Connecting Nature

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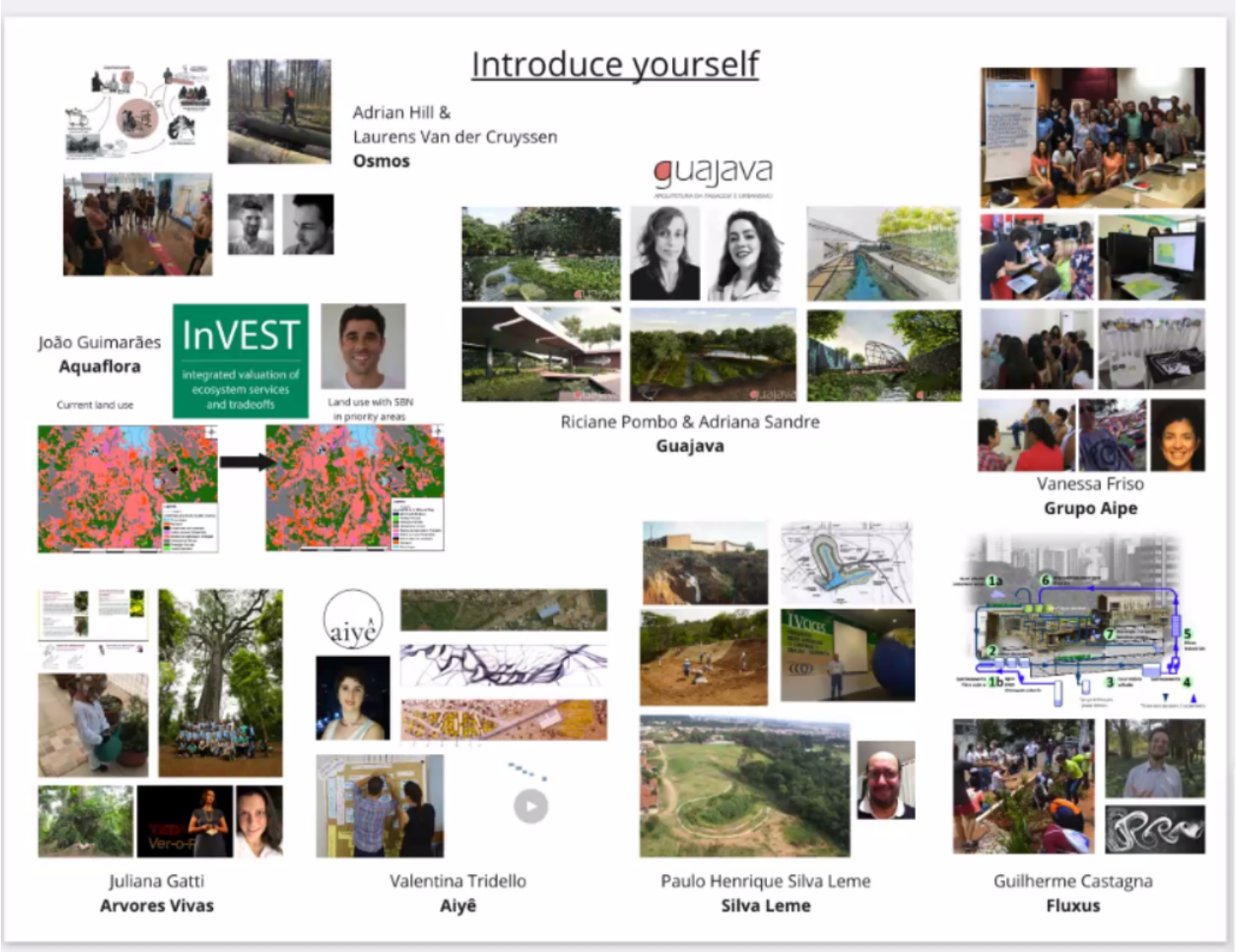
Deliverable 16

Nature-based financing and entrepreneurship in UrbanByNature hubs

Assessing opportunities and challenges for more nature-based enterprises
in Brazil, the Caucasus, Korea and China



Cover Figure: Screenshot of OSMOS's first mentoring session with Brazilian Nature-based Enterprises, March 2020

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Contents

List of Abbreviations

- ADB Asian Development Bank
- AFD French Development Agency
- AUA American University of Armenia
- BPBES Brazilian Platform on Biodiversity and Ecosystem Services
- CAF Latinoamerica development bank
- CN Framework Connecting Nature Framework
- CENS Centre for Ecological-Noosphere Studies
- CLIP Livable Cities Investment Program
- CRAES Chinese Academy for Environmental Sciences
- CGEE Centre of Strategic Studies and Management
- CNEP Connecting Nature Enterprise Platform
- CPO Charity Public Organization
- CWN CitiesWithNature
- EBRD European Bank for Reconstruction and Development
- EIB European Investment Bank
- EPIC Entrepreneurship and Product Innovation Centre
- GCAP Green City Action Plan
- GEF Global Environmental Fund
- GIS Geographic Information Systems
- ICCSD Institute of Climate Change and Sustainable Development
- ICLEI EAS ICLEI East Asian Secretariat
- ICLEI ES ICLEI European Secretariat
- ICLEI SAMS ICLEI South American Secretariat
- ICLEI KO ICLEI Korea
- ICMS Tax on the Movement of Goods and Services
- IUCN International Union for Nature Conservation
- KEI Korea Environment Institute
- MOE Korean Ministry of Environment
- MOEL Ministry of Employment and Labor
- MOEF Ministry of Economy and Finance
- MoU Memorandum of Understanding

- NBS — Nature-based solutions
- NBE — Nature-based Enterprise
- NBO — Nature-based Organisation
- NECP — National Energy and Climate Plan
- NIE — National Institute of Ecology
- NRF — National Research Foundation
- OECD — Organisation for Economic Co-operation and Development
- PBMC — Brazilian Panel on Climate Change
- PPPs — Public private partnerships
- RS — Remote Sensing
- SEA — Strategic Environmental Assessments
- SMEs — Small and medium enterprises
- TNC — The Nature Conservancy
- UbN — UrbanByNature

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Executive Summary

The tables below show an overview of the identified barriers and enablers, followed by the top recommendations for each UrbanByNature hub.

UrbanByNature Brazil	
Barriers	**Enablers**
Awareness of the NBS needs to be spread: the number of enterprises that see themselves as NBE and recognise the potential of directly working with NBS could be raised through improved and targeted NBS awareness campaigns.	NBEs are interested in capacity-building and strengthening relationships between each other, raising the relevance of the NBS agenda in Brazil and discussing common issues.
Lack of public-private sector dialogue (e.g. lack of clear NBS-incentivising procurement processes)	NBEs are usually receptive to engage in dialogues with municipal public actors.
Lack of tailored accessible funding/ financing initiatives for NBS projects, specifically for projects at an early stage of development, as well as lack of results-based NBS financing schemes.	PES supports the implementation of NBS in the territory - one of the few examples of blended finance that includes NBS as part of a consolidated strategy
Large Brazilian cities have administrative staff with the technical capacity and projects that fit the profile of international funders. This pattern is not repeated for small and medium-sized cities, which usually lack NBS capacity and knowledge of NBEs who work with NBS.	The existing national and regional legislation can be helpful to foster more NBS.

Key recommendations to unlock NBS Financing and Entrepreneurship

- The launching of associations such as the "Aliança Bioconexão Urbana" and of NBS clusters such as the NBS Cluster of Malaga, which focus on reaching financial opportunities for implementing NBS in Brazilian cities and on lobbying for the NBS agenda in the country, is highly recommended.
- Building better conditions for partnerships between public authorities and enterprises is vital to promote the NBS agenda and subsequent implementation. Considering the current dialogue between the European Union and Brazil on NBS between government institutions as well as projects, there remains a lot of capacity-building work to be done within public institutions to create suitable conditions. Mentoring for public sector actors could be a suitable next step for the Brazilian UbN hub, using the UbN Programme as a starting point and delving deeper into relevant topics or challenges together with Brazilian experts.

UrbanByNature Caucasus	
Barriers	**Enablers**
NBS is a relatively new concept in the Caucasian region.	Timely integration of NBS concept into EBRD requirements and possibility to work further with partners due to the countries being Associate Countries to the EU's Horizon 2020 and Horizon Europe funding programmes.
No funding strategies or sources in the region with the goal of leveraging NBS implementation.	Interest in Connecting Nature's guidebooks and tools, especially on NBS Impact Assessment (Co-Impact app).
Difficulties for scaling up NBS interventions due to delays when it comes to decision-making.	Several NBS related initiatives were implemented as successful demos funded by public charity organisations and environmental conservation NGOs in Armenia, as well as through private and non-governmental initiatives, and by public funding through municipal budgets in Georgia.

Key recommendations to unlock NBS Financing and Entrepreneurship

- Tapping into the full potential of NBS in the region by providing small-scale funding for pilots to increase awareness and engagement of NBEs would incentivise local action.
- The provision of small and medium-sized grants for communities, NGOs and other local actors would enhance NBS piloting in the region and disseminate adoption efforts as well as raise the interest of local companies to raise their skills to implement NBS.
- Making it mandatory to include NBS in public land use planning and developing voluntary guidelines for the private sector to follow/ take on and ensure quality standards.

UrbanByNature Korea	
Barriers	**Enablers**
Lack of clear political vision and a supporting policy framework for NBS as well as limited co-production activities with the local community and/or private sector, which could drive NBS implementation.	Legislation from 2001 has been backing up funding lines for ecosystem conservation and restoration. There are requirements for urban developers to pay into an ecosystem conservation fund, which is then used for restoration projects such as NBS.
Lack of consensus on the concept of NBS in Korea.	The public sector has been the main funder of NBS in South Korea.
Korea has a high number of development projects ongoing, but compensation schemes with NBS are still quite limited, so the sums still do not compensate for the losses and degradation caused by development projects.	The UbN Programme brought local governments together to learn about NBS for the first time in the Korean context and contributed to establishing the concept of NBS and having direct contact with national government policy-makers via events and dedicated sessions: a momentum has been created to influence policies.
Insufficient resources to cover NBS maintenance and regular running costs.	Public Korean research institutions established by national and local governments have been major supporters of NBS.

Key recommendations to unlock NBS Financing and Entrepreneurship

- It is highly recommended that greater attention and investments go into collaborative actions. Cooperative dynamics and shared practises among organisation members interested in NBS implementation can leverage moving towards a more sustainable nature-positive and low-carbon economy.
- Actions to raise public awareness towards NBS in Korea would raise awareness and pave the way also for more local action and stewardship considering that the wider community is seen as a key player.
- Create new environmental compensation schemes with NBS to have developers at least partly compensate for the natural degradation caused by new development projects, which are popping up at a rapid rate in the country.

UrbanByNature China	
Barriers	**Enablers**
Mainstreaming the concept of nature-based solutions and green infrastructure in landscape planning in urban settings is still a long way to go for Chinese cities	Experience with sponge city programme: there has been a shift from grey infrastructure to green, defying conventional design practises technically, aesthetically and ethically.
Challenges of stewardship: long-term financing mechanisms for the maintenance of NBS is seen as key, however ongoing mechanisms do not foresee it.	Strong political support: top-down political system with mandatory guidelines regarding the sponge city programme for government officials has been pushing the NBS agenda forward in China.
Narrow motivation from stakeholders to engage in NBS implementation processes / relatively small interest in co-production due to top-down policy-making.	Emphasis on ESG reporting among corporates
Knowledge on and openness for blended financing schemes are still limited in China	Momentum generated on the topic of biodiversity (and NBS) by the Convention of Biological Diversity's COP 15, to take place in 2022 in Kunming, China.

Key recommendations to unlock NBS Financing and Entrepreneurship

- Build on the growing momentum shift in the Chinese finance sector towards incorporating ESG criteria in investment processes, aligning projects with national goals, rather than only from the perspective of corporate social responsibility (CSR).
- Address the issue of inconsistency of policies by promoting greater policy synergies and NBS mainstreaming.
- Provide more NBS financing to leverage NBS implementation.
- Strengthen awareness on NBS effectiveness by using smart technologies, which can help to grow NBS demand.

1. What is this report about?

This report (Deliverable 16) reflects on the state of *nature-based financing and entrepreneurship in four UrbanByNature hubs to unlock the implementation of nature-based solutions (NBS)* and relates to Connecting Nature's task 5.5 *"Understanding nature-based financing and entrepreneurship in UrbanByNature hubs to unlock implementation"*. It is based on the experiences that were made whilst implementing the UrbanByNature (UbN) Programme in the four UbN Hubs Brazil, China, Korea and the Caucasus. This report outlines the gap between nature-based solutions products and services on offer by nature-based enterprises[1] (NBEs) and the demand for nature-based solutions by local governments. It also identifies opportunities for overcoming them (e.g. integration of NBS in policy initiatives, funding for nature-based enterprises, resolving procurement barriers). Drawing from the previous Deliverable 15, and considering the Connecting Nature Framework, this deliverable focuses on financing and business models as well as entrepreneurship around NBS in these four regions. See Annex 1 for the amended task's text.

Deliverable 16 builds on the Work of Deliverable 15

In Deliverable 15, the landscape of implementation conditions for NBS in the four regional hubs was explored around "Technical solutions" of NBS (construction), their "Governance", "Co-production", "Impact assessment" as well as "Reflexive Monitoring" during their planning and implementation phases and "Financing and business models" and "Entrepreneurship" around NBS. This deliverable goes more in depth on the last two aspects. Below the input from each of the hubs in Deliverable 15 is summarised as a starting point for the subsequent chapter.

Recap of Deliverable 15 in terms of "Financing and business models"

The **Brazilian Hub** identified selected suitable financing instruments for NBS implementation, although not recognised as specific/dedicated instruments for NBS. They include environmental compensation funds and payment for environmental services. Financing institutions like the Brazilian Development Bank, the Caixa Econômica Federal, the World Bank, the CAF (Development Bank of Latin America), the Inter-American Development Bank and the AFD (French Development Agency) were also identified as suitable sources of funding. When it comes to private financing, large-scale NBS are regarded as solutions with high implementation risks and thus less attractive for investors as they ought to be financed by the public hand. However, some progress has been made in the last few years. NBS were implemented based on business models that involved blended finance (e.g. pocket forests in São Paulo: planting initiatives were done by the local community, seedlings were financed by companies and the local government obtained the spaces for planting).

In the **Caucasus Hub** there are no specific /dedicated business models or strategies for funding NBS in the region. The involvement of the European Investment Bank (EIB) through its Natural Capital Financing Facility in European projects could support urban resilience in the region via NBS. The Asian Development Bank (ADB) might also expand its NBS-related portfolio through studies for the Livable Cities project. The Green City Action Plans (GCAPs), promoted methodologically by the Organisation for Economic Co-operation and Development (OECD) and ICLEI, and implemented through investment actions by the EBRD, have already been piloted in Armenia and

[1] Definition of NBE: "An enterprise, engaged in economic activity, that uses nature sustainably as a core element of their product/service offering. Here, nature may be engaged directly by growing, harnessing, harvesting, or sustainably restoring natural ecosystems, and/or indirectly by contributing to the planning, delivery or stewardship of nature-based solutions. A nature-based enterprise must contribute positively to biodiversity and ecosystem services". McQuaid,S.; Kooijman, E.D.; Rhodes, M.-L.; Cannon, S.M. (2021), Innovating with Nature: Factors Influencing the Success of Nature-Based Enterprises. Sustainability 2021, 13, 12488. https://doi.org/10.3390/ su132212488

Georgia, where at least four cities have completed their action plans: Yerevan and Gyumri (Armenia) and Tbilisi and Batumi (Georgia). There are relevant provisions for the implementation of components of nature-based solutions in current GCAPs. However, still an understanding of NBS is missing in the region as well as a lack of funding resources for implementation, maintenance, monitoring and evaluation.

The **Korean Hub** indicated several examples of how operational costs of NBS have been financed to date in cities in the region, among them, the Gwangju 'Greenway' (mainly funded with public national and city resources) and Seoul Forest Park (financial support systems include corporate sponsorship, regular patronage programme, search engine donations). Some of the identified challenges related to financing are the lack of management and maintenance after construction works, lacking guarantees for continuous financial support in the long-term, and the fact that many projects only get "once-off funding". In addition, cooperative and participatory processes are still lacking in the Korean planning landscape.

The **Chinese Hub** pointed out that the majority of operational costs of NBS are funded by local governments, as part of a regular public budget for urban greenery. If local administrations are part of a wider national pilot on a relevant topic, the Chinese national government might provide co-funding. Some private developers may take up a certain role in incorporating NBS in property development with the aim to increase liveability and promote property valorisation. The quantification of NBS benefits in economic terms still remains a challenge as well as underestimation of maintenance and monitoring costs.

Recap of Deliverable 15 in terms of "Entrepreneurship"

The **Brazilian Hub** indicated that entrepreneurship has been stimulated in Brazil through the growing recognition of the private sector of the benefits of implementing NBS and disseminating their added-value. However, there are still some difficulties such as the absence of legal incentives, which leads to distrust of large companies implementing alternative green solutions to conventional grey ones.

The **Caucasus Hub** identified some innovative nature-based solutions that were applied in the region (e.g. the famous Yerevan cascade and the upgrade of some central streets in Tbilisi), but the wide field of NBS still remains unexplored by entrepreneurs. There are developers, architects and planners in the region who are aware of and consider the benefits of nature and NBS, but NBS are not yet considered as mainstream and therefore a local market is still lacking.

According to the **Korean Hub**, in June 2020, the Korean government announced the Korean Green New Deal to foster a green transition of infrastructure through fields such as green energy; ICT-based smart water and sewage management system; the creation of innovative ecosystems for green industries; and the spread of low-carbon distributed energy aligned with a renewable energy transition. NBS are precisely a valuable approach to implement the Korean Green New Deal. Nevertheless, the innovation environment in the region requires advocacy work to disseminate the concept to the wider civil society, public officials and SMEs.

Last but not least, the **Chinese Hub** stressed that in general, both national and local governments in China encourage innovation. However, the focus on technological aspects tends to suppress investments in the social or cultural fields. In addition, many of the businesses in the innovation sector are either large in size or have strong links to the Chinese government. As a result, they can operate on a large scale and/or receive privileged support whenever new policies are released. Therefore, the stimulation and support of NBS entrepreneurship is rather limited, as large and state-owned enterprises usually get more resources.

2. The Financing, Entrepreneurship and Innovation Landscape for Nature-based Solutions in 4 UrbanByNature Regional Hubs

Methodology: Questionnaires on NBS financing and entrepreneurship submitted to key partners of the UbN Regional Hubs

A set of questions was sent out by Connecting Nature's Work Package 5 to the four active UbN regional hubs of Korea, China, the Caucasus and Brazil. The three ICLEI Regional Offices for Korea, East Asia and South America, as well as the project's Caucasian partners in Georgia and Armenia were asked to describe the financing landscape for NBS in their region, or, alternatively, in a selected city within their region or even in the national context. They were able to decide which context is most relevant for them or which topics they would like to start developing swiftly. The questions submitted to the UbN hubs were clustered into 4 groups considering:

- The NBS financing landscape in your city/region/country
- Funding/support initiatives for SMEs and Start-Ups (in particular those oriented towards sustainable 'green' activities such as nature-based enterprises) in your city/region/country
- Considering specifically nature-based enterprises in your city/region/country
- The atmosphere for entrepreneurship and innovation for NBS in your city/region/country

For the full list of questions submitted to the UbN regional hubs, see Annex 2.

UrbanByNature Brazil

Financing landscape

To consider the NBS financing landscape in Brazil, it is important to recognise **the role of federal legislation on land use**, especially the Brazilian Forest Code. The Code defines the mandatory recovery of forest areas, especially on the edge of water bodies for all rural properties in the country, taking into account some specific aspects that vary according to the type of property and/or water body. In this framework, the ecological restoration initiatives in association with the Forest Code mobilise a large portion of environmental technicians, public servants and the private sector around environmental compensation strategies. In Brazil, environmental compensation is largely used as a compensatory measure at the environmental licensing of public or private undertakings.

In addition to the Forest Code, it is also worth highlighting the **National Policy on Payment for Environmental Services**, which is the first initiative at the national level to unify the regulation of payoffs for providers of environmental services. The source of funds ranges from public authorities to civil society organisations or private agents, through financial or non-financial remuneration, to be agreed between the parties, as well as for the maintenance and/or recovery of forest areas. In this perspective, a traditional and successful example of payment for environmental services in Brazil occurs in the city of Extrema (State of Minas Gerais), in the southeast region of the country, where rural landowners receive remuneration to guarantee the provision of ecosystem services for the region, mainly related to water. The resources are provided by the City Hall Budget, but also through agreements with government entities and civil society, for technical and financial support. Although payment for environmental services is not a specific financing line in Brazil, it does support the implementation of NBS in the territory, being one of the few examples of **blended finance** that includes NBS as part of a **consolidated strategy**.

The scenario of financing the action for biodiversity and climate in Brazil faces many obstacles. Financing for climate resilience in Brazilian cities with a focus on NBS faces threats such as the **lack of knowledge of the meaning of the NBS term by financial institutions as well as by the public sector; little experience with implementation measures and procurement processes; lack of success cases considering the Brazilian diversity of biomes and the plurality of specific local contexts. Also, there is little available data on how to finance NBS to enable their planning and implementation. Further, there is lack of experience in monitoring and measuring results to evaluate evidence.**

Considering this context, the financing of NBS in Brazil nowadays comes from both the private and public initiative, but is mostly associated with **environmental compensation. In the rural context**, the main initiatives are related to **ecological restoration, aligned with the implementation of the Brazilian Forest Code**. Considering the diversified Brazilian rural context, financing sources vary from specific financing programmes from public banks to funding by private banks and companies[2]. **In the urban context, there is greater diversification in the use of financing** lines because of the diversification of applied NBS types, such as rain gardens or linear parks, which are quite different in terms of scale and constructive efforts. Definitely, financing sources vary widely according to the type of NBS project.

In Brazil, **access to international financing to finance large projects is growing**. In the city of Niterói (State of Rio de Janeiro), in the southeast region of the country, the restoration of the edge of the Piratininga Lake, integrates different NBS over 10km along its perimeter and is being carried out with loan from the Latin American Development Bank (CAF). The city of Recife (State of Pernambuco), in the northeast region of the country, has been receiving funds for the installation of filtering gardens on the banks of the Capibaribe River, among other activities, with a loan from the Global Environmental Fund (GEF). The cities of Campinas and Rio de Janeiro, both in the southeast region of the country, will receive loans from the GAP Fund for the use of NBS in adapting to the risk of flooding in urban areas.

All of the above examples are from large cities, whose administration staff have more **technical capacity and projects that fit the profile of international funders, who are interested in large-scale projects**. This pattern is **not repeated for small and medium-sized cities**, due to a series of factors, in particular **the lack of technical knowledge from administrative staff, lack of understanding of the co-benefits of NBS, lack of large-scale projects and due to public debt.**

The "Tax on the Movement of Goods and Services (ICMS)", which is probably the most important State **Value Added Tax** in Brazil. According to the Brazilian Federal Constitution (1988), each State Government has autonomy to define specific criteria for sharing ICMS tax revenues to their municipalities. Using this possibility, Brazilian States have been discussing different **environmental criteria** in the definition of the **distribution to the municipalities** of the resources collected as ICMS, named Ecological ICMS (ICMS-E) (Castro et al 2019)[3]. So this can be considered an alternative financing line for NBS: the Ecological ICMS, a law that was sanctioned by the **State of São Paulo in 2021. This law will provide the transfer of approximately £ 80 million per year in resources from taxes to city halls all over the state, destined to environmental preservation and the adoption of targeted actions to sustainable development**. This financing path opens possibilities for the implementation of NBS in municipalities in a more simplified way and of all sizes.

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[2] Source: http://repositorio.ipea.gov.br/bitstream/11058/9229/1/Financiamento%20para%20restaura%C3%A7%C3%A3o.pdf

[3] Castro, B,S., Young, C.E.F., Costa, L.A.N. The "Ecological ICMS" as an economic incentive for municipal environmental management . 4th International Conference on Public Policy (ICPP4). Montreal, 2019.

Considering the need for incentives to allow new NBS financing formats in Brazil, the public hand has not been as active as it could be. **There are no tailored initiatives for NBS projects at an early stage of development, or results-based NBS financing schemes**. An alliance reuniting partners from the third sector was created with the aim to spread the knowledge about NBS. Launched in early 2021, it is called "Aliança Bioconexão Urbana" (meaning Urban Bioconnection Alliance) and it is formed by the following institutions: Brazilian Network of the UN Global Compact, ICLEI South America, the Brazilian Platform on Biodiversity and Ecosystem Services (BPBES), WRI-Brazil, the Brazilian Panel on Climate Change (PBMC), The Nature Conservancy Brazil (TNC), the Centre for Management and Strategic Studies (CGEE) and the Boticário Group Foundation. It has been focusing on reaching financial opportunities for implementation of NBS in Brazilian cities in the next few years.

Entrepreneurial landscape

In general, Brazilian **Nature-Based Enterprises (NBEs)** have been working with NBS projects through public procurement processes or private contracts for the construction and execution of the interventions. NBE's **main initiatives are related to Tourism and Recreation; Urban Landscapes; Water Management; Sustainable Agriculture & Food Chain; as well as Sustainable Forestry.** Considering the existing high biological diversity and the characteristics of land use in Brazil, these sectors play a key role to ensure a more sustainable development in Brazil, and they involve a diversified range of actors. Even so, **few recognise themselves as part of the chain of NBEs**, who work directly with the theme of NBS, or actively indicate this position.

Even so, although it is not common for this conversation to take place, the NBEs are usually **receptive to engage in dialogues with municipal public actors**, seeking a mutual understanding of the strengths and weaknesses of **public procurement processes** towards NBS. The experiences of ICLEI and OSMOS as part of Connecting Nature in organising a mentoring course for NBEs in 2021 (see Chapter 3) to meet the demands of public managers proved to be an effective mechanism to overcome concrete challenges. The group of NBEs, who participated in the mentoring, **are organising a meeting in 2022 to strengthen their relationships, raise the NBS agenda in the country and discuss common issues**. Also, based on proximity with ICLEI SAMS as a result of the Connecting Nature project, many NBEs have been contributing to review an upcoming **Brazilian Catalogue on NBS**, an initiative of the Centro de Gestão e Estudos Estratégicos (CGEE), with received support from ICLEI SAMS and ICLEI ES, and will be published early 2022.

There are many challenges related to the growth of the NBE landscape in Brazil: **NBEs usually have difficult access to policymakers; there is lack of in-depth understanding of the NBS co-benefits (NBEs may have a sectoral approach), most public procurers are not aware of how to procure NBS; there is lack of monitoring schemes to attest the impacts of NBS; and there is inconsistent regulation specific to NBEs.** Even so, Brazil has a large capacity of trained technicians on the subject and environmental legislation that supports the creation of a strong support system for NBS.

Figure 1: Capivari River, the main source of water supply for the city of Campinas (Brazil)

In order to move forward in the Brazilian financing landscape and to support innovations in the field of NBS, it is important to **increase the recognition of the NBS concept, its implications and co-benefits broadly across government, funders, technicians, businesses, media and civil society.** In addition, there is a need to invest in extensive monitoring and specific data, considering that Brazil has very different environmental and social conditions. There are some initiatives in place that prove the financial and environmental benefits of NBS - for example, an Investment Case on Green Infrastructure for Water in Campinas has been proving a great reduction in the cost of treating the water that supplies the city, due to the restoration of degraded areas and consequent reduction of soil erosion[4]. This study is being held within the INTERACT-Bio project, in partnership with WRI-Brazil, which has already organised three studies of Green Infrastructure for Water in Brazil - to be found here. Both of them indicate the economic benefits of restoration of degraded areas to water supply in big cities. However, initiatives are not largely replicable yet. In fact, many of the NBS funding initiatives in Brazil are recent, and this indicates that the discussion in the country is maturing - so there is green light ahead.

UrbanByNature Caucasus

The concept of NBS is relatively new and entered into the South Caucasian region **recently**, thanks to the dedicated efforts of the Connecting Nature project**.** The concept appeared in the region just in time for Local Authorities of Yerevan (Armenia) and Tbilisi (Georgia) to engage in the formulation of **strategic documents** for the implementation of green activities in the urban environment based on the methodology of the **European Bank for Reconstruction and Development (EBRD) for the Green City Action Plans (GCAPs)**, developed with collaborations from ICLEI and OECD. GCAPs have been piloted in Armenia and Georgia, where at least four cities have completed their action plans: Yerevan and Gyumri in Armenia, and Tbilisi and Batumi in Georgia.

The term NBS appeared for the first time in Yerevan's Green City Action Plan (GCAP) associated with green infrastructure, as a main and compulsory category of urban land use to be implemented until 2030. Although Yerevan's GCAP was approved by the "Community of Elders" in 2017, **there are still no funding strategies associated with the document to leverage NBS implementation in the region**. Some NBS related initiatives were implemented as **successful demos funded by public charity organisations** such as the Charity Public Organization (CPO) "Eurasia", and **environmental conservation NGOs and foundations** such as Awesome Nature Armenia. Considering that there have been only a few NBS implementation projects in Armenia so far, initiatives to apply NBS are still quite **driven by the private sector**. However, the Municipality of Yerevan appears to be actively restoring irrigation systems throughout the city, which marks a relevant step towards **restoration of urban green areas**. The works are **driven by State funding**.

Considering NBS implementation in Georgia, **some private and non-governmental initiatives have been supporting the NBS agenda**, ranging from very small local initiatives to large-scale projects supported by private institutions. However, **NBS-compatible schemes are mostly supported by public funding through municipal budgets** and as part of International Financing Institutions (IFI) supported projects, such as within the frames of EBRD's Tbilisi GCAP or Asian Development Bank's (ABD) 'Livable Cities Investment Program'. In this respect, it was key to have the participation of an EBRD member in the side session 'CLIP – meeting the Caucasian, Chinese and Korean streams', facilitated by ICLEI and held online

[4] The Investment Case was developed by ICLEI SAMS in partnership with WRI-Brazil. The study will be published in the first semester of 2022.

during the Connecting Nature Glasgow Innovation Summit in March 2021. Further, **positive promotion and mainstreaming of NBS** in the Caucasus was possible through NBS integration in Strategic Environmental Assessments (SEAs) of **land-use plans** at the State, city and local settlement level in the region. The Environmental Assessment Code of Georgia, which specifies SEA and EIA rules, contains provisions for full cost-benefit analysis of policies, plans, programmes and projects, contributing with NBS benefit valuation. In this sense, it has been extremely useful for the region to have access to the methodological guidance provided by the Connecting Nature project's **Guidebooks on the NBS Framework and especially on NBS Impact Assessment.** In the long run, NBS activities mandated by land-use plans and their SEAs would potentially be funded by blended finance, a combination of international, national and local funds, both public and private. Considering the existing financing landscape in the Armenian Caucasus region, some successful examples of implemented and ongoing NBS-related projects are: the "Yerevan's Functional Targeted Tree Planting Plan", funded by the municipality the "Green Wall for Kindergartens"; a piloting project for a kindergarten in Yerevan, funded by the Eurasia PCO the "Nature's Balm and Green roofs for schools"; a piloting project for a school in the city of Vanadzor, funded by the "Awesome Nature Armenia" Foundation via crowd-sourcing; and the "Yerevan Energy Efficiency project" funded by the European Investment Bank (EIB).

In terms of the financing landscape in the Georgian Caucasus region, the following NBS-related projects have been funded, implemented or are under implementation: "Tbilisi's GCAP Bus Fleet Renewal Project" promotes sustainable public transport and urban mobility, supported by the **EBRD**. Further, the "Livable Cities Investment Program" (CLIP) in collaboration with the **Tbilisi Development Fund** has been supporting the Tbilisi City Hall with a design for the "Vera Park Rehabilitation", a project that offers **opportunities for the application of NBS in the central historic garden of Tbilisi**. Another project relates to a large-scale NBS-compatible initiative to restore Tbilisi's **Urban Forests with native plants** supported by the **Development and Environment Foundation** and implemented by a multidisciplinary team led by GeoGraphic. Another initiative that is worth mentioning relates to the development of an **NBS Impact Assessment Framework** for Kutaisi and a land-use planning concept and drafting of a SEA scoping. Further, the coastal settlements of Grigoleti and Kvavilnari have land-use plans and SEAs that are ready for approval by the local authorities. The **funding** of these planning activities are provided by **cities and municipalities**, sometimes complemented **with international support** (KfW in case of Stepantsminda, UNDP in case of Grigoleti). Considering activities within the **private sector**, the Georgian company Esco-S designed and built the first zero-emission building in the country, self-funded by the company, integrating natural wetlands and different types of shelters for local habitats to support biodiversity, as demonstrated by this short video of the UrbanByNature Caucasian webinar series. Another private initiative that can be mentioned is by the architectural company DMARK together with the Green Building Council of Georgia, whose funding was enabled by a **public-private-partnership (PPP), enabling a vegetated roof at the Tbilisi Business Centre** (under completion, a LEED certification is foreseen).

Most of the Georgian private actors mentioned in the section above participated in the peer-to-peer **mentoring programme by OSMOS**, which was delivered in the framework of the UrbanByNature Caucasus Hub (see Chapter 2 of this Deliverable for more info).

Considering the successful NBS-related implementation examples, some **barriers** can be identified in terms of **scaling up** the interventions. Since 2019, CENS has been negotiating with local authorities, such as the Yerevan Municipality, to include the creation of green walls in the Annual Budget of the Municipality as a cost-effective solution that can ensure the well-being of children and the environmental footprint of kindergartens in Yerevan. There are **delays when it comes to decision-making** by the local authorities,

so discussions are still ongoing. In fact, the provision of **small and medium-sized grants** for communities, NGOs and other local actors would **enhance NBS piloting** and disseminate adoption efforts as well as raise the interest of local companies to **raise their skills to implement NBS**. Finally, a full set of N**BS procurement procedures and regulation** for local authorities and related training programmes for procurement units would also be beneficial.

Considering the **Georgian financing landscape**, stipulating **NBS as a mandatory concept within land-use** plans related to both urban and rural areas and as part of SEAs would enable more planners and practitioners to consider NBS alternatives for implementation, accelerating NBS masterplanning. Further, voluntary implementation of NBS by private owners when retrofitting new facilities or planning urban areas could be supported by national and municipal regulations and by the provision of a locally-contextualised NBS Catalogue to encourage the selection of solutions by those interested. Funding programmes from IFIs like the mentioned GCAP and CLIP could include NBS directly as the component of implementation and support pilot schemes and thus stimulate private sector actor development by funding NBS interventions.

The virtual roundtable on the nature-based economy, organised by Connecting Nature partners, received an input from the Caucasus: There is some experimentation by IFIs putting nature and environment at the front-end of decision-making. A good example of this is the EBRD's Green Cities initiative.

Considering **blended finance** schemes, the Caucasian region is aware of the European Investment Bank's (EIB) blue and green infrastructure initiatives, as well as its Natural Capital Financing Facility, but their funding in Georgia and Armenia is limited with large-scale infrastructure loans for projects.

In terms of **crowdfunding,** there is the mentioned "Nature's Balm and Green Roofs for Schools" by the "Awesome Nature Armenia" Foundation. In Georgia, a small NGO called Gavigudet, who serves the interests of the citizens, mainly of the city of Rustavi, has managed to organise local crowdfunding resources for local urban tree planting campaigns.

Considering financial support in Armenia for early-stage NBS projects, in the occasion of Yerevan's Tree-Planting Programme, CENS proposed to the Municipality to attract private sector capital from local restaurants, cafes and companies to support planting activities in turn of small tax reductions, but the offer was rejected by the authorities. In Georgia, funding programmes from IFIs like the mentioned initiatives in the framework of the GCAP and CLIP could provide funding interesting opportunities for early-stage NBS implementation and related maintenance schemes.

In terms of funding/ support initiatives for small and medium enterprises (SMEs) and related start-ups oriented towards sustainable 'green', in Georgia activities seem to be mainly funded by international sources such as EBRD, Green Climate Fund, in Armenia by Awesome Foundation, etc. There are some support schemes for SMEs and start-ups such as Enterprise Georgia, Start-Up Georgia, as well as the European umbrella SME development programme Eu4Business, which is active in Ukraine, Belarus, Moldova and Caucasian countries, including schemes in Armenia and Georgia. However, these initiatives hardly are geared specifically towards supporting NBS capacity development and/or NBEs.

In Armenia, one can mention FarmHelp, a start-up that popped up from the Farm Help Entrepreneurship and Product Innovation Centre (EPIC) of the American University of Armenia (AUA). FarmHelp offers a unique blend of knowledge, data, and technology-based interventions to small farmers, who are impacted by extreme climate conditions and don't have the capacity or access to technical and/or financial support. EPIC, a platform of AUA, promotes entrepreneurial education, cross-disciplinary collaboration, and start-up

venture incubation.

Considering the landscape of key players in supporting the transition to a more sustainable nature-positive, low-carbon economy, in Armenia the Government of Armenia (Ministry of Environment, Ministry of Economy) is the main player with national-level programmes but small and medium foundations such as The Foundation to Save Energy (ESF) are also well known for their activities in collaboration with donors and NGOs. In Georgia, a National Energy and Climate Plan (NECP) is being elaborated with support of the European Energy Community Secretariat, and it is hoped that it will be possible for NBS stakeholders to influence the NECP development. Considering that the NECP should be aligned with SEA, the consultation processes should allow opportunities to incorporate NBS.

In the Caucasus, the NBS-related sectors that are more active are: NBS for Green Buildings, NBS for Tourism and Recreation, NBS for Urban Landscapes, Sustainable Agriculture & Food Chain, Sustainable Forestry, Nature-Based Organisations. The Armenian SME "Solution" has been working with these sectors with the aim to provide professional services in natural resource management and the green economy. In Georgia, the field of Smart Technologies for NBS, geospatial technologies in particular, has been quite active through the work of GIS and RS Consulting Centre GeoGraphic, who contributed to integrate NBS in land use plans and their SEAs. Considering the atmosphere of entrepreneurship in the Caucasus, it is crucial that SMEs and startups have access to finance and opportunities for capacity development. In this sense, peer-exchange between European and Caucasian NBEs is key.

UrbanByNature Korea

In Korea, the **public sector has been the main funder** of NBS. The '**Natural Environment Conservation Act' from 2001** has been **backing up funding lines for ecosystem conservation and restoration**, in order to prevent further damage and devastation of the natural environment in the Korean territory. Basically, the "Ecosystem Conservation Fund Return Project" worked as follows: in order to counteract the degradation of ecosystems and biodiversity loss, if a natural ecosystem would be damaged through a development project, **an ecosystem conservation cooperation fund was imposed onto the developers**, which were charged a cost corresponding to the damaged area. Recently, government departments have been carrying out various projects for the conservation and restoration of ecological resources, i.e. of ecological parks, forest areas, natural yards, ecological playgrounds, and urban green sites. The interest and demand for ecosystem services and ecological welfare has been increasing in Korea.

In 2007, the funding framework was reformed when the projects of the "Ecosystem Conservation Fund Return Project" were still in progress. Recently the **law was revised, opening opportunities to integrate and enhance NBS in Korea**. Based on the new law, the Ministry of Environment allocated a budget of 15,000 million KRW (approximately 11,000 Euro) in 2021 to support businesses working with NBS, as well as nature conservation organisations. In 2010, research was conducted to improve the funding landscape, also considering the projects of the "Ecosystem Conservation Fund Return Project". According to the research outputs, the majority of the projects are related to biotope restoration, but there are also projects addressing the restoration of ecological corridors and nature conservation areas. Project sites are mainly located near schools and public spaces, or close to rivers, streams, ponds or wetlands. Until recently, the cost of 65% of projects sumed less than 300 million KRW (approximately 220,000 Euro) and only two local governments were actively engaged. The average duration of a project was usually less than 10 months. Some few cases were carried out in 2020, but the impact has been limited. This is precisely the reason why

the Act has been recently revised, in order to enable better results and new projects. A sensible improvement to the mentioned scheme would be to set up clearer policy intentions towards NBS and integrate approaches to increase stakeholder engagement.

There is still a **lack of consensus on the concept of NBS in Korea**. The country has a high number of development projects ongoing, but compensation schemes with NBS are still quite limited, so **the sums still do not compensate for the losses and degradation caused by development projects**. Blended finance could be a way to overcome barriers to NBS implementation. However, **without a clear political vision and a supporting policy framework**, the NBS agenda will remain timid.

Considering the landscape for SMEs and start-ups in Korea related to NBS**,** Jeju Ecotourism Association can be mentioned as an interesting example, as it has been promoting responsible travels to natural areas to foster awareness on the importance of nature conservation and to improve the welfare of local residents. The association's idea is to ask from travellers that they take responsibility for their travels so that the impact on the environment can be minimised, and the consumption of travel can directly benefit local residents, fostering social and education. The association consists of fifteen leading SMEs. The majority of the members are ecovillages designated by the Ministry of Environment. Other members are cooperatives and social entrepreneurs. The association has been gathering members to discuss responsible tourism in Jeju Island.

Some funding sources on the NBS-related activities mentioned in this chapter are the Korean Ministry of Environment (MOE), acting along the guidelines provided by the 'Natural Environment Conservation Act', the Ministry of Employment and Labour (MOEL), following the Social Enterprise Promotion Act, and the Ministry of Economy and Finance (MOEF), following the Framework Act on Cooperatives. An usual **common funding criterion is the level of engagement of stakeholders and the expected concrete outcomes** the can achieved by the involved stakeholders.

Although Korea has resources for NBS-related activities, the amount is usually **insufficient to cover NBS maintenance and regular running costs.** Without collaborative actions among members of organisations interested in NBS implementation, it is quite difficult to move towards a more sustainable nature-positive and low-carbon economy. **A key player** in supporting the transition to a more sustainable nature-positive, low-carbon economy is **the wider community.** So there is a need to focus efforts to **gain public awareness towards NBS.** According to recent NBS research realised by Connecting Nature partners, this situation seems to match the European one, where significant advances were achieved to develop alternative financing and governance models for the **NBS stewardship phase**.

Considering nature-based enterprises in Korea, the following sectors are most prominent:

- Community Engagement: ecotourism, ecological villages, and environmental NGOs focusing on nature conservation & preservation;
- NBS for Tourism and Recreation: ecotourism associations such as the one mentioned in the paragraph above;
- NBS for Urban Landscapes: considering the mentioned compensation programme "Ecosystem Conservation Fund Return Project", urban areas have been getting opportunities for NBS implementation;
- Consulting and landscaping companies are engaged in ecosystem restore projects in Urban.

As mentioned, the **main driving force for NBS in Korea is the public hand**; **public Korean research**

institutions established by national and local governments **have been major supporters of NBS**, such as the Korea Environment Institute (KEI), the National Institute of Ecology (NIE), and 14 **research Institutes established by provincial governments and metropolitan administrations** such as of Suwon, Goyang, Yongin and Changwon.

Considering incentives for the development of the Korean **nature-based entrepreneurship, political factors** can be pointed out as a significant external influence that could be improved. There is a lack of **incorporation of NBS into relevant policies** and **economic instruments** seen to play a significant role in market development. There are only a **few Korean funds and subsidised loans.** So far NBEs have been working with local governments, but **collaboration is not yet fully activated.** In order for NBS-related innovations to thrive, political intention should be strengthened, and new funding lines should be established. Recently, ecosystem valuation initiatives were supported by the National Institute of Ecology, based on co-funding by NIE and local governments. These projects can contribute to **enhancing public awareness on the importance of NBS**. And it might also contribute to the **strengthening of nature-based entrepreneurship** in Korea.

UrbanByNature China

Considering the NBS financing landscape in China, **NBS financing is driven by the public sector**. The investments for NBS implementation and innovations are mainly coming from government-funded programmes. The Sponge City Programme is well-known for public fundings for the planning and implementation of NBS in cities. According to a recent publication by Kongjian Yu, the term “sponge city” can be loosely defined as “*using natural landscapes to catch, store and clean water, but the concept has roots that run far back through the history of human adaptation to climate challenges, particularly in the monsoon world. Several projects at different scales on China's Hainan Island illustrate how Turenscape has turned sponge city thinking into real, on-the-ground results*”. Since practitioners in China have been working with the **sponge city concept, there has been a shift from grey infrastructure to green**, **defying conventional design practises** technically, aesthetically and ethically. The top-down political system has enabled the **sponge city concept and ecological restoration** to be **mandatory for some government officials** on Hainan Island, for example, which is one of 30 pilot sponge cities in China, and this **pushed forward the NBS agenda in China**. Within the scope of the sponge cities programme and beyond, some cities still focus on the angle of conventional infrastructure construction, because construction projects are usually seen as driving more cash flow and having less risk. **Mainstreaming the concept of green infrastructure in landscape in urban settings is still a long way to go for Chinese cities**. Besides the Sponge Cities Programme, there are governmentally funded programmes at the city level for implementing NBS for city regeneration, such as habitat gardens in Shanghai.

In the context of the mentioned examples, among the ongoing barriers for scaling them up there is a still **narrow motivation from stakeholders to engage in NBS implementation processes.** Further, **long-term financing mechanisms for the maintenance of NBS** would be key to enable NBS upscaling, together with the engagement of the private sector in the long run. However, **knowledge on and openness for blended financing schemes are still limited** in China. On the other hand, in terms of crowdfunding, there are some **NGOs working with crowdfunding** for NBS implementation in China like TNC, who has launched habitat gardens in the Changning district, Shanghai, being a pioneer to work with city governments to promote NBS implementation.

Considering the landscape of funding and support initiatives for SMEs and start-ups, in particular those

oriented towards sustainable 'green' activities such as nature-based enterprises, SMEs/start-ups usually do not receive direct government funding. For example, the Chinese Ministry of Science & Technology, via the MOST funding, funds academic institutions, not the private sector. Indeed, the dynamics is more structured around NBEs getting contracts from clients like local governments and property developers.

In terms of a Chinese transition towards a more sustainable nature-positive, low-carbon economy, there is a **strong position of the national government towards carbon neutrality and biodiversity protection**. There is a g**rowing momentum shift in the finance sector** towards incorporating **ESG criteria** (Environmental, Social and Governance) in investment processes, aligning projects with national goals, rather than from the perspective of corporate social responsibility (CSR).

Considering the atmosphere of NBEs in China, some institutions that are active in delivering services and products on NBS in China are Turenscape, Institute of Climate Change and Sustainable Development (ICCSD) of Tsinghua University. The most prominent sectors in terms of NBEs in China are: "**community engagement"**, which is being supported by local government administrative departments such as the Department for Garden Management, the Department of Sanitation and the Department of Water Management; **"NBS for green buildings**", considering that green buildings are on the rise in China in terms of construction, maintenance and the development of building standards, however, NBS remains largely limited to actions to increase greening ratios; "NBS for health and wellbeing", driven by actions of the city departments for Tourism Development and for Sanitation; "NBS for tourism and recreation", driven from the Department of City Ecology, the Department of Environment, and the Department for Tourism Development; "NBS for urban landscapes": in the sense that urban landscape is considered an essential topic of urban planning and to a lesser extent of property development, which both involve a large number of enterprises; "NBS for water management": in alignment with the "Sponge Cities" programme and due to the fact that many new enterprises entered this field as a result of the policy framework, however, care is needed, because NBS are not always used as the main solutions basket to address water management challenges in China; "smart technologies for NBS", encouraged by the 'National Development and Reform Commission' and recommended for urban regeneration in China; "sustainable agriculture & food chain", considering the work of the Ministry of Agriculture and Rural Affaires of People's Republic of China, which has been integrated into national development strategy in terms of applying NBS in the agriculture field; "sustainable forestry", considering the activities of the National Nature Resource Management Bureau, which emphasise on advocating NBS for conserving forestry and ecosystems. Finally, the "other organisations" sector is occupied by the Chinese arm of organisations such as ICLEI, IUCN, TNC and WRI; and in terms of "nature-based organisations", various Chinese community-based NGOs and grassroots organisations have been active at the local level.

Crowdfunding has been a common financing avenue in China. It is however more common for charity or community level projects that are led by local NGOs. However, project drivers in China usually prefer clients with single financing. In terms of financing lines to leverage the creation of new NBEs in China and heaten up the landscape of nature-based entrepreneurship, **generally Chinese NBEs have no access to public funding lines**. NBEs working with carbon credits might have more opportunities, especially those working with organic agriculture. However, **although NBEs are usually not beneficiaries of funding lines, they do collaborate a lot with local governments**. In terms of barriers, the **inconsistency of policies** can be pointed out as one of the main ones, followed by lack of NBS financing and lack of evidence on NBS effectiveness. In terms of enablers, smart technologies have been driving more NBS awareness, and therefore, new NBS demand. In terms of limiting factors for nature-based entrepreneurship in China, there is a lack of a common understanding of the concept of NBS in the region, and even more, of the concept of

NBEs, as well as a clear lack of enterprise personnel with deep NBS knowledge, understanding of NBS co-benefits, and openness to engage in NBS implementation because it is seen as less competitive than other sectors.

Finally, considering initiatives for ecosystem valuation in China, the Research Centre for Environmental Sciences of the China Academy of Science has been working on Nature Capital and value-chains of ecosystems, having completed some pilot programmes like the experiment in Lishui in the Zhejiang Province.

3. Initiatives to address Barriers and further identify Enablers

Capacity-Building for Registrants of the UrbanByNature Regional Hubs: Mentoring for Nature-Based Enterprises (by OSMOS) and a Course on Co-Production for various Actors (by DRIFT)

Running the UrbanByNature Programme in all four regions led to lots of conversations and feedback from participants as well as speakers. As a result and based on the opportunities and constraints in each hub, the Connecting Nature partners OSMOS and DRIFT organised additional capacity building activities. In 2021, the Connecting Nature partner OSMOS delivered nature-based enterprise mentoring courses to Brazilian NBEs as well as to Caucasian NBEs from Armenia and Georgia. The mentoring offered various tools based on a design thinking approach. 8 Brazilian NBEs participated in the course delivered for the Brazilian UbN hub and 10 NBEs participated from the Caucasian UbN hub. These two hubs were selected for the NBE mentoring as the UbN webinar series was already finalised and the discussion around NBS in the regions well established.

ICLEI and OSMOS see great potential for holding such courses particularly in the Korean Hub and perhaps the Chinese Hub after the Connecting Nature project ends, yet the UbN Programme is still underway there - a prerequisite for implementing the NBE mentoring. Considering the identified lack of NBS awareness in the UbN regional hubs, the activation of citizens, social enterprises and local governments to work with NBS seemed to have a high demand. So the Connecting Nature partner DRIFT designed the course “Co-Producing Nature-based Solutions: Tips, tricks and tools for local governments and active citizens” for the wider UbN audience. Connecting Nature partners chose to implement a course on this topic as it enables and frames any kind of NBS activity, which is particularly helpful for participants who seek to promote NBS through bottom-up action and/or engage with their local government.

OSMOS Mentoring Programme for NBEs on NBS Design in the Brazilian and the Caucasian UbN Hubs

NBS remains a great idea in theory but it can be challenging to put into action. A difference between traditional green-blue infrastructure, ecosystem services, sustainable urban drainage and many other topics that emerged before NBS is that these were often treated as scientific or pragmatic problems with a heavy science, ecology or engineering focus. NBS engages with broader societal challenges by definition which often require extensive resources that may exceed the capacity and capital available within most public organisations. Even if the public sector is expected to facilitate or champion societal challenges, it may not always have the capacity to play a lead role in initiating, developing and/or stewardship of NBS projects. For this reason, partnerships are critical. However, many non-public sector organisations engaged with NBS lack the necessary skills to address complex, multi-actor projects - such as collaboration, co-creation, communications, managing multiple stakeholder interests and building trust.

Connecting Nature, through the UbN programme, launched a mentoring programme to support the skills of non-governmental enterprises in developing NBS. The programme was developed and hosted by OSMOS, who has expertise in process facilitation and transition management. Two mentoring programmes were launched within UbN's regional hubs starting with Brazil (April - June 2021) and then the Caucasus (October - December 2021), building on loose but established networks of companies in each hub (many of the participants knew each other through industry or events). The call was open broadly to NBEs designers, planners, GIS experts, engineers, scientists, NGOs and project developers.

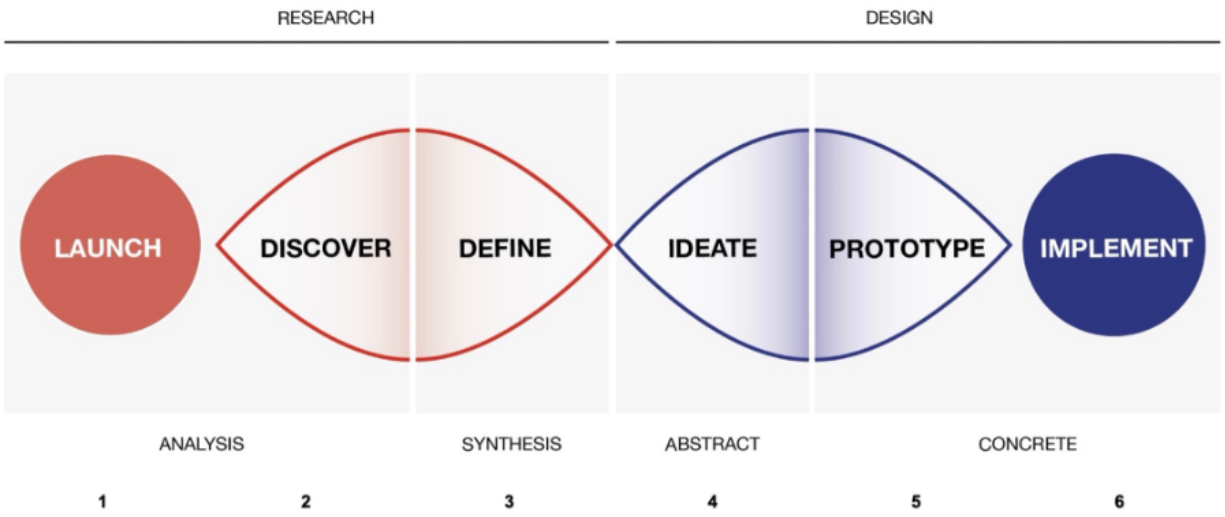

Figure 2: An adaptation of the Double-Diamond Approach

The mentoring programme followed six sessions based on a simple design methodology referred to as the 'double diamond', which is used in digital and services design but remains a novel concept for spatial and environmental professionals. Design, particularly process design, was used as a mindset, even if participants do not have a formal design education, to ensure that the outcome was solutions oriented. The double diamond's clear solutions-oriented approach embeds empathy and contextuality into the design process. This is particularly important to ensure NBS is adjusted to the social, economic and environmental conditions of the site. Currently this methodology has a lot to offer environmental challenges, such as NBS, and remains a significant methodological shift for built environment professionals in general. The mentoring programme methodology also brings together tools, theories and exercises from a vast range of disciplines (such as sociology, psychology, product design, management, entrepreneurship, etc) which renders the programme an innovation pilot.

Each three-hour workshop followed a similar structure:

1. The respective design step was presented and a discussion was held to consider how to use it within the context of a NBS project.
2. A collaborative workshop was held which tested theories, skills and tools.
3. A guest speaker from the Connecting Nature consortium presented an inspiring project related to the workshop step.

The process helped participants define how to use design to address complexity through collaboration (or participation) while also arriving at concrete results for NBS projects. Due to the ongoing pandemic and travel restrictions, each workshop was held online using various digital tools (Zoom, Miro, Mentimeter…).

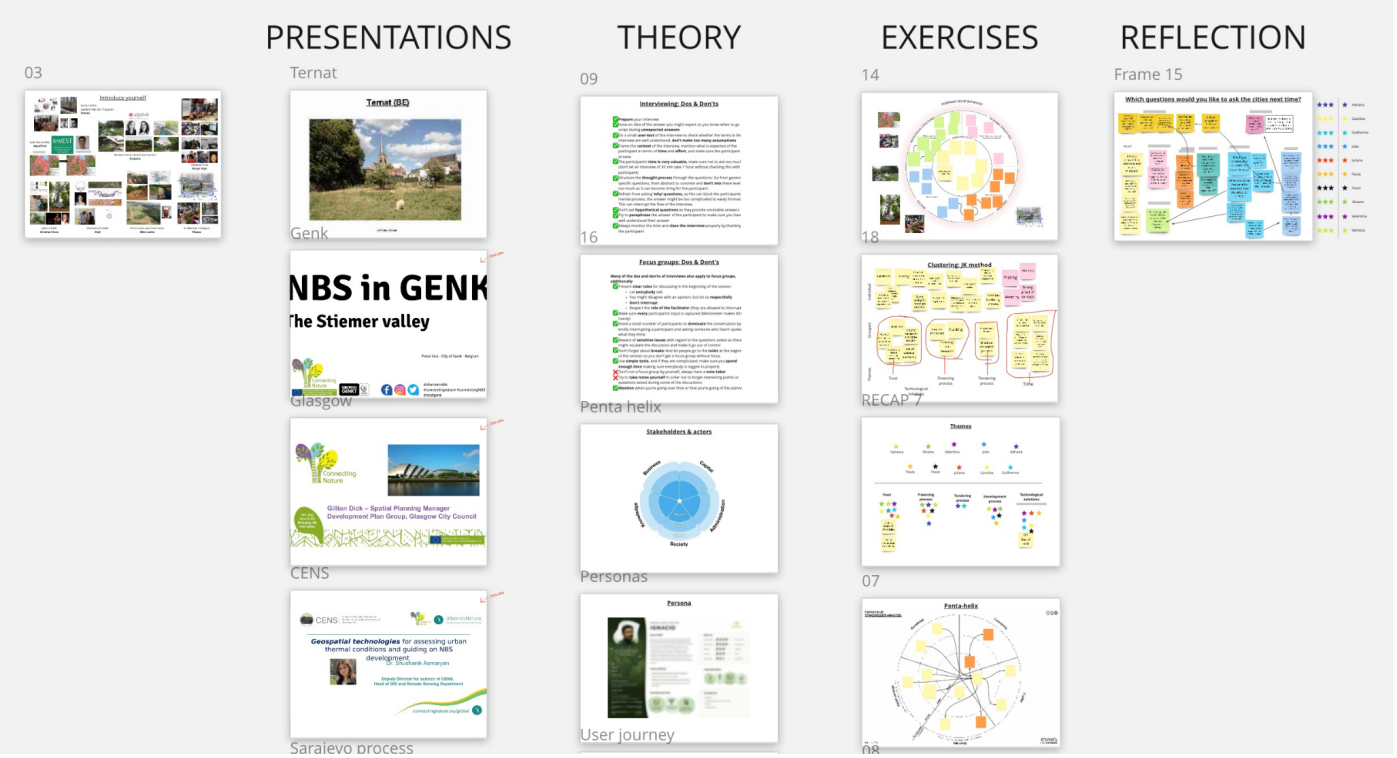

Figure 3: Snapshot of a Session of the OSMOS Mentoring Programme

Lessons learned from the OSMOS mentoring programme in Brazil

Despite the distance, the cultural differences and possible technical barriers, the mentoring workshops have proven to be exceptionally well attended. Absenteeism during the programme was very rare and when it did occur, the participant was generally very apologetic. The three-hour length of the workshop was initially considered long but in practice was a suitable time to properly engage with topics and allow space for dialogue. The feedback from the first Brazilian cohort was very positive:

- *"It was a great experience; I would do it again! It was a very rich course; I think I grasped almost everything since the content was explained very clearly and logically! I am also glad that everything is recorded, so I can revisit the material, which is going to be very useful!*'- Vanessa, São Paulo landscape architecture working on water catchment projects
- *"I often participate in capacity-building courses and workshops because of my job and I have found this is the best course I have attended since I left the university".* - Valentina, Salvador (GIS and environmental planning expert working on environmental tourism)
- *Everything in this course was interesting and I appreciate that we had an opportunity to discuss real life examples during all the seminars*. - Tinatin, Tbilisi (environmental protection expert)

A key outcome from the design mentoring workshops was a confirmation that many NBEs, despite their capacity to adapt, **lack a diversity of explicit skills to address complex projects based on multi-actor partnerships**. The NBEs often had a **particular area of expertise and were forced to adopt a multi-disciplinary approach** when moving from conventional green-blue infrastructure projects to more complex NBS projects. Following the methodology, OSMOS surveyed participants to improve the programme.

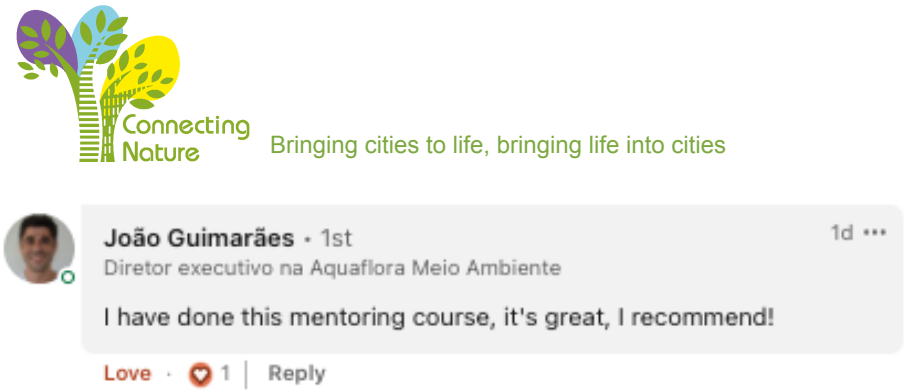

Figure 4: Comment on LinkedIn on the Brazilian NBE Mentoring Programme

Generally participants were extremely positive about the experience and considering that all of the programme was recorded and course material remains available on a private web page. The participants were **very happy to have good case studies to use with the exercises**. Despite an exceptionally good English level, **language was a barrier**. Even with the extensive amount of information available and the time allowed for each module, some participants felt that more space for discussion would have been helpful. One positive outcome was that the six **sessions offered an important foundation for building a community of practice around the novel topic of NBS design**, particularly in regions such as Brazil and the Caucasus where practitioners are spread far apart and feel passionate but isolated. **Participants in both programmes wanted to remain in touch and create a local movement around NBS**, but the responsibility to coordinate and animate these groups remained in question - the UrbanByNature hubs were seen as an opportunity. In Brazil, a closed-knit group formed after the mentoring offered by OSMOS and participants have been working to set up a coherent NBE networking structure, understanding how offers by different companies can be put together to offer solid technical and commercial NBS proposals. However, the group has only been exchanging online due to the pandemic. The idea is to start in presence meetings in 2022 when the situation allows.

The mentoring programme for the Brazilian cohort finished with a seventh session, a dialogue moment, where the participants were able to have an open discussion with attendees from six Brazilian cities. In the 6th workshop, an exercise focused on defining key challenges for partnerships between NBEs and the public sector around NBS. The dialogue moment aligned the NBE's challenges and then allowed the cities to present different ways they do or could address the problems - in this way OSMOS and ICLEI provided a constructive space for an honest discussion that hopefully helped strengthen the importance of defining suitable conditions for collaboration. This experience was regarded positively as the NBEs and cities were able to communicate common challenges and opportunities. For example:

- Both the cities and NBEs had been practising or implementing policy around NBS but had not framed it as NBS and therefore did not properly embrace social or economic aspects of their work.
- Once the cities and NBEs accepted their pre-existing experience in NBS, they also realised that NBS implied far more complexity than associated with work such as green infrastructure, open space, environmental management and so forth. The acceptance of increased complexity created an opening for dialogue and possible collaboration as it was clear that each organisation had its role and limitations in acting alone.
- The cities accepted that NBS was not necessarily easy to communicate to the general public and many residents did not see NBS positively as other priorities were considered more important such as quality public space, employment, health and jobs. Likewise, many urban catchment areas in Brazilian cities have been appropriated by the poor which means public authorities need to find compensation mechanisms that render NBS even more complex.
- There were issues that presented differences. For the public sector this included the capacity to raise sufficient funds and deal with compensation for people or businesses located in environmental areas. For the private sector, many forms of NBS require public financing.

- In some categories the private sector in Brazil is more advanced than the public sector, as there are large private clients (like mining) driving large scale (remediation) projects.
- For all actors there was a question of how to collaborate and who takes responsibility. The mentoring course provided useful strategies and could be equally useful to be offered to public sector actors to support them to create good conditions for partnerships.

Lessons learned from the OSMOS NBS design mentoring programme in the Caucasus, recommendations and next steps

Many of the adaptations from the Brazilian programme proved successful in the Caucasian programme, such as: beginning with a brainstorm on the definition of NBS, discussing the role of design in projects, better presenting stakeholders and generally allowing more space for discussions while allowing some flexibility to introduce exercises or concepts that were not part of the planned programme. This flexibility proved important as it showed that the mentoring programme was a dialogue adapted to the needs of the participants rather than a rigid curriculum. Language and the diversity of participants remained a certain barrier in the Caucasian cohort in terms of spontaneous interaction. This is challenging to overcome considering the importance of diversity and the international aspect of the mentoring programme but the video recording and voice transcriptions allowed participants to revisit sessions.

Like the Brazilian cohort, the Caucasian group was very enthusiastic to continue collaborating. There is already an established network, particularly for GIS and larger environmental analysis, with a collaboration between professionals in Georgia, Armenia, Azerbaijan, Turkey, Russia and Iran, that collaborate despite regional conflict. The UbN hub could offer a suitable platform, but participants also expressed interest in building a stronger link within a European network. Like the Brazilian cohort, a discussion with local cities was an interesting opportunity for the Caucasian participants, yet the opportunity needs to be explored in 2022.

From individual programmes to project innovation: "Mentoring NBEs on NBS Design”

Most of the material developed during the NBS design mentoring programme built on tools and experiences which OSMOS had been actively using within their practice. Some of the tools had been developed or applied to the Connecting Nature project when working with the 10 partner cities e.g. engaging multiple stakeholders in NBS co-production activities. However the lessons learned from this work had not been compiled into a cohesive training programme educating NBEs on the principles of NBS Design.

Recognising the innovation potential of this mentoring programme, the Project Steering Committee have supported a request by OSMOS for additional funds to distil the lessons learned from this mentoring programmes into a synthetic manual (~20-30 pages) on the NBS design mentoring programme that can be used by enterprises to improve their process design skills and for public authorities to improve their capacity to embed design in NBS projects and to better collaborate with enterprises. The manual will include:

- Context. Outline of issues in engaging NBE to address NBS projects, such as collaboration between public and private organisations, stakeholder management, participation, financing and so forth. This context will take into account the findings of research on barriers and enablers facing NBEs as described in Deliverable 24.
- Process. A description of the six stage process and how it can help provide a clearer process

methodology for dealing with complex projects and challenges.
- Co-production tools. A collection of tools that can be used to address NBS by entrepreneurs and enterprises. This tool will draw on the resources developed in the Co-Production Guidebook.

Osmos are liaising with Horizon Nua and Trinity College Dublin as the project leads on nature-based entrepreneurship to ensure synergies with existing research, platforms and guidebooks supporting nature-based entrepreneurship, with DRIFT as the project lead on co-production and with UEL as the project lead on technical design of NBS.

OSMOS' Replication of the Course for the Connecting Nature Enterprise Platform

After the initial two rounds of mentoring with the Brazilian and Caucasian cohorts, OSMOS will be hosting a third online mentoring programme with nature-based enterprises registered on the NBS Enterprise Platform. The ambition is to adapt the experiences of two first programmes that tested the methodology with two very different audiences, from very different cultural and political circumstances. The resulting version aims to be relevant to European enterprises from across the continent and follow the same six step process.

Expressions of interest for this round have been launched with more than 70 respondents from across the world with a modest communication campaign. 15 high quality enterprises were selected. This shows a very positive demand for the kind of training and capacity building that is focused on professionals and based on professional work routines. The programme will begin on Friday 4th of February 2022 and wrap up in Genk with a hybrid event during the Connecting Nature Innovation Summit (28-30/4/2022).

A DRIFT course on "Co-Producing Nature-based Solutions: Tips, tricks and tools for local governments and active citizens" for UbN registrants

In times of rapid urbanisation, increasing population, resource depletion, degradation of ecosystems, growing pressures on urban land and a climate crisis, NBS provide multiple opportunities for both society and nature. The UrbanByNature programme supports cities and practitioners in planning for and applying NBS that are cost-effective and mutually beneficial. Cities play a key role in fostering this transformative change towards more liveable, resilient and regenerative futures. Some cities have become pioneers in leading climate action and in implementing NBS in a participatory way. From the work realised so far in the UbN hubs, raising awareness on the potential and benefits of NBS and activating local communities and actors was a challenge. Therefore, setting up a dedicated co-production course made a lot of sense. The team of DRIFT with its long standing expertise on collaborative planning conceptualised and started to deliver a course on co-producing NBS in cities in December 2021. The course was open for interested applicants worldwide, registrants of UrbanByNature. The idea behind opening it up to the global UbN audience was that co-producing NBS through community action and in close collaboration with local governments is how many NBS are implemented around the world, thus empowering many. A selection process for participants was launched in autumn 2021, asking the following questions:

- Are you involved in implementing NBS in cities (e.g. by setting up or running community gardens, by working at a local authority, by facilitating multi-stakeholder collaborations, by running a local association, NGO or business operating at city level, by conducting action research in your city, etc.)?

- Are you interested in learning more on how to design a co-production process to implement NBS in your city?
- Do you want to learn from peers experienced in designing co-production processes and from pioneers in implementing NBS in cities?

Almost 80 applicants from all 5 continents manifested their interest to join a hands-on, intensive peer-learning course for elected officials, civil servants, civil society and nature-based enterprises motivated to foster co-production processes towards resilient and regenerative livelihoods. The limited course has been running since December 2021 and will conclude in February 2022.

UrbanByNature's upcoming offers of in-depth topical courses and knowledge exchange opportunities

This course is part of a new bundle of offers from UrbanByNature in which in-depth topical courses and knowledge exchange opportunities will be offered to the regional hubs beyond the end of the Connecting Nature project, upon demand and according to needs assessments by ICLEI, Connecting Nature partners as well as external experts. The programme will give NBS experts and partners the opportunity to share their knowledge with others and to engage in knowledge-exchange activities with participants from different countries and cultural backgrounds. The new courses will always be structured along the UrbanByNature modules (7 steps). More information on the upcoming courses will be published in Deliverable 17 and here.

Initiative to unlock NBS implementation in Brazil by Discussing NBS Procurement

The Brazil UbN hub was the first one to be launched, so it is more developed in terms of mentoring and other kinds of actions to address specific identified challenges. Building on the work realised during the Connecting Nature Enterprise Summit on "How to unlock nature-based solutions implementation in Brazil" on 30 June 2021, UrbanByNature Brazil has been expressing interest to subcontract a Brazilian procurement expert to help in the development of guidelines for the procurement process of rain gardens in Brazilian cities. The subcontracted procurement expert would work in close partnership with a targeted Brazilian city and ICLEI SAMS, which is the party already subcontracted by the Connecting Nature project to support the UrbanByNature Brazilian stream.

The key messages of the online session were:

- Contracting nature-based enterprises directly with the public sector is not so easy, due to the rules established by the government. Institutions like ICLEI make it easier for enterprises to gain access to projects with the public sector.
- NBS is not yet a concept widely adopted by the government - the lack of knowledge of this concept makes it difficult for city hall technicians to understand and elaborate detailed terms of reference and tenders.
- It is important to disseminate the 'NBS' term widely within the public sector. Events and training that highlights NBS ongoing projects and related benefits are really helpful, so that decision makers can embrace the nature-based approach.
- Traditional engineering companies that already work with the public sector usually lack the know-how to implement NBS. Therefore, it is important to create high quality regulations for NBS, public notices that focus on NBS and terms of reference that specifically ask for NBS.
- The participation of local social movements is important to ensure successful NBS implementation,

which adapts to local realities and demands. Ideally, the design of projects will involve citizen engagement.

- The elaboration of adequate terms of reference alone does not guarantee an effective implementation of the NBS principles. Technicians need to be convinced and trained to implement proper NBS projects. Regulations for NBS and technical norms and handbooks will help with quality control.
- Innovation in contracting formats for implementing NBS is hampered in city halls by bureaucratic processes and stiff procurement legislations. Nowadays, there is a structural limitation in Brazil for governments to recognise the value of high-quality NBS plans. Usually planning is not as valued as it should and city officials relate the need of resources only for implementation.
- Up-to-date municipal databases are essential to ensure the elaboration of effective terms of reference for NBS. A good idea would be to create a national reference data bank for public terms of reference for NBS, supporting municipalities to learn how other local governments designed their tenders.
- Some other important aspects for the elaboration of the terms of reference is the inclusion of demands for sustainable materials and local suppliers to ensure the sustainability of the project throughout its whole life cycle.
- The Brazilian federal law on contract bidding limits contracts that deviate from the traditional model. A recommended measure is to include NBS in city master plans and climate/biodiversity/resilience strategies, as well as in municipal legislation to provide support and security for decision makers and project implementers.
- It is important to seek alternative criteria for tendering processes that go beyond the criterion of “the lowest price”. The use of the Brazilian tool ‘Registration of Technical Responsibility’ (RRT) is a way to ensure greater technical quality in NBS projects.

UrbanByNature Brazil sees unlocking the procurement process of NBS, using the example of urban rain gardens in Belo Horizonte, as highly strategic, considering that ICLEI SAMS already succeeded in adding the NBS term to climate action plans of some Brazilian cities and that many rain gardens are popping up in the country. So the next logical step is to start developing procurement processes to unlock on-the-ground NBS implementation. The guidelines of this process shall feed into Deliverable 17 (related to Task 5.6). Considering that ICLEI SAMS has recently enabled the elaboration of terms of reference for rain gardens for two Brazilian cities within the INTERACT-BIO project, there is a clear opportunity at the moment for Connecting Nature to help unlock procurement processes. Another consideration is the establishment of linkages with the EC Report on Public Procurement of Nature-based Solutions and the recent work of Connecting Nature within developing a Draft White Paper on the Nature-based Economy. The challenges and recommendations identified in the recent White Paper could be to some extent addressed in the procurement process that will be developed within the Brazilian context, feeding back to the European context.

Capacity-building is key: UrbanByNature can help strengthen the Local NBS Agenda of ongoing and future regional hubs

It has proven relevant to safeguard the longevity of the UrbanByNature programme to keep strengthening the sparked initiatives in each regional hub. Also, considering that there is interest for the establishment of vibrant hubs in Europe (Spain, Scotland and Flandres), the UrbanByNature programme can support upcoming local partners in establishing capacity-building and knowledge exchange on NBS, as well as

leverage policy and advocacy processes to strengthen the NBS agenda and associated funding and entrepreneurship opportunities. Therefore, ICLEI ES has been exploring the possibility of establishing UrbanByNature as a long-term NBS programme and stand-alone business. Discussions about the legal options available under German law are ongoing, considering that ICLEI Europe is based in Germany. Further, an in-depth market analysis is planned. A draft for a Business Plan for the UrbanByNature Programme has been completed in November 2021 to be submitted within Deliverable 23 of the Connecting Nature project, led by WP6 (lead: Horizon Nua). The drafted business plan provides a scope for free and paid capacity-building content and consulting activities. It has been written from considering the discussions with Horizon Nua during two workshops on “Connecting Nature Innovations Business Planning”.

Following the Connecting Nature grant agreement, there are 4 active UbN hubs at the moment (Brazil, the Caucasus, Korea and China). A new hub was recently launched in Spain, during a face-to-face event in A Coruna in November 2021. There are ongoing conversations to launch new UrbanByNature hubs in Scotland and Flandres, within the duration of the Connecting Nature project in 2022, as well as in South Eastern Europe and South America, as part of the CLEVER Cities project.

The elaboration of a governance model for UrbanByNature is underway, including a reassessment of the ongoing landscape of collaborating experts and institutions, as well as of memorandums of understanding (MOUs), in order to increase the reach and the impact of the programme and continue to help regional hubs to unlock NBS implementation by having access to nature-based financing and entrepreneurship. The programme will, upon demand, keep assessing the challenges to match the offers of NBEs in the regional hubs with the demands of local governments to upscale NBS delivery.

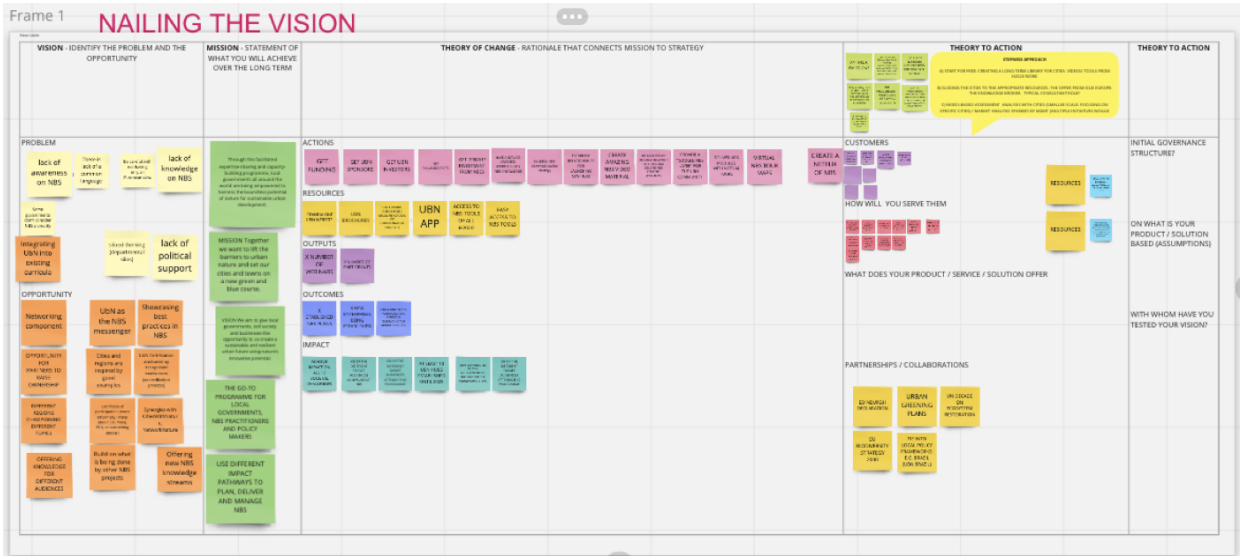

Figure 5: Snapshot of a Mural Board of a Theory of Change Exercise during the Business Plan Workshop for UrbanByNature

4. Final Considerations and Recommendations

This chapter summarises in bullet points the top recommendations for each regional hub to unlock NBS financing and entrepreneurship in the different regional hubs in light of the collected information in Chapter 2. A summary table for each regional hub highlights the key identified barriers and enablers.

The collected data of Chapter 2 is based on the ICLEI office and Connecting Nature Caucasus partners’

colleagues' experiences and insights. It answers questions related to the financing landscape such as 'Is the financing landscape in your regions mainly driven by the public sector or by the private sector?' and 'Could you mention some specific examples of financing streams in your region?'. Further, it taps into the funding and support initiatives for SMEs and start-ups, in particular those oriented towards sustainable 'green' activities such as nature-based enterprises.

NBEs - both the term and type of enterprise - are not yet being widely used or established, and therefore UbN regional hubs might have found it difficult to answer questions related to NBEs due to lack of data to support them. More comprehensive answers would demand additional interviews with local and regional NBEs. However, this was not possible due to lack of resources of the subcontracted partners. So ICLEI ES as WP5 lead suggested that the regional hubs answer the NBE-related questions to the best of their knowledge and mention any relevant reports or statistics (even in local language) to support their perception. Also, they were advised to share information on NBE-related local institutions, if any. In regard to the atmosphere of entrepreneurship and innovation for NBS in each of the regional hubs, partners were advised to reflect on the different barriers and enablers considering different NBS sectors, as they appear in a scientific publication of researchers of the Connecting Nature project[5] (Community Engagement; NBS for Green Buildings; NBS for Health and Wellbeing; NBS for Tourism and Recreation; NBS for Urban Landscapes; NBS for Water Management; Smart Technologies for NBS; Sustainable Agriculture & Food Chain; Sustainable Forestry; Nature-Based Organisations).

UrbanByNature Brazil

Summary table of identified barriers and enablers in Brazil

UrbanByNature Brazil	
Barriers	**Enablers**
Awareness of the NBS needs to be spread: the number of enterprises that see themselves as NBE and recognise the potential of directly working with NBS could be raised through improved and targeted NBS awareness campaigns.	NBEs are interested in capacity-building and strengthening relationships between each other, raising the relevance of the NBS agenda in Brazil and discussing common issues.
Lack of public-private sector dialogue (e.g. lack of clear NBS-incentivising procurement processes)	NBEs are usually receptive to engage in dialogues with municipal public actors.
Lack of tailored accessible funding/ financing initiatives for NBS projects, specifically for projects at an early stage of development, as well as lack of results-based NBS financing schemes.	PES supports the implementation of NBS in the territory - one of the few examples of blended finance that includes NBS as part of a consolidated strategy
Large Brazilian cities have administrative staff with the technical capacity and projects that fit the profile of international funders. This pattern is not repeated for small and medium-sized cities, which usually lack NBS capacity and knowledge of NBEs who work with NBS.	The existing national and regional legislation can be helpful to foster more NBS.

Key recommendations to unlock NBS Financing and Entrepreneurship

- The launching of associations such as the "Aliança Bioconexão Urbana" and of NBS clusters such as the NBS Cluster of Malaga, which focus on reaching financial opportunities for implementing NBS in Brazilian cities and on lobbying for the NBS agenda in the country, is highly recommended.

[5] McQuaid,S.; Kooijman, E.D.; Rhodes, M.-L.; Cannon, S.M. (2021), Innovating with Nature: Factors Influencing the Success of Nature-Based Enterprises. Sustainability 2021, 13, 12488. https://doi.org/10.3390/ su132212488

- Building better conditions for partnerships between public authorities and enterprises is vital to promote the NBS agenda and subsequent implementation. Considering the current dialogue between the European Union and Brazil on NBS between government institutions as well as projects, there remains a lot of capacity-building work to be done within public institutions to create suitable conditions. Mentoring for public sector actors could be a suitable next step for the Brazilian UbN hub, using the UbN Programme as a starting point and delving deeper into relevant topics or challenges together with Brazilian experts.

UrbanByNature Caucasus

Summary table of identified barriers and enablers in the Caucasus

UrbanByNature Caucasus	
Barriers	**Enablers**
NBS is a relatively new concept in the Caucasian region.	Timely integration of NBS concept into EBRD requirements and possibility to work further with partners due to the countries being Associate Countries to the EU's Horizon 2020 and Horizon Europe funding programmes.
No funding strategies or sources in the region with the goal of leveraging NBS implementation.	Interest in Connecting Nature's guidebooks and tools, especially on NBS Impact Assessment (Co-Impact app).
Difficulties for scaling up NBS interventions due to delays when it comes to decision-making.	Several NBS related initiatives were implemented as successful demos funded by public charity organisations and environmental conservation NGOs in Armenia, as well as through private and non-governmental initiatives, and by public funding through municipal budgets in Georgia.

Key recommendations to unlock NBS Financing and Entrepreneurship

- Tapping into the full potential of NBS in the region by providing small-scale funding for pilots to increase awareness and engagement of NBEs would incentivise local action.
- The provision of small and medium-sized grants for communities, NGOs and other local actors would enhance NBS piloting in the region and disseminate adoption efforts as well as raise the interest of local companies to raise their skills to implement NBS.
- Making it mandatory to include NBS in public land use planning and developing voluntary guidelines for the private sector to follow/ take on and ensure quality standards.

UrbanByNature Korea

Summary table of identified barriers and enablers in Korea

UrbanByNature Korea	
Barriers	**Enablers**
Lack of clear political vision and a supporting policy framework for NBS as well as limited co-production activities with the local community and/or private sector, which could drive NBS implementation.	Legislation from 2001 has been backing up funding lines for ecosystem conservation and restoration. There are requirements for urban developers to pay into an ecosystem conservation fund, which is then used for restoration projects such as NBS.
Lack of consensus on the concept of NBS in Korea.	The public sector has been the main funder of NBS in South Korea.

Korea has a high number of development projects ongoing, but compensation schemes with NBS are still quite limited, so the sums still do not compensate for the losses and degradation caused by development projects.	The UbN Programme brought local governments together to learn about NBS for the first time in the Korean context and contributed to establishing the concept of NBS and having direct contact with national government policy-makers via events and dedicated sessions: a momentum has been created to influence policies.
Insufficient resources to cover NBS maintenance and regular running costs.	Public Korean research institutions established by national and local governments have been major supporters of NBS.

Key recommendations to unlock NBS Financing and Entrepreneurship

- It is highly recommended that greater attention and investments go into collaborative actions. Cooperative dynamics and shared practises among organisation members interested in NBS implementation can leverage moving towards a more sustainable nature-positive and low-carbon economy.
- Actions to raise public awareness towards NBS in Korea would raise awareness and pave the way also for more local action and stewardship considering that the wider community is seen as a key player.
- Create new environmental compensation schemes with NBS to have developers at least partly compensate for the natural degradation caused by new development projects, which are popping up at a rapid rate in the country.

UrbanByNature China

Summary table of identified barriers and enablers in China

UrbanByNature China	
Barriers	**Enablers**
Mainstreaming the concept of nature-based solutions and green infrastructure in landscape planning in urban settings is still a long way to go for Chinese cities	Experience with sponge city programme: there has been a shift from grey infrastructure to green, defying conventional design practises technically, aesthetically and ethically.
Challenges of stewardship: long-term financing mechanisms for the maintenance of NBS is seen as key, however ongoing mechanisms do not foresee it.	Strong political support: top-down political system with mandatory guidelines regarding the sponge city programme for government officials has been pushing the NBS agenda forward in China.
Narrow motivation from stakeholders to engage in NBS implementation processes / relatively small interest in co-production due to top-down policy-making.	Emphasis on ESG reporting among corporates
Knowledge on and openness for blended financing schemes are still limited in China	Momentum generated on the topic of biodiversity (and NBS) by the Convention of Biological Diversity's COP 15, to take place in 2022 in Kunming, China.

Key recommendations to unlock NBS Financing and Entrepreneurship

- Build on the growing momentum shift in the Chinese finance sector towards incorporating ESG criteria in investment processes, aligning projects with national goals, rather than only from the perspective of corporate social responsibility (CSR).
- Address the issue of inconsistency of policies by promoting greater policy synergies and NBS

mainstreaming.

- Provide more NBS financing to leverage NBS implementation.
- Strengthen awareness on NBS effectiveness by using smart technologies, which can help to grow NBS demand.

From Nature-based Solutions to a Nature-based Economy

NBS encompasses a wide range of economic, social and environmental benefits. However, the economic benefits potential and their role in a just transition to a sustainable economy aligned with the European Green Deal has not been yet fully explored. In this regard, ICLEI ES has contributed to the development of a Nature-Based Economy Draft White Paper (sections 2 and 4), which specifically addresses this issue by proposing a paradigm shift. The Draft White Paper has sparked a discussion around a new approach to valuing natural capital and to enabling its incorporation in the economic system. ICLE Europe played a more prominent role in the development of section 4, in which initiatives and recommendations to stimulate global market demand for NBS were summarised. Local governments were identified as a key enabler in the process with regional partnerships playing an important role in knowledge sharing. The role of the private sector and NBEs in the provision of NBS was highly recognised. International financing for NBS was underlined as a key factor for NBS market demand and growth.

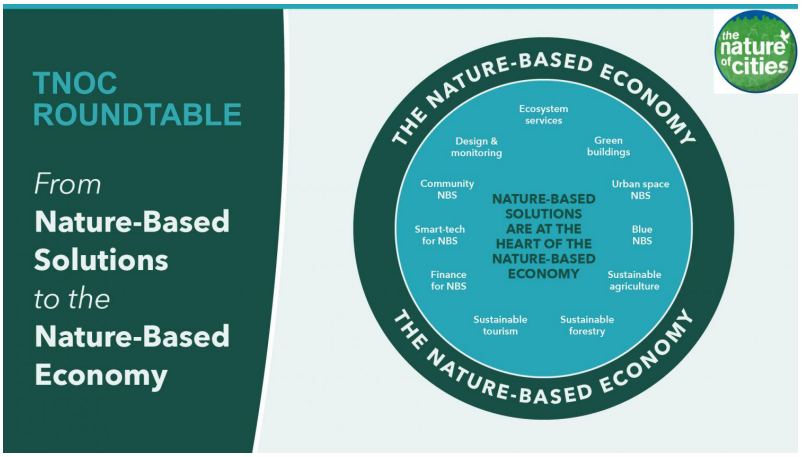

Figure 6: TNOC Roundtable “From Nature-based Solutions to the Nature-based Economy”

Further ICLEI Europe co-designed with TCD a global roundtable on the nature-based economy on The Nature of Cities: “How can nature-based solutions (NBS) provide the basis for a nature-based economy?”, which reunited more than 20 respondents active in UrbanByNature hubs beyond.

5. Upcoming Roadmaps to strengthen the NBS Agenda in 4 Regional Hubs

Setting-up Strategic Online Roadmaps Indicating the Way Forward towards NBS in 4 regional Hubs

Deliverable 17 relates to Task 5.6 of WP5 (Lead: ICLEI ES) There was an extension of the task duration to give the opportunity for the regional hubs to provide more up-to-date content in regards to future plans in the regions and also to collect inputs from across the project to enrich the regional roadmaps. Deliverable 17 was moved to Month 58 (March 2022) and will take into account the material produced in Deliverable 15 and Deliverable 16.

A working prototype of an online interface for the roadmap is under development by Oppla. The UrbanByNature contact points of the different hubs will submit content to be displayed on the website showing the way forward and is being considered by partners. The prototype allows users to navigate to each of the UrbanByNature hubs and to access content via the Connecting Nature Framework. Initial feedback suggests that this interface should be simplified to just “one cycle” i.e. combining Planning,

Delivery and Stewardship. Ways to link to the UrbanByNature cycle are also under consideration.

The interface of the prototype will be further refined based on partner feedback. The fully functioning roadmap will then be developed and hosted within the Oppla platform using content supplied by partners. CN partners will test the roadmap before completion at the end of March 2022.

The roadmaps would be structured per UbN hub. The roadmaps should reflect future possibilities in the different regional hubs post-Connecting Nature. The roadmaps would also involve a reflection on linkages with Network Nature, the Connecting Nature Enterprise Platform, Oppla, and other strategic partners and collaborators. It is about mapping opportunities for the way forward to increase the NBS agenda in all active UbN hubs and to-be-launched hubs. See below the timeline for Deliverable 17.

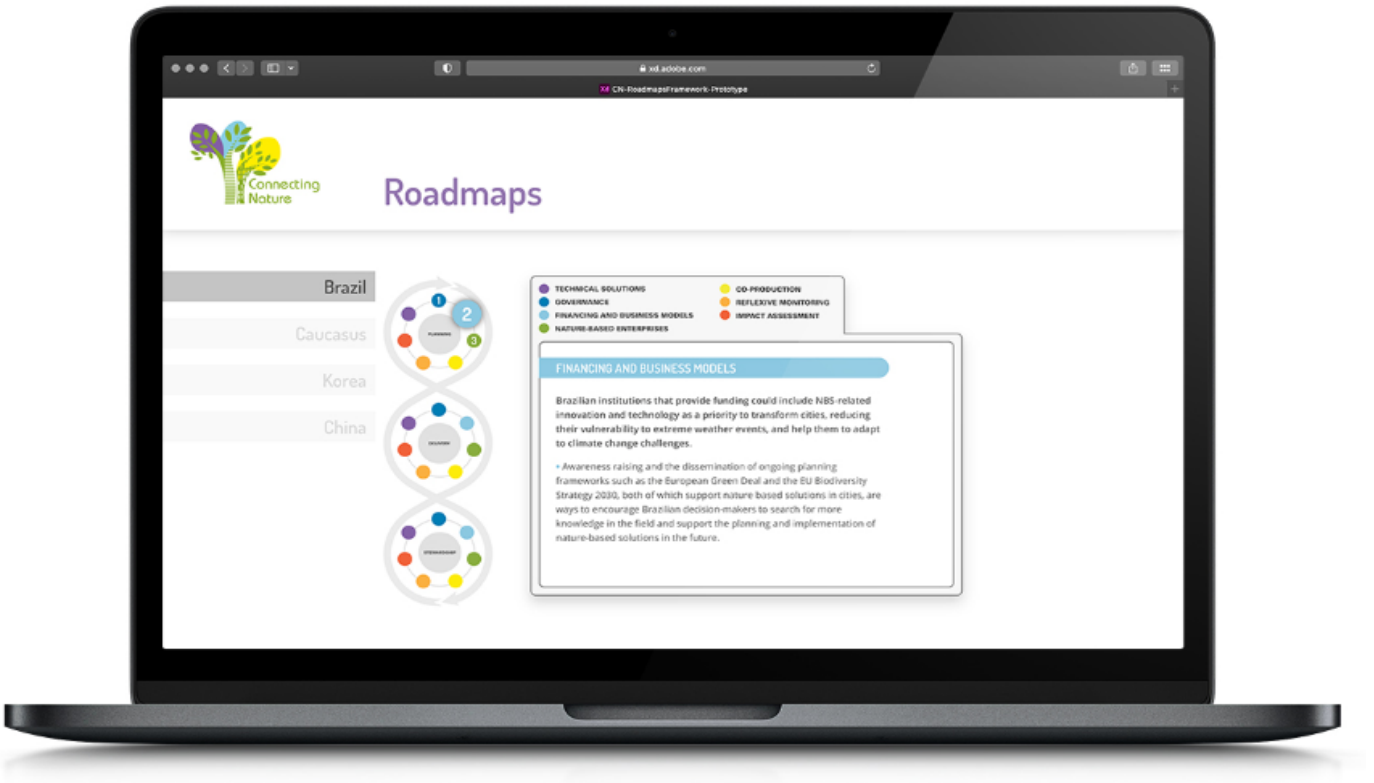

Figure 7: Upcoming Roadmaps for the UrbanByNature Hubs

6. ANNEXES

ANNEX 1: Amended Task 5.5: Understanding nature-based financing and entrepreneurship in UrbanByNature hubs to unlock implementation

Task 5.5: Understanding nature-based financing and entrepreneurship in UrbanByNature hubs to unlock implementation Start: M40 End: M58. Lead Partner: ICLEI ES. Partners involved: DRIFT, all SMEs, front-runner cities. *The analysis of the implementation conditions for nature-based solutions as well as the implementation needs in deliverable 15 will help understand and, where possible, bridge challenges which hinder the implementation of nature-based solutions in the multiplier hubs. Pending the financial support of regionally existing funding programmes (e.g. Sponge Cities programme) or Horizon 2020 mirror-funding from MOST in China and NRF in South Korea and the applied for funding thereby, all multiplier cities will conduct a prioritisation exercise of those nature-based solution measures that are realisable and then develop an implementation plan for the prioritised measures. The SME / NBEs of Connecting Nature will exchange experiences with SME / NBEs in up to 2 multiplier hubs in meeting their demands and providing suitable nature-based solution products and/or planning processes. Organised by OSMOS, peer-to-peer mentoring such as this will assist the Connecting Nature SME / NBEs to open up and scale out their market outreach. It will also assist the non- European SME/NBEs to extend their portfolio, share and increase their knowledge on the implementation of nature-based solutions. Cities in these multiplier hubs will be invited to selected SME/NBE exchange events to resolve barriers and accelerate their nature-based solution interventions within the duration of Connecting Nature or after the end of the project. The partnerships between the SME/NBEs will be set up in such a way to increase the chances of them continuing to be partners beyond the duration of Connecting Nature and opening up market opportunities for European SME/NBEs. The objective of Task 5.5 is to guide SME/NBEs and selected cities to understand implementation challenges and instead outline options for joining forces for more nature-based solutions on the ground. This task will see the establishment of alliances between European and non-European regional SME/NBEs and the hosting of UbN workshops or webinars by the SME/NBEs in Connecting Nature. This process will result in deliverable 16, a report outlining the gap in offer and demand for nature-based solutions between SME/NBEs and local governments and opportunities for overcoming them (e.g. integration of NBS in policy initiatives, funding for nature-based enterprises, resolving of procurement barriers).*

ANNEX 2: List of questions submitted to four regional UrbanByNature hubs

A list of questions was submitted to the regional UrbanByNature hubs of Brazil, the Caucasus, Korea and China to feed into Chapter 4 of this Deliverable. The questions were structured around 4 main topics:

a) Considering the NBS financing landscape in your city/region/country

b) Considering Funding/support initiatives for SMEs and Start-Ups (in particular those oriented towards sustainable ‘green’ activities such as nature-based enterprises) in your city/region/country

c) Considering specifically nature-based enterprises in your city/region/country

d) Considering the atmosphere of entrepreneurship and innovation for NBS in your city/region/country

Find the questions below:

1) Considering the **NBS financing landscape** in your city/region/country

Initial considerations: It would be good to first describe the overall NBS financing landscape in the region e.g. majority public sector or private?, etc. and then we will ask for specific examples of financing for different scales of project and types of financing e.g. public, private investor, community (crowd), blended. And the barriers/enablers to this type of financing? With regard to enablers it would be really interesting to identify any taxes/incentive schemes or measures to support the business sector in becoming more sustainable (this may be more circular economy/energy related but there may be some natural capital incentive measures as well).

- *Could you briefly describe the overall NBS financing landscape in your city/region/country: is it more driven by the public or by the private sector?*
- *Considering the existing financing landscape in your region that could be used for NBS projects, do you have some successful examples to mention?*
- *From the successful example(s) you mentioned, what would be the ongoing barriers for scaling them up?*
- *Many projects can be candidates for private finance if the risk/return profile is improved through blended finance. In fact, blended finance funds can aggregate smaller deals into a portfolio of projects to reduce risk and enable investment at larger ticket sizes. Can you comment on any settings of blended finance you know of in your region?*
- *Do you know of any experiences in your city/country with crowdfunding for NBS?*
- *Do you know of any financing support initiatives in your region for early-stage NBS projects to grow the pipeline of investable opportunities on NBS?*
- *Are there any results-based financing, and other innovative investment approaches that you would like to mention in your region?*

2) Considering **Funding/support initiatives for SMEs and Start-Ups** (in particular those oriented towards sustainable 'green' activities such as nature-based enterprises) in your city/region/country

- *What are the existing programme funding/support lines in your region/country for SMEs and Start-Ups?*
    - *Is there specific funding for SMEs/Start-ups oriented towards sustainable 'green' activities such as nature-based enterprises?*
- *Who are the key players in supporting the transition to a more sustainable nature-positive, low-carbon economy and what measures are they putting in place?*

3) Considering specifically **nature-based enterprises** in your city/region/country

Initial considerations: We are aware that it is difficult to answer these questions due to lack of data to support them. And some questions would even demand side interviews with NBEs for acquiring valid answers. However, we know this is not possible at this point. So WP5 suggests that you answer these questions to the best of your knowledge and please mention any relevant reports or statistics (even in local language) to support your perception. Also, the identification of relevant industry associations would be helpful for us. Please share any NBE-related local institutions with us, if any.

- *Considering NBEs in your regions: what are the sectors that are most prominent?*
    - *Community Engagement*
    - *NBS for Green Buildings*
    - *NBS for Health and Wellbeing*
    - *NBS for Tourism and Recreation*
    - *NBS for Urban Landscapes*
    - *NBS for Water Management*
    - *Smart Technologies for NBS*
    - *Sustainable Agriculture & Food Chain*
    - *Sustainable Forestry*
    - *Other Organisations*
    - *Nature-Based Organisations*
- *Considering NBEs in your region: For what purpose is financing usually applied by NBEs? (Fixed investment, Inventories and working capital, Hiring and training employees, Developing and launching new products or Refinancing or paying off obligations)*
- *Do you know of any NBE with experience with crowdfunding for NBS?*
- *Which of the following sources for financing are usually relevant for NBEs in your region? (Internal funds, Subsided loans, Credit lines, Bank loans, Other loans, Trade credit, Leasing or hire-purchase, Factoring, Debt securities, Equity, Other sources) Why are the other options not relevant?*

4) Considering the atmosphere of entrepreneurship and innovation for NBS in your city/region/country

Initial considerations: See the image below with the different barriers and enablers from different NBS sectors. It would be interesting if you could consider these when you are reflecting on the limiting/strengthening factors for the emergence of NBS entrepreneurship.

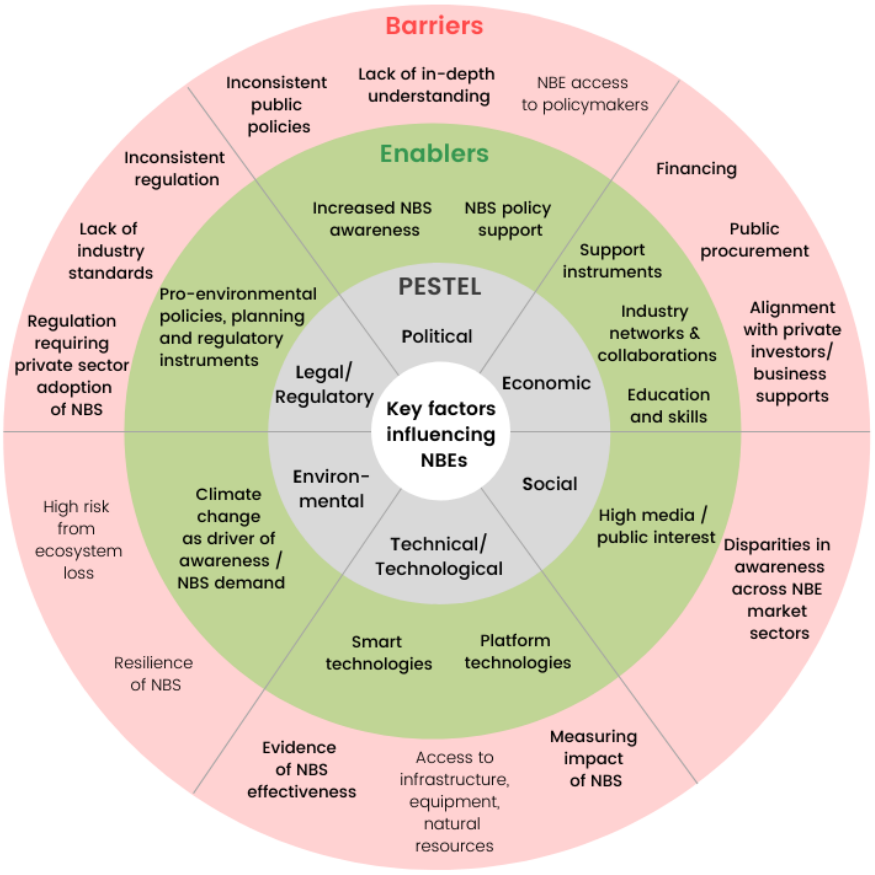

Figure 8: Trinity College Dublin as the owner of the image. Image Credits: McQuaid, S.; Kooijman, E.D.; Rhodes, M.L.; Cannon, S. Innovating with Nature: Factors influencing the success of Nature-Based Enterprises. Sustainability 2021, 13.

- *Consider the innovation landscape and NBEs in your region: do NBEs usually collaborate or work with local governments? If yes, did the collaboration emerge easily? Did it enable innovation? Could you comment on barriers and enablers for innovation? (see image below)*
- *Which of the following factors limit/strengthen the emergence of nature-based entrepreneurship in your country/region? (NBS product demand, Competition, Access to finance, Costs of production and labour, Availability of skilled staff or experienced managers or Regulation)*
- *Do you know of programmes in your city/country for the valuation of nature, taking full account of nature's fundamental life-carrying capacity and the complexity of its value-chains, which help out the creation of NBEs?*