

European conference on innovative financing for creating green cities

Conference Outcomes

26th – 27th March 2019, Manchester City Football Club, Manchester, UK



Green cities are healthy, liveable and resilient to climate and water risks. Investing in nature-based solutions helps cities to tackle flooding, heat stress, drought, poor air quality and unemployment, and helps biodiversity to flourish.

Acknowledging the value of nature and the necessity to protect, enhance and restore the benefits it provides to cities means a major shift in urban planning and development. It requires translating these values into concrete and well-designed policies and actions that can create change on the ground and improve health, wellbeing, climate and water resilience, as well as social and economic benefits.

Despite increasing awareness of the many benefits of nature-based solutions, barriers to their implementation remain. There is a clear gap between current investment in nature-based solutions and the long-term financing needs of city governments to effectively respond to climate and water-related challenges.

Green finance offers opportunities for sustainable and non-conventional urban projects and partnerships. The European conference on innovative financing for creating green cities aimed to bring together city representatives, investors and business to connect, share experiences and find joint solutions for financing city greening.

Demonstrating that nature-based solutions generate a positive return can help to reduce the barriers for investors. This event highlighted successful examples of cities that have managed to bring together innovative ideas, political commitment and financing for integrating nature into urban development across sectors. Learning from practice, by zooming in on each phase of the investment planning and project and business development process, provided conference participants with valuable ideas, knowledge, tools and networks that they can take back to their home cities, share and use in their day-to-day work.

This report gives an overview of the knowledge, tools and examples shared for a more detailed understanding on how to mobilise financing, as well as the key messages and follow-up actions that were agreed for the next 12 months.

Challenges and opportunities for creating green cities

A growing number of projects aim at greening European cities, but financing is a major barrier. There are no international cities which have found a way to achieve this at a rate and scale that lives up to the climate challenges and biodiversity needs we are facing today. The concept of nature-based solutions is not understood by most people, even though it is clear for us. Communication is therefore very important, bringing our evidence and stories to other economic sectors and communities, such as economic development, health, urban planning and climate change.

Lindsey Chapman, marvellous moderator of the conference, emphasised that there is a willingness to be active and to dream at all levels of society, especially among the young generation. She asked the young generation: “What would you do if you were Prime Minister?” This resulted in beautiful ideas, such as: more solar panels, make the world a peaceful place, ban all cars.

Councillor Angeliki Stogia, Executive Member for Environment, Planning & Transport and Labour and Co-operative Councillor for Whalley Range, Executive Members' Office, Manchester City Council, highlighted that residents considered nature and green and open spaces in the city to be one of the top five priorities for a liveable city. Manchester’s Green and Blue Infrastructure Strategy integrates nature-based solutions into urban development. The key is creating a common understanding and objectives between different stakeholders of the benefits that nature provides to the economy, health and business development. This requires working together on common ambitions, investment in small projects that lead to bigger change, and engaging people in their communities, in a time of polarised politics.

Louise Wilson, Director of Abundance Investments explained that Greater Manchester’s Natural Capital Investment Plan creates opportunities for attracting investors, not only to obtain a good return on investment but also for important objectives we all care about. She added, “We need to develop clear financial models for green cities that resonate with the investor community”. The public sector is key in reducing the risk profile, and creating a revenue stream that integrates health, well-being, social aspects and green space assets.



Jamie Mansfield, Founder and Director of Environmental Finance, explained how social investment is a new way to deliver public goods and services. As investors become more interested in other returns beyond financial, large-scale institutionally-funded projects can redistribute benefits locally. This will require new revenue and investment models, working together with all relevant stakeholders, blending traditional investment with new types of financing that economise social and economic benefits, creating a tangible impact on communities while managing operational risk.

Valuing natural capital for climate and water resilience in cities

The European Investment Bank is trying to integrate the value of biodiversity and ecosystem services in its cost benefit analyses, which is proving to be very difficult. Using valuation methods requires specialist expertise, and therefore is not that user friendly for cities. A middle ground needs to be found to develop key performance indicators that can be aggregated, while being simple, robust and credible for cities. There is powerful data that provides the evidence on, for example, the connection between greening cities and improvements in mental health or reduced emissions.

Numerous tools exist to support decisions regarding green infrastructure implementation. Examples include **SITES** (a rating system developed by the US Green Building Council) and **i-Tree** (a set of tools for quantifying and valuing the benefits of trees, developed by the USDA Forest Service). No single tool provides a “silver bullet” since contextual factors matter and different tools are usually needed for different decision problems, at different stages of the green infrastructure planning and implementation process.

The Natural Capital Project has developed the open-source **InVEST** software, a suite of models for mapping and valuing the benefits provided by ecosystems. InVEST models are spatially-explicit, using spatial data (on land use and land cover) as inputs and producing maps as outputs. The tools allow users to visualise how changes in land use or land cover translate into changes in the provision of ecosystem services in biophysical terms and sometimes also in economic terms.

Trinomics follows a five-step approach for developing the business case for investing in nature-based solutions:

- 1 Consider outcome of investment
- 2 Translate into economic benefit
- 3 Measure economic benefits
- 4 Link benefits to stakeholders
- 5 Seek funding from multiple stakeholders

The application of this multi-dimensional approach can be challenging in practice, as it entails benefits for various beneficiaries, which all have to be calculated.

According to Climate-KIC there is often an implementation gap between targets and the resources needed to make implementation happen. New methods and a partnership model that co-funds various initiatives helps cities to bridge science, policy and practice, and facilitates learning and capacity building.

Eftec has worked with three London Boroughs to develop natural capital accounts, assessing the stock of natural assets and how they interact and provide ecosystem services, valuing the benefits for people. Natural capital accounting tools use familiar frameworks that are similar to financial and national accounts. This allows audiences to better understand the biophysical and economic evidence for natural capital. The tools include:

- asset registers that show the quantity and quality of natural capital assets
- environmental profit and loss accounts that show the flows of costs and benefits over the accounting period in a framework akin to a traditional income statement, and
- corporate natural capital accounts that show the change in the quality and quantity of the stock of assets and liabilities in a framework akin to a financial balance sheet.



Example: London Borough of Barnet, Natural Capital Account

The Natural Capital Account produced by eftec and Jon Sheaf Associates for the London Borough of Barnet (2016) shows that the cost of managing the 200 open spaces in the borough is less than 10% of the benefits

they provide. And that's with only some of the benefits estimated. This approach helps deliver four objectives:

- to provide the Council with a tool for understanding the benefits and costs associated with natural capital assets, helping the Council make informed decisions about allocation of scarce resources based on “outcomes” data
- to support the development of Barnet’s emerging green infrastructure supplemental planning document and align its green infrastructure policy with the London Infrastructure Plan
- to test how different management options are likely to affect the asset values (benefits provided) and develop an outline business case for future management, funding and governance arrangements
- to support the delivery of green infrastructure actions identified in the adopted Open Spaces Strategy

For more information: [London Borough of Barnet, Natural Capital Account](#)

Development of business models for implementing nature-based solutions in cities

There is clear evidence that nature-based solutions offer multiple benefits to a wide range of beneficiaries. If financing sources are to be expanded beyond public sector grants, mechanisms that capture the value of those benefits are needed. Several conference sessions explored the development of business models that allowed such value capture.

Once the benefits of nature-based solutions are understood in economic terms (based on the natural capital accounting described in the previous section), the next stage is to link them to beneficiaries in order to identify potential funding sources. Some examples:

Benefit	Economic benefit	Beneficiary
Surface water treatment	Avoided cost of sewage treatment	Sewage and wastewater utilities, businesses/residents that pay sewage/wastewater treatment fees
Physical and mental health	Avoided healthcare costs	Health services, health insurance providers
Aesthetic improvements	Property price increases	Property owners
Waterway health improvement	Community willingness to pay (non-use value), property price increase (use value)	Local communities, property owners
Street trees and wetlands	Carbon sequestration	All, businesses with carbon emissions to offset



On the basis of the identification of economic benefits and beneficiaries, business models can be developed to address the common discrepancy between who pays for and who benefits from nature-based solutions. There are also discrepancies between the short and long term – the benefits for communities, health authorities and utilities are accrued over the long term, whereas the costs are needed upfront. Several potential models were identified, including local stewardship, green diversification/quality of life/development, vacant public space/community initiatives, urban conservation offsetting, and nature as a service offering. For example, in the Netherlands, an insurance company is helping grow the market for green roofs in Tilburg (as a pilot

project), since one third of the insurance claims it receives are for flooding and green roofs help alleviate flooding. The Netherlands Rooftop Revolution works with co-financing models for building owners to install green roofs. Each green roof is 50% funded through public funds and 50% by the roof owner. In some private flats, for example, the maintenance budget is used to install the green roof.

In developing the value proposition for nature-based solutions, it is necessary to consider the end users; social, environmental and economic benefits; the cost structure; any cost reductions; and how the value can be captured. Key beneficiaries could include health services, police, schools, charities, disadvantaged communities, utilities and others. As there are many potential beneficiaries for any given solution, it is necessary to calculate the benefits for each one. Understanding the various beneficiaries, particularly their priorities and limits, and gaining their trust helps to align thinking between actors and develop a spirit of collaboration.

Example: Clayton Vale, Manchester – from industrial wasteland to natural wealth

In the early 1900s, the East Manchester landscape around the [River Medlock](#) was industrialised with mills and dye works and the river was culverted following a large flood. The vegetation disappeared, and the engineering works actually increased flood risk by speeding up the river flow. As part of a pilot project to ensure the river met the requirements of the EU Water Framework Directive, a 400 m section through Clayton Vale has been restored. The culverting has been removed, and the river slowed and widened. This helps to reduce flood risk and support biodiversity, giving habitat to kingfishers, fish, invertebrates and other species. Having a clear long-term vision for the river enabled the transformation to be brought about.

To move from pilot and small-scale projects such as these to nature-based solutions at a landscape scale, it is critical to draw on the perspectives and expertise of professionals, academics, governments, commercial organisations and communities when developing projects and business models. For professionals working at landscape scale, including landscape architects and planners, time pressures in their day to day jobs and a planning culture that needs updating can act as hindrances. Performance management systems and key performance indicators can help these professionals to rank best practices for nature-based solutions for their particular context.



Regulatory requirements in a given location can also drive development of business models and new markets. For example, legislation on biodiversity net gain or health and wellbeing can support development of solutions that provide these benefits. Potential funders will focus on solutions to urban challenges that align with their particular strategic goals or that offer tax benefits, both of which may be influenced by regulatory requirements.

Mobilising financing for integrating nature-based solutions in urban planning and development

Currently, public authorities are the main funders of nature-based solutions. However, there are many other potential sources of funding for nature-based solutions, including crowdfunding, philanthropy, impact investment, responsible investment, mainstream investment, risk reduction for insurance companies, cost

savings, blended finance and private sponsorship for corporate social responsibility purposes. As public budgets are limited, there is increasing interest in private finance for nature-based solutions. However, many projects produce unpredictable cash flows and so may require a blend of private and public funding for risk sharing.

There are several examples of city authorities collaborating with citizens and private organisations to fund nature-based solutions projects. For example, Naturvation's research found that the Melbourne Urban Forest Fund provides seed funding for a variety of city greening initiatives, with citizens and organisations contributing to upscale the external funding. In the Netherlands, a match funding scheme is coordinated by a civic crowdfunding platform, which acts as the middleman between citizens and municipalities to fund small, local projects that are in line with the goals of the municipality. In Turin, a natural public area is funded through private sponsorship, which is managed through the Ministry of the Environment. Guidelines were developed for the sponsorship and put to a public call. The final sponsorships were formed on the basis of agreements between the city and the private company. In Manchester, rain gardens were installed in 250 schools in the city to reduce the wastewater charge payable to the local utility by reducing the area of hard surface, representing £300 000/year in savings. When considering the relevance of these examples for other cities, it is important to keep in mind that cities have different types of funding models available to them, different cultures in trying alternative funding models, different land ownership systems and many other variations in context.

Despite an abundance of examples of innovative financing arrangements, achieving the necessary financing for nature-based solutions at city scale is challenging, primarily because of the difficulties in identifying cash flows. It is therefore critical that planning policy include requirements for nature-based solutions – finance will follow if regulatory requirements are in place. Furthermore, assessing actions already in place in a city to address a particular challenge can help investors identify where investment is needed and understand how a project fits into the strategic plan for the city.



If nature-based solutions are to be implemented in cities across Europe, they need to be integrated into wider sectoral discussions. For example, there are ongoing debates on the topic of financing quality and sustainable infrastructure. As part of this, the global standard on nature-based solutions should be part of the understanding of what qualifies as sustainable infrastructure. The connection between urban green spaces and improved mental and physical health is a powerful narrative to drive change in policy. Similarly, the insurance industry's interest in climate risks creates an opportunity to consider hybrid grey-green infrastructure,

particularly if gold standards are developed that show its potential for risk reduction. Many cities have been impacted by flooding and climate change – there is an opportunity for cities to rebuild infrastructure to be more resilient. Blue and green spaces have demonstrated their value in minimising impacts and need to be part of urban planning.

Example – the [Greater Manchester Natural Capital Investment Plan](#) is based on accounts of the city's natural capital. The plan aims to develop a pipeline of potential projects that require investment (including projects with both high and low revenue streams), develop finance models to facilitate private sector investment and the role of the public sector, and produce recommendations for putting the plan into practice

over the next five years. The pipeline of project types can include several types of investment types. For example, place-based portfolio models could involve leasing nature-based solutions to a trust to exploit new revenue opportunities. Habitat and carbon banking could also be relevant to nature-based solutions – credits could be sold to organisations that need to offset the unavoidable impacts of their activities. In places where developments have to pay wastewater drainage fees, nature-based solutions to absorb rainwater have a revenue mechanism in avoided costs from lower drainage fees.

Under the Greater Manchester Natural Capital Investment Plan, the aim is for the public sector to be an investment commissioner, helping support business plans for specific investment opportunities. In addition, an Investment Readiness Fund will be developed with a minimum of £1 million. The actions to deliver the investment plan include developing business plans for priority investments, implementing policy actions to incentivise investments, defining governance schemes for investments.

Next steps

The following concrete actions were proposed by the conference participants, to capture the essence of the exchange and to ensure that the discussions don't stop here.

1. **Maintenance** – capacity, knowledge and financing for maintenance of nature-based solutions implemented is a major barrier. The frontrunner cities involved in the cluster of eight Horizon 2020 nature-based solutions demonstration projects will share their strategy for long-term maintenance and will present it at a relevant event in a year from now.
2. **Talk to new stakeholders and potential investors** – engaging stakeholders who benefit from urban green infrastructure in the early stage of project development is key. Fellow cities inspired by the Horizon 2020 demonstration projects will talk to at least one stakeholder or beneficiary they have not talked to before about the opportunity to save or earn money through nature-based solutions.
3. **Nature-based solutions global standard** – currently the definition of nature-based solutions does not work for practitioners. In order to decide on what qualifies as a nature-based solution, IUCN, all Horizon 2020 demonstration projects and other interested partners will co-design a reference framework for investors, policy makers and civil society actors to mobilise sustainable finance for upscaling nature-based solutions.
4. **Case studies to profile the role of coordinators and facilitators** – there is often a mismatch in financing. It is therefore essential to establish coordination among different interest groups and develop business models that engage the various actors, as well as to develop a catalogue of examples of the types of business models that work to support NBS in cities. This can enable different actors to identify what roles they can play and how to come together to create effective models to secure finance for NBS.
5. **Embed nature-based solutions into wider programmes on sustainable urban development** – nature-based solutions should be integrated in a systemic approach to sustainability. This requires a narrative on how this approach can work at the landscape and urban level.
6. **Natural capital accounts, Key Performance Indicators and data** – In order to provide policy makers with knowledge to understand the value of their natural assets, a review of existing approaches to valuing nature and case studies from cities across the EU and internationally will underpin the development of a new 'Urban Nature Index'.

Upcoming events of relevance to continue the dialogue and make progress are:

3rd European Urban Green Infrastructure Conference, 10-11 April, London

Gathering of urban greening projects from Europe and beyond, leading urban green infrastructure experts and practitioners, 300-400 participants, speakers, exhibitors, workshop leaders, architects, landscape architects, ecologists, engineers, planners, developers, investors, contractors and builders, facilities and landscape managers, community organisations, NGOs and academics <https://eugic.events/>

European Urban Resilience Forum – 25 June 2019, Bonn

A unique exchange platform where city representatives and stakeholders from various local and regional institutions come together to discuss strategies and actions for adapting to climate change and building urban resilience <http://www.urbanresilienceforum.eu/>

The Nature of Cities Summit – 4-7 June 2019, Paris

The first-ever gathering of The Nature of Cities community where thought leaders from communities of practice, policy, and academia come together to discuss the nature of cities—green cities that are better for people and nature <https://www.tnoc-summit.org/>

Annexes

- 1 Conference programme
- 2 Session descriptions
- 3 Site visits
- 4 List of tools and best practices

ANNEX 1 – CONFERENCE PROGRAMME

Tuesday 26 March 2019

Tuesday 26 March 2019				
08:30 - 09:00	Welcome and registration with coffee/tea			
09:00 - 10:00	Opening plenary	Panel discussion - Councillor Angeliki Stogia, Executive Member for Environment, Planning & Transport and Labour and Co-operative Councillor for Whalley Range Executive Members' Office, Manchester City Council - Louise Wilson, Director, Abundance Investments - Jamie Mansfield, Founder and Director of Environmental Finance		Moderator: Lindsey Chapman
	Training session Primrose Room - ground floor	Workshop Honeysuckle Room - basement	Workshop Lavender Room - ground floor	Plenary session Bluebell Room - basement
10:00 - 11:30	New developments in decision-support tools for siting and valuing green infrastructure <i>Lead by Perrine Hamel, Livable Cities Program Lead, Natural Capital Project</i>	Shaping the business case on Nature-based Solutions <i>Lead by Tom Kools, Project Lead Natural Capital & Biodiversity, Nature Squared</i>	Exploring nature-based solutions financing approaches and knowledge needs from a city perspective based on practical cases from Hamburg, London and Turin <i>Lead by Bettina Wilk, Project Officer NBS and GI, ICLEI</i>	The Greater Manchester Natural Capital Investment Plan <i>Lead by Krista Patrick, Natural Capital Co-ordinator, Greater Manchester Combined Authority</i>
11:30 -12:00	Coffee/tea break			
12:00 -13:30	New developments in decision-support tools for siting and valuing green infrastructure <i>Lead by Perrine Hamel, Livable Cities Program Lead, Natural Capital Project</i>		Best practices for developing natural capital accounts for the London Boroughs - informing green space strategy development and financing <i>Lead by Duncan Royle, Natural Capital Accountant, Eftec</i>	The Greater Manchester Natural Capital Investment Plan <i>Lead by Krista Patrick, Natural Capital Co-ordinator, Greater Manchester Combined Authority</i>
13:30 - 14:30	Lunch			

	Training session Primrose Room - ground floor	Workshop Honeysuckle Room - basement	Workshop Lavender Room - ground floor	Plenary session Bluebell Room - basement
14:30 - 16:00	Solving the Finance Puzzle? Designing new business models for urban Nature-based Solutions <i>Lead by Laura Tozer, Postdoctoral Research Associate, Durham University, Naturvation</i>	System mapping demonstration session - tools for cities for financing Nature-based Solutions <i>Lead by Cristian Matti, Transitions Hubs Lead, Climate-KIC</i>	Building the business case for Nature-Based Solutions using economic valuation: A step-by-step guide based on the proposed Northern Gateway regeneration project in Manchester <i>Lead by Jurgen Vermeulen, Senior Consultant & Cluster Lead Environment, Trinomics</i>	Closing the implementation gap: From demonstration pilots to an EU and international market for Nature-based Solutions - exchange of views <i>Lead by Tom Bucx, Senior Advisor Climate Adaptation, Deltares</i>
16:00 - 16:30	Coffee/tea break			
16:30 - 18:00	Solving the Finance Puzzle? Designing new business models for urban nature based solutions <i>Lead by Laura Tozer, Postdoctoral Research Associate, Durham University, Naturvation</i>	Blue Green Infrastructure practical guidance for the Design, Construction and Maintenance <i>Lead by Tony Williams, President International Federation of Landscape Architects (IFLA) Europe</i>	Best practices for developing natural capital accounts for the London Boroughs - informing green space strategy development and financing <i>Lead by Duncan Royle, Natural Capital Accountant, Eftec</i>	Measuring the impact of investments on urban natural capital <i>Lead by Russell Galt, Director IUCN Urban Alliance</i>
18:00 - 18:30	Closing plenary	Reflections from experts: Julie Delcroix (European Commission), Bettina Wilk (ICLEI), Russell Galt (IUCN Urban Alliance), Laura Tozer (Durham University), Cristian Matti (Climate KIC), Laura Baroni (Trinomics)		
18:30 - 20:00	Drinks reception			

Wednesday 27 March 2019

08:30 - 09:00	Welcome and registration with coffee/tea			
09:00 - 10:00	Opening plenary - Welcome and reflections			
	Keynote speech - Eva Mayerhofer, Lead Environment and Biodiversity Specialist, European Investment Bank Climate and Social Office			
Parallel site visits - Local nature-based solutions				
10:30 - 14:00 (lunch provided)	<p>Clayton Vale</p> <p>Once an industrial ash waste tip from the East Manchester power station, greened up in the 1980's it is now a local nature reserve. Clayton Vale forms a green hub in the heart of this regenerated part of the city, bringing investment, jobs and other co-benefits.</p>	<p>Moorlands Primary School - nature-based solutions playground</p> <p>In 2018 Moorlands Primary School constructed the first NBS rain garden in any school playground in Manchester. This new rain garden absorbs rainwater which previously went directly in to the drainage system. The result is an attractive new playground, increased biodiversity and reduced drainage bills.</p>	<p>Angel Meadow Park & Noma HQ of the Cooperative Group</p> <p>Angel Meadow Park, near to the centre of Manchester, was originally the largest cemetery in the city. In 2004 with considerable regeneration in this part of the city the park was re-landscaped to form an attractive public park and a friends of the park group was established. It is now one of the city centre's much loved parks. The flagship HQ buildings of the Co-Operative Group is one of the most iconic modern buildings in the city. When it was opened in November 2013 it was named 'the most sustainable building in the world'.</p>	<p>Manchester City Football Club Stadium - the Etihad</p> <p>The football club has transformed a former largely derelict, toxic and unusable heavy industrial estate into a community and business hub. With sustainability at its focus it has incorporated a range of energy systems to lower emissions, including rainwater and bore-hole water harvesting with waste water from all ground activities being recycled and reused across the academy and stadium.</p>

ANNEX 2 – SESSION DESCRIPTIONS

Interactive training sessions

Training Session: New developments in decision-support tools for siting and valuing green infrastructure. Perrine Hamel, Livable Cities Program Lead, [Natural Capital Project](#)

Urban nature-based solutions have great potential to foster the transition to sustainable and resilient cities. Yet there is no "one-size-fits-all" solution and cities need tools to understand which solutions will bring the highest benefits at different scales. The goal of this session is to share new developments in decision-support tools for siting and valuing nature-based solutions, with a particular focus on the open-source InVEST software developed by the Natural Capital Project. The half-day session will include: i) learning exchange on existing decision-support tools and their application; ii) deep dive into InVEST tools (e.g. valuing stormwater retention, urban cooling, and recreation services) with applications in France and China; and iii) an interactive discussion on barriers and opportunities for municipalities to use such decision-support tools.

Training Session: Solving the Finance Puzzle? Designing new business models for urban nature based solutions. Laura Tozer, Postdoctoral Research Associate, [Durham University](#) and [Naturvation](#)

In the first part of this session we will hear from a range of speakers about their experience in solving the finance puzzle for nature-based solutions in order to identify promising examples of best practice and to share key lessons about the opportunities and challenges for creating business models and finance arrangements that work on the ground. In the second part of this session, we will explore how to find practical ways of designing and implementing the business models and financing required to realise the potential of nature-based solutions. In this interactive session, we will work with different business models that have shown the potential to support urban nature-based solutions and explore the different pieces of the puzzle needed to create the potential for securing investment. Small groups will experiment with diverse ways in which these could be bought together to find new approaches to enable cities to work with nature to address their sustainability goals.

Workshop sessions

Workshop Session: Shaping the business case on Nature-Based Solutions: From value to valorisation. Tom Kools, Project Lead Natural Capital and Biodiversity, [Nature^Squared](#)

Nature-based solutions can be vital for addressing many of the challenges that cities are currently facing in ways that benefit many stakeholders. However, there are very limited existing arrangements to channel funding toward (re-) greening. Municipalities are now often paying for implementation of nature-based solutions, while society at large benefits. A pivotal step for upscaling nature-based solutions is therefore to increase knowledge on how they can be economically valued, and how potential stakeholders can (co-) invest in the replenishment of these urban ecosystem services. This workshop aims to narrow this knowledge gap by training participants in the concepts of economic valuation methods, (paying for) urban ecosystem services, and an integrated landscape approach on how packaged multiple revenue streams can collectively shape a feasible business case. After the workshop, participants will:

- Be familiar with the concept of (paying for) urban ecosystem services and Green Urban Business Cases
- Be able to identify the most important ecosystem services relevant to re-greening initiatives

- Have a grasp of the latest scientific social, economic and ecological benefits related to relevant ecosystem services
- Recognise the most important economic valuation methods, their usage and translate these insights to monetise ecosystem services
- Have interactively practiced how to identify relevant stakeholders that might be willing to finance nature-based initiatives such as a city park or green roofs
- Have drawn conclusions from several (European) best-practices on how to finance nature-based solutions

Workshop Session: Creating a Water Safe and Attractive City. Wen Mei Dubbelaar, Director of Water Management, [Arcadis China](#)

The Chinese Sponge Cities programme aims to ensure that by 2030 80% of each Chinese city has ‘sponge’ functions to absorb and store rainwater, based on a pilot programme that requires that 20% of the built area of each pilot district in the 30 participating cities has sponge functions by 2020. In the city of Wuhan, several pilot projects have already been completed in the context of the Sponge Cities pilot phase. For example, the Yangtze River Embankment Rehabilitation Project has incorporated green spaces, including buffer strips, swales and rainwater gardens, into a 7.5 km stretch of the Yangtze River bank to reduce flooding, waterlogging and accumulation of pollutants. Based on the project experiences that Arcadis gained in China, including with the Sponge City Programme and its application in the city of Wuhan, and internationally, this session will explain how important urban water management is when planning and building a city. It will also discuss how to use green infrastructure to help make a city more water safe and at the same time more attractive.

Workshop Session: System mapping demonstration session – tools for cities for financing nature-based solutions. Cristian Matti, Transitions Hubs Lead, [EIT Climate-KIC](#)

This workshop presents insights on how new practices and visual tools facilitate the application of participatory methods by combining science and practice for place-based system mapping processes. Participatory action research and knowledge management are jointly implemented on the elaboration of consensual systemic diagnostics and action plans from a system perspective within unstructured and complex urban contexts. The collective construction and consensus are key concepts applied to explore whether simple notions of system innovation can be collectively created to foster new practices in a multi-stakeholder setting. The method developed by the [Transitions Hub](#) has been widely applied in [EIT Climate-KIC](#) programs and projects as well as participatory process in several EU countries. This lab session will include a participatory exercise based on an adapted version of Ocean of Opportunities/[Empty Spaces](#) tool from [Visual Toolbox for System Innovation](#) that allow data gathering from concepts maps and further codification and analysis for creating dashboard posters, which will be shared with all the participants in one month’s time.

Workshop Session: Blue-green infrastructure - Practical guidance for its design, construction and maintenance. Tony Williams, President, [International Federation of Landscape Architects Europe](#).

This workshop will focus on the theme of financing, resilience in cities, and the development of nature based solutions and opportunities in both rural and urban areas, ensuring interconnectivity between ecosystems and how we can respond as landscape architects in relation to climate change and will provide some positive examples of how we can:

- a) include Nature Based Solutions (NBS)/Blue Green Infrastructure (BGI) in new infrastructure at all project scales and ensure the inclusion of citizen science along with the avid gardener to the benefit of all; and
- b) 'retrofit' urban and rural (and peri-urban) areas to include NBS/BGI and assist in ensuring resilience to climate change and to be a part of our public space networks and the greater landscape.

Workshop Session: Exploring nature-based solutions financing approaches and knowledge needs from a city perspective based on practical cases from Hamburg, London and Turin. Bettina Wilk, Project Officer Nature-Based Solutions and Green Infrastructure, [ICLEI](#)

Description of the workshop: In this session participants will explore different ways of financing nature-based solutions at local level. Social Finance and the City of Glasgow share approaches (e.g. NBS Business Model Canvas developed in the European project Connecting Nature) for capturing the value of benefits delivered by nature-based solutions. Knowing this information helps in identifying and blending funding sources from public funds, grants and earned income. Attendees will then explore the business and investment case for specific nature-based interventions under varying circumstances by applying these approaches to one of three practical cases of their choice from Hamburg, London or Turin. This session features work and local implementation activities from the European projects CLEVER Cities, proGInreg and Connecting Nature.

Workshop Session: Best practices for developing natural capital accounts for the London Boroughs – informing green space strategy and financing. Duncan Royle, Natural Capital Accountant, [Eftec](#)

Urban green spaces are facing increasing pressures from population growth, and a tightening of public funding. There is an urgent need to understand and quantify the benefits of urban greenspace and to whom these benefits flow. This case study of applying natural capital accounting within several London Boroughs, illustrates how accounting information can inform green space strategy – prioritising the right benefits in the right place, and informing approaches to looking for sources of innovative financing. Specific objectives include:

- Understanding the relationship between natural capital assets, the ecosystem services they provide and the evaluation of these benefits to end users,
- How accounting formats can enable effective presentation of natural capital benefits and costs to inform decision making,
- How greater understanding of benefit flows aids the strategy for exploring alternative sources of finance.

Workshop Session: Building the business case for nature-based solutions using economic valuation: A step-by-step guide based on the proposed Northern Gateway regeneration project in Manchester. Jurgen Vermeulen, Senior Consultant and Cluster Lead Environment, [Trinomics](#)

In this workshop, Trinomics will let the participants experience how to analyse nature-based solutions from an economic perspective. The workshop is based on the participants creating parts of the economic framework themselves and taking them step-by-step through an economic valuation process, to see how the valuation of economic benefits helps to design the business case for nature-based solutions. From there, the next step towards a financing strategy for that business case will be built together with the participants. This is being done on the basis of an actual nature-based regeneration project that is currently planned to be developed in Manchester (the site will be visited on Wednesday the 28th) – the [Northern Gateway Regeneration Project](#), which will be introduced by the Project Developer and Manchester City Council. At the end of the workshop you will have...

- Learnt how to view a green infrastructure project from an economic perspective
- Learnt how to strengthen the business case for urban green infrastructure projects
- Learnt how to build a strategy to attract financing on the basis of the economic valuation of the green infrastructure project
- Been busy thinking and discussing yourself together with your fellow participants for the most part of the 1.5h session!

Plenary sessions

Plenary Session: The Greater Manchester Natural Capital Investment Plan. Krista Patrick, Natural Capital Coordinator, [Greater Manchester Combined Authority](#)

Under the leadership of Mayor Andy Burnham, Greater Manchester is growing in its status as a leading green city region with an ambition to be one of the best places in the world to grow up, get on and grow old. This is supported by its designation as the ‘[Urban Pioneer](#)’ for the [Government’s 25 Year Environment Plan](#) testing new tools and methods for investing in and managing the environment. This seminar will provide an overview of the [Greater Manchester Natural Capital Investment Plan](#) which has recently been developed and is the first of its type for a UK city region. Greater Manchester Combined Authority's natural capital lead, Krista Patrick, will outline the investment priorities and the actions to put this into practice, including the establishment of an Investment Readiness Fund and priority finance models. Key questions to consider as part of the session will include; what do we mean by investment, why investment in natural capital is needed, what are the barriers to investment, what are the solutions such as Investment Readiness Fund and what else is required?

Plenary Session: Closing the implementation gap: From demonstration pilots to an EU and international working market for nature-based solutions. Monica Altamirano, Specialist in Public-Private Partnerships, [Deltares](#)

Close to 200 million euro has to date been invested by the European Commission Directorate General for Research and Innovation alone on projects that focus on nature-based solutions and sustainable urbanisation. These projects are advancing the evidence on the effectiveness of green infrastructure and hybrid strategies for the management of water, health and other risks faced by cities and are creating innovative ideas and business models that can potentially make nature-based solutions projects investable and even bankable. However, to speed up the process towards mainstreaming and upscaling of these pilot initiatives, it is key to facilitate a public-private dialogue to find common ground for the creation of a regional market and a steady pipeline of high quality nature-based solutions projects. The objective of this plenary session is to kickstart this dialogue with European leading actors in the public and private side of the equation: public procurement agencies, large dredging and construction contractors, real estate and infrastructure project developers, financiers and key beneficiaries such as water utilities. The session will start with a keynote to set the scene by introducing the key barriers for nature-based solutions implementation and key elements for market creation across sectors and will be followed by an interactive panel discussion. The outcome this session aims to achieve will be a decision on steps towards the development of a public-private engagement plan to accelerate nature-based solutions market creation.

Plenary Session: Measuring the impact of investments on urban natural capital. Russell Galt, IUCN Urban Alliance

“If you cannot measure it, you cannot improve it.” This old adage resonates through the soil, water, air and biodiversity of cities. Put simply, monitoring is essential to the effective management of urban natural capital.

Indicators can convey valuable information on the status and trends of natural capital stocks, the flows of services they generate, and the impact of conservation measures. Such information can enhance the prioritization, evaluation and efficacy of green investments. This session will seek to engage participants in addressing the following questions:

1. To what extent is urban natural capital currently monitored and what tools, frameworks and indicators are used?
2. What data gaps impede the sustainable management of urban natural capital and how might they be remedied?
3. How can data be packaged so as to maximize influence on investment decisions?

A diverse panel of experts will be invited to share their views. The results of this session will inform the development of an IUCN Urban Nature Index to be launched at the World Conservation Congress in June, 2020.

ANNEX 3 – SITE VISITS

CLAYTON VALE

Once an industrial ash waste tip from the East Manchester power station, greened up in the 1980s it is now a local nature reserve and a place for visitors to enjoy woodland and riverside walks, fishing and picnics. It is also home to one of the largest mountain bike trails in the northwest providing a unique sporting facility in the area. Clayton Vale forms a green hub in the heart of this regenerated part of the city, bringing investment, jobs and other co-benefits.



MOORLANDS PRIMARY SCHOOL – NATURE-BASED SOLUTIONS PLAYGROUND

In 2018 Moorlands Primary School adopted an innovative new solution to their rainfall drainage by constructing the first nature-based solutions rain garden in any school playground in Manchester. This new rain garden absorbs rainwater which previously went directly in to the drainage system. The result is an attractive new playground, increased biodiversity and reduced drainage bills. This is a primary example of the financial benefits of NBS, with huge potential for replication.



ANGEL MEADOW PARK & NOMA HQ OF THE CO-OPERATIVE GROUP

Angel Meadow Park is a park near to the centre of Manchester, originally the largest cemetery in Manchester and used for the burial of people too poor to afford a proper funeral. In 2004 with considerable regeneration in this part of the city the park was re-landscaped to form an attractive public park and a friends of the park group was established. It is now one of the city centre's much loved parks.

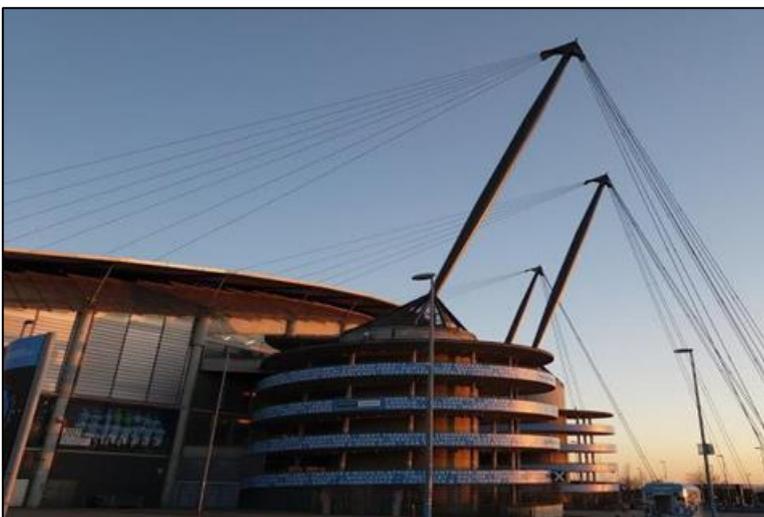
The flagship HQ buildings of the Co-Operative Group is one of the most iconic modern buildings in the city and its design has been compared to a 'sliced egg' or 'ship' because of its shape. When it was opened in November 2013 it was named 'the most sustainable building in the world'.



MANCHESTER CITY FOOTBALL CLUB STADIUM – THE ETIHAD

Home to Manchester City Football team and one of the most iconic buildings in this part of East Manchester, it was built in 2002 to host the commonwealth games and has won several architectural awards for its innovative design particularly for its stunning wave shaped stadium roof.

The club has transformed a former largely derelict, toxic and unusable heavy industrial estate into a community and business hub. With sustainability at its focus it has incorporated a range of energy systems to lower emissions, including rainwater and bore-hole water harvesting with waste water from all ground activities being recycled and reused across the academy and stadium. It is one of the most sustainable sports complexes in the city.



ANNEX 4 LIST OF TOOLS AND BEST PRACTICES

Tool	Organisation	Description	Link
Urban Nature Atlas	Naturvation	Compendium of examples of urban nature-based solutions across Europe. Can be filtered by challenges addressed, urban setting, cost, funding sources and other parameters.	https://naturvation.eu/atlas
System Innovation Mapping	Climate KIC	Training on overcoming challenges and exploiting opportunities for sustainability innovations and transitions.	https://learning.climate-kic.org/en/courses/system-innovation#learning-outcomes-what-will-i-do-and-learn-in-this-course
Natural Capital Financing Facility	EIB	Financial instrument that supports projects delivering on biodiversity and climate adaptation through tailored loans and investments, backed by an EU guarantee.	https://www.eib.org/en/products/blending/ncff/index.htm
A study to scope and develop urban natural capital accounts for the UK	Eftec	Methodology for valuing urban ecosystems and developing natural capital accounts.	http://sciencesearch.defra.gov.uk/Document.aspx?Document=14143_UrbanNC_Account_Final_ReportAugust2017.pdf
Outdoor Recreation Valuation Tool (ORVal)	University of Exeter	A tool that values recreational demand for green spaces in England and Wales.	https://www.leep.exeter.ac.uk/orval/
Natural Capital Account for Barnet	Eftec, London Borough of Barnet	Example of a natural capital account in an urban context.	https://barnet.moderngov.co.uk/documents/s40941/Appendix%20%20Natural%20Capital%20Account%20for%20Barnet.pdf
Manchester's Great Outdoors: A green and blue infrastructure strategy for Manchester	Manchester City Council	Example of a city-wide strategy for green infrastructure/nature-based solutions.	https://www.manchester.gov.uk/downloads/download/6314/manchester_green_and_blue_strategy
Greater Manchester Natural Capital Investment Plan	Eftec, Environmental Finance, Countryside	Example of plan and methods for encouraging investment in nature-based solutions and natural capital.	https://naturegreatermanchester.co.uk/project/greater-manchester-natural-capital-investment-plan/
Ecosystem services opportunity mapping	Greater Manchester Combined Authority	Map of ecosystem service opportunities across Greater Manchester.	https://mappinggm.org.uk/gmo-din/
Oppla	Oppla	Repository for knowledge on nature-based solutions, natural capital and ecosystem services in the	https://oppla.eu

Tool	Organisation	Description	Link
		EU.	
SITES Rating System	GBCI	Sustainability certification for landscape architects, engineers and others developing landscapes that provide ecosystem services.	http://www.sustainablesites.org/certification-guide
i-Tree	USDA Forest Service	Tool for analysis of benefits provided by forests, threats to forests, and forest structure, to inform forest management decision making.	https://www.itreetools.org/about.php
InVEST	Natural Capital Project	Software models to map and value ecosystem services. It can be used to assess trade-offs of management decisions and identify spatial locations for management or restoration interventions.	https://www.naturalcapitalproject.org/invest/
GI Valuation Toolkit	Mersey Forest	Tool for assessing value of existing green space or proposed green investment, in monetary terms, qualitatively or quantitatively.	https://www.merseyforest.org.uk/services/gi-val/
'Nature Nearby': Accessible Natural Green Space Guidance	Natural England	Guidance for parks and greenspaces practitioners for the amount and quality of green spaces within minimum distances of people's homes.	https://webarchive.nationalarchives.gov.uk/20140605111422/http://publications.naturalengland.org.uk/publication/40004?category=47004
Building with Nature Benchmark	Building with Nature	Standards for designing good quality green infrastructure that improves, wellbeing, water and wildlife, as well as core standards.	https://www.buildingwithnature.org.uk/how-it-works
Climate Adapt: Financing urban adaptation to climate change	EEA	Overview of mechanisms for financing climate change adaptation in cities, as well as examples and lessons learnt.	https://climate-adapt.eea.europa.eu/metadata/publications/financing-urban-adaptation-to-climate-change
Investing in nature: financing conservation and nature-based solutions – A practical guide for Europe	European Investment Bank	Guidance on developing business models, forecasting cash flows, analysing risks and financing options, and analysing legal structures.	https://www.eib.org/attachments/pi/ncff-invest-nature-report-en.pdf
Guide to Multi-Benefit Cohesion Policy Investments in	European Commission, Regional and Urban	Guidance on how investments in nature, biodiversity and green	https://ec.europa.eu/regional-policy/en/information/publications/guides/2013/guide-to-

Tool	Organisation	Description	Link
Nature and Green Infrastructure	Development	infrastructure are relevant for cohesion policy, and how they can contribute to policy objectives.	multi-benefit-cohesion-policy-investments-in-nature-and-green-infrastructure
Integrating Green And Gray: Creating Next Generation Infrastructure	World Bank and World Resources Institute	Guidance on how infrastructure projects can integrate nature-based solutions, and how this can be enabled by improved policy, law and regulations.	http://www.greengrowthknowledge.org/resource/integrating-green-and-gray-creating-next-generation-infrastructure
The demand for financing climate projects in cities	C40 cities, CDP, Covenant of Mayors for Climate and Energy	Analysis of climate-related projects in cities, how they are financed and how their impact can be maximised.	https://www.globalcovenantofmayors.org/wp-content/uploads/2019/02/C40-CFF-Infrastructure-projects-report.pdf
Approaches to financing nature-based solutions in cities, working document	Trinomics for GrowGreen	Overview and categorisation of approaches and instruments for financing nature-based solutions in cities.	http://growgreenproject.eu/wp-content/uploads/2019/03/Working-Document-Financing-NBS-in-cities.pdf



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