



Bringing cities to life, bringing life into cities

Deliverable 3





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DOCUMENT PROPERTIES

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Executive summary

The development of the Connecting Nature Impact Assessment Framework has been accompanied by a series of resources that can be used by cities whose objective is to build capacity to mainstream impact assessment as part of their nature-based solutions policies and plans. Together, they form an impact assessment toolkit for cities. The objective of this Deliverable is to provide a brief description of each of the elements of the toolkit, while the resources and tools themselves can be consulted online, by following the provided links in Appendices I and II. All these materials have been uploaded to websites and platforms, so that the elements are easily searchable and downloadable by users. The resources generated fall into the following four categories:

1) Impact assessment plans, results and integration of data for the Connecting Nature frontrunner cities

2) Finding inspiration: nature-based solutions repositories and databases: OPPLA, the EU Repository of Nature-Based Solutions, and the NBS data and knowledge base created by Dushkova and Haase (2020).

3) The CO-IMPACT tool to design bespoke impact assessment plans, a decision-support tool for the design of monitoring and evaluation plans, with suggestions for appropriate indicators and methodologies. It is one of the main innovations in the project.

4) Additional monitoring and evaluation resources for cities, including handbooks and indicator factsheets to support cities in impact assessment

The deliverable also presents the Connecting Nature plans for ensuring sustainability of project innovations beyond the official end of the project. It describes the design of the Connecting Nature Resource Center, an online repository of searchable resources embedded in the European platform OPPLA.

In addition to these five main sections, this document has two appendices. The first one the main resources, and includes keywords, location, description, uses of the product and associated links. In the second appendix, the impact assessment video trainings are listed, along with links to the videos for easy access.

All the resources presented in this Deliverable make up an interactive, online toolkit to support nature-based solutions impact assessment and deployment in cities. containing innovative evidence-based demonstrations for nature-based solutions deployment in cities. The toolkit will also be presented at the CN final Summit in Genk and will seek to stimulate emerging partnerships to support impact assessment plans and investments in cities.

1. Impact assessment plans, results and integration of data for policy support in the Connecting Nature frontrunner cities

Deliverable 1 and 2 have described in detail the process by which frontrunner cities contributed to the co-creation process of the Connecting Nature Impact Assessment Framework. As a result, they also produced their own nature-based solutions impact assessment plans, implemented indicators to assess the expected outcomes of their exemplars and integrated data in existing platforms (2 of the cities) or created GIS-support data integration dashboards, designed to integrate existing and new flows of data and allow



Connecting Nature

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for in-depth analyses of needs at area and neighborhood level, as well as orient policy decisions regarding the location and types of nature-based solutions needed in the future. Table 1 shows the main milestones achieved by the Cn cities regarding each of the output categories of the CN Impact Assessment Framework.

Table 1 Summary of available resources of the Connecting Nature Cities

Connecting Nature Cities		Evaluation and Monitoring Plan	NBS Evaluation Results	Platforms/Dashboard
Front-runner cities	Genk (Belgium)	●	●	●
	Glasgow (Scotland)	●	●	●
	Poznan (Poland)	●	●	●
Fast-follower cities	A Coruña (Spain)	●	●	
	Burgas (Bulgaria)	●		
	Ioannina (Greece)	●		
	Málaga (Spain)	●		
	Nicosia (Cyprus)	●		
	Pavlos Melas (Greece)	●		
	Sarajevo (Bosnia and Herzegovina)	●		
Multiplier cities	Kutaisi (Georgia)	●		
	Yerevan (Armenia)	●		

Impact assessment plans, results and platforms are useful examples for other cities looking to develop their own capacities for evidence-based NBS design and implementation. Each individual impact assessment plan, as well as the results on the outcomes of NBS for the cities that implemented plans, can be consulted in Deliverable 2 (Dumitru et al., 2022). The spatially-explicit data integration dashboard of the city of Glasgow can be consulted at the link provided below.

Impact Assessment Plans of CN frontrunner and fast-follower cities: Plans follow the CN Impact Assessment Framework’s building blocks structure (see the CN Guidebook for Impact Assessment; and Deliverable 2), and include a mapping of the cities’ theory of change, their selection of indicators, as well as a mapping of data needs and data collection methods. The plans are summarized in structured and highly visual templates, to make them accessible and easy to grasp by different categories of stakeholders.

Evaluation Results: For the cities who have implemented their impact assessment plans, main results have been presented in the Appendices of Deliverable 2. Each individual city report details the results obtained on five categories of outcome indicators: environmental; health and wellbeing; social cohesion; economic; and participatory planning and governance.

Dashboards: The city of Glasgow dedicated significant resources to create a spatially explicit, GIS-based data integration platform to allow for the visualization of nature-based solutions outcomes at the level of particular areas and neighbourhoods. The dashboard will be further developed as the data infrastructure that supports the city’s open space strategy, and will play multiple functions. It will allow visualization of indicators and comparison between different areas in the city; the identification of data gaps to orient future impact assessment efforts and investments; and the integration and analysis of different categories of outcome indicators to orient policy decisions and engage with different stakeholders in the city. The dashboards illustrate the relevance of efforts to collaborate with multiple stakeholders in the city ecosystem in identifying useful data. Table 2 shows the diversity of data sources used by the city to create the dashboard, Figure 1 shows the interface of the dashboard and the dashboard itself can be consulted at this [link](#).

Table 2 Dashboard data sources © Glasgow City Council

Data indicator	Period	Link / Source
Business Counts	2019	https://www.nomisweb.co.uk/datasets/idbrlu
Coronary Heart Disease Patients, 3 year rolling average	2015 - 2017	https://www.scotpho.org.uk/comparative-health/profiles/online-profiles-tool
Alcohol Hospitalisations	2015 - 2017	
Asthma Patients, 3 year rolling average	2015 - 2017	
Life Expectancy, multi-year average over 5 years	2012 - 2018	
Crime Rate	2015 - 2018	
Allotments	2016	Glasgow City Council Data
Woodland Audit	2017	Glasgow Clyde Valley Green Network Data
Green Active Travel Routes	2018	
Habitats data (habitats, networks, critical connections and opportunity areas)	2018	
SIMD	2020	https://www.gov.scot/news/scottish-index-of-multiple-deprivation-2020/
GI Potential (Cooling Potential, Flood Mitigation Potential)		https://bit.ly/3tvj91V
Open Space - PAN 65		https://bit.ly/3qnl8Dm
B-Lines		https://www.buglife.org.uk/our-work/b-lines/

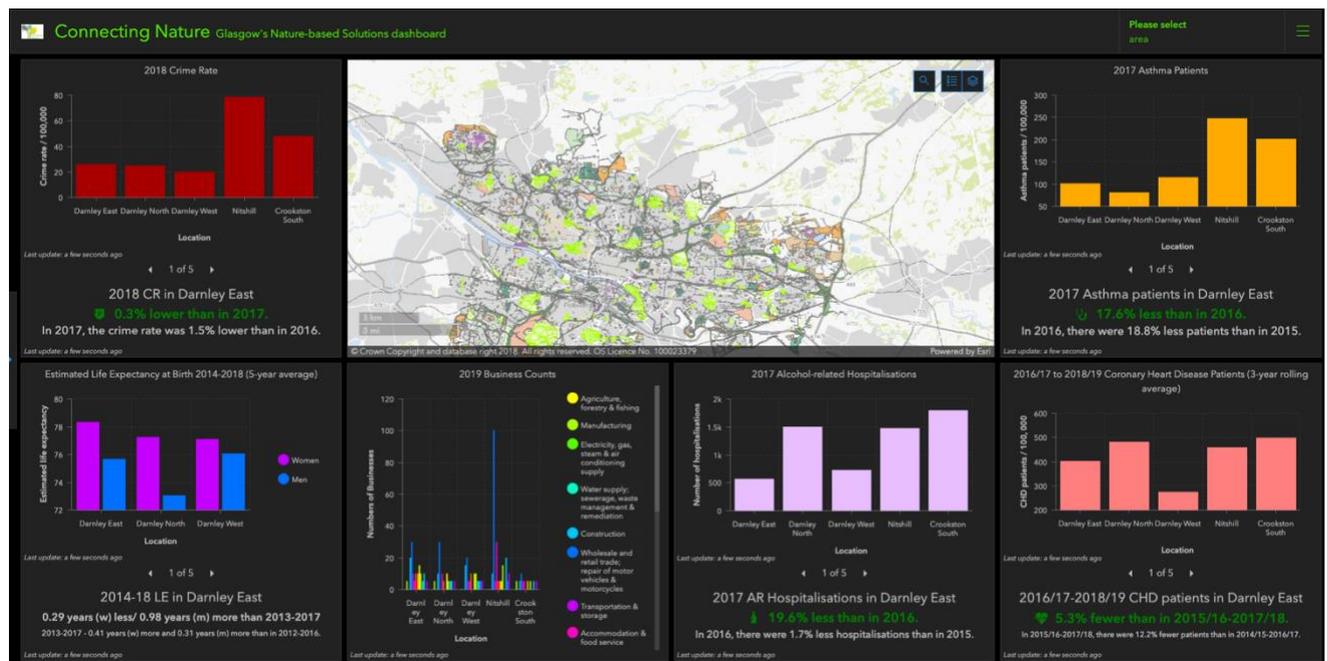


Figure 1 Connecting Nature Glasgow's Nature-based Solutions dashboard © Glasgow City Council

2. Finding inspiration: Nature based solutions repositories and databases

Real examples of nature-based solutions implemented and information about the motivations behind them, investments needed, the process behind their design and implementation, as well as their scale or location can be very useful examples for cities looking to implement nature-based solutions. Connecting Nature has contributed, on the one hand, to [OPPLA](#), the EU Repository of Nature-Based Solutions, with case studies of the CN cities. OPPLA provides cases that can be consulted interactively at six scales (global, continental, sub-continental, national, subnational, local) and that are classified into three types (NC & ES Case Study, NBS Project Case Study, NBS City Overview Case Study).

On the other hand, a database of nature-based solutions has been developed in Connecting Nature as a basis for the development of indicators and the CN Impact Assessment Framework. The database (Dushkova and Haase, 2020) contains descriptions of 1490 nature-based solutions from many cities in Europe, with information of their location, scale, implementation period, phase, budget, motivations behind them, and the number of stakeholders involved in the project, from the following categories: public, private, public-private, governmental institutions, scientific and/or technical advisors. The database provides two different ways of consulting the cases: through a brief presentation of each; through additional detail provided about each case.

The nature-based solutions included in the database have been classified according to scale or scope in the categories outlined in Table 3 below.

Table 3 NBS categories included in the database (original Table can be consulted in Supplementary Material of Dushkova and Haase, 2020)

Classification according to the scale or scope	Main aim of the interventions	Interventions included in the class
Building-scale interventions	Refurbishing pre-existing buildings, design of new buildings	<ul style="list-style-type: none"> • green roof (actions on rooftops) • green facades, green walls and vertical greening • balcony green • actions in community spaces of the buildings (e.g. rooftop farms, insect hotels, bee hives) • indoor vertical greenery (walls, ceilings, atrium)
Interventions in public spaces	Public space regeneration, urban land renewal, design of public living areas to improve greening, to increase social cohesion and integration	<ul style="list-style-type: none"> • large urban parks or forests • pocket parks • neighborhood green spaces • green corridors • botanical gardens
Urban agriculture/farming	Interventions to increase social cohesion and integration, contributing to awareness raising, networking, citizens engagement, sustainable living/consumptions	<ul style="list-style-type: none"> • community gardens • allotments • horticulture
Interventions in water bodies and systems for water management	Renaturing and recovery of river courses and wetlands, ponds, and lakes, NBS for water retention and flood prevention/mitigation	<ul style="list-style-type: none"> • renaturing rivers, canals, streams • restoration of ponds and lakes • sea cost interventions • wetland, bog, marsh

		<ul style="list-style-type: none"> • sustainable urban drainage system (SUDs) • rain gardens • swales, strips
Interventions in linear transport infrastructures (grey-green interventions)	Road projects, mobility plans, redevelopment, and greening streets – naturing actions for both high capacity (i.e., (a) roads-railways, etc. and (b) greening streets)	<ul style="list-style-type: none"> • alley and street trees • railroad bank and tracks • riverbank green • green parking lots
Interventions in natural areas and land management	Master plans to use/manage spaces, public space plans, green infrastructure strategies, agriculture, and forestry promotion plans	<ul style="list-style-type: none"> • natural protected areas • peri-urban parks • rural land management
Ecological education and awareness raising-related interventions	Raising awareness of environmental issues, stakeholder and citizen involvement, knowledge transfer	<ul style="list-style-type: none"> • ecological festivals • workshops • master classes and education activities
Other types of greening	Greening and renaturing interventions not included in the previous categories	<ul style="list-style-type: none"> • abandoned and derelict spaces • institutional green spaces • green playground/school grounds • house gardens

The database used a variety of information sources to map existing nature-based solutions, including previous EU research and innovation projects, as well as other relevant initiatives and platforms (see Table 4).

Table 4 Information source for NBS data and knowledge based (adapted from Dushkova & Haase, 2020)

AMICA (Adaptation and Mitigation – an Integrated Climate Policy Approach) http://www.amica-climate.net
ARTS (Accelerating and Rescaling Transitions to Sustainability) http://acceleratingtransitions.eu
CLEVER Cities https://clevercities.eu/
CLIMATE-ADAPT – European Climate Adaptation Platform http://climate-adapt.eea.europa.eu/
Connecting Nature https://connectingnature.eu
ENABLE -Enabling Green and Blue Infrastructure Potential in Complex Socio-ecological Regions www.nableprojectenable.eu
European Sustainable Cities Platform http://www.sustainablecities.eu
GLAMURS (Green Lifestyles, Alternative Models and Upscaling Regional Sustainability) http://glamurs.eu
GraBS – Green and Blue Space Adaptation for Urban Areas and Eco Towns (www.grabs-eu.org)
Green Surge www.greensurge.eu
GrowGreen (Green Cities for Climate and Water Resilience, Sustainable Economic Growth, Healthy Citizens and Environments) www.growgreenproject.eu
GUST (Governance of urban sustainability transitions: advancing the role of urban living labs) www.urbanlivinglabs.net
IMPRESSIONS (Impacts and risks from high-end scenarios: strategies for innovative solutions) http://www.impressions-project.eu/
iSCAPE (Improving the Smart Control of Air Pollution in Europe) https://www.iscapeproject.eu
Mayors adapt http://mayors-adapt.eu/
NAIAD* www.naiad2020.eu
Nature4Cities www.nature4cities.eu
Naturvation (NATure-based URban innoVATION) https://naturvation.eu



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OpenNESS (Operationalization of Natural Capital and Ecosystem Services) www.openness-project.eu

OPERANDUM (OPEn-air laboRAtoRies for Nature baseD solUtions) www.site.unibo.it

OPERAs <http://www.operas-project.eu>

OPPLA – the EU Repository of Nature-Based Solutions <https://oppla.eu>

PHUSICOS (in Greek φυσικός, meaning 'according to nature') www.phusicos.eu

PLUREL (Peri-urban Land Use Relationships – Strategies and Sustainability Assessment Tools for Urban-Rural Linkages) www.plurel.net

ProGireg (Productive Green Infra-structure for post-industrial urban regeneration) www.progireg.eu

REGREEN <https://www.regreen-project.eu/>

ROBUST (Rural-Urban Outlooks: Unlocking Synergies) <http://rural-urban.eu/>

SUSTAIN <http://www.sustain-europe.eu>

The Future Cities Partnership www.future-cities.eu

Think Nature <https://www.think-nature.eu/>

TRANSIT (Transformative Social Innovation Theory) <http://www.transitsocialinnovation.eu>

TURAS (Transitioning towards Urban Resilience and Sustainability) www.turas-cities.org

Unalab (Urban Nature Labs) <https://www.unalab.eu>

URBACT (European exchange and learning program promoting sustainable urban development) <https://urbact.eu>

URBAN Green-UP <http://www.urbangreenup.eu>

URBES (Urban Biodiversity and Ecosystem Services) BiodivERSA <https://www.biodiversa.org/121>

URBiNAT (Healthy corridors as drivers of social housing neighbor-hoods for co-creation of social, environmental and marketable NBS) <https://urbinat.eu/>

The construction of the database has been described in more detail in Deliverable 1, and since then, work has been done to ensure that it is accessible for anyone interested in it. It can be consulted on OPPLA (previous registration on OPPLA is required), by using this [link](#).

3. A tool for the design of bespoke Impact Assessment Plans: CO-IMPACT

Developed within the Connecting Nature Project, [CO-IMPACT](#) is a decision-support tool for cities interested in developing and implementation robust impact assessment plans for nature-based solutions. As described in Deliverable 1 and 2, the transversal and multifunctional logic of nature-based solutions makes their assessment complex and many cities in Europe have limited experience and resources in terms of NBS impact assessment. The lessons learned from the process of designing and implementing impact assessment plans led to the development of CO-IMPACT, whose main objective is to streamline and facilitate this process. The tool can be used by teams in city councils, as well as to structure conversations and decision-making with a wider range of stakeholders in the city, especially in defining objectives for NBS projects and the theory of change behind them. The tool also invites decision-makers to reflect on the synergies and trade-offs between expected outcomes, as well as to consider impacts and indicators beyond the ones originally envisioned. The final output of CO-IMPACT is a report that includes the bespoke monitoring and evaluation plan, as well as suggestions for appropriate methodologies to assess impacts, based on NBS characteristics and scale.

CO-IMPACT

ABOUT

FAQs

Sign In

Welcome

Welcome to the CO-IMPACT website, an online tool from the Connecting Nature Project, which will help you create your Nature-based Solutions / project evaluation and monitoring plan.

In the following sections, you will be asked to select your main targets in terms of health, social, environmental and economic benefits and as a result, CO-IMPACT will turn them into measurable 'indicators' and provide you with a custom-made report on how to set up your baseline and measure your success.

We thank you for your interest in CO-IMPACT. Should you have any queries or would like to know a bit more about CO-IMPACT and Connecting Nature, please consult the FAQs section.

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START



Figure 2 CO-IMPACT landing page

Connecting Nature indicators were implemented in the tool to assess impacts in the five main areas of impact assessment conceptualized in the project. Figure 3 shows the interface provided by CO-IMPACT when selecting the main outcomes sought by a particular NBS project.

CO-IMPACT

ABOUT

FAQs

Sign In



10%

Benefits

Environmental

Let's get started! Please select any of the following benefits that you would like to achieve as part of your project

Climate Resilience

- Energy use reduction
- Reduced carbon footprint for food consumption
- Climate change mitigation
- Reduction of urban heat island effect
- Increased carbon storage

Figure 3 Selection of benefits in CO-IMPACT

Each indicator also comes with an associated factsheet, which provides a brief description of the indicator, a brief account of the scientific evidence underpinning a particular impact, as well as a set of proposed methodologies for assessment. Some indicators have multiple recommended methodologies, based on project scale, timescales etc. An example is provided in Figure 4.

IMPACT ASSESSMENT PLAN

Thank you for using CO-IMPACT. In the following sections you will find a list of indicators, their descriptions and links to further information and methodologies based on the targets you set in the start of the process. These indicators help you plan your monitoring and evaluation process, by creating a list of the data that you need to collect/ find to build a baseline and to monitor the project's progress during implementation and when the project is active.

By collecting these data, and then undertaking the necessary analyses you will be able to gain much-needed evidence about your project's success which can be used in funding bids, policy and decision-making, etc. We hope that you use these results to the fullest and look forward to seeing more evidence-based thinking and planning happening in the world!

Please note that the Co-Impact tool and any resources or materials associated with it, cannot be used for commercial purposes.



ENVIRONMENTAL INDICATORS

Water quality

CORE

Calculating/predicting the change in water quality caused by diverting rainfall or surface water flow through an NbS (e.g. green roof, tree pit, bioretention pond, rain garden, wet woodland, naturalised waterway, etc).

[For more information on the indicator and methodology click here](#)

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 730222



ENVIRONMENTAL INDICATORS - CORE

CONNECTING NATURE



Water quality

Applied/Participatory Review

STUART CONNOP (1), CAROLINE NASH (1), JACK ELLIOT (1), DAGMAR HAASE (2), DIANA DUSHKOVA (2)

(1) University of East London, United Kingdom
(2) Humboldt-Universität zu Berlin, Germany

Description

Calculating/predicting the change in water quality caused by diverting rainfall or surface water flow through an NbS (e.g. green roof, tree pit, bioretention pond, rain garden, wet woodland, naturalised waterway, etc). Implementing an NbS can result in a positive or negative impact on water quality. This is dependent upon: the quality of water entering the system, the type of NbS, the age of NbS, and the water quality parameters being investigated. Both positive and negative impacts of NbS on water quality are of relevance for this indicator.

Methodology

Choice of parameter to measure should be related to issues of water pollution, the type of plant species and substrates used in the bioretention process, physio-chemical processes, and the desired quality of water at the end of processing (Dagenais et al. 2018; Payne et al. 2018; Batalini de Macedo et al. 2019).



Level of expertise

Some expertise required for installation of equipment and/or sampling methodology. Expertise required for sample analysis depends on the level of automation of the sampling equipment (e.g. in stream dataloggers carry out sample analysis automatically). Samples taken may require specialist analytical methods, these are typically carried out through an accredited laboratory. Data analysis/interpretation against statutory guidelines can be very basic once systems are in place.

Data collection

Cost

Can be low cost, but this is very dependent upon the level of sophistication, frequency of sampling, and automation of the equipment. The financial requirements associated with this indicator tend to be associated with a sliding scale of cost. Cost increases with greater numbers of water quality parameters, greater numbers/frequency of sampling, and greater levels of precision and accuracy. Cheapest solutions are generally represented by the use of citizen science, particularly in relation to monitoring biological indicators.

Effort

Automated in-site data gathering is very low effort, with installation, data analysis and equipment maintenance the only inputs required. The only onerous aspect can be the volume of data generated. If samples are taken manually, effort can be substantially more with container preparation and site visits required.

CONNECTING NATURE

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 730222



Figure 4 Examples of Impact Assessment Plan and related factsheet

Although anyone can use CO-IMPACT and develop a monitoring and evaluation plan, it is often the case that cities need additional expert support in implementing data collection plans. As an additional resource, the CO-IMPACT tool also points the user to the [Connecting Nature Enterprise Platform](#) (2022), an online marketplace connecting potential buyers with suppliers of nature-based solutions who can help to design, deliver, manage and monitor NBS.

CO-IMPACT has been officially launched on **March 16, 2022**. The recording of the launching event can be consulted at this [link](#), and includes a practical demonstration of how the tool can be used to develop a monitoring and evaluation plan for growing spaces. Attendees included stakeholders from the public, private and third sector, as well as from academia.

In addition to this official event, 8 smaller seminars were previously held to show how the tool works to various public bodies in Scotland, such as councils, data services and other public bodies. In the future, CO-IMPACT is expected to be disseminated in greater depth through articles and scientific conferences. Furthermore, a presentation of the tool will be proposed to the European Taskforce II on Impact Assessment, to encourage wider dissemination, as well as to study possibilities for the inclusion of additional indicators, beyond the ones developed in Connecting Nature.

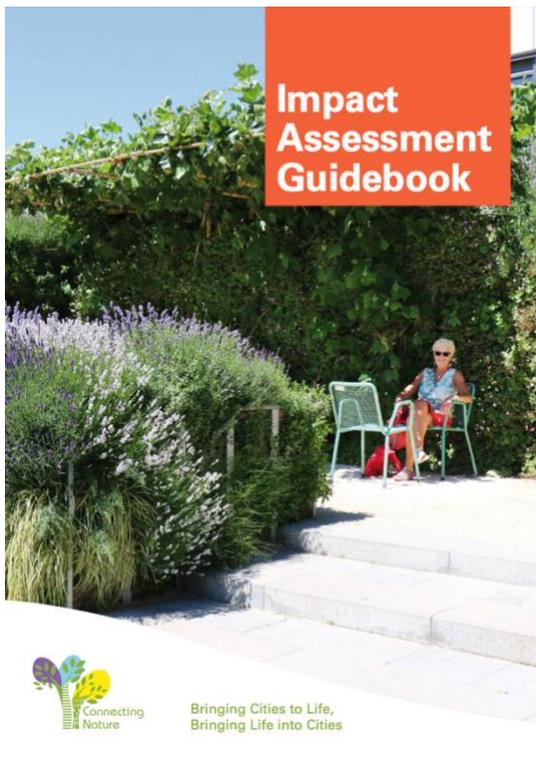
Since its official launch, in just 7 days, CO-IMPACT has been visited and used by stakeholders in a wide range of countries such as Germany, the United Kingdom, Egypt, Norway, Uruguay, Ireland or Poland.

4. Additional monitoring and evaluation resources for cities

A range of key resources have been developed in Connecting Nature to support cities in developing and implementing robust monitoring and evaluation plans. They include the following:

- an impact assessment guidebook
- all the Connecting Nature indicator factsheets
- contributions to the European Impact Assessment Handbook and Summary for Policy-Makers
- A set of impact assessment training videos

The CN Impact Assessment Guidebook



This guidebook presents the Connecting Nature Framework for developing robust monitoring and evaluation plans for nature-based solutions. Robust evaluation supports planners and decision-makers in building solid evidence-based understanding as to the impact of nature-based solutions and enhancing cost-effective and socially beneficial policy, building a foundation for scaled-up delivery.

The framework has been co-produced by academic partners and representatives of three European cities in Connecting Nature, which are frontrunners in implementation of nature-based solutions. The guidebook aims at contributing to the development of a European standard for nature-based solutions monitoring and evaluation.

The nature-based solutions evaluation and monitoring process is developed along five steps, incorporating indicators selection and assessment. Throughout this guidebook, each step is detailed with examples so that cities and stakeholders can develop their own nature-based solutions assessment plans. The five building blocks are the following ones:

1. Engage in structured reflection on nature-based solutions impacts, pathways and trade-offs
2. Choosing appropriate indicators
3. Developing a data plan for impact evaluation
4. Implementing the data plan
5. Integrating evidence into the policy process

Connecting Nature Indicator Reviews

The Connecting Nature indicators have been selected by scientists in the project, who have carried out extensive reviews of the scientific literature on impacts of nature-based solutions, with the collaboration of the front-runner cities of Genk, Glasgow and Poznan. Each indicator factsheet provides a description, a brief overview of the scientific evidence underpinning it, as well as recommendations on different methodological options for their measurement and the type of data required. This manual includes scientific reviews of more than 100 indicators, grouped in six categories. The first four categories refer to outcomes of NBS: environmental, health and wellbeing, social cohesion, and economic impacts. Two additional categories of indicators are included: Primary indicators, which address the types and frequency of use of place-based nature-based solutions; and Participatory Planning and Governance Indicators, which focus on characteristics of the processes of NBS design and implementation. Together, the indicators form a comprehensive and robust framework to assess nature-based solutions.



Contributions to the European Handbook of NBS Impact Assessment

Many of the Connecting Nature reviews were incorporated into the European Handbook of NBS Impact Assessment (Dumitru & Wendling, 2021a). Indicators presented in the European Handbook have been developed collaboratively by representatives of 17 individual EU-funded NBS projects and collaborating institutions such as the EEA and the JRC, as part of the European Taskforce for NBS Impact Assessment, with the four-fold objective of: serving as a reference for relevant EU policies and activities; orient urban practitioners in developing robust impact evaluation frameworks for nature-based solutions at different scales; expand upon the pioneering work of the EKLIPSE framework by providing a comprehensive set of indicators and methodologies; and build the European evidence base regarding NBS impacts.

The handbook, and its associated Appendix of Methods (Dumitru & Wendling, 2021b), aims to provide decision-makers with a comprehensive NBS impact assessment framework, and a robust set of indicators and methodologies to assess impacts of nature-based solutions across 12 societal challenge areas: Climate Resilience; Water Management; Natural and Climate Hazards; Green Space Management; Biodiversity; Air Quality; Place Regeneration; Knowledge and Social Capacity Building for Sustainable Urban Transformation; Participatory Planning and Governance; Social Justice and Social Cohesion; Health and Well-being; New Economic Opportunities and Green Jobs.

Additionally, Connecting Nature has contributed to the Summary for policy-makers (Cardinali et al., 2021), which presents four European nature-based solution case studies, with diverse geographies and challenges, to illustrate how impact evaluation can be tailored to local contexts.” (Publications Office of the European Union, 2021b). This publication provides a high-level summary of the detailed information available in Evaluating the Impact of Nature-Based Solutions: A Handbook for Practitioners.



Connecting Nature impact assessment training videos

The innovations and resources presented in this section were the subject of various training actions throughout the period of the Connecting Nature project. Due to the COVID-19 pandemic, all training was developed for an online environment, which favoured the opportunity to efficiently distribute the materials through tutorials.

Thanks to these tutorials, today there are a series of videos where guides and tips for developing a good NBS impact assessment plan are discussed. These include the webinars of the training process with the fast-follower cities (presented in Deliverable 2), as well as many other webinars, workshops and conference presentations. Links to all of these can be found in Appendix II.

5. Sustainability of impact assessment resources beyond Connecting Nature

Connecting Nature included from the beginning a plan for supporting the legacy of the project by embedding the outputs and resources generated by the project within Oppla: the EU Repository of Nature-based Solutions (www.oppla.eu). The purpose of this task has been to ensure CN outputs remain easily findable, accessible, usable and exploitable by the NbS community long after the project funding period has ended.

The outline of T6.2 as per the Grant Agreement envisaged CN branded web pages within the Oppla platform; a Connecting Marketplace drawing together and highlighting key outputs; and an Oppla discussion group dedicated to the project, through which stakeholders can engage in ongoing dialogue and knowledge sharing. Through consultation with the CN PSC and WP leads, these original components have been coalesced to create the **Connecting Nature Resource Centre**: a new section of Oppla dedicated to the continued impact of CN.

Development of the Resource Centre

Preparations for the Resource Centre began during the latter half of 2021 as the full extent of the project's outputs took shape. It was noted that CN had created numerous useful products, far more than just its mandatory Deliverables, and there was a need to avoid this multitude of outputs being dispersed and

difficult to find once the project ended. The Resource Centre was envisaged as being the permanent home of these outputs; but more than that, the ambition was to develop a better system for collating, organising and accessing project content – improving on Oppla's existing 'groups' feature ([example here](#)) to help end users find what they are looking for quicker and more easily, thereby increasing the impact of CN outputs whilst adding value to the Oppla platform itself.

The specification for the Resource is summarised as follows:

- Creating a 'one stop shop' and permanent home for CN outputs.
- Fully CN branded and with customised keywords / filters for categorising content specific to the [Connecting Nature Framework](#) and [Sustainable Development Goals](#) (SDGs).
- Prominent links to key CN outputs such as the CO-IMPACT tool and UrbanByNature.
- Links to continued dialogue on NbS topics hosted by the Connecting Nature Enterprise Platform (CNEP).
- Compatibility with the Oppla API, enabling resources and case studies featured on the Resource Centre to be shared with and adapted/exploited by other knowledge platforms.

Development timeline

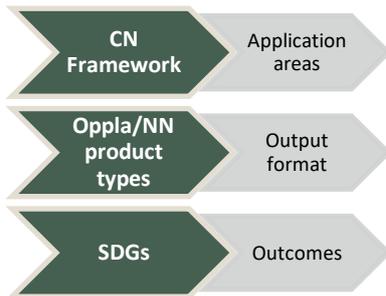


Figure 6 Timeline

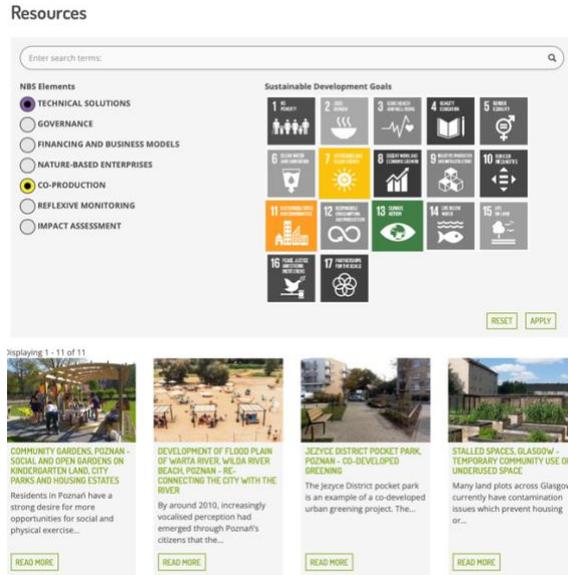
Interface and user experience

The Resource Centre has been designed from the outset with a focus on usability and 'findability'. The interface comprises a single main page through which all outputs of CN can be accessed with minimal clicks to retrieve content. Key features include:

Resources section, through which users can browse and access CN products using open search and additionally by filtering content using the CN Framework categories (describing application areas), SDGs (describing outcomes) and Oppla's own product types (describing the format of outputs).



Cities section, comprising an interactive map of CN Front Runner and Fast Follower cities through which individual city pages can be accessed, containing contextual information and a repository of resources specific to each city. It is envisaged that cities may continue utilising this section of the Resource Centre for the purpose of sharing further tools and resources relating to NbS, with ongoing dialogue and interaction between local stakeholders facilitated by CNEP.



Blogs section, providing an archive of the numerous articles, news items and other discursive content generated by the project, much of which remains useful and relevant to the NbS community.



Please note that at time of writing of the Resource Centre is in development and the screenshots above are of work-in-progress and not the final product.

Figure 7 Key elements



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The finished interface (launching April 2022) will also feature prominent web-banner links to some of CN's high profile outputs, including the [Connecting Nature Enterprise Platform](#) (CNEP), [UrbanByNature programme](#) and the [CO-IMPACT tool](#), all of which will be maintained independently from the Resource Centre but remain closely linked to and promoted by it.

Legacy and exploitation

The CN Resource Centre will be maintained in perpetuity by Oppla as a 'living repository' of project outputs intended for long-term use and exploitation by the NbS community. The Resource Centre is built on the same open source content management system used by Oppla ([Drupal](#)), which offers the following advantages:

- The content of the Resource Centre can be easily updated or expanded in future. Users can contribute resources, case studies, blog/articles and other content at any time via Oppla, enabling the Resource Centre to remain relevant and active.
- Open source format enables the Resource Centre to provide a highly customisable 'blueprint' for similar online systems, and it is Oppla's intention to replicate and further develop the Resource Centre model as part of its service offer. The blueprint can also be adapted and exploited by other developers and EU-funded projects, potentially forming the building blocks of innovative spin-off products.
- The software used by the Resource Centre will remain updated as part of the Oppla platform at no additional or ongoing cost to the project.

The CN Resource Centre is hosted by Oppla using a permanent weblink ('permalink') at:

<https://oppla.eu/connecting-nature>

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Appendix I. WP1 Resources

NAME	CONNECTING CATEGORY	KEY WORDS	LOCATION	DESCRIPTION	USES OF THIS PRODUCT	LINKS	DOI REFERENCE	CASE STUDIES
Connecting Nature Glasgow's Nature-based Solutions dashboard	NBS IMPACT ON CONNECTING NATURE CITIES	Connecting Nature; Impact Assessment; Glasgow; NBS; Dashboard	Glasgow, United Kingdom	Integration platform for map-based data obtained from the NBS impact assessment in Glasgow (United Kingdom). The results are part of the Connecting Nature project (Grant Agreement No 730222). They contain data from scientific indicators of the environmental categories; health and wellbeing; social cohesion; economic; participatory planning and governance.	The data can be consulted intuitively, through an interactive map, by policy makers, urban planners, researchers and citizens.	https://glasgowgis.maps.arcgis.com/apps/dashboards/d11c42a0a9d2416ba231392e6798e0ba	N/a	Open Space Strategy; Bellahouston garden; Growchapel (Glasgow, United Kingdom)
The NBS data and knowledge (Dushkova & Haase, 2020).	FINDING NBS IN EUROPE	Connecting Nature; NBS database	Leipzig, Germany	Developed within the Connecting Nature Project (Grant Agreement No 730222), the NBS data and knowledge base gathers information about different NBS models and generations into one easy-to-find, easy-to-use place and provides detailed descriptions of each of the 1490 NBS cases from urban centers in Europe. This information helps users identify the best and most appropriated NBS model/type for addressing the particular goals and, at the same time, considers the local context and potential.	The data obtained can be used for the further meta-analysis by applying statistics or searching for specific sample cases and thus enables to generate and expand the knowledge from multiple NBS related studies, in both qualitative and quantitative ways.	https://oppla.eu/product/24718	https://doi.org/10.1016/j.mex.2020.101096	1490 NBS cases from urban centers in Europe
CO-IMPACT	CO-IMPACT: DESIGNING YOUR IMPACT ASSESSMENT PLAN	CO-IMPACT: DESIGNING YOUR IMPACT ASSESSMENT PLAN	Glasgow, United Kingdom	Developed within the Connecting Nature Project (Grant Agreement No 730222), CO-IMPACT is a decision-support tool allowing officers and cities to create impact assessment plans for their NBS/projects. The main objective is to make the process of building a baseline and impact assessment plan straight forward and simple for anyone who wishes to do so, with the final report providing advice around suitable methodologies based on scale and project characteristics	CO-IMPACT can be used in a simple and visual way by policy makers, urban planners, researchers and citizens.	https://co-impact.app/	N/a	N/a
Connecting Nature Indicator Reviews	MONITORING AND EVALUATION RESOURCES FOR CITIES	Connecting Nature; Reviews; Indicators; Methodology; Impact categories	N/a	Developed within the Connecting Nature Project (Grant Agreement No 730222), this manual includes scientific reviews on more than 100 indicators in six categories (Use; Environmental, Health and wellbeing; Social cohesion; Economic, Participatory Planning and Governance). Each indicator provides a description, a review of its scientific robustness, as well as recommendations on different methodological options for its measurement and the type of data required. This set of indicators forms a comprehensive and robust framework that allows cities to choose the appropriate measures to know the impact of their NBS in different categories, in an interrelated way.	The manual can be consulted in a simple and visual way by policy makers, urban planners, researchers and citizens.	https://oppla.eu/product/24718	N/a	N/a



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Connecting Nature Impact Assessment Tutorials	MONITORING AND EVALUATION RESOURCES FOR CITIES	Connecting Nature; Impact Assessment; Indicators; Tutorials; NBS	N/a	Developed within the Connecting Nature Project (Grant Agreement No 730222), this set of videos offers guides and tips for developing a good NBS impact assessment plan. On the one hand, a series of videos included in a training program for the Fast-follower cities of Connecting Nature are shown. Each of the videos details with explanations and examples one of the 5 building blocks of the Connecting Nature Impact Assessment Framework, as well as webinars of doubts from the participating cities. On the other hand, there is another series of videos from conferences and sessions at congresses or workshops where the framework is mainstreaming to cities around the world.	Videos and tutorials can be viewed by policy makers, urban planners, researchers and citizens.	Next TAB of the excel file	N/a	N/a
Impact Assessment Guidebook	MONITORING AND EVALUATION RESOURCES FOR CITIES	Connecting Nature; Impact Assessment; Indicators; Monitoring and Evaluation Plan; Guidance; Guidebook; NBS	N/a	Developed within the Connecting Nature Project (Grant Agreement No 730222), this guidebook presents the Connecting Nature Framework for developing robust monitoring and evaluation plans for nature-based solutions. The framework has been co-produced by academic partners and representatives of three European cities in Connecting Nature, which are frontrunners in implementation of nature-based solutions. The guidebook aims at contributing to the development of a European standard for nature-based solutions monitoring and evaluation.	The guidebook can be consulted in a simple and visual way by policy makers, urban planners, researchers and citizens.	https://connectingnature.eu/sites/default/files/images/inline/Impact%20Assessment.pdf	N/a	N/a
EVALUATING THE IMPACT OF NATURE-BASED SOLUTIONS: A Handbook for Practitioners	MONITORING AND EVALUATION RESOURCES FOR CITIES	Impact Assessment; Indicators; Monitoring and Evaluation Plan; Guidance; Guidebook; NBS	Luxembourg	Coordinated by Adina Dumitru & Laura Wendling, the objective of this handbook is to support the adoption of common indicators and methods for assessing the performance and impact of diverse types of NBS. The handbook is designed to be relevant for NBS implemented across a wide geographic area and at a multitude of scales.	The manual can be consulted in a simple and visual way by policy makers, urban planners, researchers and citizens.	https://op.europa.eu/en/publication-detail/-/publication/d7d496b5-ad4e-11eb-9767-01aa75ed71a1	10.2777/244577	Tampere, Finland; Valladolid, Spain; Guildford, United Kingdom; Genk, Belgium; Gudbrandsdalen Valley, Norway; Turin, Italy; Zagreb, Croatia; Dortmund, Germany; Ningbo, China; Glasgow, Scotland; La Brague, France; Portofino Natural Park Italy), Dublin, Ireland



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EVALUATING THE IMPACT OF NATURE-BASED SOLUTIONS: Appendix of Methods	MONITORING AND EVALUATION RESOURCES FOR CITIES	Reviews; Indicators; Methodology; Societal challenge areas; NBS	Luxembourg	Coordinated by Adina Dumitru & Laura Wendling, the objective of this appendix is to provide an exhaustive list of indicators, classified into 12 societal challenges, that enable the impact assessment of NBS.	The appendix of methods can be easily and visually consulted by policy makers, urban planners, researchers and citizens.	https://op.europa.eu/en/publication-detail/-/publication/6da29d54-ad4e-11eb-9767-01aa75ed71a1	10.2777/11361	N/a
EVALUATING THE IMPACT OF NATURE-BASED SOLUTIONS: A Summary for Policy Makers	MONITORING AND EVALUATION RESOURCES FOR CITIES	Impact Assessment; Indicators; Monitoring and Evaluation Plan; Policy briefing; NBS	Luxembourg	Coordinated by Marcel Cardinali, Adina Dumitru, Sofie Vandewoestijne and Laura Wendling, this publication provides a high-level summary of the detailed information available in Evaluating the Impact of Nature-Based Solutions: A Handbook for Practitioners.	The policy summary can be consulted in a simple and visual way by policy makers, urban planners, researchers and citizens.	https://op.europa.eu/en/publication-detail/-/publication/aeb73167-0acc-11ec-adb1-01aa75ed71a1	10.2777/521937	Tampere (Finland); Poznan (Poland); Valladolid (Spain); La Brague River Basin (France)

Appendix II. WP1 Impact Assessment Trainings

Name	Link
Connecting Nature Training Program on Impact Assessment for Fast-follower cities: Create the story of your NBS - Conceptual webinar 1	https://us02web.zoom.us/rec/share/a-CFuQG-rzrc13sPNSvxud4eofMplio9zVrAXp9Xpoqo0WBvI0WUgP6hTgc6wCGC.jYywt4LQNpuR5Nhd
Connecting Nature Training Program on Impact Assessment for Fast-follower cities: Create the story of your NBS - Solving problems 1	https://us02web.zoom.us/rec/share/dYo0WMLygCATrWjFornhxdNSX23R1jnprz9s1wdyKN_SZbHpEAiubra896Zd_vTd.mATdyZz08ZFTbohF
Connecting Nature Training Program on Impact Assessment for Fast-follower cities: Create the story of your NBS - Conceptual webinar 3	https://us02web.zoom.us/rec/share/UOiaGDgcN3XETar_frpGpoyaWmRMGXEthjtQfvvwgBed-54ECGgYF_yZjTtl90Eg.06lYvvGmGxN5uvbx
Connecting Nature Training Program on Impact Assessment for Fast-follower cities: Create the story of your NBS - Conceptual webinar 4	https://us02web.zoom.us/rec/share/mcbtQl75vPK7JRfAFvKN-xSjZgbntqrQi0Ip0MP56OY6XC7VGV5wQGxEaSEMaOqE.gHDuVMS5K9TmRr7M



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Connecting Nature Training Program on Impact Assessment for Fast-follower cities: Create the story of your NBS - Solving problems 2

https://us02web.zoom.us/rec/share/0G0RSilkwRxAFcC95l_yWJDiukv2Rsivo1yUAeFDzFSnoxmKAl5fe2-yNE9UTuoh.Jh2FmsdhvBGHsdtl

Connecting Nature Training Program on Impact Assessment for Fast-follower cities: Create the story of your NBS - Conceptual webinar 5

https://us02web.zoom.us/rec/share/B-7JGCGVbBAzYtLKg4BOCYphB6QQIIRN30qJ97EJ1MImuEADR7_R9EDcZGX1Nb4K.wnN05DHZMSLvgmST

Connecting Nature Training Program on Impact Assessment for Fast-follower cities: Create the story of your NBS - Solving problems 3

<https://us02web.zoom.us/rec/share/skYFchiuQN-aKtAJxbE89H5Fai-vFnkQ05hGUXakLLgDCuoXWmgIhzJP74fjopMx.VnNTy2txRDckxeo0>

2021 Brazil mentoring program - Session 6 (UrbanByNature) - Impact Assessment

<https://www.youtube.com/watch?v=Da3TH7f6bRM&t=4290s>

Glasgow Innovation Summit (Naturally smart cities - making the most of data to support nature-based solutions)

https://www.youtube.com/watch?v=b4T7T_nPUro&list=PLR0PkyQ540TVbtpbVr86GzodQn0Pz0-q&index=3

Poznan Enterprise Summit (Powerful evidence for nature-based solutions: identifying opportunities for NBS impact assessment)

<https://www.youtube.com/watch?v=VyIS0dsFX9o&feature=youtu.be>

Innovate4Cities (Designing resilient cities: Innovative co-production and impact assessment approaches for evidence-based and inclusive nature-based solutions)

<https://i4c.conference.evey.live/conferences/innovate-4-cities/stage/innovation-lab/session/110>

Data: Problems for Nature-based Organisations and Opportunities for Nature-based enterprises.

<https://www.youtube.com/watch?v=stEYGvYcmw0>

CO-IMPACT Launch

<https://www.youtube.com/watch?v=pcsiaBlpxxc>
