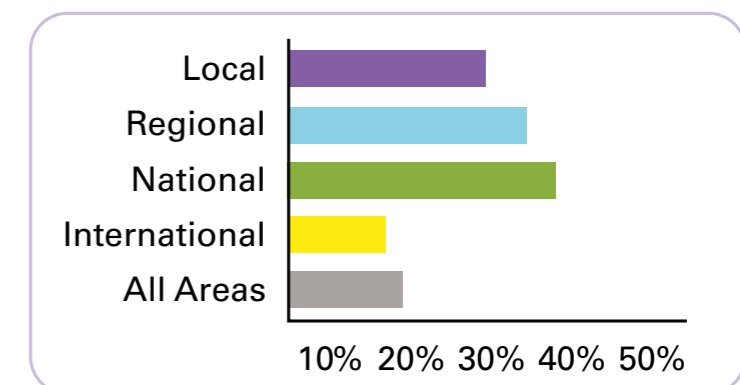
Survey data also shows the majority of nature based enterprises identify as for-profit or hybrid enterprises rather than not-for profits

Figure 4



Finally survey data shows that most NBEs operate at local, regional or national level. Just under 20% operate at international level.

Figure 6



Case study: Malaga

The city of Malaga is traditionally reliant on low-skilled, unsustainable industry sectors such as conventional tourism and construction. Malaga is investing significantly in nature-based solutions to the many climate change and societal challenges it faces as a city. As part of this approach, the city is putting in place a nature-based entrepreneurship strategy via a cluster of local nature-based enterprises and actors to stimulate and support their further

growth, to exchange information on innovation, raise awareness with the wider public about products and services and create new jobs. This is a 'win-win' strategy for the city: it encourages the start-up and growth of sustainable enterprises which in turn are helping the city to plan, deliver and manage nature-based solutions. These nature-based enterprises not only create cleaner jobs but by their very nature they also contribute to a better environment and to the improved health and wellbeing of citizens.

Specific challenges and enablers

Challenges faced by nature-based enterprises

Top 3 External Barriers

- Lack of awareness of nature-based solutions among decision makers
- Lack of focus on environmental criteria in public procurement
- Lack of common policies to support nature-based solutions across the public sector

Connecting Nature research shows that nature-based enterprises face specific challenges to start up and growth not faced by other types of enterprise. For example, they encounter a general lack of awareness of nature-based solutions and the multiple benefits they create which in turn leads to a lack of support and funding at decision-making level within both public and private organisations.

Public procurement processes may not yet adequately capture the multiple benefits of nature-based solutions. Conventional cost-benefit approaches can fail to take into account the non-monetary benefits of nature-based solutions, in particular their contribution to the environment, but also indirect benefits related to human health and well-being.

In order to realise the maximum impact of nature-based solutions, collaboration is needed across multiple sectors and agencies such as those in the fields of health, environment, economic and social services to name a few. The lack of such common policies has been identified as a major external barrier to the formation and growth of nature-based enterprises.

Top 3 Internal Barriers

- Lack of finance
- Lack of knowledge on how to measure impact
- Lack of finance/knowledge for research and development

Some of the internal barriers to start-up and growth faced by nature-based enterprises are similar to those faced by enterprises in other sectors. Lack of finance for start-up and growth is a common barrier for many organisations. Some internal barriers are more specific to nature-based enterprises, such as the lack of knowledge of how to measure impact. This is particularly challenging when it comes to measuring the non-monetary impact of nature-based solutions, for example the contribution of a nature-based solution to health and well-being or to a reduction in air pollution. The ability to measure impact is increasingly required by all types of investors – public, private and impact investors. In addition, nature-based enterprises identified the lack of capacity (in terms of both finance /knowledge) to undertake research and development as a barrier to growth.

Top 3 Enablers

- Strong partnerships/networks in sector
- Access to education, skill development
- Evidence of the effectiveness of nature-based solutions

Enablers

Nature-based enterprises identified strong partnerships and networks within the sector as a potential enabler to growth along with access to education and skill development. Relating back to both internal and external barriers, a key enabler for success is the ability of an enterprise to provide evidence of the effectiveness of the nature-based solution it is providing.



The Stiemer Deals Programme – Connecting Entrepreneurship with Nature

The city of Genk in Belgium is developing a large-scale nature-based solution to address a neglected 8km river valley running through the city which suffers from poor water quality. Originally designed as a spatial solution, the goals of the Stiemer Valley were expanded to consider the potential of nature to inspire entrepreneurship.

To support this goal, the city of Genk piloted the Stiemer Deals programme, a collaborative funding and governance framework to stimulate and support new projects harnessing the nature-based potential of the Stiemer Valley. Stiemer Deals covers large projects such as multi-million euro collaborations with non-governmental conservation bodies to develop sites along the river valley and much smaller scale projects such as the collaboration with local food entrepreneurs and social enterprises to develop new ice-cream flavours and honey products featured here.

The Stiemer Deals programme is co-ordinated by a dedicated officer in the Department of Environment and Sustainable Development. This officer develops and implements an individual Stiemer Deal for each opportunity, aligning each opportunity with overall Stiemer goals, clarifying the inputs of both parties (such as, for example, funding or promotion to be delivered by the city and time investment to

be delivered by the entrepreneurs) and identifying and tracking expected outcomes such as, for example, product innovations.

The Stiemer Deal pilot was deemed a huge success with 16 deals agreed. As a result, an official Stiemer Deals programme was launched in September 2020.



Spotlight: Crème Le Lis & Nostalgie

is a social enterprise employing people with autism in the development of innovative new ice-cream flavours for sale in their café and ice-cream parlour close to the Stiemer Valley walkway. The owner, Kaat, was one of the first local businesses to sign a Stiemer Deal leading to the development of a traditional ice-cream based on yogurt, caramelized oatmeal and honey sourced directly from the Stiemer Valley. With support from the City of Genk in branding and promotion of the new ice-cream, and the increased footfall from tourists and locals coming to the area, the result will be new customers for this local business creating sustainable social and economic benefits.

How to support nature-based enterprises?

Combining what we know about the characteristics of nature-based enterprises with the barriers and enablers to growth, in Connecting Nature we propose a three step, holistic approach for cities or public-sector agencies aimed at stimulating the start-up and growth of nature-based enterprises. This approach is being piloted by the partner cities of Connecting Nature, namely Poznań (PL), Genk (BE), Glasgow (UK), Malaga (ES), A Coruña (ES), Ioannina (GR), Pavlos Melas (GR), Nicosia (CY), Bologna (IT), Burgas (BU) and Sarajevo (BA), and their experience will be widely shared through the UrbanByNature programme.

Step 1- Awareness and strategic alignment

Lack of awareness of the multiple benefits of nature-based solutions leads to a lack of support and financing, which in turn limits demand for the products and services of nature-based enterprises. The converse is equally true; increased awareness leads to increased financing and increased demand. So how to raise awareness?

In the public sector, a good first step is to consider how nature-based solutions may support the strategic goals of your city or community as outlined in city plans or other strategic planning documents. It is common that nature-based solutions may align with multiple goals – social, economic and environmental. Nature-based solutions also align with global frameworks such as the UN Sustainable Development Goals. The **Connecting Nature Governance Guidebook** provides an excellent introduction to making the case for nature-based solutions by aligning them with the wider goals of a city. Securing the awareness among and the support of political leaders and departmental heads for nature-based solutions in general, and more specifically the value nature-based enterprises can create in delivering these solutions, is of paramount importance. The **Impact Assessment Guidebook** is also helpful in terms of providing a list of nature-based solution benefits and the **Technical Solutions Guidebook**

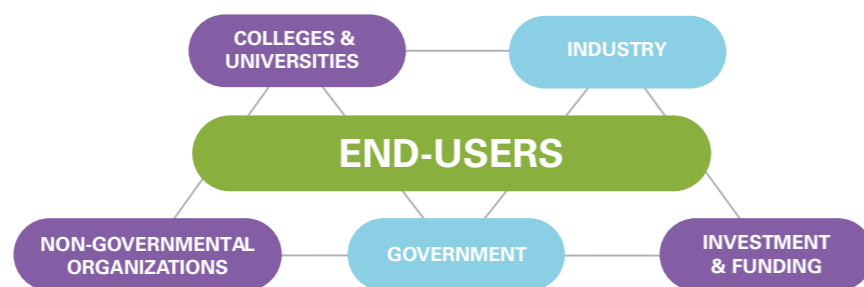
is useful in developing a thorough understanding of local context. Policy makers, practitioners, platforms such as the Connecting Nature Enterprise Platform and industry bodies such as construction federations, can play an important role in raising wider awareness about nature-based solutions and nature-based enterprises among private and third-sector organisations.

Step 2 - Building alliances

Addressing the internal and external barriers faced by nature-based enterprises will require support and expertise from a broad coalition of experts. Mapping the expertise required and building strategic alliances is an important step. It is important to include nature-based enterprises directly in this process to ensure the support measures planned meet their actual needs.

Connecting Nature recommends an open innovation approach engaging a wide variety of innovation ecosystem stakeholders in the development of a plan to support nature-based enterprises. The **Connecting Nature Co-production Guidebook** provides useful guidance on how to empower multiple actors to collaborate in building a common vision and plan including

Innovation Ecosystem



Twice as many nature-based enterprises believe they will be impacted negatively rather than positively by Covid-19



It is also important to consider the impact of major market shocks such as Covid-19 on the nature-based enterprise sector. While this crisis led to an increased awareness of the value of nature-based solutions, many nature-based enterprises found that tenders and contracts were frozen in the short-term. Given the pressure on public financing arising from Covid-19, future financing of nature-based solutions should be prioritised.

citizens and enterprises, academics, technicians, policy makers, local governments and NGOs.

Building public sector market demand for nature-based solutions will require cross-departmental collaboration and changes to current public sector procurement procedures to place a greater emphasis on the non-monetary benefits of nature-based solutions. The time and political will required to effect such systemic change should not be underestimated.

Alliances with potential funders

Addressing internal barriers such as lack of access to start-up or growth finance for nature-based enterprises may benefit from collaboration between public-sector agencies and existing financial institutions that are experienced in addressing this challenge in other sectors. Given the recent emergence of the nature-based enterprise sector, it is to be expected that awareness levels among financial bodies will be low and specific actions to raise awareness and engagement will need to be undertaken. Particular attention should be focused on impact investors.

Case study: ADEME, early leader in supporting nature-based enterprises

In France, ADEME, the national agency for environment and energy with responsibility for ecological transition is undertaking a study (2020) on how to fulfil market demand for nature based climate change adaptation solutions. ADEME has called for recommendations on measures that can be put in place to support the development of this sector. ADEME

has a track record in supporting other sectors such as agriculture to adapt to the challenges and opportunities of climate change.



Alliances to better measure impact

To increase market demand and awareness, specific attention needs to be focused on measuring the impact of nature-based solutions. The **Connecting Nature Impact Assessment Guidebook** provides planners and decision-makers with support to build a solid evidence-based understanding of the impact of nature-based solutions. Expert training and support programmes need to be put in place for suppliers of nature-based solutions to ensure that they meet the demands of planners and decision-makers. Building communities of practice (groups of people who come together to build and share knowledge) at national and international level will help to facilitate knowledge exchange and development. Capacity-building and knowledge exchange programmes such as UrbanByNature and platforms such as the Connecting Nature Enterprise Platform will also play an important role in forming alliances.

Step 3- Planning, implementing and monitoring a customised support programme

Who is going to lead on planning, implementing and monitoring a customised support programme for nature-based enterprises? This is an obvious question but not always an easy one to answer. Across the public sector, knowledge and responsibility for nature-based solutions usually lies with specific departments or agencies that often have expert technical knowledge. It is uncommon but not unknown for such departments or agencies to lead on supporting the development of nature-based enterprises to meet market demands (see the ADEME case study). More often, responsibility for enterprise support lies with other specialised business development agencies which often have little or no knowledge of the specificities of nature-based solutions. So, who should lead in supporting nature-based enterprises? Ideally this would be a department with cross-cutting responsibilities reporting directly to the Mayor or CEO but this is not always possible.

Regardless of which department or agency is assigned responsibility for supporting nature-based enterprises, it is clear that they will also need high-level support from other departments or agencies in order to ensure the multiple impacts of nature-based solutions are achieved. The level of funding and resources required to raise awareness, supply and demand in this new market sector should not be underestimated.

The importance of a customised support programme

The specific measures to be put in place to support nature-based enterprises will vary depending on each context. In the case of the city of Genk's Stiemer Deals, a broad-reaching support framework facilitated the development of smaller, more customised one-to-one deals with a large number of individual stakeholders. Key to the success of this framework was aligning the goals of stakeholders with the overall strategic goals of the city and clarifying what the city and stakeholder would each bring to the table. On the city side, a dedicated officer was put in place to help stakeholders to navigate the system and to customise existing financial and technical supports to meet the needs of the stakeholder. On the stakeholder side, they make a clear commitment to invest their own time and resources into the project.

The ARENA business support programme in London (see overleaf) is an example of a business support programme with a very clear focus on supporting product and service innovations in the area of nature-based solutions and resource efficiency. Through collaboration with a university partner, this support programme is able to provide technical support and assistance in aspects such as impact measurement, which has been identified as a major barrier for nature-based enterprises.

To connect with nature-based enterprises, visit the **Connecting Nature Enterprise Platform** on www.naturebasedenterprise.eu or www.connectingnature.eu



Case study: ARENA business support programme for nature-based solutions

Building from the collaboration developed as part of the EU FP7 project TURAS (Transitioning towards Urban Resilience and Sustainability), ARENA is a three-year London European Regional Development Fund (ERDF) co-funded business support programme led by the Sustainable Research Institute at the University of East London in partnership with Barking Riverside Ltd. ARENA supports London start-ups, spin-outs, SMEs and large enterprises seeking to develop and

commercialise their innovative ideas, products and services in the areas of nature-based solutions and resource efficiency for urban resilience. ARENA beneficiaries receive free and bespoke expertise and advice. The ARENA team of subject area experts, researchers and innovation practitioners provide support with market knowledge and networks, research and development, demonstration trials and assessment, promotion and showcasing, market rollout, and procurement support. With over 20 businesses already signed up, support for nature-based enterprises has focused on the development of partnerships and networks, supporting skills development and providing evidence of the effectiveness of nature-based solutions.

Spotlight: Green Roof Shelters Ltd is one of the businesses being supported by ARENA. This company is developing innovative ways to restore biodiversity in high-density urban areas through the conversion of generic grey infrastructure, such as bin covers, bike, shelters, and shipping containers into nature-based solutions. The ARENA team is monitoring these products in-situ to provide evidence of their effectiveness in generating net gains in biodiversity.



Impact measurement

As part of Step 3 impact measurement needs to be considered at multiple levels – at the level of the individual nature-based enterprise in respect of the specific product or service it provides and at the level of the overall nature-based solution, which is likely to include multiple component parts provided by different internal and external suppliers.

It is also important to measure the success of the support programme being delivered. Impact indicators, both quantitative and qualitative, should be considered at planning stage and data gathered throughout the process on indicators such as number of enquiries, number of enterprises supported, outcomes in terms of product or service innovations, impact on business confidence, contribution to overall strategic goals and so on.

Guiding questions in planning a programme to support nature-based enterprises

1. 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?
2. Who needs to be involved to deliver this plan? How will innovation ecosystem stakeholders be involved?
3. Who is going to lead on planning, development and monitoring? Have an adequate budget and resources for piloting or full-scale implementation been assigned?
4. 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?
5. How will success be measured? What are the impact indicators?

3 | Additional Resources

Nature-based enterprise is a new area of research and practice with many studies underway at present. Consequently, there is little in the way of resources. Some useful starting points for further information are listed here:

Connecting Nature Enterprise Platform

- This marketplace connecting buyers and suppliers of nature-based solution is available from October 2020 on: <https://naturebasedenterprise.eu> <https://connectingnature.eu>

Introductory webinars:

- UrbanByNature webinar on nature-based entrepreneurship <https://www.youtube.com/watch?v=5g5OmEXinKw>

Connecting Nature research publications:

- Kooijman, E.D.; McQuaid, S.; Rhodes, M.L.; Collier M.J.; Pilla, F. (2021) **“Innovating with nature: from nature-based solutions to nature-based enterprise”**. Forthcoming.
- McQuaid, S.; Kooijman, E.D.; Rhodes, M.L.; Cannon, S (2021) **“Nature-based Enterprises: barriers and enablers to growth”**. Forthcoming.

Other useful documentation:

- Burch, S, Andrachuk, M, Carey, D, Frantzeskaki, N, Schroeder, H, Mischkowski, N, & Loorbach, D (2016). Governing and accelerating transformative entrepreneurship: exploring the potential for small business innovation on urban sustainability transitions. *Current Opinion in Environmental Sustainability*, 22, 26–32. <https://doi.org/10.1016/j.cosust.2017.04.002>

- Eggermont, H, Balian, E, Azevedo, JMN, Beumer, V, Brodin, T, Claudet, J, ... Le Roux, X (2015). Nature-based solutions: New influence for environmental management and research in Europe. *GAIA*, Vol. 24, pp. 243–248. <https://doi.org/10.14512/gaia.24.4.9>
- Frantzeskaki, N, McPhearson, T, Collier, MJ, Kendal, D, Bulkeley, H, Dumitru, A, ... Pint.r, L (2019). Nature-Based Solutions for Urban Climate Change Adaptation: Linking Science, Policy, and Practice Communities for Evidence-Based Decision-Making. *BioScience*, 69(6), 455–466. <https://doi.org/10.1093/biosci/biz042>
- Sarabi, Han, Romme, Vries, & Wendling (2019). Key Enablers of and Barriers to the Uptake and Implementation of Nature-Based Solutions in Urban Settings: A Review. *Resources*, 8(3), 121. <https://doi.org/10.3390/resources8030121>

Other research on nature-based enterprises:

- The REGREEN Horizon 2020 project is also undertaking research on nature-based enterprises <https://www.regreen-project.eu>