



CONNECTING NATURE FRAMEWORK
A CORUÑA:
AN URBAN GARDENS GREEN NETWORK



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Summary

A Coruña is a seaside city located in the Ártabro Gulf, north-west of Spain, with a population of 244,000 inhabitants, stunning landscapes and built on over two thousand years of architectural heritage. A Coruña has a diverse economy, mainly based on the service sector, ranging from tourism to port activities, and together with its metropolitan area it houses the headquarters of several major multi-nationals. It is a densely populated and compact city, with a territory of under 40 km², and with a scarcity of green areas.

The nature-based solution that the city has been working with is about urban gardening and creating a network of Urban Gardens that can help connect green areas and provide multiple environmental, economic, and social benefits.

At the time the exemplar was selected, there were different options being considered, including the creation of a new park in the periurban area, or the restoration of a river course in the outskirts of the city. However, the local government changed after the elections on May 2018. This meant some of the political priorities shifted, and there was a risk that some of the potential projects might not be developed in the short term. This is why it was decided to opt for a project whose implementation had already started, which was also backed by another EU project (Urbact Ru:rbán), and which had a pressing citizen demand, with long waiting lists and proposals for more gardens being selected in the participative budgets.

Urban gardens are small-scale projects that can be up scaled to a citywide level; they're cost-efficient and they're aligned with wider scale agendas. They are able to provide benefits at many different levels – enhancing biodiversity and fighting climate change, improving health and wellbeing of citizens, promoting social cohesion, and offering new economic opportunities. They can also help recover and preserve the historical and ethnographic agriculture heritage of the region, which is gradually disappearing in urban areas, and increase the community's sense of belonging towards the public space.

Some of the societal challenges addressed by this NBS are strengthening social cohesion and public culture, recovering and preserving for the collective memory the historical and ethnographic agriculture heritage and increasing the community's sense of belonging towards the public space. There is also a will to increase social cohesion, promoting intergenerational and intercultural relationships and helping develop the social skills of people in situations of vulnerability and social and/or labour exclusion. All of these goals are aligned with wider agendas, like the Spanish Urban Agenda or the UN Sustainable Development Goals.

The CN Framework, together with the valuable support from project partners, has provided the city with the tools to successfully develop the CN Exemplar in the three phases of Planning, Delivery and Stewardship.

STEP 1 City context

A Coruña is an extremely compact city: surrounded by the ocean and densely populated, the municipality occupies a territory of less than 40 km². Scarcity of space has driven buildings upwards, with many buildings of over 6-10 stories by the seafront and up to 20 or more stories as the city grew further away. This resulted into a reduced number of open green areas, poor biodiversity and a high rate of soil sealing in the city centre, which in turn can lead to heat stress and surface water flowing episodes. Nowadays, the city is experiencing a declining demography, with many citizens moving to the less densely populated metropolitan area. This contributes to an excessive dependence on private transport, creating important traffic problems and lowering the air quality.

The city wishes to introduce alternative forms of transport which can free up more space for green areas (“cars replaced by trees on streets”), aiming for a softer, slower mobility system that leaves space for greener surfaces, pedestrians and bicycles: a green infrastructure that is compatible with cultural heritage and will have a positive impact on the citizens’ wellbeing levels and also on tourism. During the last 5 years, the total kilometers of urban bike lanes have doubled — the city has now over 35 kilometers of bike lanes, about 14 kilometers per 100,000 inhabitants, matching the ratio of the city of Barcelona, and surpassing many other Spanish cities such as Madrid or Bilbao. A Coruña also wants to become an even more walkable city, with a new, ambitious mobility model which includes a 30 km/h urban speed limit in effect since September 2020, and projects for more pedestrian routes connecting the different neighborhoods.

The exchange of experiences with partner cities within projects like Connecting Nature provides the city with new valuable tools to advance on the path towards a new integrated lifestyle based on ecosystems, sustainable urban planning and health. The use of NBS solutions, as opposed to grey infrastructures, can help the city mitigate climate change effects, improve air quality, reduce surface water flowing and boost biodiversity, while at the same time offering new opportunities for leisure activities, outdoor recreation or food growing.

Generally, the concept of nature-based solutions is relatively new in the city, as opposed to the traditional approach of parks and green areas. There were some highlights in the decades of the 90’s and 00’s like the transformation of the city’s main garbage dump into one of the biggest parks in the city, or the conversion of old military lands into a coastal green area.

In terms of blue infrastructure, the city has one of the longest coastal promenades in Europe, which was also built during the 90s and 00s. However, municipal competences regarding coastal spaces are limited, as the regional and national governments are the main responsible bodies for managing those spaces. There are ongoing projects to gradually renaturalize the sea promenade and extend it to the periurban areas and connecting it with neighboring municipalities. Additionally, the city will have a huge opportunity in the future to define blue NBS areas with the reurbanization of the old harbor. However, these are long-term, very complex projects, with different administrations and government levels involved.

In the last few years there has been a shift on policies towards a more NBS-focused approach with the approval of a preliminary Green Infrastructure Plan in 2018, the re-naturalization of some rivers and ponds and the realization of new, multifunctional projects like urban gardens.

The city has recently developed an integrated strategy for sustainable urban development (EIDUS) whose implementation is supported by ERDF funds, and is one of the pioneer cities in Spain to adopt the local implementation of the new Spanish Urban Agenda, which is aligned with the European Urban Agenda and the UN Sustainable Development Goals.

However, the hierarchical municipal structure and the lack of coordination between the different departments (Urbanism, Infrastructures, Environment, Education, etc.) can be a barrier for an effective implementation of an integrated strategy that can break silos, as opposed to the traditional approach of various self-standing projects promoted by each department, sometimes duplicating efforts and other times blocking each other.

STEP 2 Project goals

The main goals of the projects are the following:

- 1. Increase biodiversity and boost ecology.**
 - Transform abandoned areas and degraded or underused green spaces into productive plots able to host more life, more biodiversity, more uses and activities.
 - Promote the installation of roof gardens and green roofs and walls, starting with municipal-owned buildings, in order to create new green areas that help connect parks and natural spaces with one another and act as green reservoirs which will help boost biodiversity.
- 2. Boost resilience against perturbations.**
 - Mitigate climate change effects maximizing CO₂ absorption, increasing vegetative coverage, permeability and water retention, combating urban heat islands and providing areas which can retain flood water and contribute to thermal isolation.
 - Allow self-production and self-consumption of vegetables, providing a stable access to healthy food that increases food security and promotes sustainable consumption and help reduce carbon footprint.
- 3. Provide a sustainable public space offering healthy recreational opportunities for people.**
 - Promote and increase the contact of citizens with nature, with the potential gains on their physical and psychological health.
 - Promote urban gardening as a moderate physical activity which can combat a sedentary lifestyle.
- 4. Protect and reinforce ethnographic and cultural values of environment.**

- Strengthen social cohesion and public culture, recovering and preserving for the collective memory the historical and ethnographic agriculture heritage and increasing the community's sense of belonging towards the public space.

5. Increase social cohesion and community engagement

- Increase social cohesion, promoting intergenerational and intercultural relationships and helping develop the social skills of people in situations of vulnerability and social and/or labour exclusion.
- Promote models of active citizenship, increasing engagement, community self-organization and involvement in social life. Engage citizens to play an active role in the maintenance and managing of the public space.

6. Provide a space for environmental education.

- Promote educational activities linked to the Urban Gardens that contribute to maximize the social return on investment.

7. Boost new economic opportunities.

- Increase the attractiveness of city areas which are lacking valuable green space.
- Identify and promote new sustainable economic activities and business models which can arise linked to urban gardening and greening of buildings.

Connection to existing urban agendas

The city has developed an integrated strategy for sustainable urban development (EIDUS) approved in 2016, whose implementation has been supported by ERDF funds and which specifically includes the funding of urban gardens. It also one of the pioneer cities to adopt the local implementation of the Spanish Urban Agenda (2018), aligned with the European Urban Agenda and the UN Sustainable Development Goals. The local action plan is being developed and is expected to be approved within this year (2022).

Nature-based solutions have the potential to bring multifunctional benefits, potentially addressing many of the UN SDGs at once. Thus, the Urban Gardens Network project fits perfectly with these agendas, and contributes to reaching the goals, not only responding to environmental challenges and climate change, but also to other aspects, as stated above, such as health and well-being, socio-economic development, and governance principles.

What makes your nature-based solutions' strategy legally binding, e.g. by connecting it to existing policy plans?

The compromise of the city towards the environment and to fight climate change has been growing since the start of the century, with several plans and policies approved in this direction. Signatory of the Aalborg Charter in 2001, A Coruña developed its first Local Strategy Against Climate Change in 2011, and in 2012 the city signed the Covenant of Mayors for Climate & Energy. In 2021 the city renewed its commitment to sustainability, endorsing the Basque Declaration and the Mannheim Message, and joining the Green City Accord.

The city is also developing an updated Plan for Climate Transition, aligned with the Urban Agenda and expected to be approved in 2022.

A Coruña also is pursuing to become a more walkable city, with a new, ambitious mobility model (Coruña Camiña) which includes a 30 km/h urban speed limit in effect since September 2020, and several projects to create pedestrian routes connecting the different neighborhoods.

Additionally, since 2021, the city leads the Spanish UrbanByNature Hub, committed to the mainstreaming of nature-based solutions in the Spanish cities and regions.

In 2022, A Coruña has applied for funding granted by Fundación Biodiversidad (Ministry for the Ecological Transition) to develop an Urban Greening Plan, which would include the urban gardens strategy, and which will follow the diagnosis drawn on the Green Infrastructure Plan developed in 2018. The idea for this new plan is to build on the lessons learned with the CN exemplar and the tools from the process, upscaling them to a wider level.

STEP 3 Target audience and actors

The Connecting Framework Report has been developed by the CN team (Antonio Prieto and María González), also including valuable inputs from colleagues responsible for the management of green spaces, environmental quality or biodiversity.

The Connecting Nature Framework is a useful tool for internal use, to make sure that other colleagues are familiar with the concept of nature-based solutions, which is quite a new word in our context, and to advance towards the interdepartmental and integrated approach that the multifunctional aspect of NBS demands. But it can also be extremely helpful as a means for public dissemination and increasing citizen awareness and engagement.

For example, we recently used the narrative supported by the Framework to explain our project in an event organized by A Coruña City Council in collaboration with the National Point of the URBACT Program, in which decision makers, professionals from other municipal departments and stakeholders from various cities participated. With our narrative we felt that we could convey our information in a more accessible way. It was useful as a starting point to make new contacts and networking with different stakeholders.

The Framework allows us to have all the information about our exemplar registered and organized, which is very handy when applying for financing or to enter competitions/awards. For instance, a few months ago we used the Connecting Nature Framework to apply for an award at national level. Having all the information written and organized in the framework document made it easy to write the application for the award, and thanks to this we managed to prepare quite a strong entry that won the prize. This was the award for Best Local Practices on Climate from the Spanish Federation of Municipalities and Provinces (FEMP) and the Spanish Network of Cities for Climate. This year was the VIII edition of the Prizes, and the first edition to have a category for Nature-based Solutions, in which we won. We also built on the framework to submit our project to a European award, the Transformative Actions Award, granted by the Sustainable Cities Platform, organized by ICLEI, the Basque Government, and the city of Aalborg, with the support of the European Committee of the Regions and the European Investment Bank. A Coruña's CN exemplar, our Urban Gardens Network, was selected among the three finalists.

In summary, this report can be a very helpful instrument both for internal use and to present our exemplar to a wider audience. However, language can definitely be a barrier, as all of the mini guidebooks and the framework itself is written in English. This means that many of our colleagues aren't able to access these documents or use them in a comfortable manner. If all the information could be translated into the local languages, then the multiplier effect would be for sure greatly amplified.

During the first visit of Osmos team in 2018, the following canvas was drawn from interviews with relevant stakeholders:

- **Project-Environment Canvas for the City of A Coruña (OSMOS Report)**

INVOLVED PARTNERS	VALUES	ACTIONS	OUTPUTS
Other municipal departments	Overcome existing weaknesses	Creation of green spaces on public land	Revised planning instruments
Experts	Reinforce culture of proximity in neighbourhoods	Connect isolated green spaces	Temporal green spaces on underused land
Neighbouring municipalities	Promotion of physical and mental health	Support transition of green spaces	Modify General Municipal Development Plan
Port authority	Social justice	Change protocols for maintenance of parks and gardens	Identification and activation of urban development opportunities
Provincial and federal authorities	Feeling of belonging	Adopt inclusive terminology	Tools for environmental education
Employer associations (e.g. A Grela)	Social/collective memory about space and environment	Explore models of public-private cooperation	
Refinery (REPSOL)	Green functions	Overcome obstacles of private ownership and inadequate infrastructure	
INTEREST GROUPS	NEEDS	RESOURCES	OUTCOME
Residential population	More attractive city	Original/historical place names	Creation of new ecosystems
Workers in industrial zoning	Spaces for social encounter	Proximity	Modernize city in a natural, healthy way
	Reinforce identity	High density	

<p>Knowledge organisations and experts</p>		<p>Critical mass</p> <p>Spatial opportunities</p> <p>Strong local identity</p> <p>Social memory</p> <p>Knowledge strategy</p> <p>Municipal budget for green space maintenance</p> <p>Private capital for real estate investment (e.g. Dolce Vita complex)</p>	<p>Adaptation to climate change</p> <p>Coherence between local, metropolitan and regional scales</p> <p>Recognisable identity for the forest of A Coruña</p> <p>Environmental awareness among citizens</p>
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Many of the topics and actors identified in this first exploratory visit proved very relevant to the later selected exemplar of an Urban Gardens Network, for example, the feeling of belonging, collective memory about space and environment, or the local identity. All of these topics, which are central to our exemplar and included in our Framework figure, have been also addressed through the Sarajevo process, a co-creative, arts-based engagement process, which is explained in more detail in the Coproduction section – Step 4.

STEP 4 Nature-based solution exemplar: an urban gardening network in A Coruña



A Coruña has three municipal ecoHortas Urban Gardens running since 2018 (Eiris, Agra do

Orzán and Novo Mesoiro), with a total of 218 plots available to citizens. In addition to these three gardens, two smaller Urban Gardens and a greenhouse, located respectively inside of Carlos Casares, Oza and San Diego city parks, are available for NGOs to develop educational projects.

The implementation of the first gardens started as an open participatory process, involving citizens and associations in a co-production process which selected the most suitable spaces, framed how these spaces should be designed and identified the services to be provided.

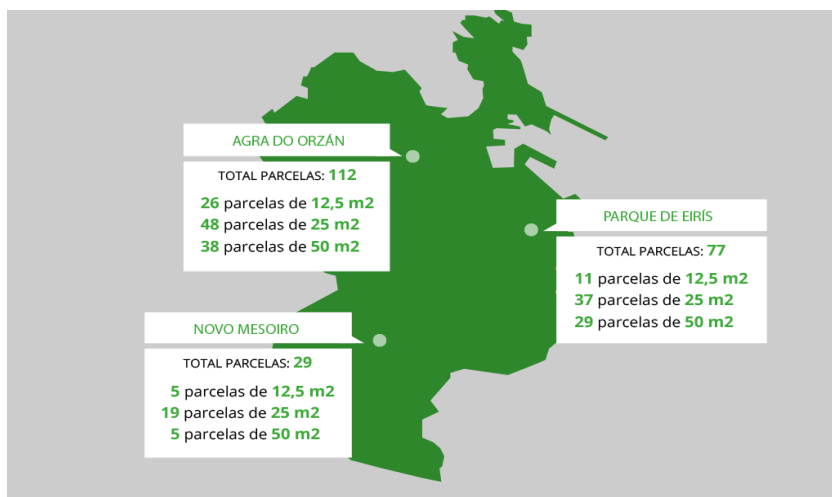
With these new spaces, the City of A Coruña aimed to satisfy the neighborhood demand of spaces for urban agriculture in the city, promoting and integrating urban garden projects as an essential part of a process of urban and territorial regeneration, from an ecological perspective, as a tool to increase urban resilience, social cohesion and citizen engagement.

Thus, ecoHortas are understood as spaces which can not only help improve the environmental quality, but can also become excellent meeting places; spaces of social participation and environmental education, increasing the well-being of citizens and their life quality.

The first three ecoHortas spaces were to be located on municipal land in the areas of Los Rosales-San Pedro de Visma-Agra del Orzán, Mesoiro-Novo Mesoiro, and Oza-Castrillón-Os Castros, and their uses and concrete and definitive locations were defined through citizen participation, in which the different social entities of these neighbourhoods, as well as individual citizens interested, were invited to the process to help discover and define the actual demands at each of the three areas.

In these areas, some abandoned plots with suitable characteristics for their use as UG were detected, alongside several underused spaces in some parks with high water requirements for maintenance (lawn areas). Both types of spaces were used to develop urban gardens (abandoned plots of municipal property in the case of Agra gardens, and an underused area of an existing park in Eirís and Novo Mesoiro)

The urban gardens were divided into individual plots that were initially assigned to citizens and associations for a period of two years, extendable to three. Water supply and common tools shared between all users are offered by the municipality. One of the conditions to be granted a plot is the adoption of organic agriculture. ecoHortas have a clear educational and inclusive vocation, that's why a certain number of plots were reserved for collective management by educational centers, non-profit associations and other groups. Also, a percentage of the plots were reserved for groups such as retired people, low-income households or people with special needs, as a way to promote intergenerational and intercultural relations and increase social cohesion. In co-operation with NGOs, various educational projects are being organized at the ecoHortas, aiming to increase social integration and develop the social skills of people in situations of vulnerability and social and/or labor exclusion.



By 2018 a total of 218 new plots had been created in the three areas (Agra do Orzán, Eirís Public Park and Novo Mesoiro).

Actions took place in order to facilitate self-management of the ecoHortas by its users, with a process developed between the months of July and November of 2018 in which an expert trainer and facilitator of collaborative processes and team work organized workshops and advised users with the objective of facilitating the provision of operation norms and the election of a Management Committee for each of the urban gardens. At the same time, the municipality offered training in the field of organic agriculture to users of ecoHortas, starting in May 2018, with theoretical classes, practical workshops at the ecoHortas and an online platform in which users can ask their questions.

The gardens that started the network were all built in 2018, just after the CN project had begun. The design process started in parallel to the city's participation in the CN project. Thus, the gardens were understood from the beginning as a NBS providing multi-level benefits. However, the first gardens of the network weren't initially designed following the CN framework and using its tools because the CN framework itself didn't exist yet. As a fast-follower city, during the first two years of CN our involvement was limited, and we weren't part of the process of co-creating the framework until a later stage. Probably because of this, the gardens have some flaws like the governance model (individual administrative concession, top-down), the maintenance model (same as green areas in the city), or the lack of common areas for socializing and promoting the creation of communities. These are the aspects that we have been trying to enhance, both for the existing gardens and for the new ones, building on the CN framework.

The city's Environment department has managed the Urban Gardens program, but other municipal departments, like Employment or Education, have been also involved. The Employment department created in 2018 a training program on urban gardening. In this course, trainees learn how to create and grow urban gardens, keeping them healthy and productive, in accordance with the principles of organic agriculture, and they learn to organize and develop didactic activities taking advantage of the potential of urban gardens. This course, thanks to co-operation with some schools, included a practical internship during which urban gardens were created or improved in the following primary schools:

- CEIP San Pedro de Visma
- CEIP Wenceslao Fernández Flórez
- CEIP Emilia Pardo Bazán
- CEIP Juan Fernández Latorre

The goal of this program is to boost the employability of the trainees and to create a new productive sector in connection to the fields of urban gardening and ecology. As a promising result of this program, some of the trainees are already starting new SMEs/social enterprise projects related to these topics.

Additionally, a new pilot project for school gardens has been recently approved by the City Council. It will be carried out by a private company after a tender. This pilot project will work on two levels: on the one hand new school gardens will be implemented on some of the schools that don't have them yet, expanding the network. On the other hand, activities and educational actions will be organized for integrating the gardens into the school curricula on those schools that already have a garden.

Thanks to the participation in the URBACT Ru:rbán project (2018-2021), there is already an active local group (ULG) of stakeholders who meet regularly and share their experiences and views on the field of Urban Agriculture, with presence, among others, of the municipality's Environment and Employment departments, the municipal Urban Gardens community, school community and NGOs.

The City Council is committed to expanding the Urban Gardens network, both by creating additional ones and by improving and expanding the existing ones.

In 2020, a project was approved for the creation of a new Urban Garden in the Adolfo Suarez Park, with 87 new plots. More details on this project can be found in the technical solutions chapter. The project was one of the approved proposals promoted and selected by citizens through the Participatory Budgets. The new urban garden was co-designed by a team of architects, with the support and inputs from neighbors and gardeners from the existing urban gardens. Due to different barriers such as the COVID crisis and the raising building material prices, the construction of the garden did not begin until the first semester of 2022.

In February 2022, a project was approved for the improvement of the three urban gardens of Agra do Orzán, Novo Mesoiro and Eirís. The goals of this project are to increase the number of available plots, and to create common areas that enhance the sense of a community and promote collective activities.

The project was co-designed with the gardeners, and include the creation of a shaded common area with a pergola and a table in Eiris and Agra gardens. The creation of a shaded area for meetings and celebrating has been a recurring demand of the gardeners, and specifically in Eírs, a group of gardeners submitted a proposal to the Council for a pergola to grow a grapevine. This was taken as the basis for the design of the pergola, which will give the gardeners the possibility to populate it with a grapevine or other climbing plants that will allow light to pass during the winter while providing shadow in the summer months.

The three gardens will now also have a common plot for its use as community garden/ children's garden (another suggestion by the gardeners), and the Mesoiro garden, the smaller

of the three, will be expanded to and adjacent area with eight new plots. Additionally, following the suggestion of the gardeners, some of the larger plots, which were too big for a family, will be also divided into two.

The final number of available plots will be as follow:

Agra: 112 plots → 117 individual plots + 1 common plot

Eirís: 77 plots → 88 individual plots + 1 common plot

Novo Mesoiro: 29 plots → 36 individual plots + 1 common plot

All of the works will be undertaken during March 2022, so the gardens are ready for the summer crops.

For the future expansion of the network, there is also a will to explore the possibility of expanding Urban Gardens not only to abandoned land areas (including temporary gardens on privately owned plots), but also to the roof of buildings, which offer options for the more dense city centre, starting with municipally-owned buildings, weaving a network of Urban Gardens that can help connect green areas, boost biodiversity and provide ecological services.

STEP 5 Position this report

The Connecting Nature Framework allows us to keep a register of all the steps of the process of implementing our exemplar in the city, and will serve as a model for future implementations of nature-based solutions at a wider scale.










The narrative allows us to tell, in a short and simple way, how the exemplar is being built in our city as a model for the implementation of nature-based solutions and how the process of adapting the Connecting Nature Framework is taking place. Telling our story in an impactful way helps us further secure political support and increase citizen awareness.

The Connecting Nature Framework, with its seven elements, helped us design our NBS in the three phases (planning, delivery and stewardship). The following table outlines some specific activities linked to each phase; specific support related to building blocks is also noted where relevant.

Phase	Activities	Building Blocks
Planning	<ul style="list-style-type: none"> - The selection of the exemplar and the first meetings with the CN Partners. - The workshops on the Business Model Canvas to explore funding opportunities, and with Osmos, which helped us engage key stakeholders, helped us define the exemplar goals and provided the team with the basis for the development of the exemplar. - The support of the Technical solutions team was important for developing a biodiversity plan, making sure that the new urban garden in the Adolfo Suarez park is also part of a more ambitious project to change the way the park is managed, enhancing biodiversity, which will in turn be beneficial for the urban garden. 	Financing Governance (External) Technical Solutions Co-production

<p>Delivery</p>	<p>This included the exchange sessions with peer cities like Glasgow or Poznan, which were very useful to detect shared challenges and possible solutions.</p> <ul style="list-style-type: none"> - We also had some key high-level meetings with the political responsible persons from the different areas (Environment, Education, Tourism and Markets, Employment), and managed to secure their support for the exemplar. - Together with the UDC team, we also developed the Impact Assessment Plan for our exemplar, defining and measuring key indicators for the exemplar as a tool for quantifying the environmental, social and economic benefits 	<p>Reflexive Monitoring Governance (Internal) Impact Assessment</p>
<p>Stewardship</p>	<p>- This involves the maintenance of the exemplar, but also the upscaling of the network, multiplying the number of urban gardens in the city. We have been working on improving the governance model of the gardens, and the new maintenance tender for the city's green areas will have a separated lot for the maintenance of urban gardens, aimed at social integration enterprises. The previous approach was that all gardens were maintained just like the rest of green areas of the city, tendered by big enterprises, divided in three geographical areas. Now the gardens will all be together in a separated lot and this tender is only open to enterprises whose main aim is promoting social integration. A social integration enterprise is a legal figure, and enterprises have to comply with several requisites to be recognised as such.</p> <p>We are also exploring possibilities to engage some corporates to sponsor some of the school gardens and their maintenance.</p>	<p>Governance Entrepreneurship Financing</p>

Some of the main transformation points during the implementation of the CN exemplar using the Framework are shown below:

 <p><i>Selection of the exemplar: Urban Gardens</i></p>	 <p><i>Osmos workshop in A Coruña</i></p>	 <p><i>CN Exemplar awarded as National Best Practice</i></p>
 <p><i>Annual General Meeting in Malaga</i></p>	 <p><i>Connection with the Employment department and the URBACT RU:RBAN project</i></p>	 <p><i>Sarajevo Process</i></p>
 <p><i>Workshop on Business Model Canvas in A Coruña</i></p>	 <p><i>High level meeting with the City Councillors for Environment, Education, Employment and Tourism and Markets</i></p>	 <p><i>New maintenance tender for the city's green areas including UG</i></p>

Some of the main elements of this process, selected as trademarks and considered as highly innovative in relation to our city context and compared to conventional urban planning, are as follow:

- Co-production
 - o Mapping the relevant stakeholders and involving them into the design of the exemplar
 - o Engaging stakeholders and users also for the delivery of the exemplar
 - o Using the Sarajevo process as a tool to engage gardeners and connect the exemplar with memories and heritage on the emotional level through the use of arts and poetry, potentially increasing feeling of attachment towards public space and creating bonds between the participants.
 - o Defining the stewardship phase involving users and potential sponsors

- Impact assessment
 - o Selecting the relevant indicators and designing an assessment plan. Setting up baselines for the indicators
 - o Implementing the relevant technologies to measure the data and/or carry out the questionnaires
 - o Comparing the collected data with the baseline

TECHNICAL SOLUTIONS

STEP 1 Definition of the nature-based solution

The different urban gardens that integrate the network present different technical solutions depending on the location, the size of the plot and the type of garden (municipal urban garden, school garden, community garden, etc.). The municipal urban gardens, open to citizens, are the largest in size out of all the different urban gardens in the network. The space is divided into individual plots that are allocated to citizens and families. Community gardens are smaller in size and the plots are not divided, all of the space is managed by an association/NGO. School gardens vary depending primarily on the availability of open spaces that the different schools have, but they're also relatively small, although some of the schools have a greenhouse and even one (CEIP San Pedro de Visma) has a chicken coop.

As a case study, we will now focus on the technical solutions for the new municipal Urban Garden which will be built in the Adolfo Suárez Park. This garden will be divided in plots available to citizens

The idea to install a new urban garden as part of this park comes from one of the proposals selected in the participatory budgets of 2018. The Adolfo Suarez Park is one of the newest city parks, being opened in 2016. However, it has some unused areas and extensive lawn surfaces with high watering demands that aren't exactly the most effective way to provide ecosystem services or co-benefits to neighbours. There's an ongoing project to progressively modify for the long-term the way that this park is managed. The goal is for the park to be managed in a more natural, ecological way, so that the soil of the park resembles that of a forest.

As the park was built with dead soil fillings, it now needs to be taken care of, avoiding chemicals, fertilizers, controlling humidity levels and reducing mowing frequency so that the roots can go deep into the soil. Leaving grassy areas without mowing that turn into spontaneous vegetation favours biodiversity and also help improve the soil. Planting legumes like clover improves soil structure and supply nitrogen. The plans are therefore for a progressive replacement of lawn by different types of vegetation cover that does not need irrigation and is capable of adapting to local climatic conditions, with the goal of reducing or eventually even eliminating the need for irrigation in these areas. The new management model also includes more sustainable tree pruning practices, which influences roots and their relationship with soil fungi and bacteria, which eventually have an effect on soil quality.

There is also a project for a collaboration with UNESCO's biosphere reserve Terra das Mariñas for the implementation of fruit trees / edible forests (permaculture) in the park.

This new, ecological management model of the green areas has already been implemented in another park in the city, the one next to the Tower of Hercules Roman Lighthouse, a UNESCO Heritage Site whose coastal surroundings are now a Protected Natural Area of Local Interest. Following the changes in the management model, native species have been able to take over invasive plants and more animals are nesting in the area (especially birds).

The garden will be located next to one of the main entrances of the park, close to one of the most densely populated neighbourhoods in the city (Agra do Orzán). On the opposite side of this neighbourhood there is an existing urban garden (Agra garden) which is the biggest urban garden in the city, but also the one with the highest number of people in the waiting list for a plot.

The area of the park where the new garden will be built is currently underused, the plot has a relatively steep surface and there is a small water course that can be a source of biodiversity.



As a consequence of the steep terrain, the urban garden will adopt the form of agricultural terraces, following the slope contour lines, and inspired by the traditional solution with stone walls very common in the hillslopes of the region. This traditional solution with walls also helps control the water flow, so it doesn't run to the lower part of the slope leaving the top plots drier and the bottom ones wetter.

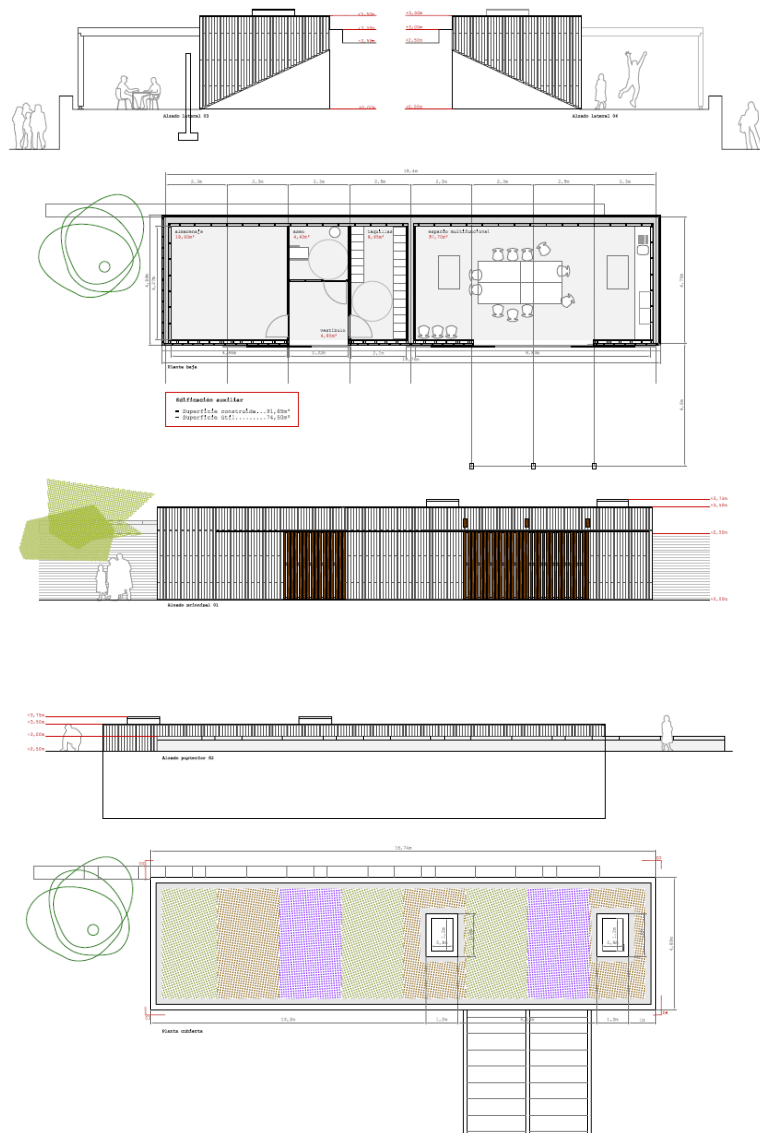
A total of 87 new plots will be created, each of which will have a surface of 28m². The total area of the intervention, including the pathways and the common areas, is roughly around 1000 sqm.





During the coproduction process which helped define the final design in which both neighbourhood associations and gardeners from the existing gardens participated, the gardeners of the existing urban gardens made a special emphasis on the fact that they don't have a dedicated area for gathering or even a shadowed area where to sit for a rest. This is why the new project includes a small building with a multifunctional common room and an outside area with a pergola to facilitate social interactions.

The construction will be partially buried, taking advantage of the slope, and with a green roof with floral species that will help the building merge with the landscape whilst providing thermal insulation and contributing to the biodiversity of the area. The species will be selected imitating as much as possible the vegetation that spontaneously colonizes the roofs of abandoned buildings, like sedum, aeonium, crassulas and echeverias. Elements for insects like logs will be introduced, and also climbing plants (*Parthenocissus tricuspidata veitchi*) for the walls of the building will provide a valuable habitat for insects. The pergola will be covered with a wine vine.



The feeling of community and the shared activities are encouraged with a common composting area and a dedicated space where gardeners will be able to build a small greenhouse and a seedbed.

The project also includes a pile compost area, as well as compost boxes

STEP 2 Develop an understanding of the landscape context and ecosystem services needs

1. Landscape scale:

- ***What is the broad landscape context (e.g. watershed, ecosystems, geology of the peri-urban and rural areas surrounding the city)?***

The peri-urban area used to have extensive surfaces of agricultural use, which in time gave

space to new constructions as the city expanded, increasing soil sealing and producing a loss of green surfaces. The city is surrounded by an UNESCO's biosphere reserve "Mariñas Coruñasas e Terras do Mandeo", comprising both coastal and mountain landscapes, with 39 protected areas and over 300 protected species.

- **What challenges does the broad landscape face (environmental, social, economic)?**

Environmental: Climate change effects, rise of sea level, decrease of precipitations (more water consumption needed for maintenance of green), increase of temperature (urban heat island effects).

Social: the main concern is the demographic crisis and ageing population. Galicia is one of the regions in Spain where the demographic crisis is more severe. Another concern is the unemployment rate, which is especially high among the younger population.

Economic: Pressing real estate interests to build more and fill-in vacant spaces. Consequences of COVID crisis on the economy (tourism, services).

1. City scale:

- • **What is the city landscape context (e.g. watershed, ecosystems, geology)?**

The city has a scarcity of green areas and open spaces, and the existing ones are not uniformly distributed. Accessibility to green is not universal. Connectivity between green areas need to be improved (green corridors planned). The urban parks are predominately populated with lawn, which entails high water and mowing requirements (high maintenance costs).

The coastal area is one of the main elements of the green-blue infrastructure, with a 13km long sea promenade and two protected areas (ENIL: protected space of local interest), one of them comprising the area around the Hercules Tower and another one including the San Pedro Islands. There are ongoing plans to improve the environmental quality of the most urbanised sections of the sea promenade.

- **What challenges does the city face as a whole (environmental, social, economic)?**

Same as the landscape scale

2. Local scale:

- **What is the local landscape context of the site of the nature-based solution exemplar (e.g. watershed, ecosystems, geology)?**

The plot in the Adolfo Suárez Park has a steep surface with various granite rock formations and a small stream which could potentially be a source of biodiversity to be integrated into the park and whole ecosystem. Currently the surface is mostly populated with lawn. Some of the native vegetation would be bellis perennis, wild geranium or agrostis.

- **What are the needs of the locality of the nature-based solution exemplar (e.g. what are the environmental, social, economic needs)?**

The Adolfo Suárez Urban Garden is located at the very edge of one of the most densely

populated neighbourhoods in the city (Agra do Orzán), which is also the most diverse neighbourhood with different ethnic groups living together. It is also a neighbourhood where residents have comparatively low incomes and high unemployment rates. This neighbourhood was built in the 70s without proper urban planning, which resulted in high rise buildings and narrow streets, lacking green areas and open spaces.

3. Exemplars that cover multiple local scales:

- • **If your exemplar is being delivered across multiple local scales, how does your technical design balance variation across local scales (in terms of variation in social, economic, and environmental needs of place)?**

The different urban gardens that integrate the network present different technical solutions depending on the location, the size of the plot and the type of garden (municipal urban garden, school garden, community garden, etc.). Each type of garden has different size requirements and different conditions for the planning, delivery and stewardship. Some of the schools have wide open spaces but other have mostly concrete surfaces and the only possibility to introduce urban gardens would be to rely on raised beds or green walls/roofs. Some of the municipal gardens are on flat terrains while other are in sloped areas. Some of the gardens are in more protected, shaded areas, while others are more exposed to the wind and sun. All of this variations determine the kind of technical solutions applied in each case.

In terms of stewardship, while the municipal urban gardens located inside parks are maintained by the company in charge of the maintenance of green areas, the situation with the schools garden is different, and specific maintenance tenders must be foreseen. This offers an opportunity to engage local SMEs and businesses.

- **How does the technical design improve biodiversity and ecological connectivity in relation to local habitats/city-wide connectivity strategies/the broader landscape across the multiple local scales?**

Replacing lawn areas with organic agriculture gardens increases biodiversity. Apart from the cultivated species, the gardens are equipped with fruit trees, flowers and aromatic plants, species which increase the urban biodiversity and protect organic production fields. Animal biodiversity is also encouraged, as pollinators are fundamental for a better agriculture production, and the gardens are provided with insect hotels and could eventually host beehives.

A global study of the park will be undertaken in order to determine which areas to mow and which areas not, the inclusion of an edible forest, etc. Also taking into account animal biodiversity (bats / insects), although in principle the creation of naturalized ecosystems is prioritized over bird/ bat boxes – (possible knowledge gap about this type of solutions).

Around the urban gardens there will be an unmanaged strip with wild flowers, spontaneous vegetation, fruit trees (oriented to avoid shading crops). Bee hives, insect hotels are useful mainly for educational purposes, but it is also important to promote pollination by wild insects.

Surrounding the park there are some privately owned cultivation and pasture areas, and we will try to take profit of those to generate seeds that can fly and colonize the park, promoting

that owners leave strips without mowing to serve as a supplier of seeds.

Urban gardens are also a part of a wider network of green areas and corridors that aim to connect the city, improving wildlife behaviour movement. (Green Infrastructure Strategy Plan)

It is also very important to design a communication plan for citizens: crucial to explain what we are doing, when are results expected, etc. Information panels.

STEP 3 Embedding multiple functions into the planning, delivery and stewardship of the nature-based solution

The technical design of the Adolfo Suárez urban garden took into account the landscape characteristics, looking to improve biodiversity, reduce lawn mowing and watering costs, and provide a more usable space for citizens. Feedback from gardeners and neighbors was useful to help detect and mitigate potential trade-offs.

After the final project was completed by the architects team, a public tender for the delivery of the exemplar was launched.

STEP 4 Monitoring and evaluation

The Urban Gardens will be managed by the city's environment department, through the contract for the maintenance of green areas of the city. While in the current tender the gardens were generically included as part of the green areas, the new tender for the maintenance of green areas (which is currently being drafted and should be tendered during 2022), includes an specific work package for the maintenance of urban gardens, with dedicated human resources who will support the gardeners and give them assistance.

Additionally, some changes were introduced in the new call for the authorization of use of the urban gardens (February 2022) to gradually shift the responsibilities towards the gardeners. The gardeners will be responsible for the maintenance of their plots, but now they will also be collectively responsible for the daily maintenance of the common areas, tool sheds and tools, benches, tables, and the irrigation installations. In the past, the City Council was responsible for all of these, although some of this maintenance was spontaneously undertaken by the gardeners association "De Leira na Leria". There is also a new procedure to ask the council for improvements twice yearly. Each proposal will need to be supported by signatures of the 10% of the gardeners and be approved in a gardeners' assembly. After that, if the City Council then approves the proposal, it will be granted financial support, but the signatories who backed the proposal must contribute to the implementation and stewardship of the approved action.

In the case of the School gardens, the stewardship is mainly supported by the schools' own funds. Some of the schools contracted a private company, "Horta eCoruna", which was founded by one of the trainees of the course organised by the city's Employment department, for the stewardship of their gardens. The schools have access to public funding by the city's Education department, regional government levels, and also private funding through grants by companies and foundations like VozNatura and Fundación Repsol.

STEP 5 Build an evidence base to promote nature-based solutions to a wider catchment

In terms of stewardship, the main barrier is the resistance to change and the reluctance to implement novel models. In the particular case of the urban gardens, there is also a lack of trust in the gardeners association, as its creation is very recent and there is a risk that they might not be able to completely self-manage the gardens in a proper way. This is why the new call for the authorization of use of the urban gardens introduces some changes to promote self-organizing of the gardeners, but the plots are still granted to individual citizens. For the same reason, the stewardship responsibilities are shared, and not fully assigned to gardeners or a gardeners association.

In a more general sense, the new tender for the maintenance of green areas will introduce many changes in the way green areas are managed, promoting a more natural approach, progressively reducing the lawn surfaces with high water requirements and substituting them with meadows. The main barrier for this is the citizen perception, which still values freshly mown lawns over naturalized meadows, still considered by many citizens dirty and not taken care of.

GOVERNANCE

STEP 1 Alignment of nature-based solutions with the wider goals of the city:

- 1. Home of the exemplar within the city departmental structure and other departments needed for successful implementation**

The exemplar, being part of the green areas of the city, will be primarily managed by the Environment Department. With regards to the school gardens, it is crucial to secure the involvement of the Education department, as they're responsible of schools and kindergartens. The Employment department is relevant for the training courses on urban gardening and the support for the setting up of SMEs. Involvement of Tourism and Markets department can be interesting too, for example, for the promotion and eventual sale of products from the urban gardens in the local markets. Urbanism & Infrastructures department is important, as they have information on land property and uses of land. Additionally, it could be useful to count on the support from the Social Services department, which manages the social centers network and organize leisure activities.

- 2. Legal framework within which the exemplar will be implemented, for example by being formally integrated into the city spatial plan, climate resilience plan**

The exemplar city network for Urban Gardening will be part of the city's Green Infrastructure Plan

- 3. City strategic goals at various scales (local/city/national/larger) that the exemplar helps to achieve**

- **From the global context to the local implementation of policies**

On September 2015, the UN approved the 2030 Agenda on sustainable development. 193 countries committed to the 17 Sustainable Development Goals and their compliance by 2030.

On October 2016, the New Urban Agenda (NAU-Habitat III) was approved. The NAU is a guide to guide city development efforts for a wide range of actors (states, urban and regional leaders, programs of the United Nations, academia, civil society, etc.) for the next 20 years. It seeks to promote more inclusive, compact and connected cities through urban planning and design, the articulation of a new governance and a profound revision of urban regulations, and the promotion of a new model of urban economy.

Following the path initiated with the Declaration of Toledo in 2010 and consolidated in the Declaration of Riga of 2015, on May 2016, the Ministers with powers in urban policy of the European Union signed the Amsterdam Pact where they agreed to elaborate an Urban Agenda for the EU that gives cities and urban authorities a central role in the development of a smart, sustainable and inclusive Europe.

On June 2018, the Council of Ministers of Spain approved the "Action Plan for the Implementation of the 2030 Agenda: Towards a Spanish Strategy for Sustainable Development", in which all Ministerial Departments have participated, as well as the Autonomous Communities, Local Entities and representative organizations of civil society. In our country, therefore, the 2030 Agenda is already at the center of the vision of the State and the action of the Government.

As one of the "lever policies" for the implementation in Spain of the 2030 Agenda, the Spanish Urban Agenda was presented to the Council of Ministers in February 2019. It is a strategic document of voluntary adherence, which, in accordance with the criteria established in the international agendas, seeks to achieve sustainability in urban development policies. It also constitutes a working method and a process for all actors, public and private, that intervene in cities and that seek equitable, fair and sustainable development from their different fields of action.

"The role of local and regional governments and their associations in achieving the SDGs is crucial, as it is at the local level that the equality approach to the implementation of the SDGs at the national level can be preserved. Achievement of the SDGs depends to a large extent on the active participation of the local governments, since all the SDGs include goals related to competences and responsibilities of the local and municipal sphere, mainly in the provision of basic services and in the promotion of endogenous, inclusive and sustainable territorial development Hence the importance of city and local government networks as catalysts and support systems for strengthening their role at three levels: institutional framework, political advocacy and alliances." (Plan of Action for the Implementation of the 2030 Agenda: Towards a Spanish Strategy for Sustainable Development).

- UN Sustainable Development Goals



As seen in this graphic, urban gardens help address at least 11 out of the 17 UN Sustainable development goals:

Goal 1 – No poverty: urban gardens can be a help for low-income families.

Goal 2 - Zero Hunger: urban gardens help increase food security and facilitate access to a healthier nutrition.

Goal 3 - Good Health and Wellbeing: research shows that urban gardening can improve both physical and mental health. Being in contact with nature increases mental wellbeing, and gardening constitutes a moderate, healthy physical activity.

Goal 4 – Quality education: School gardens can contribute to improving the quality of our education system. Research supports that garden-based education can increase academic achievement and result in higher test scores.

Goal 8 – Decent work and economic growth: the setup of new SMEs and NBEs connected to urban gardening can definitely be a contribution to this goal.

Goal 10 - Reduced inequalities: urban gardens can be used as an inclusion tool to help increase social cohesion

Goal 11 - Sustainable Cities and communities: urban gardening encourages a more sustainable lifestyle, creating green public spaces and improving urban planning and management in participatory and inclusive ways.

Goal 12 - Responsible consumption and production: urban gardening enables self-production and encourages proximity consumption.

Goal 13 - Climate Action: urban gardens help prevent soil sealing, contributing to storm water retention. Additionally, the replacement of purchased vegetables by those grown in the garden helps avoid food chain emissions.

Goal 15 - Life on Land: the replacement of lawn area by a garden with organic agriculture can help increase biodiversity, with the possibility of including insect hotels or bee hives to maximize the effects.

Goal 17 – Partnerships for the goals: working with a more integrated approach, within different departments, engaging stakeholders and also involved in European networks are definitely ways to advance towards this goal.

- **Spanish Urban Agenda & Local Urban Agenda**



The Spanish Urban Agenda (AUE) is a strategic document, approved in 2019, which seeks to achieve sustainability in urban development policies, in alignment with the criteria set out in the 2030 Agenda, the new United Nations Urban Agenda and the Urban Agenda for the European Union. It is also a work method and a process for all stakeholders, public and

private, who are involved in cities and who, from their different areas of activity, pursue equitable, fair and sustainable development.

After intensive work and a broad participatory process starting June 2017 that lasted almost a year, this integrated urban development strategy offers a Decalogue of Strategic Goals, which, in turn, feature a total of 30 specific goals and 291 lines of action. The end result is a menu that can be used by the relevant actors to draw up their own Action Plans. The strategy is based on a broad vision that includes every town and city, regardless of size and population, and relies on a triple focus of economic, social and environmental sustainability.



A Coruña is one of the first cities in Spain to develop a pilot action plan for the local implementation of the Spanish Urban Agenda. This is an ongoing process which was initiated in 2019. The city is amid the process of collecting indicators, diagnosing the current state of the city and defining the city goals.

- **EidusCoruña (Urban sustainable development integrated strategy)**

This strategy was approved in 2016 and its implementation is co-financed with ERDF funds.

It has 4 main axes:

1. Information and communications technology (ICT)
2. Environment
3. Mobility and energy
4. Social integration

The axis 2 (Environment) is the one that's particularly relevant for the exemplar:

AXIS 2 ENVIRONMENT: Make the most of public spaces in the city so that they function as meeting areas, with high social and environmental value.

The limited existence of free spaces to act implies the need to make the most of the opportunities that the compact city offers. All free space in the city has the potential to be valued and used for citizens to enjoy.

This challenge links with the EidusCoruña OT6 (Thematic Objective) - Conserve and protect the environment and promote resource efficiency. Interventions of landscape restoration,

urban gardens and humanization of public spaces will be performed within the OT6. The implementation plan for the EidusCoruña strategy includes a line of action for this Thematic Objective specifically dedicated to the creation of new Urban Gardens in the city.

- **Alignment of City Strategic Goals, NBS Objectives, Actions and Indicators**

City Key Strategic Objective	NBS Objectives	Actions	Indicators
<p>Landscaping and environmental and heritage restoration of places of touristic, cultural and environmental interest in the neighbourhoods of the city</p> <p>Preserve, improve, increase and connect the natural heritage of the city. Preserve and recover natural and cultural heritage of the city, as well as its fluvial and water memory.</p> <p>Disseminate knowledge of the values of green infrastructure and biodiversity and promote citizen participation and involvement.</p> <p>Improve the air quality and the environmental comfort of the city and reduce its carbon footprint.</p>	<p>Increase biodiversity and boost ecology.</p> <p>Provide a sustainable public space offering healthy recreational opportunities for people.</p> <p>Boost resilience against perturbations. Mitigate climate change effects.</p> <p>Protect and reinforce ethnographic and cultural values of the environment.</p> <p>Increase social cohesion and community engagement.</p>	<p>Implementation of the project for the ecoHortas urban garden network.</p> <p>Regreening buildings, creating roof gardens and green walls.</p> <p>Organize co-creation activities, community building and educational actions.</p> <p>Improve landscape -heritage connections and collective memory.</p>	<p>Environmental Indicators:</p> <p>Green Space Accessibility</p> <ul style="list-style-type: none"> - <i>Perceived access</i> - <i>Geographical access</i> <p>Temperature reduction</p> <ul style="list-style-type: none"> - <i>Green coverage for local heat reduction</i> - <i>Green roofs contribution to thermal isolation of buildings</i> <p>Biodiversity measure</p> <ul style="list-style-type: none"> - <i>Implantation of ecological agriculture, insect hotels, pollinator services.</i> <p>Water management</p> <ul style="list-style-type: none"> - <i>Improvement on soil permeability and water retention</i> <p>Social Cohesion Indicators:</p> <p>People-Place Relations</p> <ul style="list-style-type: none"> - <i>Levels of place attachment and place identity</i>

			<p>People-People Relations</p> <ul style="list-style-type: none"> - <i>Level of intergenerational relations</i> - <i>Improvement on social integration of collectives at risk of exclusion</i> <p>Health and Well-being Indicators:</p> <p>Education</p> <ul style="list-style-type: none"> - <i>Opportunities for environmental education</i> <p>Physical activities</p> <ul style="list-style-type: none"> - <i>Moderate physical activity promoted by Urban Gardens</i> <p>Mental health</p> <ul style="list-style-type: none"> - <i>Meaningful leisure opportunities promoted by Urban Gardens.</i>
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STEP 2 Current status of the location

The municipal urban gardens are located in public lands. The new urban garden will be built in an underused area of the Adolfo Suárez Park, a public park managed by the Environment Department. The school gardens are located in municipal lands managed by the Education department.

STEP 3 Who are the required partners

- Municipal departments:
 - o Environment Department - PLANNING, DELIVERY & STEWARDSHIP
 - o Urbanism & Infrastructures department (information on land property and availability) - PLANNING
 - o Social services (they manage the social centres network and organize leisure activities) - STEWARDSHIP

- Education (schools and kindergartens) - *PLANNING, DELIVERY & STEWARDSHIP*
 - Employment (Urban gardening courses and support to SMEs) - *STEWARDSHIP*
 - Tourism and Markets (promotion and eventual sale of the product from the urban gardens in the local markets) - *DELIVERY & STEWARDSHIP*
- University: Office for Environment (OMA), Architecture & Engineering Departments, People Environment Research group, Sustainability Campus - *PLANNING, DELIVERY & STEWARDSHIP*
 - CEIDA: centre for environmental education - *STEWARDSHIP*
 - Association for Urban Gardening "De leira na leira": newly created association by members of the three municipal urban gardens - *PLANNING, DELIVERY & STEWARDSHIP*
 - NGOs like Ecodesarrollo Gaia, Ecos do Sur, Amigos da Terra... - *PLANNING, DELIVERY & STEWARDSHIP*
 - ANPAS (parents associations) and Schools - *PLANNING, DELIVERY & STEWARDSHIP*
 - Neighbourhood Associations - *PLANNING, DELIVERY & STEWARDSHIP*
 - Other administrative levels: Deputación da Coruña (province administration), Xunta de Galicia (regional government with competences in Health & Education), national government, etc. - *DELIVERY & STEWARDSHIP*
 - Private foundations like Afundación, Fundación La Caixa, VozNatura, Fundación Tríodos, etc - *DELIVERY & STEWARDSHIP*
 - Local companies like Inditex, Gadis, Vegalsa, Estrella Galicia, etc. - *DELIVERY & STEWARDSHIP*

The existing Ru:rbán Urbact Local Group could be useful to sit all the stakeholders at the same table and start the coproduction processes, as a lot of the key stakeholders related to urban gardening are present in this group and in contact with each other. As the Ru:rbán project is about to finish, it would be key to transform this group into a stable Local Group on Urban Agriculture that continues to be influential and helps coproduce future actions. However, due to the Ru:rbán project not having such a broad approach, it would be necessary to further expand this group including some of the identified key stakeholders that are missing.

STEP 4 How will we work together. Developing a collaborative governance framework

The urban gardens have been traditionally managed by the City Council. However, the city council has organized capacity-building workshops on group facilitation with the intention of forming self-managed groups among the plot holders and gardeners. These workshops, together with the involvement of some of the gardeners in the OSMOS workshop for the open innovation team and the local group on Urban Agriculture, have resulted in the formation of a new association "De Leira na Leira", which is willing to take some responsibilities on the management and running of the urban gardens, and which is able to raise funds independently from both private and public sectors. There is a will for a gradual

transition of responsibilities from the city council to the gardeners. This is being phased in with the support of a staff resource in the city council.

This is, however, a medium term change, as there are reluctances in the city council to drastically change the model for the bigger gardens. At the same time, everyone agrees that the current system has flaws: it creates lots of bureaucratic procedures and administrative workload, and it's very difficult to keep track of the daily issues of the gardens from the office. Therefore, they are open to explore alternatives. As a first step, the new association has been granted (June 2021) one of the smaller urban gardens aimed at NGOs and associations (Parque de Oza garden). Additionally, the call for the new allotment of plots for Eiris, Agra, Novo Mesoiro and Adolfo Suárez gardens (February 2022) introduces a collaborative governance model, which promotes self-organization of gardeners and leaves a door open for the governance model to shift towards an association-led system.

FINANCING AND BUSINESS MODELS

STEP 1 Lessons learned from how NBS has been financed in each city to date

Both the capital expenditure costs and the ongoing operational costs of NBS in the city have been mostly financed with municipal funds, and in the case of capital expenditure often with support from European, national or regional-level funds.

EU funds:

- The city has depended on European funds for public infrastructure and urban regeneration projects, but access to these funds is not always guaranteed and can be problematic for political reasons (different political parties at local and provincial level).
- The city has access to European funds like ERDF programmes for developing new urban projects, with a focus on social inclusion.

National funds:

- Funds from the national level have been used to renovate different public spaces.

Own funds:

- Municipal budgets for parks and gardens, including for investment and maintenance.
- Participatory budgets: 2 million euros per year.
- Green public procurement including street cleaning, waste collection etc. represents more than 30 million euros annually.

Private funds:

- The presence of large economic actors in the metropolitan area like the Port Authority of Galicia, Inditex or Estrella Galicia could be a potential source for the funding of NBS, although this possibility has not been much explored until now. Inditex, through

Amancio Ortega Foundation, has sponsored some projects in the past like nursing homes, kindergartens or medical equipment for hospitals.

For maintenance, the city is divided in four zones that are maintained by private companies under contract with the municipality (three geographical zones and one including all historical gardens in the entire city). Currently there is one company (Althenia) which won the tender for the three geographical areas, and another one (Imesapi) which won the tender for the historical gardens.

These companies also have a budget for “improvements” which has been used to create or improve green areas in the city.

STEP 2 Explore opportunities for innovation in financing, governance and business models

In this second step, we ask cities to explore potential opportunities for innovation in the financing, governance and business models of NBS.

Sources of financing the NBS exemplar (These funds are secured):

- European funds: A Coruña EIDUS program (ERDF funds) has a financing line for establishing and improving urban gardens in the city. The project of a new urban garden in Adolfo Suarez Park is being implemented co-financed by these funds €293.727,56 (taxes included). The contract was formalised on January 4, 2022.
- Participatory budgets: NBS-related projects are usually among the most voted initiatives every year. A specific idea for a new urban garden in Adolfo Suarez Park was among the approved proposals (€50K) approved in 2019.
- “Improvements” budget from maintenance companies: this has been used in the past to finance the existing urban gardens capital expenditure costs and might be used again to create new gardens as a part of existing green areas in the city (for example community gardens in underused areas of public parks). In february 2022, a project for the improvement and expansion of the gardens of Agra, Eirís and Novo Mesoiro was approved, also funded by this improvements budget (28.000€). The garden maintenance contract is still in force although its renewal is being prepared. In the new tender, it is planned to also include a “budget for improvements”.
- Gardeniser program: a training course on design, creation and management of urban gardens has been organised with own funds from the municipal Employment dept., with support from the EU URBACT Ru:rbn project. There were two editions in the years 2018/2019 and 2019/2020.

Potential new sources of financing for a combination of the up-front NBS capital investment costs and the operational costs:

- Plot fee for the users of municipal urban gardens: currently urban gardens are completely free of charge for citizens. The possibility to include a fee, even if symbolic, might also help reduce plot abandonment. With the current system some

- citizens are assigned a plot but never start cultivating it, which leads to abandoned plots even if the waiting list is long (revoking the plots implies a slow administrative process). However, some improvements have been included in the new regulation (February 2022) recently approved to speed up the administrative processing in cases of abandoned plots, so that they can be quickly awarded to people on the waiting list.
- Association fee: alternatively, for the urban gardens where the model of management shifts towards an associations-led system, there could be a fee to join the associations, which in turn should be in charge of maintenance of the urban gardens. → The new association has a membership fee (€12 annually). They have already used part of this money to update the common tools in the three urban gardens and maintenance works (929,91 €).
 - Pilot project for school gardens: €60K (municipal funds) for the stewardship of the 5 existing gardens for the remainder of the year 2021. This includes maintenance and organization of educational activities for the school gardens. Estimated final cost of this service is around €250K annually if the project is expanded to all the 25 primary schools in the city + €40k additional expenditure cost for the new 20 school gardens. Currently looking for financing sources, education dept. very interested in supporting the programme but also looking at private sponsorships. Budget and political issues - no budget for 2021. Still working with the extended budget from 2020. This means it is much harder for new projects to get financed. It is expected that a new budget will be approved for 2022 which would unlock this project (budget still not approved as of February 2022 – expected approval March 2022)
 - Stewardship of existing gardens: in the garden maintenance contract still in force the UG are included in the general maintenance contract for the green areas of the city. The new maintenance tender for the green areas of the city, which is already underway, has a separated lot for the maintenance of urban gardens, planters and municipal buildings gardens, which will be aimed at social integration enterprises. The cost of maintenance of the municipal urban gardens is estimated at around €40k annually (municipal funds). In the new regulation, approved Feb 2022, the gardeners are collectively responsible for the daily maintenance of the common areas, tool sheds and tools, benches, tables, and the irrigation installations. In the past, the City Council was responsible for all of these.
 - The community gardens of Oza and Carlos Casares will be managed by associations following the new regulation recently approved. These associations could obtain new public or private sources of funding in the future. These contracts were awarded in 2021: the UG in Oza to the newly created gardeners association “De leira na leira” founded by some of the gardeners in Eirís, Agra and Mesoiro gardens and the UG in Carlos Casares to the Monte Alto neighbourhood association.
 - Commercializing the products of the urban gardens: now the products are for self - consumption and it is forbidden to sell them, however we could explore the possibility to allow commercializing them, be it in regular fairs held in the urban gardens, or else collaborating with the municipal markets. The money from this should be then re-

invested in maintenance, improvement or expansion of the urban gardens network. This still has to be addressed.

- Agreements with other institutions: schools, hospitals, nursing homes, kindergartens. Encouraging and offering assistance to them to install their own urban gardens, which might even be open to the wider public (learn from Poznan open gardens model). If approved, €7,000 from the environmental education budget could be allocated to offer this support to schools and kindergartens in 2022.
- Agreements with private institutions and large local companies like Inditex (clothing), Gadis (supermarket), Vegalsa (supermarket), Abanca (bank) or Estrella Galicia (beer) for the sponsorship of urban gardens. Estrella Galicia unveiled in 2021 the plans for their new corporate offices, which include urban gardens for their employees. Inditex (ZARA) is also concerned with sustainability, for example all the food served in their canteen is made with organic products sourced from local producers. Some enterprises like Repsol (energy company) and La Voz de Galicia (main newspaper in the region) have funded in the past capital expenditure costs for school gardens in the city and the metropolitan area.

Esther Fontan - councillor of environment - had a meeting with some of these companies during the Environment Week. We (CN Team) were in the public and after the event she presented us to the CSR person of these entities, so we had a first contact. After the call with Poznan we are defining the CSR strategy to organize a meeting with them. In the past companies mostly funded initial costs - easier to get them on board with that – but it would be great if they could support maintenance. It would be easier to get them on board to fund school gardens. Community gardens are more difficult – hard to find space - not much available public land.

- Improvement of existing urban gardens with workshops with employment department. (Proposal submitted for a regional grant). → NOT SUCCESSFUL. Looking for alternative sources (collaboration with university?)

New governance models:

- The existing urban gardens are managed by the city council and plots are assigned to individual citizens. However, the city council has organized capacity-building workshops on group facilitation with the intention of forming self-managed groups. (New resource identified). In the urban garden of Nuevo Mesoiro there is a group of 15 people interested in proposing a new management model for the garden and they are currently working on it.
- A new association has been created by gardeners of the three municipal urban gardens ("De Leiria na Leiria"). It has been structured as a legal association according to the Organic Law 1/2002, of March 22, regulating the Right of Association, and has around 150 members.

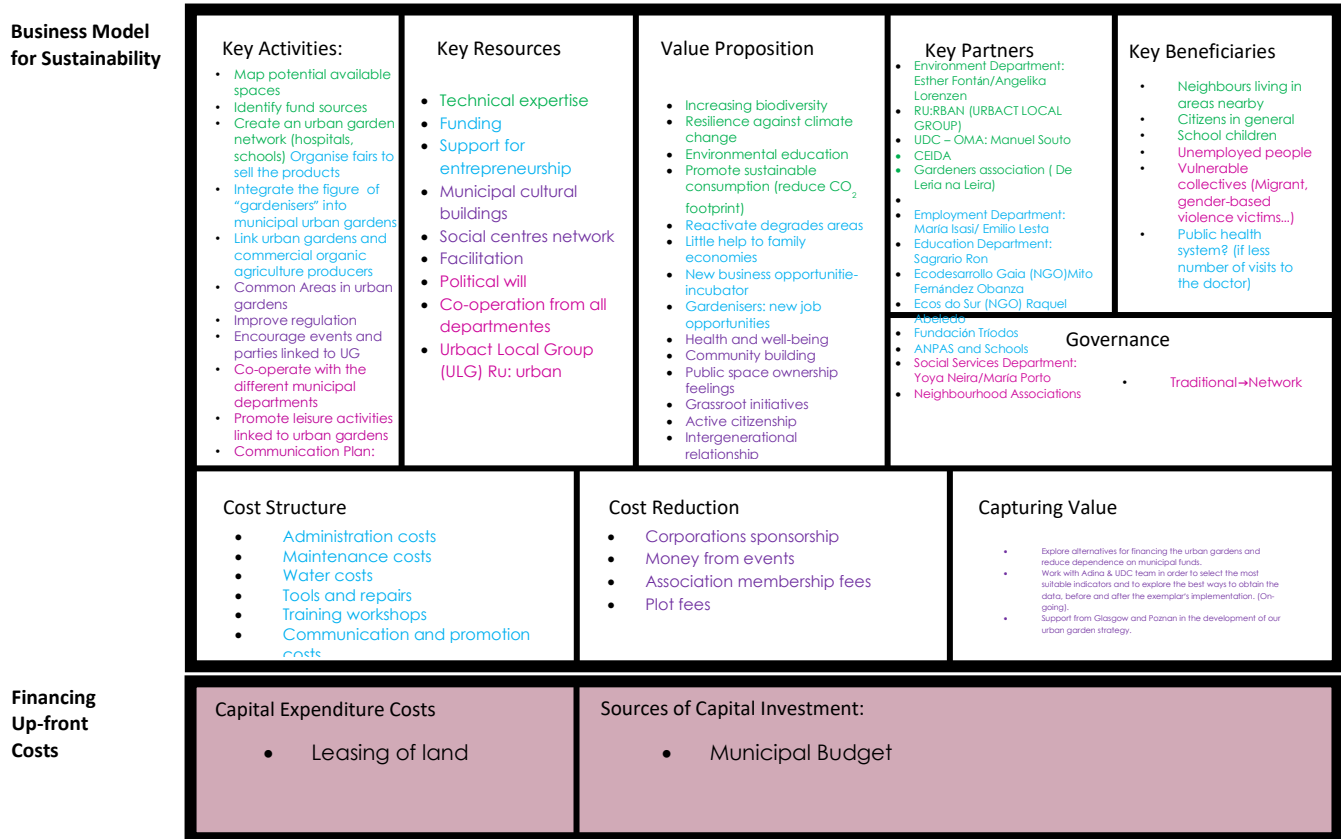
- The intention is to gradually transfer some of the responsibilities held by the city council to the associations that represent the gardeners. The new association has already taken the initiative to update the common tools in the three urban gardens using money from membership fees. Additionally, the community garden in Oza Park will be directly managed by this new association. There is a new regulation for the urban gardens of Agra, Eirís, Nuevo Mesoiro and Adolfo Suárez for the next 4 years, which foresee a more active role for the gardeners, who can agree in an assembly to propose improvements in all areas, including the management model.

STEP 3 Planning the financing and business model of Connecting Nature

NBS exemplars

In this step cities follow a business model approach to planning for the financing and sustainability of the NBS exemplars to be implemented in the Connecting Nature project. The financing plan identifies the upfront capital costs required and potential sources of financing. The business model planning approach asks cities to work out the costs required to sustain ongoing NBS activities, to consider how those costs can be reduced and to consider how to capture the value of NBS – both in terms of direct revenue generation and in terms of translating the wider value delivered by NBS (environmentally, socially and economically) into sources of ongoing operational revenue

Figure 1 Business Model Canvas and Financing Plan for NBS exemplar(s)



Brief Description of exemplar:

Urban gardens are a cost-efficient way of addressing many of the city strategic goals. They can help improve biodiversity and resilience against climate change while providing outdoor recreational spaces and promoting sustainable, active lifestyles. They have positive effects on mental and physical health, and they can improve social cohesion and social integration, increasing the well-being of citizens and their life quality.



A Coruña has three municipal urban gardens running since 2018, with a total of 218 plots available to citizens. The implantation of the municipal Urban Gardens started as an open participatory process to define the location of the plots. Their uses and concrete and definitive locations were defined through citizen participation. Actions took place in order to facilitate self-management of the urban gardens by their users, with a capacity-building process developed between the months of July and November of 2018 and the election of a Management Committee for each of the urban gardens. At the same time, the municipality offered training in the field of organic agriculture to users, starting in May 2018. Now, there is a strong demand for more urban gardening spaces, with a waiting list of over 180 people for the plots. Thus, the city wishes to expand and improve the existing gardens as well as creating new ones.

In addition to these three municipal gardens, a smaller community garden and a greenhouse, located in two city parks, are managed by NGOs which are developing educational and social projects with vulnerable collectives like migrants or gender-based violence victims. Another community garden in the Oza Park will be managed by an association (NGO).

Additionally, a professional program training on urban gardening has been organised by the City's Employment department. In this course, trainees learn how to create and maintain urban gardens, keeping them healthy and productive, in accordance with the principles of organic agriculture, and they learn to organize and develop didactic activities taking advantage of the potential of urban gardens. This course included a practical internship during which urban gardens were created or improved in four different primary schools. This was the beginning of a network of school gardens that the city council would like to expand, including as well other institutions like hospitals, retirement homes and kindergartens.

The school gardens programme. The improvement of school gardens and the possible creation of new ones to carry out educational activities in them has a budget assigned by the City Council for the development of a pilot project, through a private subcontracted company.

Brief explanation of major elements/assumptions:

- 1. Value proposition: how will your exemplar create environmental, social, economic or any other type of value?**
 - Urban gardens help improve biodiversity and resilience against climate change. They can mitigate climate change effects maximizing CO₂ absorption, increasing vegetative coverage, preventing soil sealing and providing water retention.
 - They can also be a modest help for family economies, and they favour responsible and proximity consumption habits, reducing CO₂ footprint and improving food security.

- Urban gardens have positive effects on mental and physical health, and they help build intergenerational and intercultural relationships, improving social cohesion and social integration. They provide outdoor recreational spaces and promote active and sustainable lifestyles, increasing the well-being of citizens and their quality of life.
- Urban gardens also promote community building and the generation of an active citizenship with increased ownership feelings towards public spaces, ready to be involved in new governance formulas.
- They offer a space for environmental education, helping communicate to citizens the benefits of being in contact with nature.
- Last but not least, urban gardens can act as incubator for new business opportunities and increasing employability of unemployed people. They can also reactivate degraded areas and increase property values.

2. Value creation:

- **Key activities and resources: what are the most important services or activities which need to happen to deliver the environmental, social, economic value?**

2019:

- Map potential available spaces for urban gardening, both belonging to the municipality/other public authorities, but also abandoned lands belonging to private owners with whom an agreement might be reachable.
- Identify fund sources
- Create an expanded urban garden network, also including hospitals, schools, kindergartens etc.
- Improve municipal urban gardens providing space for organising meetings, fairs and parties, and encourage these kind of events as powerful community building tools

2020:

- Improve co-operation between the different municipal departments (urbanism, social services, education, economical promotion) Agreement between Environment, Education, Employment and Tourism & Markets department to promote the Urban gardens with support from the relevant councillors.

2021:

- New urban garden in Adolfo Suarez park (project approved and construction works about to start, second quarter 2021). (Contract formalised in January 2022).
- Community garden in Carlos Casares park awarded to the Monte Alto neighbourhoods association (April 2021)
- Community garden in Oza park awarded to "De Leira na Leira" gardeners association (April 2021)
- School garden programme (with parents associations)
- Pilot project for a service to organise and maintain the school gardens: first phase in the 5 existing school gardens during 2021. To be expanded to more primary schools in a second phase (probably spring 2022?)
- Elaborate a comprehensive communication plan, measuring impact indicators.
- Organise fairs to sell the products
- Integrate the figure of "gardenisers" into municipal urban gardens
- New information point (human resource) being created in the Municipality for Urban Gardens. All sorts of advice, support, information and workshops for citizens interested in urban gardens. Funded by the Municipality. Link urban gardens and commercial organic agriculture producers
- Improve regulation
- Participation in the congress "From the Garden to the City: Food policies for Sustainable Urban Development" 13-14 May 2021, co-hosted by the URBACT National Point and A Coruña City Council (national level event).
- A Coruña's urban gardens network recognised as national best practice for the climate in the category of Nature Based Solutions by the Spanish Federation of Municipalities and Provinces.
- New contract for the maintenance of Green Areas will include a specific lot for urban gardens, open to social integration enterprises. As part of this contract, there will be one dedicated person who will assist the gardeners.

2022:

- New call and regulation for the urban gardens of Agra, Eirís, Novo Mesoiro and Adolfo Suárez.

- Project for the improvement and expansion of Eirís, Novo Mesoiro, and Agra gardens
- **Key partners and beneficiaries. Who needs to be involved to deliver the different value propositions? What is your city's 'ideal' governance model for the long-term management of the NBS e.g. city-managed or citizen-managed?**

2019:

- We need to involve the different municipal departments. Of course Environment Department, but also Urbanism & Infrastructures department (crucial, as they have information on land property and availability), Social services (they manage the social centres network and organize leisure activities), and Education (schools and kindergartens).
- The existing Urban Urban Local Group could be useful as a lot of the key stakeholders related to urban gardening are present and in contact with each other.

2020:

- Employment, education and Tourism and markets departments are currently on board.
- University: Office for Environment (OMA), Architecture & Engineering Departments, People Environment Research group, Sustainability Campus. We are considering a collaboration with the School of Architecture to explore the possibility for students to design and build common areas in the three original urban gardens, which are lacking these elements.
- CEIDA: centre for environmental education
- ANPAS (parents associations) and Schools
- Neighbourhood Associations
- NGOs like Ecodesarrollo Gaia, Ecos do Sur, Amigos da Terra...
- Fundación Tríodos (Tríodos is a bank which is working with some social projects, some of them on urban agriculture).
- "Hortas na Cidade", association managing urban gardens in Feáns neighbourhood (on private lands)

2021:

- Local enterprises like GADIS, Estrella Galicia, Inditex, ABANCA etc (explore sponsorship opportunities)

- Repsol and Voz Natura / La Voz de Galicia (these institutions have funded part of the school gardens expenditure costs in the past)
- Gardeners Association " De Leria na Leira"
- "Leira da Rocha", association managing an urban garden in the metropolitan area (Cambre)
- HortaECOruña: local SME founded by one of the students of the training course organised by the Employment Department. They have been working on building school gardens in kindergartens and primary schools.
- Other administrative levels: Deputación da Coruña (province administration), Xunta de Galicia (regional government with competences in Health & Education), national government, etc.

3. Value capture

- Explore alternatives for financing the urban gardens and reduce dependence on municipal funds. The new fee from the Association De leria na leira has been partially used to buy tools for the urban gardens.
- Work with Adina & UDC team in order to select the most suitable indicators and to explore the best ways to obtain the data, before and after the exemplar's implementation. (On- going).
- Support from Glasgow and Poznan in the development of our urban garden strategy.

4. Consider trade offs

- Consider gentrification risks associated to areas next to urban gardens becoming more attractive and increasing property values.
- Difficulties and resistance to the changes in governance, both from urban garden users (some don't want to create associations) and from municipal officers (sometimes it's hard to change the rules)
- Difficulty to engage other administration levels/municipal departments
- Possible trade-offs from commercializing the products (health concerns, competing with professional producers).
- There is a trade-off between raising funds for maintenance through user fees and encouraging public use of green space such as outdoor physical activity.
- Consider potential negative impacts related to any invasive species.

STEP 4 Implementation of financing and business model plans for specific NBS exemplar

Implementation actions may involve follow up on:

- Preparation of applications/bids for funding/financing (where relevant).

- Engagement with investors and other stakeholders for alternative sources of financing.
- Continued engagement of all stakeholders in preparation for implementation of business model.

Financing & Business Model Implementation Plan:

City	A Coruña
Capital Financing required for NBS Exemplar	New Urban Garden (Adolfo Suárez park) €300k Pilot project for schools gardens €60k
Capital financing applications submitted /secured	Participatory Budgets €50k EIDUSCoruña €250k (ERDF 80%)
Unsuccessful capital financing	Regional funds call for an employment workshop to improve the existing gardens (2020)
Sources of capital investment (1) City budget (public) (2) Regional / national / EU other public sources (3) Private/third sector (4) Financial Institutions	<ol style="list-style-type: none"> 1. €160k 2. €200k (ERDF) 3. / 4. / <p>Total €360k</p>
New financing partnerships <ul style="list-style-type: none"> • Capital • Stewardship 	<p>Capital: Collaboration between Environment, Employment and Education departments</p> <p>Stewardship: education dept. to take responsibility for stewardship of school gardens.</p>
Key Innovations	- New model of collaboration between different departments (breaking silos)

	<ul style="list-style-type: none"> - New gardeners association to take some responsibilities for stewardship phase - New nature-based enterprises, SMES and cooperatives created
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NATURE-BASED ENTERPRISES

STEP 1 Awareness and strategic alignment

Contribution of NBS to the city economic development priorities

As exposed in the previous sections, urban gardens are aligned with several of the city strategic plans like EIdusCoruña (Sustainable development strategy), the local Urban Agenda, the Spanish Urban Agenda and the UN Sustainable Development Goals.

Therefore, it is clear that NBS in general, and urban gardens in particular, have a big potential for contributing to some of the key economic development priorities of the city (Coruña future and Urban Agenda plans), like sustainable consumption, circular economy, green development and green/responsible tourism.

Contribution of NBEs to the planning, delivery, maintenance and sustainability of the exemplar

We are currently exploring the possibility of involving local NBEs for the maintenance of urban gardens/school gardens (easier for the latter, as the municipal urban gardens are included in the green areas maintenance tender). There is a recent successful example of a NBE delivering the exemplar: the Education department signed a contract for the preparation of the school gardens for the new term with a new SME (hortaECOruña) founded by a trainee from the course on urban agriculture organised by the Employment department. Additionally, several schools hired this same SME with their own funds for the stewardship of their gardens.

Another possibility that is yet to be explored is the cooperation with private companies to support initiatives on urban agriculture. Possibility to support the information point, options being explored include corporate and private enterprise with interest in green initiatives (CSR programmes).

Challenges and enablers in involving NBEs in the implementation of NBS

An important challenge is how to involve local NBEs on the maintenance of exemplar and NBS in general instead of bigger companies. Bigger, multinational corporations have a wider scope of resources and are usually more successful in preparing winning bids for the tenders, with more advantageous financial conditions.

Regarding the enablers, smaller contracts tend to be more accessible to local SMEs. Also tenders requiring more specific knowledge and experience can be an enabler factor, e.g. in the contract for the preparation of the school gardens the local SME was favoured because of the relevant experience on urban gardening and specifically school gardening, as opposed to all-

purpose landscaping companies .

Another simple but important enabler is the awareness from decision makers that these kind of local SMEs exist: the previous meetings and activities and the participation of the Education department in the Connecting Nature workshops and in in the ULG (URBACT Local group) from the Ru:rbn project were crucial for the contract with the local SME to take place.

STEP 2 Building alliances

Challenges and enablers to start-up and growth of NBEs:

There is an increasing interest on NBS and green economy. The European funds for the recovery plan after the COVID crisis and the European Green Deal place a big emphasis on the development of a greener economy, offering a new scope of funding possibilities to nature-based enterprises and contributing to a social atmosphere in which the importance of the green economy is highlighted.

During the Environment Week in June 2021, the City Council organized a conference with some local big enterprises for them to present their strategies for circular economy and social responsibility. The CN Nature team took this opportunity to establish a first contact with the responsible people from the participating enterprises, as a first step towards organising a meeting with them to explore the possibility for sponsorships for the urban gardens (and especially school gardens). After a one-to-one session with Poznan where we discussed corporate partnerships and could learn from their experience, we are exploring the best strategies and approaches to organise this meeting.

The city of A Coruña is also leading the recently launched Spanish UrbanByNature Hub. This hub aims at promoting the implementation of nature-based solution in Spain, sharing knowledge between the partners and displaying the work developed in the Connecting Nature Project and other projects in the different cities. The hub was launched in November 2021 in a face-to-face event in the city of A Coruña. Among the main local partners, the hub is supported by the University of A Coruña, the UNESCO Biosphere reserve that surrounds our city, the Galician Health Service, some neighbour cities like Lugo and Santiago de Compostela, and also several private companies like CETIM, 3eData or Instituto Tecnológico de Galicia, which work on delivering NBS. This hub will be important for raising awareness and promote networking and collaboration with companies.

The main actors in the innovation ecosystem of the city are, on a municipal level, the departments of Innovation, Employment and Entrepreneurship, the Chamber of Commerce, and technological research centers like CETIM and ITG. At a regional level, the IGAPE (Galician Institute for Economic Promotion), and the Galician Agency for Innovation are the main players.

Additionally, the University of A Coruña, with support of the City Council, the Galician regional government and the provincial government, is developing a very ambitious programme "ICT City", to transform a 128.000 sqm former weapons factory into a digital innovation pole, with a business park, a technological campus, an R&D centre and an AI incubator.

Specifically focusing on NBE, there is a network at a national level “Red Empreverde” funded by the Biodiversity Foundation (Ministry of Ecological Transition) which offers grants and programmes for green entrepreneurship and start-ups.

Both the Connecting Nature team and the Environment department team have connections with the Employment and Economic departments, with members of the staff who have previously worked in the Employment department, in programmes supporting new entrepreneurs and start-ups.

STEP 3 Planning, implementing and monitoring a customised support programme

To translate our strategy into an actionable implementation plan, the following actions will be carried out:

- NBE incubator (planning stage)

Objective: creating jobs, building the sector, creating more NBEs, awareness-raising

Challenge addressed: lack of NBEs, low awareness of the potential of nature-based sector for job creation

The programme will be developed by the Environment Department in cooperation with the municipal Department of Employment and Enterprise, using the “Red Empreverde” resources. It will include training, mentoring and specialized advice to create nature-based enterprises. There will be different training itineraries according to the degree of maturation of the idea. It will be aimed at new or potential entrepreneurs interested in creating nature-based enterprises.

- Pilot programme with contracts for urban gardens maintenance (implementation stage)

Objectives: creating sustainable jobs, building the sector, facilitating the access of local enterprises to the public tenders

Challenge addressed: lack of opportunities for NBE, lack of expertise and time/resources for maintenance of gardens for the schools.

This Programme will try to involve local NBEs for the maintenance of urban gardens/school gardens (easier for the latter, as the municipal urban gardens are included in the green areas maintenance tender). The organiser departments will be Environment and Education. The program will include training on NBS and public bidding requirements.

- Training programme on urban gardening (finalised)

Objective: train people on urban gardening, facilitate the access of unemployed people to the labour market.

Challenge addressed: lack of awareness of economic potential of NBS among professionals, lack of professional opportunities for unemployed people.

In this course, trainees learn how to create and grow urban gardens, keeping them healthy and productive, in accordance with the principles of organic agriculture, and they learn to organize and develop didactic activities taking advantage of the potential of urban gardens.

The goal of this program is to boost the employability of the trainees and to create a new productive sector in connection to the fields of urban gardening and ecology. As a promising result of this program, some of the trainees have already started new SMEs/social enterprise projects related to these topics.

Participants: Unemployed people

Organizer: Municipal Department of Employment

STEP 4 Planning a programme to support nature-based enterprises

NBE Strategy Summary Table

NBS Urban Gardens Network					
NBS Phase	Planning	Delivery	Stewardship		All phases
Type of NBE Involved	New and potential NBEs	Construction/gardening companies	Small local NBEs	Large private companies	NBE, start-ups, SMEs
Challenge	Lack of NBEs		Lack of opportunities for NBE, lack of expertise and time/resources for maintenance of gardens for the schools.	Lack of private sector/ community ownership of NBS (stewardship carried out and financed 100% by city council)	Lack of private sector engagement on NBS
Goal of NBE Programme	Creating jobs, building the sector, creating more NBEs		Build sustainable stewardship model including small local NBEs and large private companies		Increase awareness for the potential of NBE, stimulate private sector interest in NBS

<i>How will this be achieved?</i>	Pilot of NBE incubator Programme		Training programme for small NBEs	Explore possibilities of private financing/ sponsorship	
<i>Partner</i>	Collaboration between the Environment Department and the Employment and Enterprise Department		Small NBEs	Private sector CSR agreements	
<i>What does success look like and how will you measure it?</i>	No. of participants in the programme, No. of NBEs created/ percentage of NBEs in municipal incubators / coworking spaces		No. of participants in the training courses / Maintenance contracts awarded to small local NBEs	No. of sponsorships	

COPRODUCTION

STEP 1 Define the goals of the co-production process

1. Goals for co-production:

- General goals: improve proposals with different views, adapt general plans to local and specific needs, enrich projects with expert knowledge and increase the ownership of citizens towards the projects (make sure they feel part of the process).
- Develop a new governance model for urban gardens and the urban garden network in the city: empower the associations of urban gardeners and the communities to self-manage the urban gardens. Support set up of association to manage the plots better (more direct contact, on the ground, with less bureaucracy). At the beginning the governance model was quite top-down. The municipality launched calls for citizens to take care of a plot. Currently there is a long waiting list to get a plot, and the process is slow: if a tenant is not using the plot they were given, plots need to be unused for 3 months before given out again, which created "unused" and not maintained plots. This led to a negative association with bureaucracy and tension, as many citizens

wonder why plots are lying vacant while so many people are waiting. This aspect has been corrected in the new regulation approved on February 2022. The plots will be given to next gardener in the waiting list if abandoned for longer than one month (except during the winter months December-February).

- Connect green areas and urban gardens: create a green infrastructure network
- Build intergenerational and intercultural relationships for social cohesion through the urban garden network
- Foster long-term commitment for local groups to self-manage gardens
- Learn from the urban gardens network to use these processes for the whole green infrastructure of the city.

2. Key actors to be involved in the co-production activities:

- Citizens in general.
- Specific group of users relevant for the project: Neighbourhood associations, gardeners in the municipal UG, NGOs working with migrants, schools and children, urban gardening initiatives, elderly (many gardeners are retired).
- Already established group for urban gardens including many of these stakeholders (from URBACT local group)
- Other municipal departments: dep. of Employment, dep. of Education (responsible for school gardens), dep. Markets & Tourism (organic markets where gardeners can sell and showcase produce), etc.
- Science and academia (university).
- Expert knowledge (private companies, i.e. architecture/engineering firms).

3. Some engagement tools we have put in practice:

- Participatory processes (participatory budgets)
- Regular meetings with the group of stakeholders
- Participatory meetings with the architects, neighbourhood associations and gardeners to co-design the new urban garden in Adolfo Suarez park.
- Participatory meetings with the gardeners to develop the project for the improvement of the existing gardens.
- Sarajevo process - memory work exercise with the gardeners
- Public consultation (open to amendments and suggestions for improvement)
- Public exhibition of the projects, cooperation with the university (scientific knowledge), Project / ideas competitions to engage expert knowledge.

STEP 2 Use the design principles to flesh out the coproduction goals and structure

PRINCIPLES

WHAT FOR?

HOW?

CHALLENGES

INCLUSIVITY	<ul style="list-style-type: none"> • To enrich proposals with different views • Expert knowledge and universities are usually involved in beginning of the process for proposal (feasibilities) 	<ul style="list-style-type: none"> • Good contacts with universities and scientists. Easy to involve them. • Citizens via participation department – help to involve citizens. Participatory budgets. • Communication to enable people to participate in decision-making – e.g. participatory budgets and agricultural gardens: get to know interested citizens through proposals and could contact and engage them • Going into neighbourhoods (with communicators) to look for interested people – should work with citizens from the start • Sarajevo Process: opportunity to involve participants from different ethnic/cultural backgrounds. Example of how urban gardens can act as the first anchor point for migrants arriving in A Coruña. • NGOS working with diverse community 	<ul style="list-style-type: none"> • Not every level and group of citizens is involved. Still people feel not heard, or don't speak up.
OPENNESS	<ul style="list-style-type: none"> • Make sure that every project is open to citizens – participation, buy-in and legitimacy • Share projects with other municipalities – knowledge exchange 	<ul style="list-style-type: none"> • Ensuring that process is open for adjustments and new ideas: usually there is a starting idea, but it can be adjusted • Important to share knowledge from the start so everyone knows and gets involved 	<ul style="list-style-type: none"> • Problem when multiply government layers are involved, cannot guarantee openness/flexible procedures
LEGITIMACY	<ul style="list-style-type: none"> • Important to maintain democratic procedures and not to by-pass them (concern especially when decisions are binding) 	<ul style="list-style-type: none"> • Start openness with small projects • Award for the UG network (Best Local Practices For Climate, NBS Category) contribute for the project to be taken seriously by decision makers 	<ul style="list-style-type: none"> • How to deal with conflicting opinions of people and selected involvement? • How to deal with criticism rooted in/related to political opinions? • Concern of urban gardeners/citizens: what will become of the ideas? What will be implemented?
ACTIONABLE KNOWLEDGE	<ul style="list-style-type: none"> • Citizens see their ideas being implemented – motivation and buy-in, legitimacy 	<ul style="list-style-type: none"> • Good cooperation and communication with other departments/colleagues. 	<ul style="list-style-type: none"> • Problem when multiple government levels are involved: cannot guarantee implementation of decisions/agreements

	<ul style="list-style-type: none"> • Get the best possible output to implement an idea that is in mind 	<ul style="list-style-type: none"> • Should communicate more openly in large projects from the start. • Usually we have an idea in mind that is to be implemented - but it can be adjusted (openness) 	<ul style="list-style-type: none"> • Bureaucracy is a barrier: time before an idea gets implemented
USABLE KNOWLEDGE	<ul style="list-style-type: none"> • Important to see what the social effects/outputs of a project/idea is – e.g. agricultural gardens: that people relate better to nature and others in neighbourhood • Not much experience with generating/aiming for usable knowledge 	<ul style="list-style-type: none"> • Organisation of environmental educational activities • Involvement of new actors in process to enlarge the reach of the action • Explicitly identifying social outputs of project 	<ul style="list-style-type: none"> • Lack of co-creation with private sector. Experiences within other departments (i.e. employment, sports), but not in environmental department / for NBS delivery)
EXTENDING INSTITUTIONS	<ul style="list-style-type: none"> • Creating synergies from linking different goals and align action across municipalities and departments 	<ul style="list-style-type: none"> • Link between environment and employment department (URBACT Ru:rbn project) • Collaboration with education dept. (trainees from training course for unemployed people building school gardens). Easy to involve education dept. because of high demand of school gardens. • Info point on Urban Agriculture involving 4 different departments (Environment, Education, Employment, Tourism&Markets) with high level political support 	<ul style="list-style-type: none"> • Challenge is to involve different levels of government, and to know when to involve private sector.

STEP 3 Plan the co-production steps and activities

- Meetings of the Local Group on urban agriculture (URBACT Local Group), to meet regularly with all stakeholders, share knowledge, inspire each other, foster commitment, have a say on municipal policies on urban gardens. Participation of urban gardeners, teachers responsible of school gardens, trainers and attendees of the urban gardening courses and representatives of the municipal departments of environment and employment. The group is always expanding, incorporating urban gardeners from different neighbourhoods (ambassadors for their neighbourhood), people from NGOs, trainers, representatives of urban school gardens and people related to enterprises on urban agriculture, like for example an enterprise that arose from the training organised by the Employment Dept.

- o 13th Jun 2019

- 26th Aug 2019
 - 2nd Sept 2019
 - 29th Oct 2019
 - 6th Nov 2019
 - 18th Dec 2019
 - 9th Jan 2020
 - 8th April 2020
 - 22nd Jun 2020
 - 22th Oct 2020
 - 15th Feb 2021
 - 17th March 2021
- New urban garden in Adolfo Suárez Park:
 - *Proposal for the creation of a new urban garden in this park selected in the participatory budgets (2019)*
 - *Meeting of the Environment department team with the architects. (30th January 2020)*
 - *Participatory meeting with the architects, neighbourhood associations and gardeners from the three existing urban gardens (12th February 2020). The architects presented the first version of the project and the different stakeholder expressed their views and ideas to be incorporated into the final design.*
 - Meeting with urban gardeners to explore the new governance model to be potentially tested in the Adolfo Suárez UG and the different possibilities:
 - *Meeting with representatives of the three municipal urban gardens (9th June 2019)*
 - *Meeting with the newly created gardeners association "De Leria na Leira" (16th October 2020)*
 - Creation of an Info Point on Urban Agriculture:
 - *Meeting Environment Department – Employment Department on Urban Gardens Info Point (12th Feb 2020)*
 - *High level meeting on Urban Gardens Info Point with the relevant Councillors and Heads of Department (Environment, Employment, Education and Markets Departments) (4th March 2020)*
 - Sarajevo Process:
 - *Memory work exercise with urban gardeners, school teachers and artists (6th June 2021)*
 - *Body mapping exercise (22nd November 2021)*

- Improvement and expansion of Eiris, Agra and Novo Mesoiro gardens:
 - o *Participatory walks with the gardeners (13th and 14th December 2021)*
 - o *Meeting with the presidents of the three UG to present them the final plans (4th February 2022)*

STEP 4 Select the co-production tools

- Sarajevo Process

During the first week of June 2021 we organised the first part of the Sarajevo Process, the Memory Work exercise, as part of the activities organised by the City Council for the Environment week, to make use of the momentum and maximize its impact.

The goal of this process is to show the important role played by heritage, culture, people's memories and connection with nature, through a co-created, art-based, engagement approach developed by TCD and UEL. This was, from the beginning, one of the priorities of the city for the development of the exemplar, looking to enhance the sense of attachment towards public space and the creation of cohesive communities.

For this exercise we gathered a group of urban gardeners, coming from different ethnic and cultural backgrounds, different age groups and different gardens (urban gardens and school gardens)



Every participant brought a picture from their childhood and they reflected on the memories it brought back. Some of the participants knew each other, but not all of them, so we started with a short icebreaking exercise. The participants compared their pictures and their memories, and spontaneously started to cluster the pictures that were similar to each other.



After this we moved to the outside, to one of the UG. The gardeners showed us around and they talked about the benefits of having a garden and being in contact with nature. Then we ran a mindfulness exercise to help us reconnect with our memories and with nature and getting in the mood for the writing exercise.



Then, we went back inside, to the building, and we ran the writing exercise. We had the help of two artists on this. One of them is Yolanda Castaño who is a writer and a poet, she facilitated the writing exercise and she is now preparing a text translating these individual memories into a collective output. And we also had Iria Fafián, who is an illustrator and has been translating the texts and the experiences of the day into images.

This exercise resulted into 12 texts written by the participants, which were all really compelling and moving. It was interesting to find some common topics, like a sense of nostalgia for the old times, as most people remember their childhood days as a time of happiness and joy, even if for some there were hardships too. Another constant was the concept of change, most people expressed that when they were children they had more contact with nature, there was more nature, and nature was more present in their lives. But also, interestingly, many of them said that having an urban garden was a way for them

to reconnect with nature and with those happy memories. This proves to us that UG can provide benefits also on that emotional level, which is important for the exemplar's goals of increasing the feeling of attachment to public space and creating a sense of community, reconnecting with heritage and cultural legacy.

I was so happy living in the village. The spring, with its incipient warmth, the changing soil smells and the scent of the wild roses; the summer harvest; the corn husking in the autumn; or even the chilblains of the winter. All of it comes to my mind wrapped in love and tenderness.

(...)

The years passed, and I found myself alone in the village with my grandmother and her sister. My mum, my brothers and sisters moved to the city looking for a job. Eventually, they took us with them. Lots of changes and lots of homesickness we had to bear with. We had to accept what life brought to us, a different lifestyle far from the trees, the birds, the fields and the animals. But the urban gardens brought me back the joy of being surrounded by flowers, birds, people and free air.

Concha

For me there is no better place than nature, I was born in the countryside and that's why having an urban garden was like going back to my roots. I love everything, planting, watering, harvesting, it's a feeling that you can't explain. The grape harvest (oh, the grape harvest!) wasn't like today, all with machines. Back then, we stomped the grapes with our feet, and sometimes they reached up to my head, but everyone was singing and in some way dancing inside those wine presses - so much nostalgia! But now, having my plot in the urban gardens, it was like reliving those wonderful years. I am immensely grateful that they give us these little pieces of land, at least to remember what I did in my youth, which was farming.

Herondina

The outputs of the session were showcased in a public exhibition in the Agora building. The memory text written by the participants were hanged next to the artistic response by Iria Fafián and Yolanda Castaño. The exhibition was launched on November 25th with a reading of some of the texts by the participants, and the reading of the poetic text by Yolanda Castaño, and was open to the public up until 19th December.

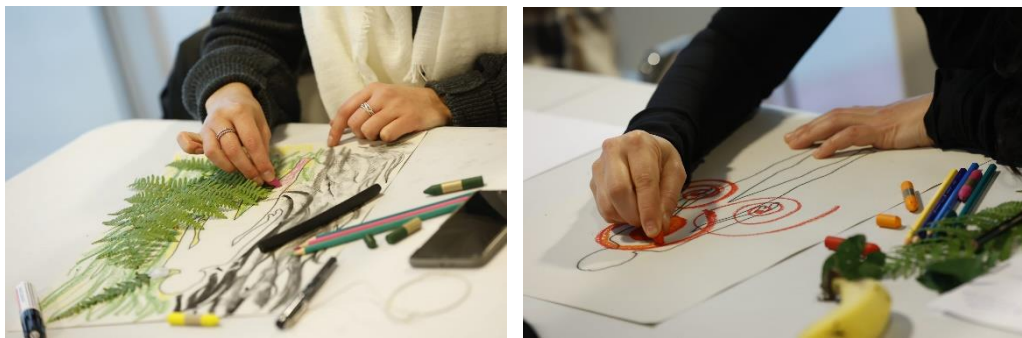


Also in November 2022, the second phase of the Sarajevo process had place with a bodymapping exercise. For this, we gathered several of the gardeners who had participated in the memory work exercise back in June, but there were also some new faces. The exercise was facilitated by Iria Fafián. After an inmersión in nature, visiting the

urban garden and the neighbouring fields, where the participants collected objects for their bodymaps.

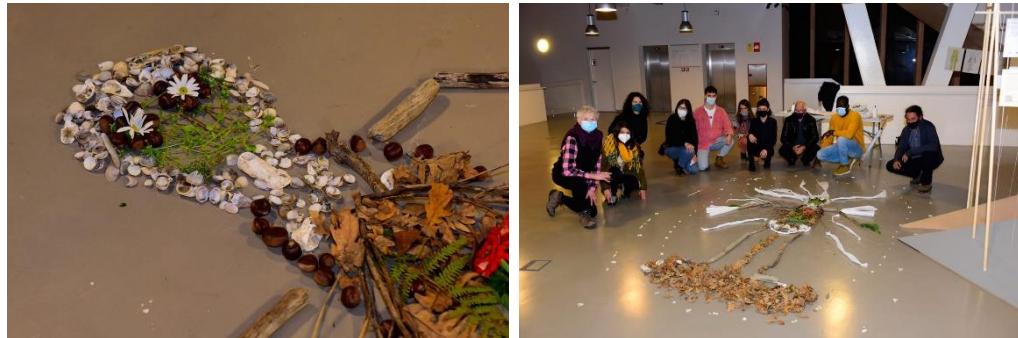


Back in the building, all of the participants drawn an individual bodymap on the templates provided.



After this, next to the exhibition of their work from the previous exercise, all of the participants created together a collective body map with the materials they had brought from nature and some additional natural items collected by Iria. The piece aimed at depicting the way they felt about nature, capturing the different feelings that each participant expressed in their individual body maps. This collective activity helped create bonds between the participants, who reflected on how much easier it was for them to

create something as a group, compared to the individual drawings. This reinforces the potential of the urban gardens to build a community and empower citizens.



The outputs of the two sessions of the Sarajevo Process in A Coruña will be showcased during the final Connecting Nature Summit in Genk in April 2022.

- Participatory walks with the gardeners

In February 2022, three participatory walks took place in the three urban gardens to discuss the new project to introduce small improvements, like a common, shaded area or a common plot for children. These improvements were suggested by gardeners themselves. Participants: municipal technician responsible for the urban gardens, the CN city team (María and Antonio), and a group of gardeners (about 8-10 people in total)

- Activity to have children draw their ideal urban garden and organise an (online) gallery (planned)

The goal of this activity is to involve school children in urban gardening. At the moment, 5 primary schools in the city have urban gardens, but many more have expressed their interest to have one. There is a pilot project to increase the number from 5 to 11 schools, in a first phase. Additionally, a new SME (hortaECORuña) from the training course on UG organised by the employment department has been working on the delivery of gardens to several primary schools and kindergartens in the city which financed the gardens with their own funds.

STEP 5 Reflect on the co-production process and results

The award for Best Local Practices for the Climate in the category of NBS (first year there was this category) led to increased support for NBS and urban gardens.

There is a good opportunity for the stewardship phase, as a new tender is being written for maintenance of the gardens: collaboration with social enterprises, opportunity for social integration. One of the persons responsible for this new tender is our colleague from Environment Department (formerly from Employment Department), she's also in the RM meetings, and because of her former position she has good connections with Employment Department.

We developed a proposal with employment department to have unemployed people work at urban gardens (e.g. building shelters). This would be a great opportunity for urban gardens to

be improved and at the same times create jobs. The proposal was submitted for a regional grant, but unfortunately it was not successful. We are currently looking for alternative sources (collaboration with university?)

The new urban garden in Adolfo Suárez can be used to test new governance models (including local community in managing the plots)

We have urban gardeners from different neighbourhoods that are really engaged, they are community leaders and some of them recently created an association (De Leria na Leira). This is a valuable asset for the process.

Some of the barriers faced include how to engage different departments for the project of the urban agriculture info point. Although we have high level political support from the relevant departments, it isn't easy to secure the funding and to decide who's going to pay for what.

Another barrier is the lack of experience in engaging stakeholders from the private sector. One of the goals in this direction would be to engage enterprises to fund / sponsor urban garden projects in schools. We had a first contact with some enterprises that have environmental, circular economy projects, and we have learn from the experiences of Poznan, on this topic, aiming at creating a catalogue of possible collaborations for corporates.

Time is also one off the main barriers we face: the process goes slower than gardeners, stakeholders, and even ourselves would like it to go, mainly because of bureaucracy and procedures.

Finally, COVID had an impact on the co-production processes, as many of the activities have to take place in an online format. However, thanks to the fact that we had a group of engaged stakeholders (coming from the URBACT Local Group), it was relatively easy to organize online meetings with them and keep them on board. The online meetings with this group had a lot of participants, almost the same as in face-to-face meetings.

REFLEXIVE MONITORING

Throughout the process of NBS implementation, the existing monthly reflexive monitoring process in place with all FRCs will be used to identify critical turning points, key learning questions and follow up actions. Reflexive monitoring supports learning by doing, helps in the early identification of roadblocks and challenges and stimulates the development of adaptive solutions. The current reflexive monitoring process facilitates a 6 monthly reflection on key lessons learned.

STEP 1 Rethink what learning process you need to achieve the goals of the nature-based solution

The City Council wishes to expand the existing urban gardens, both by enlarging the existing ones and by creating additional ones, weaving a network of urban gardens that can help connect green areas, boost biodiversity and provide different environmental, economic and social benefits.

The main learning questions that need to be addressed to achieve these goals is to change the way of governance, try to get people involved in a different way, taking charge of the responsibilities, not waiting for the city council to solve every problems and also to get a new regulation with changes in the legal issues.

We need to activate different actors to contribute to answer our learning questions, not just limited to the environmental department but extending to education department and the employment department, which supports startups and new entrepreneurs. This is Important for new NBEs that could be created.

We include here our Dynamic Learning Agenda:

Learning question	Connecting Nature Framework element	Follow-up action
<i>What do you need to learn to address a barrier or opportunity in a way that the higher-level goals of the project are targeted?</i>	<i>Choose one or several of: Technical solutions, Governance, Finance & business models, Entrepreneurship, Co-production, Reflexive monitoring, Impact assessment</i>	<i>Describe the next steps in the process to answer the learning question. The follow-up action addresses the barriers or utilizes the opportunities captured in the learning question.</i>
How to explore the possibility of sponsorships for the urban gardens (and especially school gardens)?	Financing	Prepare a proposal and organize a meeting with some local big enterprises
How can we temporarily use privately owned green areas?	Governance	Explore whether the Glasgow experience with stalled spaces can be transferred to our city
How to shift the governance model, building on the joint work with the new gardeners association?	Governance	Meetings with the members of the association

Could the improvements contemplated in the new regulation of urban gardens for NGOs also be included in the regulation of those for individual citizens?	Governance	Talk to the responsables for the drafting of the new regulation of urban gardens for individual citizens
Will the new regulation of urban gardens for NGOs facilitate in practice a greater involvement of the community and a better response to the needs of users and neighbors?	Governance/Impact Assessment	Monitor the operation of urban gardens that will soon be awarded to NGOs, within the framework of the new regulation
How will the maintenance of municipal urban gardens be affected by the new call that is being prepared for the maintenance of city parks in the coming years?	Technical solutions/Governance/Financing	Talk to the people responsible for preparing the tender
How could collaborative processes be facilitated to improve the network of urban gardens?	Co-production	Invite new actors to the local group on urban agriculture in order to bring together different ideas and different types of knowledge
How to discover new business opportunities and boost entrepreneurship around urban gardens? Would it be possible to facilitate support to new NBEs in our city?	Entrepreneurship	Meeting with the municipal Department of Entrepreneurship
How to select the relevant indicators for the evaluation plan	Impact Assessment	Meetings with the UDC and with experts from the Environment Department

STEP 2 Define the roles within the project team

María González assumes the role of monitor and Antonio Prieto participates in the reflexive monitoring process as project manager. Both of us joined the Connecting Nature team in February 2019, so we were unable to participate in the Nicosia KTW or the first Reflexive Monitoring webinars. We began to learn about the RM process and tools through our participation in the KT Workshop in Málaga and the RM webinars hosted by CN experts and WP leaders. We also read the RM manual and guides.

At first we didn't have a clear view of Reflexive Monitoring. It was just something we needed to do and didn't make much sense. Identifying critical turning points and defining the learning questions was not so easy at first. We had to learn how to address a barrier or an opportunity in a way that the goals of the project are targeted. It was hard to know what questions really need to be asked to have the most transformative impact.

With time, we came to realize the Reflexive Monitoring process helped us to frame our goals and the changes required. Thanks to RM sessions and meetings we got a clearer view on main challenges. If we didn't have these meetings wouldn't have dealt with these challenges/ barriers. They were very eye opening in this respect, made us more aware of the points we needed to give more attention to. Also, involving people from outside of the CN team, and having them in these meeting, helped to engage them into the process. These meetings helped to raise awareness and get more people on board.

STEP 3 Recording important events and analysing critical turning points

Some learning questions to be addressed:

- a. How to identify new spaces for Urban Gardens in the city?
- b. How to keep in touch with stakeholders during the lockdown?
- c. How to shift the governance model, building on the joint work with the new gardeners association?
- d. How to discover new business opportunities and boost entrepreneurship around urban gardens?
- e. ¿How to improve urban gardens regulation?

We have regular meetings including the CN team and also another person from the department, who is part of the team in charge of the maintenance of green areas and also coordinates the URBACT Ru:rbán project (also focused in urban agriculture) in the city. In these meetings we try to identify the critical turning points with the meetings with the local groups and follow up meetings weekly, with people working on urban agriculture - then have monthly learning sessions and try to identify learning questions and follow up actions

We have been organizing weekly meetings on the development of the network of urban gardens in which the people who work on the URBACT Ru:rbán Project also participate, in addition to the CN Project Team. The purpose of this other project is to transfer to our city good practices in urban agriculture that were implemented in Rome. After these meetings, important events are recorded. We also identify critical turning points after the meetings of the local group on urban agriculture.

We have a monthly CN Team meeting in which we formulate the critical points. It is a dedicated reflexive monitoring meeting, not connected with the regular project meetings. In our monthly learning sessions we try to identify learning questions. In these meetings we update the dynamic learning agenda.

At the moment we have shared the DLA with the person in charge of the URBACT Ru:rbán project, who is part of the team in charge of the maintenance of green areas and is also working on the creation of the network of Urban Gardens.

It is difficult to directly include in the RM monitoring sessions the higher level, like the head of department, but also other people that work in the department in different areas – it is a complex department with lots of responsibilities and different priorities. Language can be a barrier too, as all the information and the guidebooks on the reflexive monitoring are only in English. To keep track on the follow-up actions, especially when they are executed by colleagues who are not closely involved in the reflexive monitoring process, we ask for information and we try to participate in all meetings related with urban agriculture in the city: meetings with professionals of the Environment Department and professional of other municipal departments and meetings with the stakeholders of the Local Group on Urban Agriculture.

Examples of follow-up actions:

- Presentation of a draft regulation for the new urban gardens of Oza Park, to be awarded to associations (done by CN Team). The new regulation and call for tenders for these gardens
- Creation of an association of users of municipal urban gardens.
- Meetings with different municipal departments for the creation of an Information Point on urban agriculture aimed at citizens.
- Improvement of school gardens and possible creation of new ones to carry out educational activities in them. The City Council has a budget for the provision of these services by subcontracting a private company.

STEP 4 Use learning sessions to identify learning outcomes

The first barrier we encountered was that we couldn't limit ourselves to the environment department for which we work. For the implementation of NBS Exemplar it was essential to secure the involvement of other municipal departments. We needed to learn how to organize cross-departmental collaborations.

The top-down governance model we have on urban agriculture was a barrier at the beginning as it was the City Council that dealt with all the issues related to urban gardens.

The creation of an association of garden users is helping the city to move towards a bottom-up governance model.

Another opportunity to highlight was the participation of the employment department in an Urbact project to transfer good practices on urban agriculture developed in Rome. This was a key enabler that made it easy to cooperate with them and engage their department on actions on urban gardening.

In order to include the reflexive monitoring process into our daily activities, we try to keep a record of all the important events and try to see how they could affect the achievement of our goals.

During the learning sessions, we realized that it is necessary to develop a suitable legal framework for allotment gardens. Adequate regulation will allow us to move more easily in the implementation of our NBS.

STEP 5 Share your findings with others:

Building on the elements of the CN Framework and learning from the pioneer cities that have already gone through this process helped us face the challenges that arise during the implementation of our exemplar. The one-on-one reflexive monitoring discussions with Glasgow are very productive, because we can see concrete examples of how they overcome the barriers and transform them into opportunities and actions to implement their NBS.

In our city, because of the high density and the limited space, we don't have many green areas

or open spaces. There are some abandoned plots across the city, but they are not owned by the municipality, so that is a barrier. It would be great to use them temporarily. Stalled spaces in Glasgow and the way to solve conflicts with the uses of the plots, as well as their work with the communities, were an inspiration for us. Looking at the shared innovations, Glasgow explained us about the barriers they had to develop an education project, as teachers didn't know how to start to teach children. So, they decided to partner with the royal horticultural organisation, in order to provide training for teachers. Their training sessions generated a lot of interest and got people excited about the project.

STEP 6 Reflecting on the method and peer-to-peer sharing

Reflexive Monitoring is a new process for us, but we have found it really useful. We can see at a glance all the advances we have been doing, looking for critical turning points and barriers, so we can now take actions first. It is a new strategy, a new method of work. In the city council people usually work in silos - sometimes there are meetings to see what other departments are doing, but not a global vision. Reflexive Monitoring provides the big picture we need to move forward with the implementation of our exemplar.

The reflexive monitoring process allows us to know how the Project is evolving in real time, identify barriers and make decisions that will overcome them by taking the necessary actions. It facilitates innovation and new opportunities to achieve goals and develop our nature-based approach. Breaking silos between different departments is easier using this process.

Traditionally, evaluation is performed only at the end of a project to measure whether the actions carried out have met the planned objectives. Real-time evaluation without waiting for project completion is a major change in the usual way of working, allowing problems to be solved as they arise.

Incorporating more actors into the process facilitates a broader vision with different perspectives that can facilitate teamwork and lead to more creative actions. As an example of how this process can be helpful, talking with colleagues we discovered that there would be a new amendment of the contract for maintenance, and there is going to be a new call for tenders for the maintenance of the city's green areas for the next 5 years. One of the people responsible for writing this call is the person who is coming to our reflexive monitoring sessions. Having her at the sessions made her aware of the challenges that we face, so these would be taken into account for the new tender. For example, in the previous call, the urban gardens were included in the general tender for the green area of the city, with no specific treatment for urban gardens, whereas in the new call, the new maintenance tender has a separated lot for the maintenance of urban gardens which will be aimed at social integration enterprises as a tool for increasing social inclusion.

IMPACT ASSESSMENT

STEP 1 Engage in structured reflection on NBS impacts, pathways and trade-offs

As a part of the EidusCoruña urban sustainable development strategy, a new Urban Observatory will be created, which will collect indicators on urban sustainability, allowing for a better integrated strategic planning of the city. Existing indicators will be ordered and put together, new indicators are being collected and a new webpage and a software application are under development.

On the other hand, the local implementation plan for the Spanish Urban Agenda considers the following indicators and data:

- Descriptive data that appears in the Spanish Urban Agenda for each of the strategic objectives.
- Monitoring and evaluation indicators that appear in the same document.
- REDS Indicators (Spanish Network for Sustainable Development).
- Indicators of the Urban Observatory of A Coruña.
- Other indicators that may be of interest, such as those that are part of the EDUSI (Productivity Indicators, Result Indicators and EidusCoruña Communication Indicators).

These indicators will be classified in 4 levels of information:

- Level I: Descriptive Data and Indicators that help describe our urban area and its main characteristic (demographic, social, economic, etc)
Sources: Spanish Urban Agenda and Urban Observatory of A Coruña
- Level II: Urban Sustainability Indicators: indicators that describe our urban area, but incorporate the reference to an objective sustainability indicator and therefore reflect the evolution and trend of the city in achieving urban sustainability.
Sources: Ecological urban planning and Urban Observatory of A Coruña
- Level III: Quantitative indicators which measure the Monitoring and Evaluation of plans and projects that are developed in the city.
Sources: Spanish Urban Agenda, plans and projects (EidusCoruña, etc)
- Level IV: Qualitative indicators that measure the Monitoring and Evaluation of the plans and projects that are developed in the city.
Source: Spanish Urban Agenda, plans and projects (EidusCoruña, etc)

Another interesting document is the report “ODS in 100 Spanish Cities” published by REDS (Spanish Network for the Sustainable Development) in Nov. 2020. According to this report, A Coruña’s profile regarding the UN Sustainable Development Goals is as follows:

A CORUÑA

Galicia

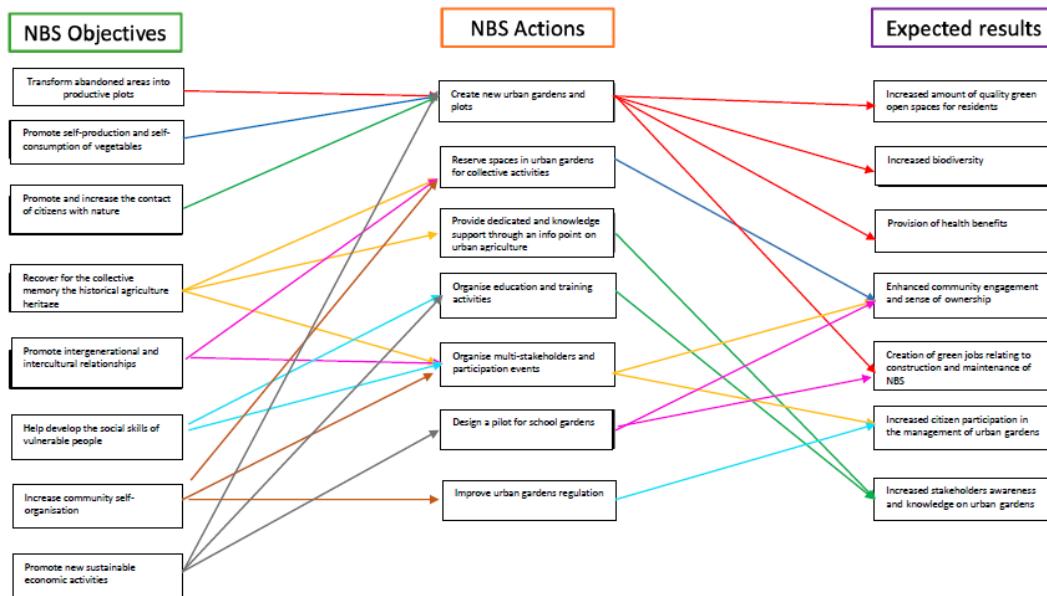


For the elaboration of this profile, a significant number of indicators were taken into account:

INDICADORES			
ODS1 - Fin de la pobreza			
2020 ratio	4.49	●	
Gasto en servicios de promoción social	99.46	●	
Tasa de población en pobreza alta	8.70	●	
Tasa pobreza infantil	21.90	●	
Tasa de población en riesgo pobreza	16.50	●	
ODS2 - Hambre cero			
Agricultura ecológica	0.25	●	
Precios de consumo de alimentos	105.26	●	
Tasa de empleados en agricultura	0.58	●	
Explotaciones agrarias y forestales	0.05	●	
Superficie de cultivos por municipio	8.26	●	
ODS3 - Salud y bienestar			
Fertilidad adolescente	2.35	●	
Muertes por abuso de alcohol y drogas	1.63	●	
Muertes por enfermedad infecciosa del sistema respiratorio	52.91	●	
Muertes por hepatitis vírica	4.48	●	
Mortalidad infantil	2.97	●	
Muertes por enfermedades no transmisibles	1075.25	●	
Muertes prematuras (<65 años)	290.77	●	
Muertes por suicidios	7.73	●	
Muertes por accidente de tráfico	2.03	●	
Muertes por tuberculosis	0.00	●	
Muertes por tumores del sistema respiratorio	111.51	●	
Esperanza de vida	82.94	●	
Muertes por SIDA y VIH	4.07	●	
ODS4 - Educación de calidad			
Población matriculada en un título superior	96.00	●	
Gasto en educación	28.99	●	
Acceso a servicios en la educación preescolar	69.22	●	
Población con nivel de educación máxima secundaria	26.51	●	
Población con educación máxima de 2º ciclo de secundaria	23.14	●	
Población con nivel de educación terciaria o superior	50.36	●	
ODS5 - Igualdad de género			
Brecha salarial en pensiones	30.93	●	
Brecha salarial en asalariados	22.23	●	
Violencia y explotación sexual	31.34	●	
Violencia de género	113.12	●	
Paridad en cargos electos	51.85	●	
ODS6 - Agua limpia y saneamiento			
Balanza de ingresos y gastos en la gestión de agua	10.51	●	
Precio de canon para abastecimiento y saneamiento de agua	4.47	●	
Índice de esfuerzo para el pago de abastecimiento de agua	88.40	●	
Litros de agua distribuidos por día por habitante	324.84	●	
Precio de abastecimiento de agua	9.03	●	
Precio de saneamiento de agua	6.98	●	
ODS7 - Energía asequible y no contaminante			
Reducción del gasto en alumbrado público respecto a 2014	45.33	●	
Impacto del gasto en electricidad sobre la renta media por hogar	2.16	●	
Energía renovable	23.62	●	
Índice de calidad de suministro	0.36	●	
ODS8 - Trabajo decente y crecimiento económico			
Accidentes en el trabajo	3792.20	●	
Tasa de desempleo	13.95	●	
Impacto del covid19 en el desempleo	16.94	●	
Tasa de jóvenes en paro	4.74	●	
Parados de larga duración	4.30	●	
Índice de dependencia por sector de empleo	2.47	●	
Tasa de crecimiento anual del PIB real per cápita	1.83	●	
Tasa de crecimiento anual de la productividad	0.41	●	
ODS9 - Industria, innovación e infraestructura			
Índice de penetración 3G y 4G	28.23	●	
Índice de penetración de banda ancha	10.30	●	
Empleados en Industria	4.63	●	
Gasto en I+D+I por habitante	4.43	●	
Patentes solicitadas	7.76	●	
Superficie de suelo prevista para actividades económicas	13.74	●	
ODS10 - Reducción de las desigualdades			
Población por debajo de la línea de pobreza	12.20	●	
Integración de personas con discapacidad en el trabajo	1.96	●	
Extranjeros empleados	33.00	●	
Índice Gini	0.48	●	
Índice de dependencia	56.76	●	
Riqueza en el 1% de la población	10.66	●	
ODS11 - Ciudades y comunidades sostenibles			
NO2	24.00	●	
O3	29.00	●	
PM10	7.00	●	
Días en los que la peor estación supera los límites de PM10	31.00	●	
Media anual de PM10	22.00	●	
Índice de acceso a la vivienda	4.76	●	
Plazas en residencias	29.89	●	
Resiliencia urbana	0.00	●	
Infraestructura de transporte	7.70	●	
Vivienda protegida	3.77	●	
Vulnerabilidad urbana	6.10	●	
ODS12 - Producción y consumo responsables			
Reciclaje de plástico y envases	29.79	●	
Residuos improprios	-	●	
Reciclaje de papel	19.21	●	
Turismo sostenible	1.11	●	
Reciclaje de vidrio	15.98	●	
ODS13 - Acción por el clima			
Emisiones de CO2 per cápita de edificios e industria	6.19	●	
Emisiones de CO2 per cápita	3.06	●	
Emisiones de CO2 per cápita de transporte	3.77	●	
Pacto de Alcaldes	66.67	●	
ODS14 - Vida submarina			
Banderas azules	85.71	●	
Calidad de las aguas de baño	100.00	●	
Suelo construido en la franja costera de los primeros 500 m	53.35	●	
Dominio público marítimo terrestre protegido	0.00	●	
Costa y hábitats naturales marinos protegidos	0.00	●	
ODS15 - Vida de ecosistemas terrestres			
Territorio y diversidad de hábitats. Cobertura artificial	51.44	●	
Protección territorial de espacios naturales protegidos	0.00	●	
Territorio y diversidad de hábitats. Zona forestal	28.20	●	
Zonas verdes	1.01	●	
ODS16 - Paz, justicia e instituciones sólidas			
Tráfico de drogas	10.99	●	
Tasa de criminalidad	42.26	●	
Tasa de homicidios y asesinatos	0.81	●	
Participación electoral	65.83	●	
Índice de participación y colaboración ciudadana	66.67	●	
Sólidez y autonomía de la institución municipal	66.74	●	
Índice de transparencia	50.77	●	
Índice de transparencia económico-financiera	70.37	●	
Violencia a menores (0-13 años)	15.10	●	
ODS17 - Alianzas para lograr los objetivos			
Proyectos de cooperación y desarrollo	1.53	●	
Índice de Open data	100.00	●	
Redes nacionales para lograr objetivos	29.87	●	
Zonas blancas	0.14	●	

The city of A Coruña has participated in the CN process of training sessions on impact assessment facilitated by WP₁ leaders. Additionally, A Coruña is committed to be one of the cities to take part in the optional second phase, cooperating with the UDC to actually assess the impacts of the NBS exemplar.

We have listed all the strategic goals of our city and selected their bindings to the SDGs. Then we made connections between NBS objectives and actions and finally we have related the NBS actions to the expected results. You can see below the diagram created:



STEP 2 Choosing appropriate indicators

In order to select the right indicators for our city and our exemplar, we have been working with Adina and David and the rest of our colleagues from the UDC, and we have been analysing the data that we already have and the data that we need to collect from scratch.

It terms of environmental indicators, for example the city council has a number of meteorological stations distributed around the city, and we managed relocate one of them next to one of the urban gardens so this will give us very precise data like air temperature, humidity, wind.

Noise and air quality levels: city council has mathematical models, very accurate. Data available for all the city in real time, we are able to obtain the data for UG quite easily.

Biodiversity: we have a recent map of the city with quite a detailed level granularity, also accessible in GIS format

The council has a lot of GIS data that is not necessarily organised in a user-friendly way, but we are in contact with the relevant department in order to access this data and include it in our assessment plan

Co2 capture: estimations based on type of species planted and surfaces

Water absorption capacity – considering implementing low-cost sensors in some of the UG.

For the Health and Wellbeing and Social data, the UDC team has been in contact with schools and gardeners associations to collect data and conduct surveys. This will bring us a lot of valuable data on different indicators, just to name a few: Place attachment, trust in community, prevalence of diseases and levels of mental health and wellbeing.

In terms of economic indicators, we have some data on the number of jobs created by UG, and this is particularly relevant because the city council organised a training course for unemployed people on UG, and also data on new enterprise and SMEs related to the topic.

Finally, we have also a lot of relevant data of the participatory processes that led to the creation of the Urban Gardens.

STEP 3 Developing a data plan for impact evaluation

During the training process we have completed 5 templates that guided us through the steps we must take in order to develop an evaluation plan for our city:

- **Building Block template 1**

In this Building Block we had to design the theory of change in our city, relating the city goals to NBS actions and expected results.

- **Building Block template 2**

To learn how to measure the expected results we selected some of the CN indicators grouped into the 6 following categories: Use, Environmental, Health and Wellbeing, Social Cohesion, Economic, Participatory Planning and Governance.

- **Building Block template 3**

To complete this template we conducted a search to find out if there is a baseline available in the city that allow us to measure the different indicators and the method used to collect those previous data. For the available data we included the source and year of the baseline, the granularity (specifying the level the baseline data refers to: street, district, neighbourhood or the entire city) and periodicity. We also indicated whether new data will be collected for the indicators.

- **Building Block template 4**

Following the CN Indicator's Factsheets we had to select the measurement method to be used for each indicator, detailing the data collection planning.

- **Building Block template 5**

In this template we defined the ideal way to represent the evaluation data of our NBS and indicated to which stakeholders we would disseminate the results we obtained.

STEP 4 Implementing the data plan

Building on the information collected in the templates and the results obtained from the different selected sources, an Impact Assessment Plan tailored to our exemplar and our city context was developed by the UDC team. The detailed choice of indicators can be consulted in this Impact Assessment Plan.

STEP 5 Integrating evidence into the policy process

The indicators monitored and measured will provide very valuable information about the effects of the NBS exemplar, which will be crucial to prove if the expected benefits are actually being delivered. This evidence will be very important to grant the upscaling of NBS solutions in the city and the development of further projects to maximize the observed benefits.