

Connecting Nature Framework

Urban Green Network of Nicosia

Nicosia Development Agency

2/25/22

Connecting Nature

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Summary

Nicosia is the capital city of the Republic of Cyprus. It lies roughly in the centre of the island in the Mesaoria Plain, flanked by the northern range of Kyrenia Mountains with its distinctive 'Pentadaktylos' – the five-finger mountain.

The capital has two distinct faces: the old, original part of the city, surrounded by sturdy Venetian walls over 400 years old, and a busy modern metropolis, which has a population of 200,452 inhabitants ($\approx 16.6\%$ of the country's total population) together with the suburbs.

As the country's capital, Nicosia is the financial and business center of Cyprus. Besides the abundance of financial services within the city, Nicosia relies primarily on the tourism and shipping Industries. Though Nicosia is not a port (the closest port is Limassol), plenty of shipping companies have offices in the capital. Since Cyprus is at a strategic location for commerce between Europe and the Middle East, shipping is a major focus in the capital.

Regarding the urban quality of the city, it is deeply marked by the division of the island of Cyprus and faces at least two related challenges: (i) the performance of its mobility system, which is heavily biased towards the use of individual cars, and (ii) the lack of adequate and environmentally rich public spaces in the proximity of the densely built urban core.

Nature-based solutions (NbS) could operate a convergence of the solutions to both of these challenges. The term NbS is not so widely known or used in the urban planning context of Nicosia. Although NbS have been and are being implemented in efforts towards improving living standards and quality of life, they are not labelled as such. This new term has not been incorporated into development plans or adopted to the extent where planners, designers, policymakers, urbanists, and other experts in the field can easily comprehend its meaning and impact.

Through Connecting Nature Framework, Nicosia Development Agency team aims to help delivering NbS as part of a strategic plan that places environmental objectives and healthy, attractive, and natural surroundings for the local population higher on development agendas. More specifically, Connecting Nature Framework of Nicosia has been approached as a tool that aims to include NbS as policy theme in national and local strategies, which in turn would prepare and facilitate projects on the ground.

The Agency, as part of the CN project, decided to work further on the implementation of a very ambitious large-scale project: a **Network of open and green spaces** that will cover the district of Nicosia, which will promote the health and wellbeing of people, improve their quality of life, and enhance the environmental quality of the area of intervention (air quality management actions to reduce air pollution and its associated health impacts).

During the application of the Connecting Nature Framework a number of challenges addressed such as: Limited understanding of NbS and related concepts; Limited knowledge on the NbS implementation process; Lack of clear policies and legislation on co-production; Lack of a “common language” that caused troubles in communication between the involved actors, especially at the very early stages of the project; Limited funding for this scale of projects etc. All these challenges were identified throughout the process and additional actions were taken in order to overcome them.

It is worth mentioning, that Nicosia Development Agency has worked closely with the Directorate General for European Programmes, Coordination and Development of the Ministry of Economy as well as with its member municipalities to find the best possible way to achieve that. After several discussions, brainstorming sessions and meetings with several key people (policymakers), Nicosia Development Agency has managed to include the majority of the projects (parks) developed in the context of the Connecting Nature Framework, in the Integrated Spatial Development Strategy (OXA) plan for Nicosia. The OXA plan was submitted in February 2021 and was approved for funding in September 2021.

Concluding, Nicosia Development Agency approach the Connecting Nature Framework as a **living document** that will be continually updated and revised according to the city’s and people’s changing needs.

Connecting Nature Framework

Step 1: City context

The urban quality in the city of Nicosia is deeply marked by the division of the island of Cyprus and faces at least two related challenges: (i) the performance of its mobility system, which is heavily biased towards the use of individual cars, and (ii) the lack of adequate and environmentally rich public spaces in the proximity of the densely built urban core.

Nature-based solutions (NBS) could operate a convergence of the solutions to both of these challenges. The planning milieu in Nicosia, supported and partially led by the Nicosia Development Agency (ANEL), has started to explore mobility solutions based on connecting, densifying, and developing an urban network of green and open spaces. One example of such solutions is in the form of bicycle and pedestrian paths that take advantage of the calmer and safer surrounding of parks and gardens. These networks could serve as a tool for developing relationships between high-quality community life and other benefits, such as urban heat island (UHI) regulation, water management and anti-desertification.

NBS are defined by the European Commission as: "Solutions that are inspired and supported by nature, which are cost-effective, simultaneously provide environmental, social and economic benefits and help build resilience. Such solutions bring more, and more diverse, nature and natural features and processes into cities, landscapes and seascapes, through locally adapted, resource-efficient and systemic interventions."

However, the term NBS is not so widely known or used in the urban planning context of Nicosia. Although NBS have been and are being implemented in efforts towards improving living standards and quality of life, they are not labelled or titled as such. This new definition/term has not been incorporated into development plans or adopted to the extent where planners, designers, policymakers, urbanists, and other experts in the field can easily comprehend its meaning and impact. Since there is no familiarity with the term 'nature-based solutions', projects and examples that fall under the NBS umbrella are often not acknowledged or considered as such solutions. Consequently, information, best practices and expertise surrounding NBS projects tend to be 'lost' or 'overlooked'.

However, implementing such ideas and solutions in Nicosia is not an easy task. Many of the planning tools at the disposal of the central and local levels of government and administrations are outdated, and there is an absence of participatory culture in urban planning in the city.

The Connecting Nature project can include NBS as policy theme in national and local strategies in a significant way, which in turn would prepare and facilitate projects on the ground. In addition, there is a need for better knowledge and understanding of how NBS can be adopted in Nicosia.

This creates a demand for knowledge-sharing around good practices from other cities, for instance on how to guarantee the (environmental, social and economic) sustainability of projects or how to identify appropriate funding mechanisms. Ultimately, the goal should be to help delivering NBS as part of a strategic plan that places environmental objectives and healthy, attractive, and natural surroundings for the local population higher on development agendas.

The urban planning and development context in the area of Nicosia is facing a series of challenges, which are analysed below.

Main urban challenges and opportunities

Divided city

The division of the island remains one of the characteristics that define the city of Nicosia. It is a city divided between the Northern territories occupied by Turkey and the EU member Cyprus in the South. The focus of Connecting Nature lies on interventions in Greater Nicosia, which includes the Municipalities on the South side of the divided city.

There have been attempts to overcome the division of the city, such as an agreement to prepare a common sewage system from 1979 and the bi-communal 'Nicosia Master Plan' from 1981 that aimed to improve the existing and future living conditions of all the city's inhabitants.

Despite the possibility to cross the Border on Ledras street and a general openness of the population towards cultural diversity, the city is marked by the division of the different communities living side by side on the island. The successive waves of immigration from other parts of the world (workers from the Philippines, retirees from the UK, businesspeople from Russia, students from the Middle East etc.) have so far not decreased the salience of the primary social categories that structure the unresolved geopolitical conflict over the island: Greek Cypriots, Turkish Cypriots, Turkish.

Car mobility

Nicosia is predominantly a car-oriented city, with a few safe, comfortable, and attractive alternatives. This has led to the dire consequences known from all car-centred cities: increased air and noise pollution, domination of public spaces by private vehicles and traffic congestion, which are intensified during peak hours. The dominance of the car is only exacerbated by the construction of highways.

Alternative transportation is poorly developed: bike and pedestrian routes are inconsistent, prone to frequent discontinuities (such as municipal boundaries) and inaccessible. Moreover, until recently, there was no proper bus system. There is a growing need for a city-wide bicycle and pedestrian master plan, even though a mobility master plan from 2010 has started to address the problem through rolling out cycling lanes. Well-designed green infrastructure could divert

pedestrian and bicycle traffic off the congested roads and provide attractive links between the different parts of the city – which has been proven by the Pedieos Linear Park.

Furthermore, Nicosia generally lacks high-quality public spaces. While all new development ought to contribute 15% of the development site to public spaces, there is seldom the finance to design and develop it properly. Moreover, the main urban expansion area in the south-west of the city allows for low-density housing speculation while providing no public space allowance. The tendency towards low density housing has placed pressure on land values, making housing within the Nicosia metropolitan area more expensive compared to housing closer to the coast. This encourages future residents to look towards the coast for both housing and lifestyle or to resort to driving to access quality green spaces (such as Athalassa Park or the Linear Park).

As a result, Nicosia has the bulk of the island's stable year-round jobs yet lacks many of the qualities of a capital city.

Green infrastructure

Nicosia includes a variety of green spaces that are intensively used by the local population. The most successful green spaces include the Pedieos Linear Park, Academia Park and the Athalassa Forest National Park, which are also the biggest green infrastructure sites within the metropolitan area. Since the city is situated in the centre of the island, access to green spaces is particularly important for Nicosians.

Besides the large parks mentioned above, there is a staggering number of small green areas in Nicosia. This is largely a result of urbanism rules that stipulate that 15% of the site must be turned public (or financially compensated for) when undeveloped land is built on or subdivided. With Municipalities accumulating hundreds of such plots, maintenance is regarded as virtually impossible, resulting in derelict sites or in the privatisation of 'public' space. The Municipalities claim that they lack sufficient maintenance staff and often contract the caretaking to private gardening companies. Such fragmented spaces do not allow for economies of scale and efficient use of maintenance technology, hence their relatively high costs (and low community value).

Similarly, the Pedieos park, which features a long stretch of rare pedestrian infrastructure, poses a different maintenance challenge due to the fact that it runs through different Municipalities who need to coordinate maintenance responsibilities. Another kind of challenge is that some Municipalities have turned ecological zones into sports fields, resulting in their ecological degradation.

A central theme for the further development of Nicosia's parks is to connect the different green spaces into a system of parks. While the Pedieos park is a prime example of how a park can function as a link, the potential of parks in this regard is not yet fully realised: parks could help connecting larger employment zones and public infrastructure. For instance, the big universities

in the East and West of the city; the pedestrian walk along Pedieos river could run further South; and more linear parks and paths through existing parks would help to establish a systems of active mobility parkways. The space necessary for such a development seems to be available, but what is lacking is a holistic vision for park development at the scale of Greater Nicosia, as well as funding for implementation.

Water management

Cyprus has a Mediterranean and semi-arid climate, with hot summers and warm winters. It suffers from chronic water shortage, especially during extended dry periods. Rainfall is sporadic, but then strong and intense. The endemic vegetation is naturally small in scale and frugal in its water consumption. Climate change is likely to escalate the water shortage on the island, but water pumping is already depleting aquifers.

The irrigation of ill-designed green spaces, (private) swimming pools and water demand from agriculture are mainly responsible for the water shortage. In 2018, the island experienced water shortages and cut-offs: only 25% of the normal water supply was allocated to perennials in agriculture, and no water at all for new crops. This meant that there were no new crops after July, so farmers had to do without the habitual second harvest.

In Greater Nicosia, a modern water recycling plant can only be found in Lakatamia. In this context, the development of NBS needs to attribute great attention to the choice of plans, to minimize the need for artificial irrigation. Ideally, NBS should be conceived to improve rainwater retention capacities, a challenging task given the low-frequency and high-intensity rainfall patterns on the island.

The drinking water either comes from desalination or rainwater collection with the help of dams. This system would provide enough drinking water, but currently cannot satisfy the demands for agriculture, green spaces and pools. To tackle this problem, the state aims to build new desalination plants for irrigation water. New technologies for this purpose are being tested by the Department Water Development at the Ministry of Agriculture, which notably investigates the plants' energy needs and techno-economic viability.

There seems to be no clear demand-side policy to curb the need for irrigation water. Property owners are free to build houses the way they want, which has led to the proliferation of swimming pools, water parks, golfs and large agricultural sites. Big consumers of water are allowed to build smaller desalinization plans as long as the Departments for Water, Hotels, Agriculture and Fishery provides them with the necessary permission. The process of obtaining such permission has recently been simplified and there is now a plan of areas in which desalination units are allowed. Because the desalination units produce substantial amounts of waste (in the form of sludge that is dumped into the sea), it contributes to the pollution of the Mediterranean Ocean. Moreover,

the land use requirements of the pipes related to desalination plants are an issue. Compared to the supply of fresh water, the infrastructure for sewage treatment is less problematic in Nicosia. Sewage sludge could be used as amendment in agriculture or in anaerobic digestion plants, however, it is often incinerated.

Biowaste management

The Municipalities of Greater Nicosia have yet to find ways to collect and treat biowaste separately, as foreseen by the EU Directive to occur at the latest in 2023. In Cyprus, the state has taken the lead to plan for the implementation of separate collection of biowaste, but the actual management of collection and treatment will be done at the municipal level.

The problem of biowaste is being addressed with new national regulations obliging each Municipality to establish a separate collection system for all plastics, metals, paper and organics. Public consultations for this new regulation have started recently and ended in February/March 2019, before the regulation went into parliament for approval in 2019. This process aims to involve the Municipalities more in waste management, who so far have focused only on the collection of unsorted waste. The handling of recyclables has been delegated to an Extended Producer Responsibility system (called "Green Dot" in Cyprus), which collects packaging waste (PMD and paper) through curbside collection and bring points (for glass). The sorting is not mandatory. Furthermore, tourism is a challenge that poses an additional strain on urban waste systems, since tourists are typically unfamiliar with local sorting practices. The Municipality of Nicosia is a partner in the EU project "Urban Waste" that sets out to inform tourists about waste management.

The new approach will force Municipalities to draft a local action plan for waste management; some Municipalities, like Nicosia, have already started this in the framework of their sustainability strategy. The Latsia Municipality has developed a waste plan for all fractions (including organics). And already has a scheme for collecting green waste once a month (for an annual cost of €8000 to collect the green waste of 20.000 people in around 7000 dwellings). The waste is treated in a privately owned plant, where no gate fee is charged if its composition is pure and first shredded. Furthermore, there have been some experiments with Pay-As-You-Throw schemes, which could be extended in the future.

The treatment capacity for separately collected organic waste still needs to be developed. There are around 12 plants for anaerobic digestion in the agricultural sector of Cyprus scattered across the island. They have been built to treat manure from livestock (pigs and cows), but the state believes that they can be adapted to treat urban biowaste. Additional plants will probably be necessary; a small unit is planned for Pafos.

The separate collection of urban biowaste constitutes an opportunity for NBS. According to a market study by the Ministry of Agriculture (Department of Environment), compost from biowaste

could be used as organic amendment to mitigate the desertification of the island; it could also be used in municipal green spaces or in agriculture. Biowaste management could become a key element of a wider sustainability strategy including waste, food, green spaces and water management. This could help transform spaces from “brown” to “green”, by increasing the soil’s capacity to absorb, retain, and provide water for the local vegetation.

Current state of Nature-based Solutions projects

There are several urban projects in Nicosia that could be approached as NBS. Some of these have already been implemented, some are at initial stages of implementation, whereas others are in their planning phase. An overview of the most prominent urban parks (NBS) in Nicosia is illustrated in the figure below.



Figure 1 - The green spaces of Nicosia, their spot in the map and a picture of the green space
Source: Zanos and Georgi (2017)

The geographical location of these NBS has been included in an interactive, open-access map, and can be found [here](#). Below are briefly presented the most relevant NBS initiatives in the city and metropolitan area of Greater Nicosia.

Some of these NBS (parks, urban green spaces, forests) that are included in the proposed Urban Green Network are the following:

- Athalassa National Forest Park
- Urban Linear Park of Pedieos
- Eleftheria Square
- Apalos - Kakkaristra Natural Park
- Urban Park of Pallourokampos
- Acropolis Park
- Akadimias Park
- Lourka Forest Park
- Ayios Dimitrios

Another intervention falling under the NBS umbrella is the LIFE UrbanProof EU-funded project, led by the Department of Environment, Ministry of Agriculture, Rural Development and Environment. The aim of this project is to increase the resilience of Municipalities to climate change, equipping them with a tool for supporting better informed decision making on climate change adaptation planning. The tool will be applied in Nicosia, where several small-scale green and soft adaptation measures will be implemented based on the results. Finally, local adaptation strategies for each of the Municipalities will be developed. Two Municipalities from Greater Nicosia participate in the project: the Municipality of Strovolos and the Municipality of Lakatamia.

Additionally, there are several other projects or initiatives related to NBS that are planned or ongoing in different Municipalities of Nicosia. Some of these include:

- The development of Lourka forest in the Yeri Municipality
- ANEL envisages initiatives for promoting NBS and local-level identification of NBS that can be used in the city of Nicosia (ongoing process)
- Between the north and the south, one particular project was initiated called 'Masterplan Nicosia', which created a walk to the most significant buildings and destinations in both cities
- Green infrastructure strategy of Latsia Municipality (aiming to adopt a General Green Infrastructure strategy in city level)
- Energy Improvement Plan for Municipal Buildings (promotes energy-saving and efficiency measures in Nicosia's municipal buildings and facilities)
- Municipal Gardens (urban horticulture) in Aglantzia Municipality (concept idea – early stages)

- Rainwater Harvesting and Management of Klimos River in Engomi (ongoing)
- Flood protection Project in Engomi (ongoing)
- Linear Park of Yialias in Dali

Step 2: Define the goals of your Nature-Based Solutions

In the context of the Connecting Nature project, the aims and goals to be achieved by the proposed NBS are to:

- Engage all interest groups and involved actors (stakeholders), as a response to Nicosia's weak participatory culture in city-making
- Improve the performance of Nicosia's mobility system, responding to the challenge of Nicosia being a car city
- Enrich the existing (poor) network of public open and green spaces, addressing the current lack of such spaces in the city and resolving urgent accessibility issues
- Deliver NBS as part of Nicosia's strategic and operational plans (under implementation)

The project's vision is to create, on a district level, an urban network of Linked Open and Green spaces (connecting them with an integrated bicycle and pedestrian network) using as a core the National Forest Park of Athalassa.

Connecting Nature in Nicosia aims to create a thriving **urban network of high-quality green spaces**. The different **parks will be linked** with each other, but also provide new mobility options to get around in the city, from residential areas to business districts and university centres. The network will also be **open** for different users and uses, and offer a series of environmental, social and economic benefits. The benefits derived from the project are analysed below.

A better network of green spaces will address several related challenges faced by Nicosia today. Regarding **environmental benefits**, the active mobility connections between green spaces will be a crucial step towards providing an alternative to the omnipresent car as means of transportation. This will improve air quality as more people use bikes and walking to get around the city. The landscaping interventions in the parks and along the mobility axes will also deliver other environmental advantages such as heat mitigation, better water management and increased biodiversity, notably by paying close attention to selecting appropriate species of plants and trees that are adapted to local conditions.

The **social benefits** include positive impacts on health and well-being that are commonly associated with more frequent contact with nature. The network of parks will stimulate physical activity by fostering active modes of transport and recreation (walking, cycling, skating, etc). The Urban Green network will also offer an attractive way for families, students, dog owners and other members of the community to experience the city and pristine weather of Nicosia, creating occasions for meeting and interacting with members of the community, as well as spending time in the natural environment, and increasing the social cohesion of the surrounding areas.

The economic **benefits** include an overall improvement of the image of Nicosia as a city to work and live in. The objective is to move from a congested, car-dominated agglomeration to a city

dotted with high-quality green spaces within walking or cycling distance from residential areas. This improvement will positively affect Cypriot enterprises; they could see their economic activity increase, especially if they are located in the vicinity of parks. Companies could promote healthier and environmentally friendly commutes to their employees and embrace a greener city among other values of their corporate responsibility. Moreover, the upgrade and maintenance of parks and green mobility connections will create sustainable local jobs in gardening and landscaping, but also other activities benefitting from a thriving park network such as kiosks/cafes in or around green spaces, or the production of park equipment.

Step 3: Identify your target audience and other relevant actors

The Exemplar of this project proposes the creation of a better city-wide park network through different work streams. Therefore, the implementation of this project in the case has certain particularities regarding its target audience and other relevant actors/stakeholders. It involves a network of park, where each park is considered a separate project and the stakeholders involved are differentiated between each park/green space. Below is a list of the relevant actors, stakeholders, and the target audience involved in the different NBS interventions.

Relevant actors/stakeholders

- Ministry of Interior
- Ministry of Employment
- Ministry of Agriculture (Forest Department, Dept of Environment)
- Commissioner of Volunteerism
- Commissioner of Environment
- Directorate General for European Programmes, Coordination and Development (DG EPCD)
– Ministry of Economy
- Municipalities (Local Authorities)
- Nicosia Development Agency (ANEL)
- Chrysallis Leap
- Universities (University of Cyprus, University of Nicosia, European University, Open University, Cyprus International institute of Management etc)
- CSR Cyprus
- Start-up incubators
- NGOs
- Schools / Hospitals / Health Departments

Target audience

- Youth Boards / Student Unions
- Citizens
- Businesses in the surroundings of the parks
- University (Technology, Advise/planning, Monitoring, Entrepreneurship)

Step 4: Introduce your nature-based Exemplar

Nicosia Development Agency (NDA) decided to work further on the implementation of a very ambitious large-scale project: Network of open and green spaces that will cover the district of Nicosia, which will promote the health and wellbeing of people, improve their quality of life, and enhance the environmental quality of the area of intervention (air quality management actions to reduce air pollution and its associated health impacts).

Nicosia's Exemplar deals with the implementation of a very ambitious large-scale project entitled: **"Network of Linked Open and Green Spaces"**, that will cover the district of Nicosia, which will promote the health and wellbeing of people, improve their quality of life, and enhance the environmental quality of the area of intervention (air quality management actions to reduce air pollution and its associated health impacts). The core of this network will be the National Forest Park of Athalassa.

The District/ Municipal Parks that have been chosen to form the proposed Network are: Athalassa Forest Park, Pedieos Linear Park, Ayios Dimitrios Park, Eleftheria Square, Akadimias Park, Acropolis Park, Apalos –Kakkaristra Natural Park, Lourka Forest Park, Urban Park of Pallourokampos. (see figure 2)

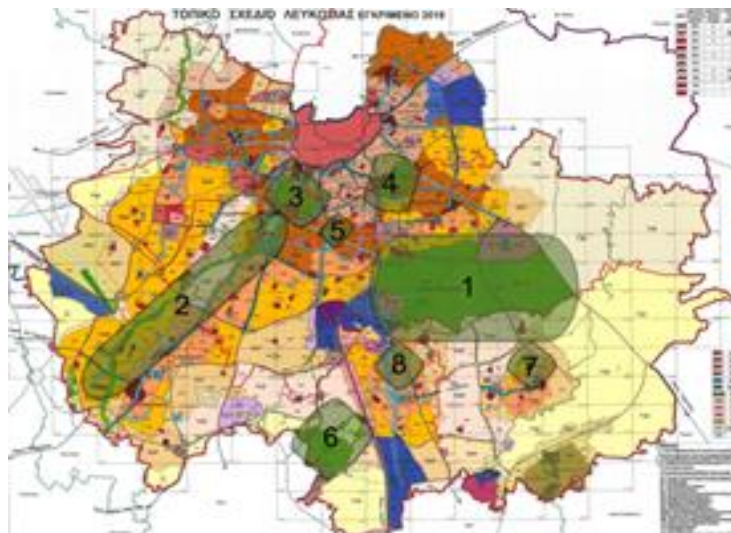


Figure 2 - Existing and proposed Municipal/District parks

The different parks will be linked with each other, but also provide new mobility options to get around in the city, from residential areas to business and commercial districts, and university campuses (integrated bicycle and pedestrian network). The network will also be open to different users and uses, and offer a series of environmental, social and economic benefits.

Complementary to the “**Network of Linked Open and Green Spaces**”, which is Nicosia’s main Exemplar, the Team of Nicosia Development Agency also proposes the “**Adopt a Park**” Scheme. The Scheme is being developed to promote long term partnerships between Local Businesses/Enterprises and Local Government, in order to maintain and beautify the neighborhood (small/ medium size) parks of the area of intervention.

The idea for the Network was based on the need expressed by all the Municipalities which are members of the Nicosia Development Agency to create new open and green spaces for their citizens in order to improve their quality of life and the available options provided in their area for physical activity, fun etc.

Step 5: Position this report

Nicosia’s Framework presents all the information and expertise gathered throughout the implementation of this project and aimed to be used in the wider strategic planning and development processes, as well as a tool for finding funding. It’s main aim is to include NbS as policy theme in national and local strategies, using Nicosia’s CN Framework as a tool, which in turn would prepare and facilitate projects on the ground.

The main phases covered in the Framework are:

Planning phase: included the formation of the idea of the proposed exemplar; peer-to peer sessions with FRC Poznan – sharing experience, knowledge, and best practices.

Main transformation points on planning phase:

a) Meet us at the forest event was a great opportunity first; to present the draft idea of Nicosia’s exemplar to citizens and other involved actors and second; to brainstorm and share thoughts on the proposed Exemplar.

b) Business Model canvas was seen as a very useful tool which helped the team to understand and structure better the Exemplar, to prioritize immediate actions and resources, to identify the involved actors in each phase, to set priorities regarding implementation and the tasks to be delivered. Additionally, it helped to build a common understanding as well as a common language among all, in order to communicate more efficiently as a team but also with the involved stakeholders and actors in each phase of the project.

c) Developing NBS in Nicosia (OSMOS workshop) helped the team to start working on this common understanding and language by working in more detail with the involved stakeholders (i.e. forest department, department of environment, municipal officers, engineers and urban planners involved, academics from University of Cyprus and NGOs)

in two of the projects (parks) of the proposed network, Lourka Forest and Ayios Demetrios Park. This process gave us a more structured understanding on how to approach each of the project and who to involve in the process.

Delivery phase: included activities regarding funding opportunities, exchange of good practices and inputs for the exemplar – preparation of the Integrated Spatial Development Strategy (OXA) plan for Nicosia – formation of the Adopt a Park Scheme – introduction of new coproduction tools (Sarajevo Process) – Public consultation Sessions.

Main transformation points on delivery phase:

a) Public Consultation was seen as a great opportunity first, to communicate the Local Strategic Sustainable Development Plan and the proposed Green Network to citizens, NGOs, Municipal Officers and Private Sector and also, to receive feedback and suggestions in order to improve the plans.

b) Sarajevo Process was a significantly useful process for Nicosia Team. Through the Sarajevo process, the participants (Core team of ANEL) had the opportunity to work in a very different manner. Art and nature helped the team to unlock a new perspective, utilize personal experiences and memories, approach the project and express in a very fruitful way, thus contributing to the overall team's tasks. After the three days session, Nicosia's team saw the Exemplar in a very different perspective. The Sarajevo Process is planned to be used to engage other groups of people as well such as professionals working on nature (e.g. people working for the Forest Department or the Department of Environment) who are often lost in the paperwork, screens and offices and rarely have the opportunity to connect with nature through their work.

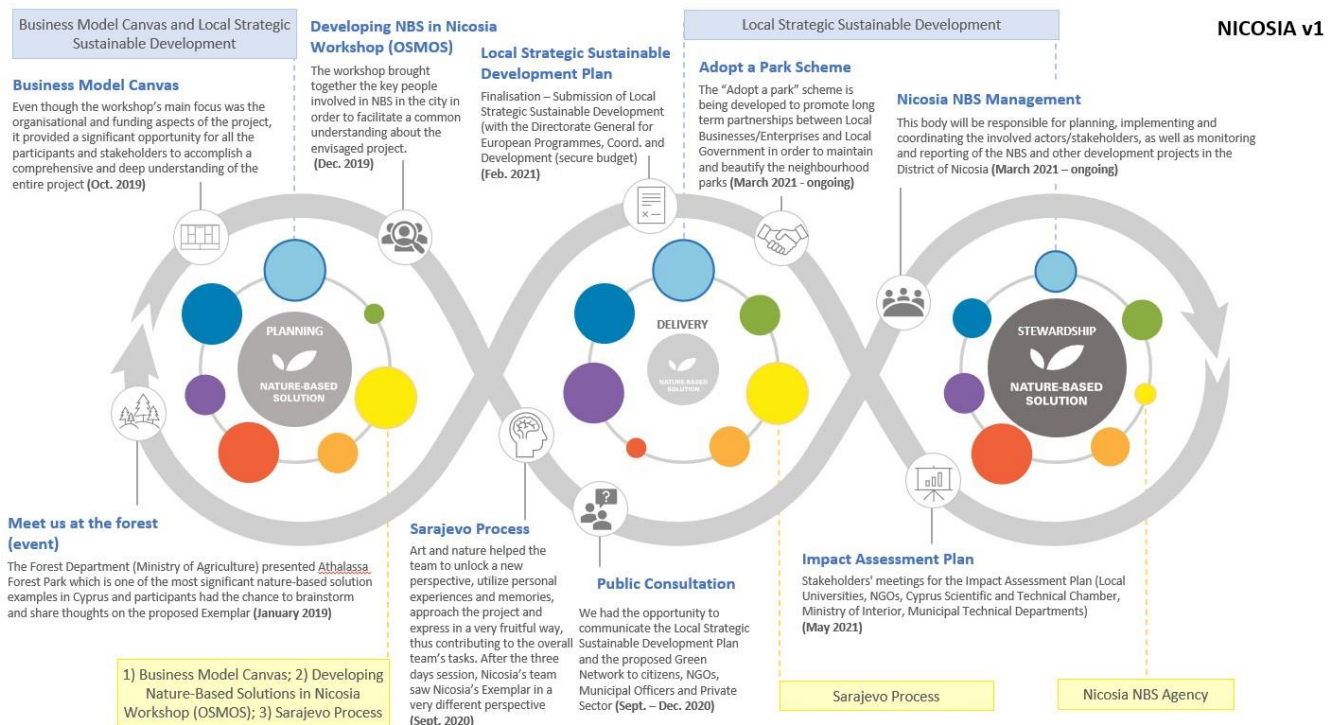
c) Integrated Spatial Development Strategy (OXA plan) has the General Objective to "Develop a common development framework based on the synthesis of advantages and opportunities that arise in the intervention area". The strategic goals, as outlined in the strategy, are the following: Become an attractive area with high living standards for new residents; Enhance local entrepreneurship through infrastructure developments that increase the area's attractiveness to visitors, by using the cultural and environmental characteristics of the area; Maintain the rich environmental resources and the agricultural landscape of the area. Nicosia Development Agency has included some of the projects (parks) developed in the context of the Nicosia Exemplar, in OXA, to receive funding. These projects were included in order to contribute to the realisation of the goals and actions highlighted in the development plan. The OXA plan (proposal) was submitted in February and was **approved for funding in September 2021**

d) Adopt a park scheme: The idea was born due to the main challenge that Nicosia faces to involve the private sector in these kind of initiatives (related to NbS), as larger parks in

Cyprus are all financed and operated by the Government (Ministry of Agriculture, Rural Development, and Environment – Department of Forest and Department of Environment). The identified opportunity was the existence of lots of small green spaces, most of them underused or abandoned, in the neighbourhoods, which had the potential for pocket parks. These spaces are owned and supposed to be designed and maintained by Local Authorities (Municipalities) which are more open to private sector involvement in investing and developing these smaller green spaces

Stewardship phase: includes the application of the Impact Assessment Plan (IAP), the formation of Nicosia NBS Management body which will be responsible of the overall maintenance of the exemplar and the application of the necessary checks related to the IAP.

All the above information is briefly presented on the CN Framework Narrative figure below:



Technical Solutions

Step 1: Define the nature-based solution.

Nicosia's Exemplar deals with the implementation of a very ambitious large-scale project entitled: "**Network of Linked Open and Green Spaces**", that will cover the district of Nicosia, which will promote the health and wellbeing of people, improve their quality of life, and enhance the environmental quality of the area of intervention (air quality management actions to reduce air pollution and its associated health impacts). The core of this network will be the National Forest Park of Athalassa.

The creation of a better park network will involve different work streams. Firstly, there are the physical interventions in the parks themselves. Some of the larger parks with poor landscaping or equipment need upgrades; this is also the case for some smaller green spaces, but a series of smaller parks does not yet exist and needs to be developed. In other locations the parks will be extended, or their function will be redefined.

A second work stream is to develop the active mobility connections between the parks. These will take the form of interconnected trails, greenways, and paths that support bicycling, running, walking, skating, skiing, wheelchairs etc., reaching all the way from home to work for some users.

Complementary to the "Network of Linked Open and Green Spaces", which is Nicosia's main Exemplar, the Team of Nicosia Development Agency also proposes the "Adopt a Park" Scheme. The Scheme is being developed to promote long term partnerships between Local Businesses/Enterprises and Local Government, in order to maintain and beautify the neighbourhood (small/ medium size) parks of the area of intervention.

The idea for the Network was based on the need expressed by all the Municipalities which are members of the Nicosia Development Agency to create new open and green spaces for their citizens in order to improve their quality of life and the available options provided in their area for physical activity, fun etc.

The first stage that took place was to map several big and small green and open spaces that can be used for the enrichment of the existing (poor) urban network of open and green spaces and the exploration of mobility solutions based on connecting, densifying and developing this urban network (e.g. in the form of bicycle and pedestrian paths). The parks were classified into two categories: a) District and Municipal parks and b) Neighbourhood/Pocket parks.

Figure 2 shows the existing and proposed parks of the first category.

Figure 3 shows the proposed network for active mobility that builds on the existing road system - green lines (Mobility Master Plan, 2010). The network was suggested to be complemented with

more attractive and safe bike lanes that would run through the existing and proposed parks. The idea was to link the four shown clusters where the existing/planned/proposed parks are located.

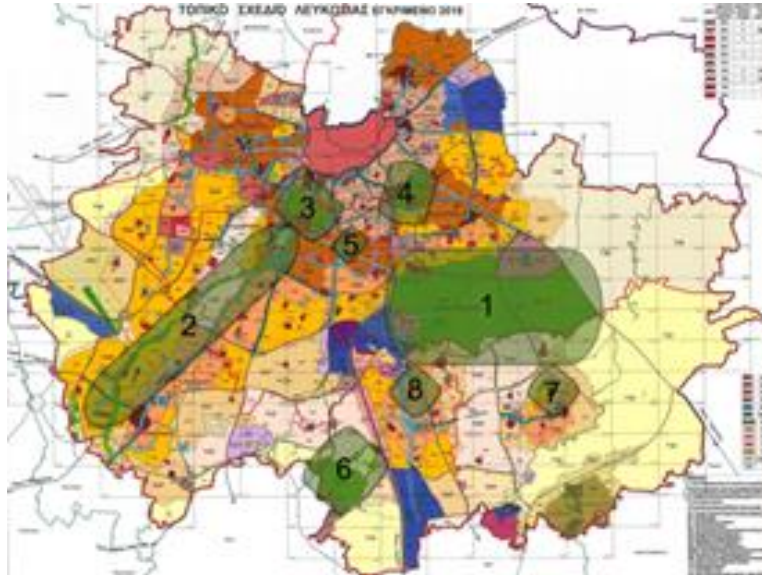


Figure 2 - Existing and proposed Municipal/District parks

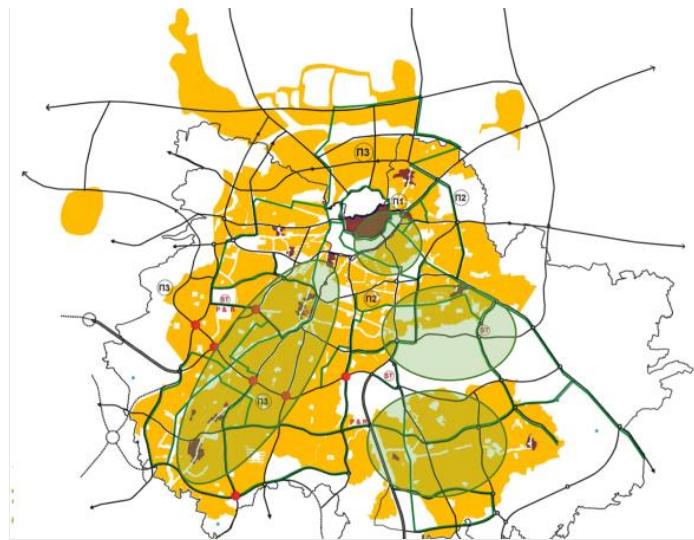


Figure 3 - Mobility Master Plan, 2010

The idea for the “Adopt a Park” Scheme was born due to the main challenge that Nicosia faces to involve the private sector in these kind of initiatives, as larger parks in Cyprus are all financed and operated by the Government (Ministry of Agriculture, Rural Development, and Environment –

Department of Forest and Department of Environment). The identified opportunity was the existence of lots of small green spaces, most of them underused or abandoned, in the neighbourhoods, which had the potential for pocket parks. These spaces are owned and supposed to be designed and maintained by Local Authorities (Municipalities) which are more open to private sector involvement in investing and developing these smaller green spaces.

Step 2: Develop an understanding of the landscape context and the ecosystem service needs

The District/ Municipal Parks which participate in the proposed Network and will be approached as NBS are: *Athalassa Forest Park, Pedieos Linear Park, Ayios Dimitrios Park, Eleftheria Square, Akadimias Park, Acropolis Park, Apalos –Kakkaristra Natural Park, Lourka Forest Park, Urban Park of Pallourokampos.*

A description regarding the landscape context of each park is presented in this section.

Athalassa Forest Park

The National Forest Athalassa is located about 5 kilometers southeast of Nicosia in the homonymous province of Cyprus, close to the capital's hospital and the university's campus (University of Cyprus). With a total area of 84000 square kilometers (840 ha) it is the largest forest of Cyprus. Part of it is in the buffer zone while the area of the forest was declared a National Forest Park in 1990 after a period of uncontrollable residential development. The administration and management of the park belongs to the Forest Department, while it is in the forest region of Nicosia, Larnaca and Famagusta. Located in a key geographic area of the island it encloses in its borders the developing areas of Aglantzia, Strovolos (to the west), Latsia and Geri (to the southeast).

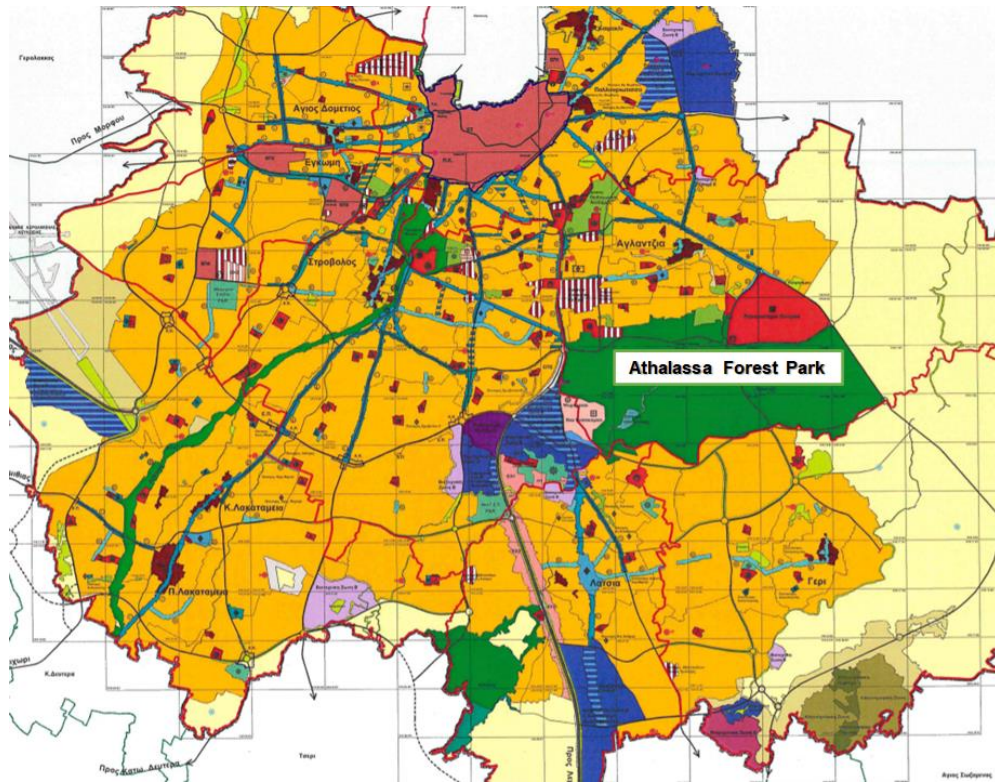


Figure 4: Athalassa Forest Park key geographic location

In the past it was a private barren place filled with shrubs but in 1904 it was bought by the colonial government in order to build a mansion. Few months later though the Forest Department intervened and planted many trees in the area. Today it is a source of leisure and oxygen for the locals and the visitors of the Cyprus' capital.

The National Forest Athalassa has plenty of underground waters, relatively smooth terrain and it consists of geological formations of the Troodos Mountain range, some of which were formed during the Cenozoic era. Throughout the area, there are growing more than 300 trees, shrubs and herbaceous plants, of which "natural" species are found only in the area around the two fences, while the rich fauna of the park counts about 173 species of birds, 27 species of butterflies 7 species of mammals, 6 species of reptiles, as well as an amphibian. Significant contribution to the development of the park has always been the standard planting of trees by schools and organized groups during the tree festival, organized by the competent bodies of the park.

During the last 20 years the park hosts a botanical garden where more than 200 exotic and native species of trees and bushes are hosted, a pine clone bank and the "park of the nations", where foreign prime ministers traditionally plant a tree every time they visit the capital of the island. Furthermore, it houses the Artillery Training Center. Finally in the same spot where the British

created the first animal farm nowadays there are bred domestic animals which can be visited by walking the pedestrian zone and reading the information signs for the biology and importance of these animals.

The Athalassa Park has become a European reference for how a natural area can combine green infrastructure and urban development. The maintenance is run on a shoestring with most funding channeled in paying for staff costs and not materials. Nevertheless, it is still seen as a priority for new investment, also in the context of Connecting Nature.

Although the Park is overall in good shape, it faces a series of challenges:

- Decrease in rainfall from past averages of 400 to currently 300 mm/yr. This causes severe stress to certain species such as pine trees.
- The transition of the vegetation: reduction of *Eucalyptus* and acacias, wider use of *Pistacia atlantica*, *Crataegus azorolus*, *Schinus terbiuthifolius*, *Cupressus serpervirens*, Carob.
- Pollution of its water bodies (from upstream waste carried by rivers).
- Geographical position of the Park next to the buffer zone between the South and North. This renders the maintenance and development of the Park more difficult. Additional trees can still be planted in the buffer zone, but access and building is limited.
- There is some illegal hunting in the park and the adjacent buffer zone. The Park needs to be patrolled by the forest rangers at serious financial costs (the proceedings of fines end up at the central government).
- Housing development in the neighbouring Municipalities encroaches on the park. This is spurred by high real estate prices in its immediate vicinity: plots around the park sell at around €1000/m².
- The Forest Department which is responsible for the Park's maintenance is strong and experienced and maintains good relationships with the surrounding Municipalities. However, it is understaffed and underfunded.

Upgrades – Extensions:

Some of the upgrades that are currently implemented / or have been recently implemented, through CN framework, in the park are the following:

- **Botanical Forest Garden C** is an extension of the first and second one. Its creation began in 2019 and since then it has been configured, upgraded and enriched with new species, up until the present day. 600 plants can be found, which originate mainly from the island's native flora, representing 290 different species and subspecies, belonging to 167 genera

and 79 families. Beyond the arboreal and shrub species, subshrubs, herbs, grasses and bulbs are included.

- **Athalassa Environmental Information and Education Centre Botanical Garden:** A botanical garden was also been created at the Athalassa Environmental Information and Education Centre, with the aim to combine aesthetic landscaping with environmental education. The layout was made using the natural environment as a guide, and includes elements of rocky brushwood which dominates the surrounding hills.

Despite its small size, the garden includes 81 different species of trees, shrubs and herbaceous plants. An effort was made to mainly use local drought resistant species, grouped with their ecological requirements as the basic criterion, as opposed to aesthetics. Today it is a unique botanical garden with its own peculiarities that is constantly being enriched and upgraded.

It is worth noting that this botanical garden has been included in the educational programs of the Pedagogical Institute, providing important information in the framework of environmental education for primary and secondary schools, always combined with additional outdoor educational activities.

- **Environmental enrichment**

[Pedieos Linear Park](#)

The Linear Park of Pedieos was constructed between 1999 and 2014, runs for 14 km long (86 ha) along the bed of the river. The park begins in the centre of Nicosia City and passes through the adjacement municipalities of Lakatamia and Strovolos. The park is narrow and shaded by large eucalyptus (*Eucalyptus camaldulensis* and *Eucalyptus gomphocephala*), pines (*Pinus brutia*) and palm trees (*Phoenix dactylifera* and *Washingtonia filifera*) along its first stretches in Nicosia (1.1 km) where it passes through a small forested area (1.4 ha) with a café. The path gains gradually in width in Strovolos, where it runs along the back of the gardens of the Presidential Palace. After about 3 km from its start in the city center, the path splits into a separate lane for walking and cycling. The river becomes wider and the path more open and less shaded. Suspended, steel-framed wooden pathways have been constructed at the narrowest parts of the river and inside the bridges that cross busy roads (Figure 7 & 8). Plans have been prepared to extend the park by 14.2 km, through the suburban and rural surroundings of Nicosia, all the way to the Tamassos dam at the foothills of the forested mountains (Figure 5).

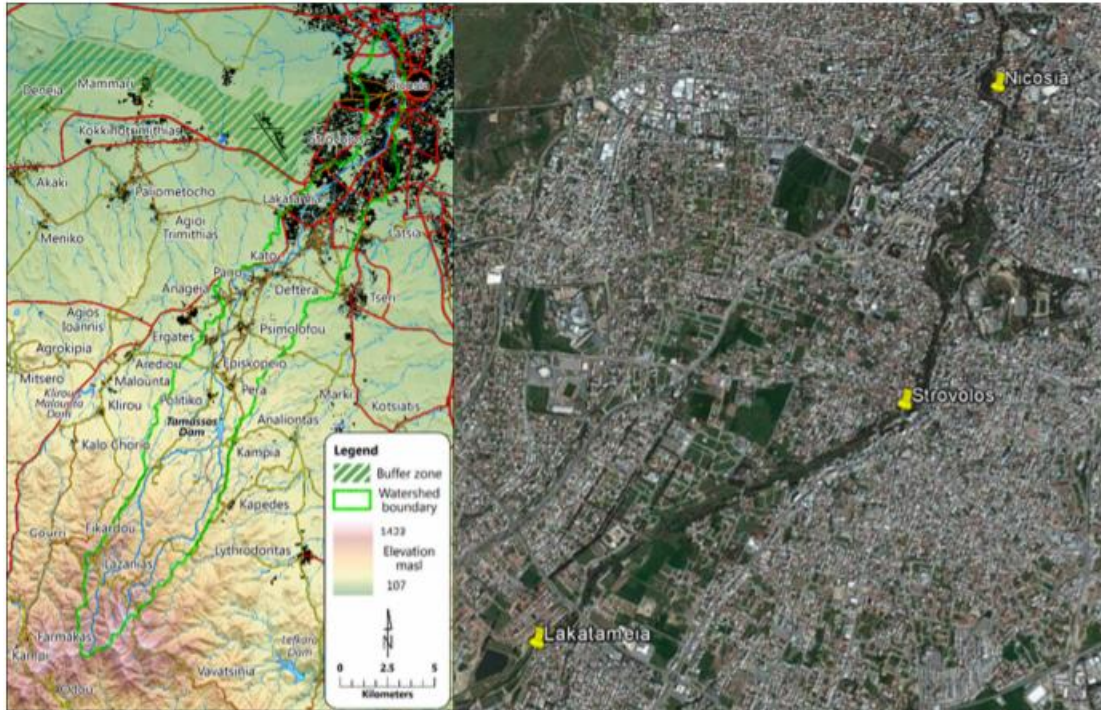


Figure 5: The Pedieos River Basin with the Tamassos Dam in the foothills and the urban area of Nicosia downstream (left); google earth image of the linear park in the urban areas of Nicosia and Strovolos (right).

The main intervention in the park consisted of a pedestrian and bicycle path that was formed on the river bank and the installation of lighting along the promenade as a safety device. The Linear Park of Pedieos is the most expensive green space of Nicosia in terms of maintenance costs, but also one of the most popular areas for walking, running, cycling and dogs.

According to a study of Giannakis et al (2016), regarding the users' (visitors) perceptions of the most important services of Pediaios River Park. More specifically, respondents were asked in an open-ended manner to identify the three most important services of urban parks. All visitors specified at least one main service of urban parks, while 145 and 32 visitors identified a second and a third service, respectively (Figure 6). Enjoying nature had a significant place in the eyes of the park users since 43% mentioned this as the first service. Engagement in physical activities such as walking, jogging, and cycling, was considered the most important service by 34% of the visitors, while it was mentioned as a second or third benefit by 24% of the park users. The provision of a venue for socializing, interacting, and relaxing, including activities such as meeting friends and other people, was mentioned by 22% of park users as the first benefit of urban parks. Only 1% of the Pedieos Park visitors considered cooling as a primary benefit and 3% of the park users mentioned it as their second or third choice.

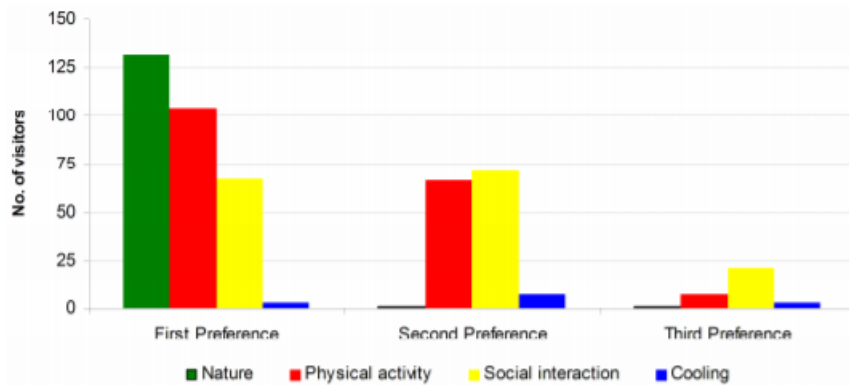


Figure 6: Users' perceptions of the most important services of urban parks (number of visitors), Giannakis et al (2016)

Respondents were then provided multiple choice options to indicate their reasons for visiting the Pedieos River Park. Respondents could select up to two choices. The major reason for visiting the park included physical activity and exercise (67%), enjoying nature (13%), cooling (4%), and socializing (3%), while close proximity was specified under the category "other" by 9% of the visitors. At the low vegetation cover location (Figure 3) only 1% of respondents visited the river park for observing nature, while at the high and medium vegetation cover locations the respective percentages were 22% and 21%. The low vegetation area, further from the city center, mainly attracted people interested in physical exercise (86%). The dominant physical exercise was walking, while 19 people were cycling and 15 people were jogging. The second most important reason for visiting the park, as specified by 177 responders, included observing nature (40%), physical activity (23%), cooling (15%), social interaction (12%), and other (10%).(Giannakis et al, 2016)

It is interesting to note that users' own reasons for visiting the Pedieos Park did not always match their visions about urban park services. For example, of the 132 people who mentioned experiencing nature as the main service of urban parks, only 15 indicated this option as their first reason for visiting the Pedieos Park. Similarly, of the 40 people who mentioned cooling as their first or second reason for visiting the Pedieos Park, only seven had identified cooling as an important urban park service. Cooling was more often mentioned as a reason for visiting the park by responders in the more densely built-up urban area, with 45% of the 40 respondents in Nicosia and 40% in Strovolos, than by the visitors in the suburb of Lakatameia (15%). However, we have to note that open-ended questions were used for the general question on the services of urban parks, while close-ended questions were used for exploring the reasons for visiting the Pedieos Park. (Giannakis et al, 2016)



Figure 7 & Figure 8: Suspended pathways of the Pedieos Linear Park, showing the different heights of the built-up area next to the park

According to Zanos and Georgi (2017), a research project currently studies opportunities for improving and extending the Linear Park of Pedieos in the areas of Lakatamia, Strovolos and Engomi Municipalities. The study will provide an analysis of planting schemes with local species that could contribute to the improvement of the microclimate of the city. The plans for the linear park were prepared by the Department of Planning and Housing. The environment and the geological singularity of the river were taken into serious consideration: "The materials used for the construction of the Linear Park are environmentally friendly, such as stone and wood. Stone bridges were built for the most part, so that the level of the river not to hinder the people's path during the winter months."

There are also plans to *extend the Pedieos River linear park into Turkish-held Nicosia*. The Pedieos River Rehabilitation Project as it is called which consist the extension of the Morphou and Famagusta wastewater treatment plants and the establishment of green waste composting facility in Nicosia are among the projects that are ready for implementation. It is noted that the European Commission completed a detailed feasibility study for the rehabilitation of the Pedieos River in 2019. The scope of the study includes the construction of a linear park along an approximate 5 km length of the river consisting of flood protection measures, cycling and walking paths, recreational areas and environmental educational facilities.

Ayios Dimitrios Park

The Municipal Park of Ayios Dimitrios is the biggest park in the district of Strovolos and is found between the Makarios Hospital and the English School. The Park is managed by the Municipality of Strovolos. It is planned in a smart way, resulting to give you the impression that it is a lot larger than what it is. Narrow earthen streets end up in open spaces where each one has themed exhibits.

From each open space, there are other narrow streets that begin, leading you in their turn to different directions into the park.

There are artificial lakes and fountains that visitors can walk by and appreciate the water's coolness. Playground and a small coffee shop and an amphitheater which host local events and exhibitions.

The theme of the park is mostly that of a forest (high tree and bushes that do not need much water and provide shades).

The main plans for the park, through CN framework are the following:

- Maintain the green in the area
- Recreation
- Aesthetic improvement of the area (walking- cycling paths, enrich the greenery, replace / maintain outdoor furniture etc).



Figure 9: Walking – cycling path in Ayios Dimitrios Park



Figure 10: Walking – cycling path in Ayios Dimitrios Park

Eleftheria Square

Eleftheria Square is a high-profile square of 1 ha in the city center on a former moat of the Venetian walls. It is managed by the *Municipality of Nicosia*. The renovation of the square started 10 years ago (December 2011) and is still not completed, making it a delicate subject for local politicians and residents alike. The new square has been designed by the office of Zaha Hadid. Communication problems between the international architecture firm and local building companies are partly responsible for long delays in its completion. There was an incident, during which the main contractor went out of the construction deal. Other problems include the initial choice of materials that eventually could not be used in Cyprus, due to the island's hot summers. It was reported that the architects were fined 55.000 euros per month for their responsibility in the debacle. On any account, the failure to complete, for a number of years, the Eleftheria Square has added to the already difficult mobility situation in the city centre for pedestrians, cyclists and cars. The initial cost of the constructions was 18M, however, due to a number of problems throughout the last decade, the cost has risen to nearly 50M.

Eleftheria Square Timeline – Current Status:

March 2005: tenders invited for square design

December 28, 2005: Iraqi-born British architect Zaha Hadid and her associates Christos Passas and Saffet Bekiroglu win the competition to redesign Eleftheria square

August 29, 2011: final architectural plans unveiled to allow for archaeological finds

December 22, 2011: construction contract awarded

Feb 6, 2012: construction work starts by Miltiades Neophytou contracting firm

July 1, 2012: deadline for completion of Eleftheria square bridge and Eastern moat missed, pushed back to June 20, 2013

June 20, 2013: deadline for completion of bridge missed

Feb 6, 2014: project completion deadline at cost €23m missed, pushed back to June 17, 2014

Feb 24, 2014: amicable dissolution of agreement with contractor in exchange for €530,000 (against contractor's demands of over €1.5mln)

April 4, 2014: project split into two parts (underground parking and redesign of square), new competition for construction contract opened

June 17, 2014: project completion deadline missed

June-July, 2014: Nicosia municipality cancels tenders process as bids received greatly exceeded budget

November 23, 2014: square redesign contract awarded to lowest bidder at 55 per cent over budget

December 12, 2014: underground parking contract awarded to new contractor

January 1, 2015: new contractor Lois Builders starts work on a March 2016 deadline

March 2015: municipality cancels decision to award new underground parking contract due to suspicions of collusion among bidders

November 11, 2015: project completion deadline pushed back to June 9, 2016

Dec 31, 2015: deadline for project completion for co-sponsorship of 85 per cent by EU structural funds missed, project included into new EU programme

February 8, 2016: project completion deadline pushed back to November 30, 2016

April 13, 2016: Mayor Constantinos Yiorkadjis announces "end-of-year" completion and €32m cost (excluding construction of the two-storey parking space)

March 31, 2017: official deadline for completion of bridge and square

September 1, 2017: deadline for opening the bridge to the public missed

January, 2018: Part of the upper section opened to public

July, 2018: deadline missed for delivering the square

December, 2018: Another section of bridge opened to public

January, 2021: Underground parking and large section of moat reopened to public

The project as a whole opened to the public the first semester of 2021 following years of delays.



Figure 11: 3D plans of the Square, Zaha Hadid Architects



Figure 12: 3D plans of the Square, Zaha Hadid Architects

Akadimias Forest Park

The creation of the park was initiated in in 1983. The Park covers an area of 45 ha that is managed by the Forest Department. It is located between the municipalities of Aglantzia and Nicosia at a distance of 2Km from the town center. It falls in the municipal borders of Aglantzia Municipality. The park has a picnic area, walkinf paths, bicycle lanes, a playground, a kiosk and parking area.

Although the Park is overall in good shape, it faces a series of challenges similar to Athalassa Forest Park. More specifically,

- Decrease in rainfall from past averages of 400 to currently 300 mm/yr. This causes severe stress to certain species such as pine trees.
- The transition of the vegetation: reduction of *Eucalyptus* and acacias, wider use of *Pistacia atlantica*, *Crataegus azorolus*, *Schinus terbiuthifolius*, *Cupressus serpvirens*, Carob.
- Pollution of its water bodies (from upstream waste carried by rivers).
- The Forest Department which is responsible for the Park's maintenance is strong and experienced and maintains good relationships with the Municipality of Aglantzia (which is located). However, it is understaffed and underfunded.



Figure 13: Walking path in Akadimias Forest Park

Some of the upgrades that are currently implemented / or have been recently implemented, through CN framework, in the park are the following:

- Maintain and enrich the green in the area
- Recreation
- Aesthetic improvement of the area (walking- cycling paths, replace / maintain outdoor furniture, solar panels for outdoor park lights etc).

Acropolis Park

Acropolis Park is located at the Acropolis Area of Nicosia District. It is 3,5 ha and it is managed by the Municipality of Strovolos.

The Park is simple in its plans but the green is dominating in the landscape. There is a narrow street encircles the park which guide the visitor to different corners that are formed from the tree clusters and a small lake. It is ideal for walking and exercising as it has walking routes and a basketball court.

The Park also consists of a playground, a café restaurant a seating area and a kiosk and hosts a number of cultural and educational events and seminars.

Some of the upgrades that are currently implemented / or have been recently implemented or proposed, through CN framework, in the park are the following:

- Maintain and enrich the green in the area
- Frame a solid understanding of the priorities for Recreation in this location
- *Proposed upgrades to the park include:* basketball court improvements, playground improvements, new trees, picnic tables, benches, walking- cycling paths improvements (& bridge), replace / maintain outdoor furniture etc.



Figure 14: Green open area in Acropolis Park

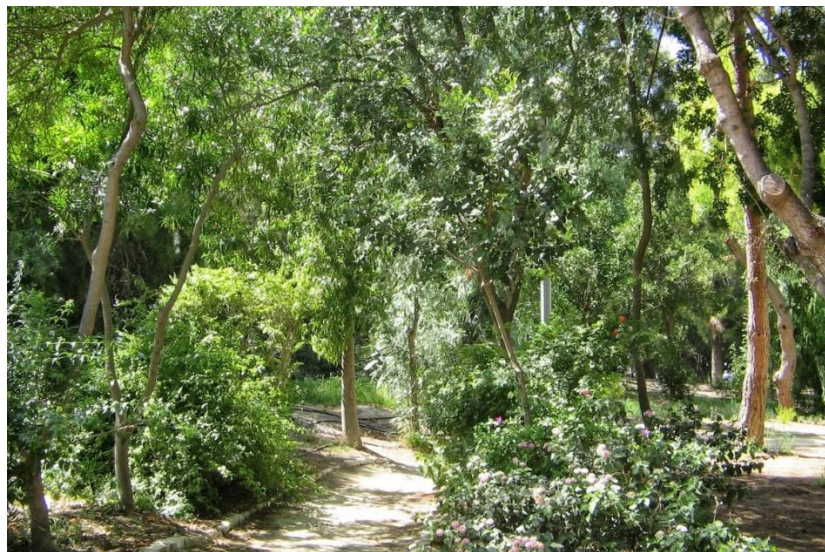


Figure 15: Walking path in Acropolis Park

Apalos – Kakkaristra Natural Park

Kakkaristra Natural Park (Gorge) represents a geologically important site located 500 meters southwest of Latsia Municipality. The gorge is a place of pre-historical importance, which holds geological evidence of Cyprus' emergence from the sea millions of years ago. The wild nature in

and around it made access difficult and its location has meant that it is largely unknown, which has potentially protected it. However, a number of locals used to do motorbike racing along the gorge and others collected fossils in order to sell them. The *Ostrea edulis* and *Ballanus tintinabulum* fossils lie on the walls of the gorge on what used to be a seabed. One could only imagine the millions of years that had made this place what it is.

The Latsia Municipality conceived the idea and has taken the initiative to preserve and upgrade the place, and make the area known, not only to Cypriots but to tourists as well. Unfortunately, discussions with the responsible governmental departments have not led to a budget for its implementation yet. Since 2008 the site is earmarked as nature reserve.

The ownership of the area is fragmented, and owners preferred building or agriculture to the function of the site as a natural park. The Municipality is developing the project in cooperation with ANEL and the Department of Environment (Ministry of Agriculture), but so far, no investment from the State has been secured. Even if a budget becomes available, the Municipality would need permission from the State to develop the park, which can be a long and bureaucratic process.

The Mayor and the Municipal Council have supported the project; ANEL has written a proposal for EU funding (Greece-Cyprus cooperation) to finance technical assistance. The first step would develop a masterplan and define in more detail the different purposes of the site (education, tourism, leisure).

In November 2018, a first element of the park was implemented in form of a nature path of around 3 km that invites to discover the area. The plan for the nature path was drafted by the State Department of Forests, while a private donation of €2000 allowed to build the path by a private contractor. So far, no further investment has been secured, but it has been included in the Local Strategic Sustainable Development Plan (OXA) for funding.

The site is currently only accessible by car (users from Latsia have to get on the other side of a major highway, which lacks bridges or tunnels for pedestrians or bikes).

Some of the upgrades that are currently implemented / or have been recently implemented or proposed through CN framework in the park, are the following:

- Enrich the green in the area and protect the place (nature reserve) **(Ongoing)**
- Frame a solid understanding of the priorities for Recreation in this location
- *Proposed upgrades to the park include:* finalization of the master plan that includes nature paths, benches, walking- cycling paths, viewpoints, fossiliferous horizons, placement of signs with the name of the plants and fossils that are located on the path of Kakkaristra-Apalos and a small amphitheater. **(Ongoing)**



Figure 16: Kakkaristra Gorge



Figure 17: The gorge walls and floors were covered in various species of fossilised shells stacked one on top of each other in geological layering.



Figure 18 & Figure 19: Visitor-guide map of the Kakkaristra-Apalos gorge trail.



Figure 20, Figure 21 & Figure 22: Placement of signs with the name of the plants that are located on the path of Kakkaristra-Apalos (Latsia Municipality in cooperation with Forest Department)



Figure 23 & Figure 24: Plantation of 4000 trees (Private donation – Citizen's initiative in collaboration with Latsia Municipality and Forest Department)



Figure 25 & Figure 26: Citizen's and NGOs helped on the plantation of 4000 trees initiative, under the Forest Department supervision.

Lourka Forest Park

The Lourka Forest Park consists mainly unused forest land and is a geologically important site that features a prehistoric monument. Similar to Kakkaristra Gorge, *Ostrea edulis* and *Ballanus tintinabulum* fossils lie on the walls of the elevated park that sits on a hill facing the vast emptiness

of the Green line (UN Buffer Zone). The park is located very close to the Athalassa park but is not well known. There is a dusty path with little shade that leads the visitor to past benches as well as military hide-outs and trenches.

The Municipality is developing a project in cooperation with ANEL and the Forest Department to transform it into an urban park that will eventually become central to the wellbeing of city residents. So far, no investment has been secured, but it has been included in the Local Strategic Sustainable Development Plan (OXA) for funding.

Some of the upgrades that are currently implemented or been proposed through CN framework in the park, are the following:

- Enrich the green in the area **(Ongoing)**
- Frame a solid understanding of the priorities for Recreation in this location
- *Proposed upgrades to the park include:* implementation of walking – cycling paths, outdoor gym, benches, viewpoints, fossiliferous horizons, placement of signs with the name of the plants and fossils that are located in the park and a moving refreshment shop. **(Ongoing)**

The materials that will be used for the construction are environmentally friendly, such as stone and wood.



Figure 27: View of the Green Line (UN Buffer Zone) from Lourka Forest.



Figure 28: Lourka Forest Park



Figure 29: *Ostrea edulis* and *Ballanus tintinabulum* fossils lie on the walls and ground of the elevated park

Urban Park of Pallourokampos

The Urban Park of Pallourokampos is another potential park in the Latsia Municipality that is still in its planning phase with uncertain funding and the need for permissions from Central Government. The Municipality wants to develop this park as an investment of development fees into a larger green area, rather than creating small areas that are more expensive to maintain. A fund of around 1 million euros has been earmarked for Pallourokampos. This sum must be invested in the creation of new parks and not in the maintenance or upgrading of existing parks.

In order to advance the project, the Municipality has organised an international landscape competition to create a Masterplan for the park. The competition produced a masterplan for Pallourokampos with the following elements: link to the geological site of Kakkarista via a museum (1000 m² education/information site), 3 playgrounds (basketball, volleyball), paths, a cafeteria (to get revenue), an open-air cinema (to get revenue) and mobility connections (i.e. new road, sidewalks around the area).

A cost-benefit analysis of a new park in Pallouroukampos has been carried out by the Municipality and suggests that there can be revenues from its exploitation (cinema, cafeteria). The central government has proposed to find still more profitable uses (e.g. wedding venue, multipurpose room for art exhibitions, events). In the end, the Ministry of Interior decides about permission regarding this park, and its staff seems to be interested in projects with a higher economic return and not necessarily multiple (economic, social, environmental, cultural) benefits.

Regarding the current status of the project:

- Central Government is opposed to the building of the bigger structures (theatre): they prefer smaller ones. But the permission of the State is necessary to build.
- A more detailed technical study will cost €300,000. This money will only be taken out of the fund if there is a low risk that the total sum will not be found.
- The total investment to implement the masterplan is estimated at 4 million euros (including all technical studies).
- Funding Opportunity: The project has been included in the Local Strategic Sustainable Development Plan for funding earlier this year (2021) and it has been included in the final shortlist – Stage 2.

Step 3: Feed understanding into design, delivery, and stewardship.

Technical Designs

The interventions that will be implemented in each District/ Municipal Park of the Network are presented below.

Athalassa Forest Park

The strategic goals that have been set for the Athalassa Forest Park are the maximization of the Park's operation as a green lung, satisfaction of people's needs for recreational activities, sports, and well-being as well as provision of environmental education and research opportunities.

Upgrades – Extensions:

Some of the upgrades that are currently implemented / or have been recently implemented in the park are the following:

- **Botanical Forest Garden C** is an extension of the first and second one. Its creation began in 2019 and since then it has been configured, upgraded and enriched with new species, up until the present day. 600 plants can be found, which originate mainly from the island's native flora, representing 290 different species and subspecies, belonging to 167 genera and 79 families. Beyond the arboreal and shrub species, subshrubs, herbs, grasses and bulbs are included. **(Ongoing)**

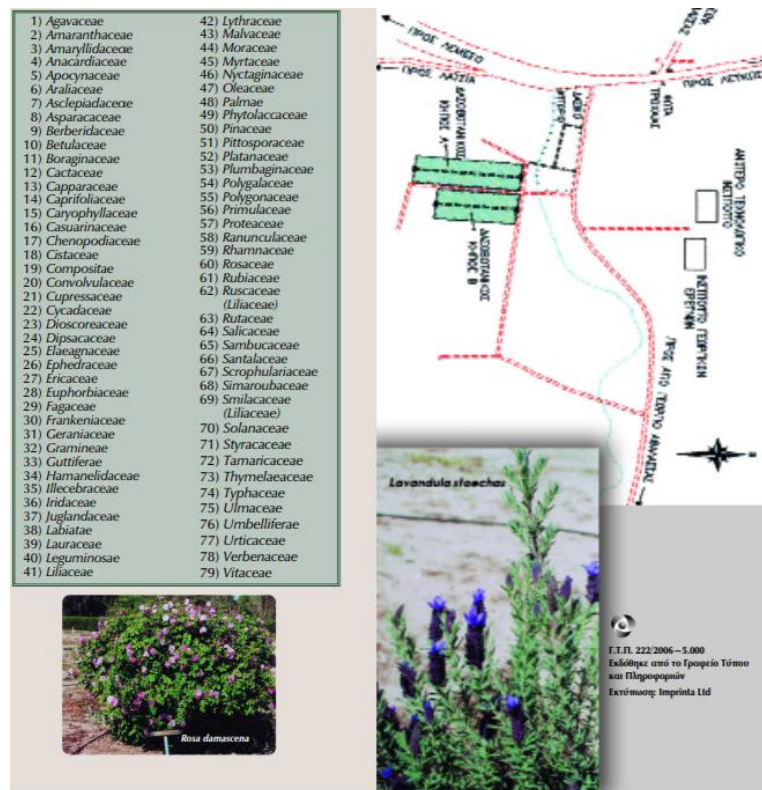


Figure 30: A list of the 79 different species of trees, shrubs and herbaceous plants that are included in the Botanical Garden.

- **Athalassa Environmental Information and Education Centre Botanical Garden:** A botanical garden was also been created at the Athalassa Environmental Information and Education Centre, with the aim to combine aesthetic landscaping with environmental education. The layout was made using the natural environment as a guide, and includes elements of rocky brushwood which dominates the surrounding hills.

Despite its small size, the garden includes 81 different species of trees, shrubs and herbaceous plants. An effort was made to mainly use local drought resistant species, grouped with their ecological requirements as the basic criterion, as opposed to aesthetics. Today it is a unique botanical garden with its own peculiarities that is constantly being enriched and upgraded. **(Completed)**



Figure 31 & Figure 32: Athalassa Environmental Information and Education Centre Botanical Garden

It is worth noting that this botanical garden has been included in the educational programs of the Pedagogical Institute, providing important information in the framework of environmental education for primary and secondary schools, always combined with additional outdoor educational activities.

- **Environmental enrichment (Ongoing)**

Pedieos Linear Park

The strategic goals that have been set for Pedieos Linear Park are the maximization of the Park's operation as a green lung, satisfaction of people's needs for recreational activities, sports, and well-being as well as provision of environmental education and research opportunities.

Upgrades – Extensions:

Some of the upgrades that are currently implemented / or have been recently implemented in the park are the following:

- Enrich the green in the area and protect the place (nature reserve) - **Planting schemes** with local species that could contribute to the improvement of the microclimate of the city. **(Ongoing)**
- **Extention Plans of Pedieos River linear park into Turkish-held Nicosia**
 - The Pedieos River Rehabilitation Project which consist the extension of the Morphou and Famagusta wastewater treatment plants and the establishment of green waste composting facility in Nicosia are among the projects that are ready for implementation. **(Ongoing)**
 - Detailed feasibility study for the rehabilitation of the Pedieos River in 2019. (European Commission) **(Completed)**

Eleftheria Square

In the context of the regeneration of the old city center of Nicosia, a number of strategic goals have been set for Eleftheria square such as the aesthetic and environmental upgrade of the square in order to serve primarily pedestrians, as a place of rest, social gathering and hostage of public events (e.g. cultural etc) as well as the promotion of the historic in parallel Medieval Wall.

Eleftheria Square constitutes a dramatic and historically significant architectural intervention – an aspiration to reconnect the ancient city's massive, fortified Venetian Walls and moat with the modern city beyond – a bold vision of coherence and continuity which can become catalyst to unify the last divided capital of Europe.

Some of the upgrades that are currently implemented / or have been recently implemented park are the following:

Eleftheria Square Timeline – Current Status:

March 2005: tenders invited for square design

December 28, 2005: Iraqi-born British architect Zaha Hadid and her associates Christos Passas and Saffet Bekiroglu win the competition to redesign Eleftheria square

August 29, 2011: final architectural plans unveiled to allow for archaeological finds

December 22, 2011: construction contract awarded

Feb 6, 2012: construction work starts by Miltiades Neophytou contracting firm

July 1, 2012: deadline for completion of Eleftheria square bridge and Eastern moat missed, pushed back to June 20, 2013

June 20, 2013: deadline for completion of bridge missed

Feb 6, 2014: project completion deadline at cost €23m missed, pushed back to June 17, 2014

Feb 24, 2014: amicable dissolution of agreement with contractor in exchange for €530,000 (against contractor's demands of over €1.5m)

April 4, 2014: project split into two parts (underground parking and redesign of square), new competition for construction contract opened

June 17, 2014: project completion deadline missed

June-July, 2014: Nicosia municipality cancels tenders process as bids received greatly exceeded budget

November 23, 2014: square redesign contract awarded to lowest bidder at 55 per cent over budget

December 12, 2014: underground parking contract awarded to new contractor

January 1, 2015: new contractor Lois Builders starts work on a March 2016 deadline

March 2015: municipality cancels decision to award new underground parking contract due to suspicions of collusion among bidders

November 11, 2015: project completion deadline pushed back to June 9, 2016

Dec 31, 2015: deadline for project completion for co-sponsorship of 85 per cent by EU structural funds missed, project included into new EU programme

February 8, 2016: project completion deadline pushed back to November 30, 2016

April 13, 2016: Mayor Constantinos Yiorkadjis announces "end-of-year" completion and €32m cost (excluding construction of the two-storey parking space)

March 31, 2017: official deadline for completion of bridge and square

September 1, 2017: deadline for opening the bridge to the public missed

January, 2018: Part of the upper section opened to public

July, 2018: deadline missed for delivering the square

December, 2018: Another section of bridge opened to public

January, 2021: Underground parking and large section of moat reopened to public

The project as a whole opened to the public the first semester of 2021 following years of delays.
(Completed)



Figure 33 & Figure 34: Render designs of the Square, Zaha Hadid Architects

Akadimias Park

The strategic goals that have been set for the Akadimias Forest Park are the maximization of the Park's operation as a green lung, satisfaction of people's needs for recreational activities, sports, and well-being as well as provision of environmental education and research opportunities.

Upgrades – Extensions:

Some of the upgrades that are currently implemented / or have been recently implemented, through CN framework, in the park are the following:

- Maintain and enrich the green in the area **(Ongoing)**
- Recreation
- Aesthetic improvement of the area (walking- cycling paths, replace / maintain outdoor furniture, solar panels for outdoor park lights etc). **(Ongoing)**



Figure 35: Improvements on the walking and cycling paths, solar panels installation (lighting)

Acropolis Park

Acropolis Park strategic goals are the maximization of the Park's operation as a green infrastructure, satisfaction of people's needs for recreational activities, sports, and well-being.

Some of the upgrades that are currently implemented / or have been recently implemented or proposed, through CN framework, in the park are the following:

- Maintain and enrich the green in the area **(Ongoing)**
- Frame a solid understanding of the priorities for Recreation in this location **(Ongoing)**
- *Proposed upgrades to the park include:* basketball court improvements, playground improvements, new trees, picnic tables, benches, walking- cycling paths improvements (& bridge), replace / maintain outdoor furniture etc. **(Ongoing)**



Figure 36: Playground improvements



Figure 37: Cycling – Walking Bridge Improvements

Apalos – Kakkaristra Natural Park

The proposed Natural Park of Apalos – Kakkaristra could be seen as a project of National importance, due to the area's strategic site and its unique geological features. The project aims to enhance environmental protection of the site through the operation of the Natural Park, the proposed activities and interventions and to promote the natural and ecological value of the site so that it can be embraced by the general public.

The interventions proposed for Apalos – Kakkaristra Natural Park include the: **(Planning Phase)**

- establishment of an Ecology and Geology Center with building facilities and outdoor configurations;
- configuration of themed paths/ walking routes (regarding Cypriot flora), cultivations of endemic plants and relevant explanatory signage;
- configuration of themed paths/ walking routes (regarding the geological features of the area). Visitors with the help of relative explanatory signage will be informed about the geology and the environment of the area;
- creation of hiking trails;
- creation/ establishment of a star observatory;

- operation of a library, a reading room and a computer room offering databases and information mainly about ecology, environment and geology;
- creation of bicycle paths connecting different areas of the park but also connecting the Apalos – Kakkaristra Park with the Park of Pallourokampos and Athalassa.

Additionally, there are plenty of ideas regarding the activities that could take place at the Natural Park such as exhibitions, guided tours, educational programs, screenings, workshops and others.

[Lourka Forest Park](#)

The Lourka Forest is a V-shaped space of around 5 ha situated on a former military site at the outskirts of the Yeri Municipality. It is currently managed by the State Forest Department and features mature stands of planted trees and a loose network of unpaved paths around a central plain covered in concrete. The northern rim of the Lourka site features an abrupt downward slope of ca 50m. While this makes access from this direction very difficult, the steep slope also provides for stunning views on the Athalassa Forest, which is located a few kilometers to the North. Lourka is representative of other green spaces around Nicosia in that it is underused due to sparse access and poor infrastructure.

Plans for the projected upgrade of the park include better access to the park from the surrounding neighbourhoods in Yeri, but also easier access by bike, public transport, or car from other Municipalities. The existing vegetation should be conserved and physical interventions into the nature of the site be kept minimal. Yet better access and landscaping alone are not sufficient to boost the use of the site. Potential users need to know about the park and the activities it can host. Like other parks in Nicosia, Lourka needs to develop a clearer identity or “brand” that attracts visitors if it is to function like a regional rather than a neighbourhood park.

Fortunately, there are already first ideas that could be sharpened into a clearer positioning of Lourka within the Nicosian park network. For instance, the natural features of the site are very interesting for a cycling trial track or fitness trails. Moreover, the park has recently staged a “Forest Fest”, an initiative supported by the mayor of Yeri that showcased the potential of the site for outdoor events. Other ideas for the upgrade of Lourka include belvederes that take advantage of the views towards the North and a kiosk as a point of meeting, relaxation, and sustenance.

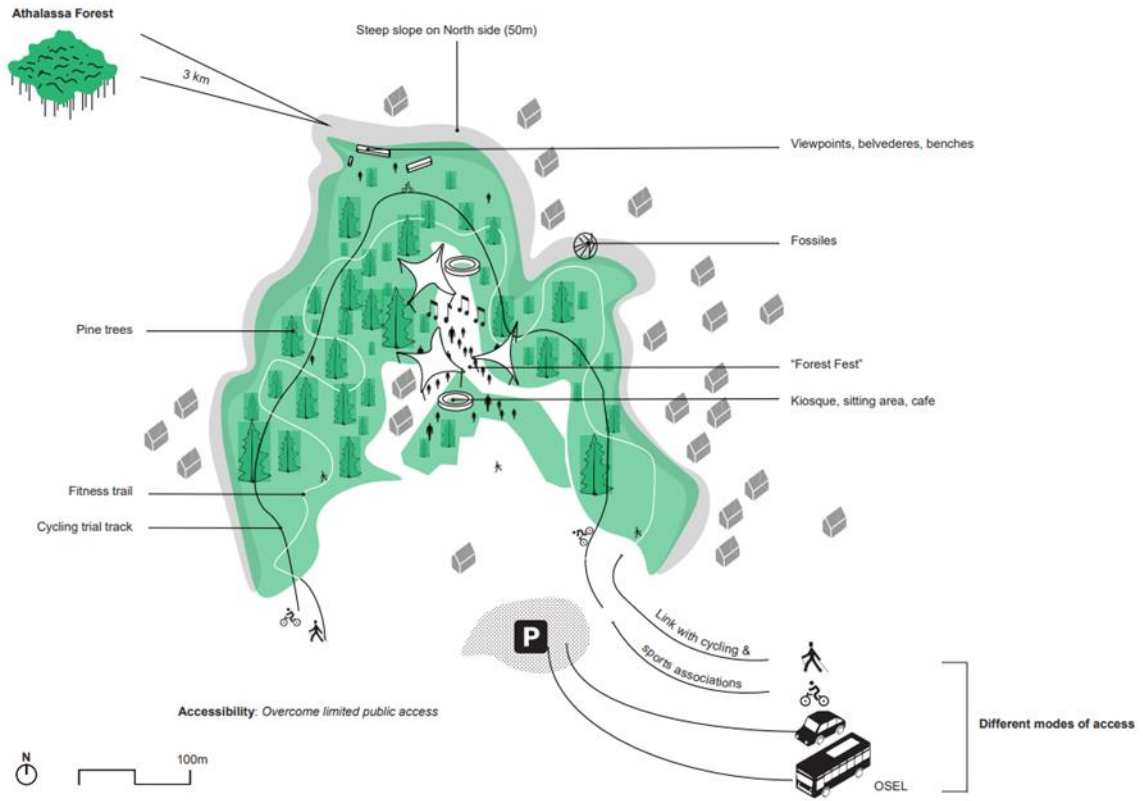


Figure 38 - Lourka technical design proposal (a)

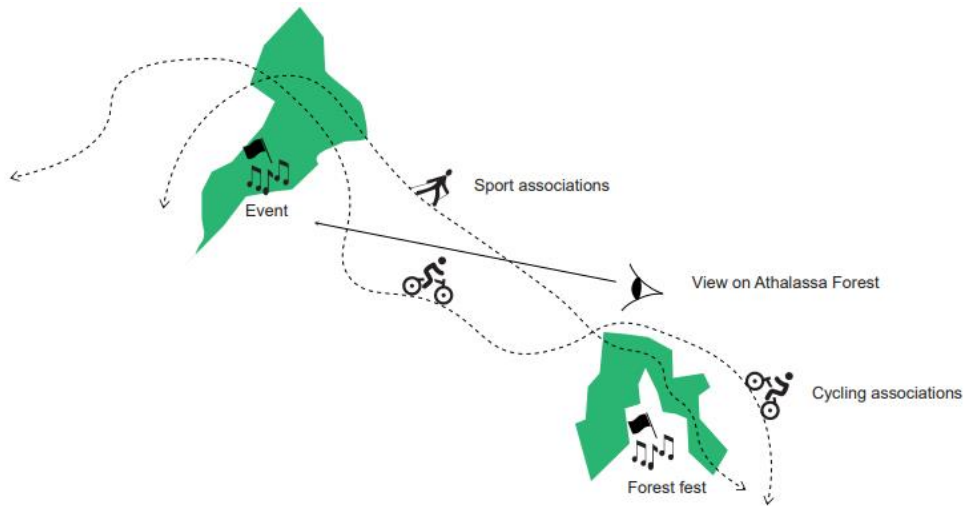


Figure 39 - Lourka technical design proposal (b)

Ayios Dimitrios Park

This site in the Strovolos Municipality represents a contrasting set of challenges compared to Lourka Park. The Ayios Dimitrios Park is extensively used by the surrounding neighbourhoods and institutions, so much so that its infrastructure has been subject to extreme wear and tear and now in need of renovation. And whereas Lourka could be a regional attraction for a specific type of activity in an eccentric location (for example bicycle trial tracks), Ayios Dimitrios has the potential to become the network's flagship of a well-groomed and multifunctional urban park in a central spot of Strovolos.

Ayios Dimitrios Park is the focal point of a mixed neighbourhood featuring public schools, a children's hospital and a municipal athletic centre. To the West it borders the campus of a prestigious private school and, a bit further, the presidential residence. The great potential - and planning challenge - of the site is to weave this web of spaces, functions and owners into a coherent whole that users can navigate and experience as one grand urban park. The necessary interventions to reach this objective concern improvements in the green spaces themselves and improvements in the mobility infrastructure. As for the former, the Municipality commissioned a preliminary landscaping study that identified a series of opportunities to improve the quality of the area owned by the Municipality; these ideas need to be complemented with interventions on the adjacent private campus and around the athletic centre. Regarding mobility, the main challenges include the trespassing between the private and public sections of the park, but also establishing the missing link between Ayios Dimitrios Park and the Pediaos Linear Park. The latter runs along the Western side of the private school campus but is separated from it by a busy highway.

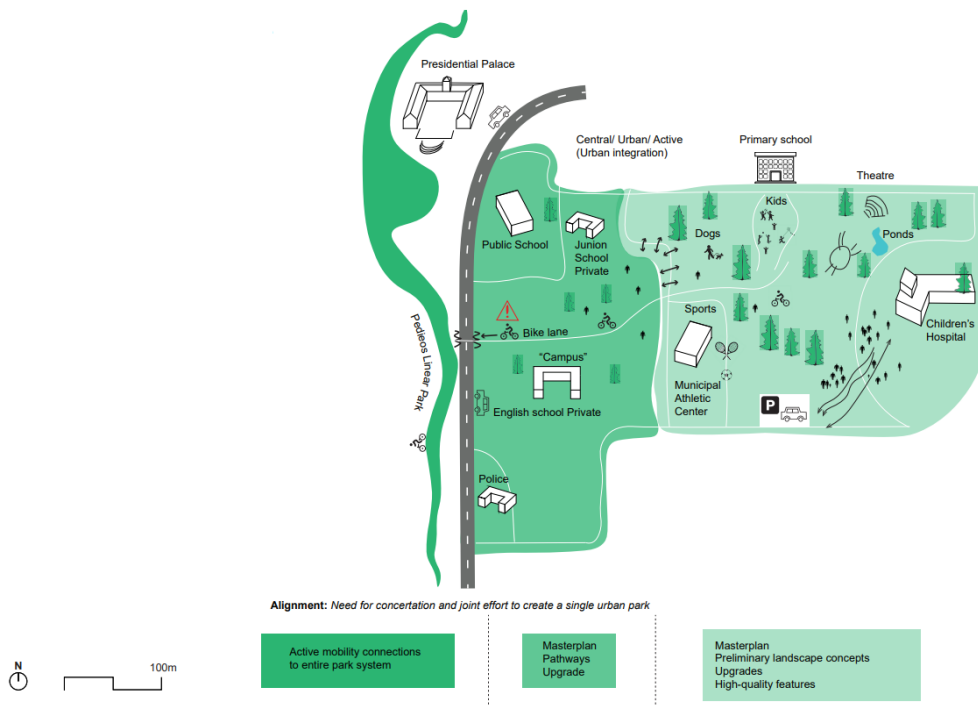


Figure 40 - Ayios Dimitrios park technical design proposal

Urban Park of Pallourokampos

The proposed Urban Park of Pallourokampos is located in the southwestern part of the Municipality of Latsia and covers an area of 4.2 ha. The proposed interventions aim at the connection of the Urban Park with the city, as well as at the transformation of the park to a pole of attraction and a reference point for the wider area. The Park is envisioned as a 'linear observatory' or as a 'balcony to the city', providing easy access and beautiful views. The various and important entrances of the park provide access to it from all over the city.

The proposed project aims to transform the site into a new urban public space, an attraction for residents and visitors, which will culturally and environmentally upgrade Latsia. The Park is designed to become a green lung for the area; while also combine other related functions such as outdoor recreation, aesthetics, physical sports and more. The proposed interventions have taken under serious consideration the specific characteristics of the area, the large slopes and the existing flora. The Park is designed with absolute respect to the natural environment and in a way so that it remains vibrant throughout the day and the year.

The Park will consist of the following uses:

- A modern Conference and Exhibition Multipurpose Centre (Total Area: 514 m2)
- A Botanical Garden (Total Area: 514 m2)

- An amphitheater (1800 m²)
- Café-Restaurant
- Observatory
- Outdoor Cinema (Total Area: 44 m²)
- Playground
- Sports Centre (Tennis, Basketball and Volleyball: Total Area: 38 m²)
- Park and walking routes
- Sanitary facilities
- Vehicle/ Bus Parking (150 vehicles)
- Connections with a wider area
- Security, Fencing, Lighting

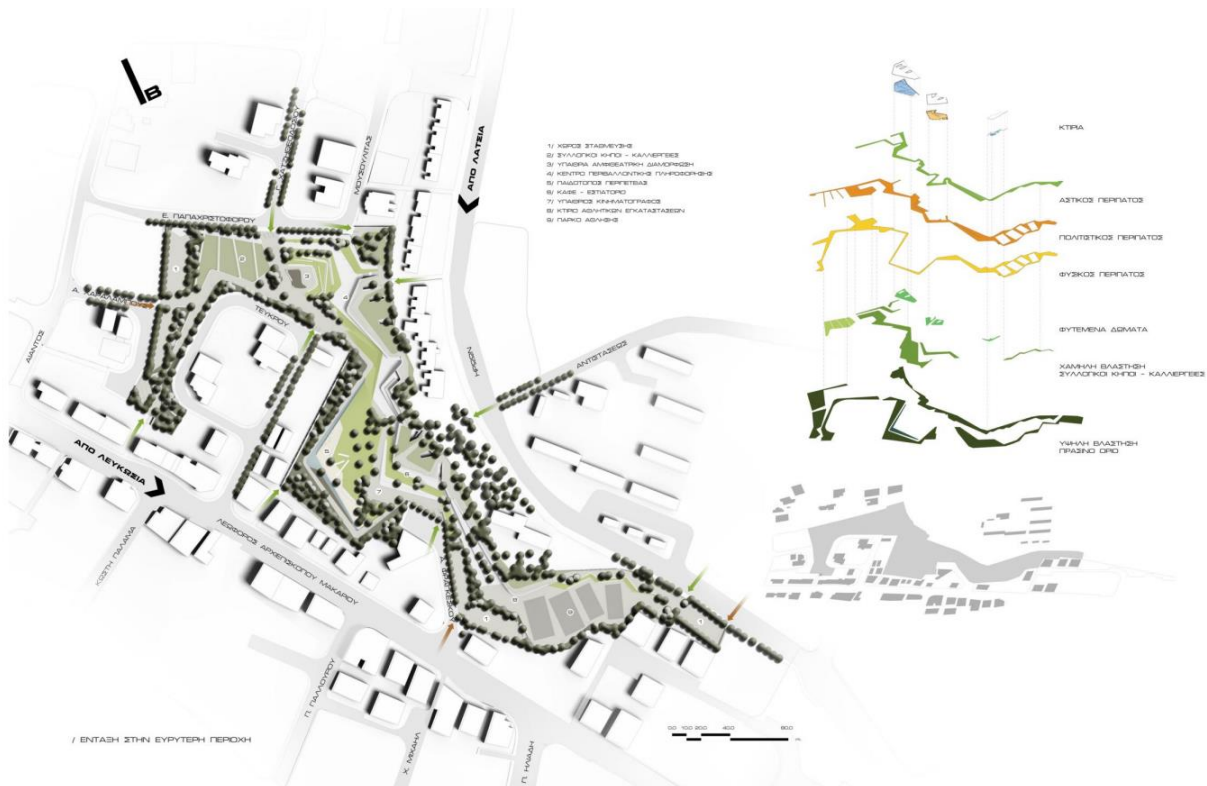


Figure 41: Pallourokampos Masterplan



Figure 42, Figure 43 & Figure 44: Pallourokampos Masterplan

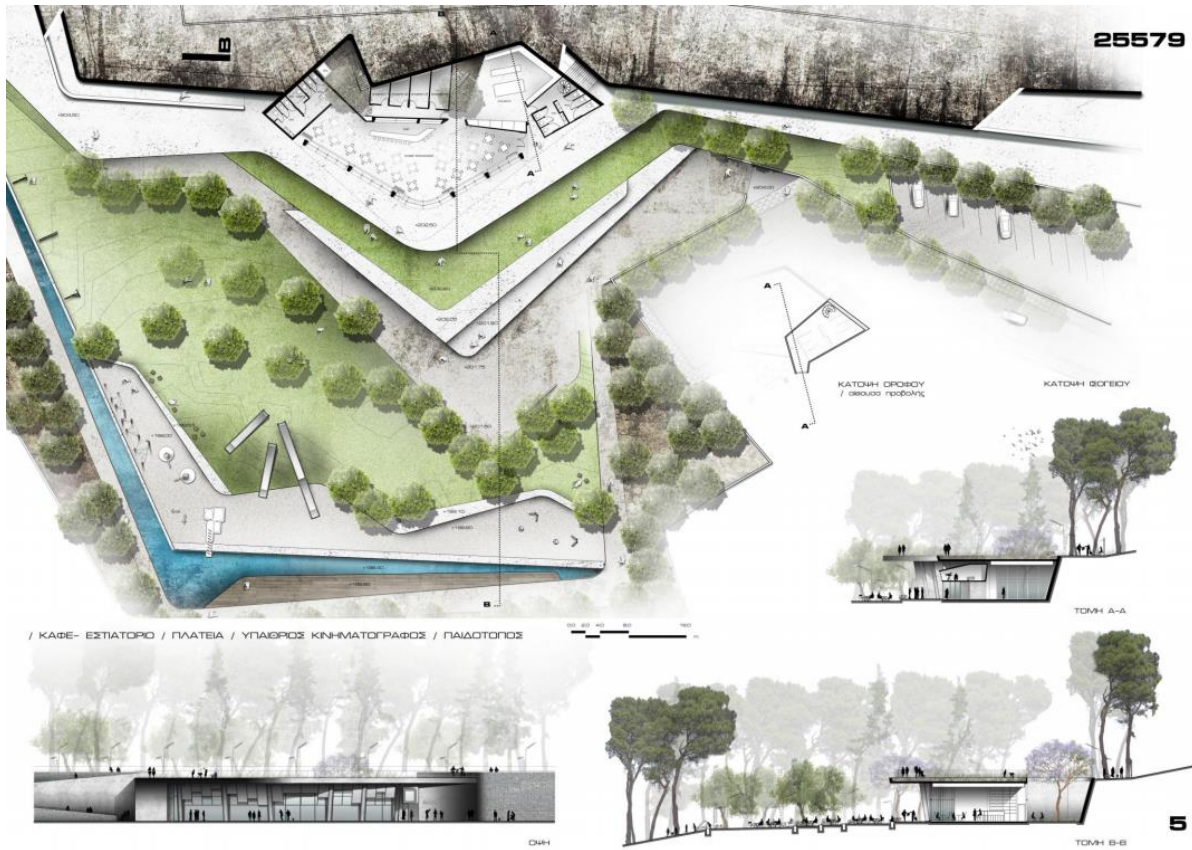




Figure 45, Figure 46 & Figure 47: Design Details of the Park



Figure 48: Pallourokampos park render images of the proposal

Step 4: Iterative monitoring and evaluation

The proposed NBS are not one-off projects undertaken at a moment in time. Once the solutions have been implemented, they must be managed and maintained.

Stewardship and Maintenance for District/ Municipal Parks

The stewardship and maintenance plan for each District/ Municipal Park will be different, since different stakeholders are involved, responsible and authorised for the design/ management/ maintenance of each park. Below there is a brief presentation of the main stakeholder who will be responsible for the Management of each Park.

Stewardship and Maintenance for Neighbourhood/ Pocket Parks

Stewardship and maintenance for the Neighbourhood/ Pocket Parks will be very different from stewardship and maintenance for the District/ Municipal Parks. As mentioned earlier, the involvement of the Private Sector is going to be significant. Specifically, there are two different roles for the businesses that will be involved.

Larger Businesses

The larger size businesses which are located in the area of intervention can participate as investors to the scheme, as part of their Corporate Social Responsibility Strategies. The Corporate Responsibility Reports of the companies in Cyprus are designed on the guidelines of the Global Reporting Initiative (GRI), ISO 26000, UN Global Compact as well as the NFIR Directive and Cy legislations. Through their annual reports, organisations aim to integrate social, environmental and economic concerns into their values, culture, decision making processes, strategy and operations in a transparent and accountable manner. Therefore, developing a well thought-out, credible and effective Corporate Social Responsibility (CSR) strategy that would effectively address both the company's sustainability agenda as well as demonstrating an honest and responsible leadership is very important.

Smaller Businesses

The smaller size businesses including Nature Based Enterprises (NBEs) such as landscape engineers, gardeners, plant specialists, agronomists, foresters, that can be involved in the planning, implementation and maintenance phase of the individual projects.

The Connecting Nature Enterprise Platform can be a useful tool throughout this process especially for the larger businesses that will choose to participate in the Scheme, as a mean to involve the citizens and NBEs at the co-design, delivery, maintenance and impact monitoring of their NBS. The platform can act as a useful tool to bring these two sides of the market together.

The team of Nicosia Development Agency is developing the guidelines that need to be followed by the applicants for the Scheme, with the help of the Forest Department and Municipal officers (Head of the Environmental Development Departments). The call for the first 200 small green spaces to be adopted in the district of Nicosia, is planned to be announced in early 2021. Each of the selected businesses, that will adopt a green space, needs to put together a plan that will meet the guidelines set. The Business adopter will sign a contract with the Municipality and Nicosia Development Agency. The responsibilities of the business adopter are to plan, plant and maintain the selected green space and commit to its ongoing care for a 5-years period. The Municipality along with the Nicosia Development Agency will set a team to monitor all the phases of the process.

Besides the stakeholders who will be responsible for stewardship and maintenance of each District/ Municipal Park/ Neighbourhood Park, it is also proposed the establishment of a new Organisation, the Nicosia NBS Agency who will be responsible to secure the sustainability of all the NBS in Nicosia. A more detailed presentation of the Nicosia NBS Agency can be found in the Chapter of Governance.

Step 5: Iterative learning for city-wide scaling of Nature-Based Solutions

Implementation of NBS in Nicosia has not been an easy task, and there have been various barriers hindering the process. Some of the most important barriers regard governance structures, the planning process itself, as well as community participation. Despite these barriers, Nicosia's Exemplar could be seen as a best practice, replicated in other cities or countries, after being tailored to the local needs.

Governance

Step 1: Aligning NBS with the wider goals of Nicosia

Cyprus, and Nicosia in particular, has a series of strategic development plans and spatial frameworks that highlight specific development goals and priorities which have been determined following an analysis of the area, and taking into account the challenges, opportunities and obstacles. Nicosia's Exemplar within the Connecting Europe project has set a series of goals which cater to the delivery of the project's mission. Additionally, these goals contribute and support the broader developmental and spatial framework of the area, further contributing to their realisation. Below are briefly highlighted the goals and priorities of several spatial and development plans.

On a national scale, Cyprus is in the process of developing a Regeneration and Resilience Plan (Democracy of Cyprus, 2021). The plan's strategic goal is to "enhance the economy's resilience and the country's dynamism for economically, socially and environmentally sustainable, long-term development and prosperity". Through specific actions and measures, the plan aims to enable Cyprus to become:

- A country with increased resilience, productivity and competitiveness, through a sustainable and long-term development model, enabled by a restructured and efficient public administration, a more effective judiciary system and a modernised tax framework.
- A country where the educational system and human capital are aligned with the skills which will be needed in the future.
- A country that is a front-runner in the Green and Digital transition.
- A country with a resilient health care system that implements best practices.

The Integrated Development Spatial Strategy (OXA) for South Nicosia 2021-2027 has the General Objective to "Develop a common development framework based on the synthesis of advantages and opportunities that arise in the intervention area". The strategic goals for the South Nicosia, as outlined in the strategy, are the following:

1. Become an attractive area with high living standards for new residents.
2. Enhance local entrepreneurship through infrastructure developments that increase the area's attractiveness to visitors, by using the cultural and environmental characteristics of the area.
3. Maintain the rich environmental resources and the agricultural landscape of the area.

Nicosia's Local Development Plan (2016) aims at defining and implementing the necessary framework for the long-term urban policy that will allow the sustainable development of Nicosia by 2021.

The objectives/goals of the Local Development Plan are the following:

1. Secure the effective organisation of the main urban functions and the distribution of land uses, in order to ensure the most efficient economic and functional organisation of the wider urban system, and promote an organised and integrated urban development pathway.
2. Efficient use of natural resources and the protection of the natural environment in the designated area.
3. Ensure the mixed and balanced distribution of compatible land use.
4. Improve living standards and service delivery in the urban environment.
5. Organisation of residential areas to ensure the equal and fair distribution of urban populations, in connection with employment and other opportunities.
6. Implement a modern multidimensional mobility policy.
7. Implement policy measures that contribute to the protection and improvement of the significant role of the urban center as a functional node for the entire urban area and broader region, as well as the equal and fair distribution of land uses in the urban region.
8. Protect elements and areas of special, historical, cultural and architectural importance, and adopt a programme for the protection, rejuvenation and regeneration of historical centers.

Moreover, the key objectives of the General Adaptation Strategy are:

1. Achieve sustainable development, focused on organized and compact development, as well as the protection and management of natural resources.
2. Improve the citizens' quality of life through an integrated approach for the re-evaluation of the plan's spatial and other policies.
3. Adoption of flexible policies for the promotion and encouragement of alternative development models from the private sector, and the more active participation of the public sector through regulatory measures.

Similarly, the Local Plan of the center of Nicosia (2016) aims at the development of a well-organised and functional Center, capable of being the driving force that will lead to the development of the entire city, since it is the center of the capital that represents Cyprus in international contexts. The plan's strategic goal is to "Redefine the development form of the urban center of Nicosia and transform it into a multi-functional service and activity center, catering to multiple developmental goals in one area". These goals include:

- Administrative center of the capital city, as well as the entire country
- Node offering public and private services
- Competitive center for economic activities
- A transregional cultural center and hub for artistic activities
- Selective residential area
- A pole for social interaction and creative employment

- An attractive destination for leisure, entertainment and recreation

The Local Plan for Central Nicosia is based on three equally important Strategic Pillars:

1. Revitalisation Strategy: indicates the general development direction of the Central Region to regain its vitality. This is based on the proposal of New Vision study for a Revitalisation Strategy through the Exploitation of the Cultural Heritage.
2. Spatial Policy: aims to strengthen the specific role and functions assigned to each of the areas that make up the Centre.
3. Infrastructural Strategy: proposes a clear differentiation from the current car dependency approach. A different mobility strategy is being promoted that will transform the road network and mobility patterns, so that the Central area can function more efficiently. More specifically, the proposed strategy is based on offering a wide range of options and focuses on public transport of high-speed and high-quality service, with buses and bicycle lanes, pedestrianisations, increased accessibility and a new policy on parking.

Lastly, the goals indicated in Nicosia’s Exemplar within the Connecting Nature programme are in line with the Sustainable Development Goals (SDGs). The table below draws a connection between the 17 SDGs and this project’s goals.

		Table 1: Connection between Nicosia’s Exemplar’s goals and the SDGs																
		Sustainable Development Goals																
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
City Strategic Goals	Increase green spaces			X								X						
	Increase the physical activity of citizens			X														
	Co-production in urban interventions			X														X
	Increase Accessibility to open and green spaces			X								X					X	
	Improving quality of citizens life																	
	Improve social cohesion			X								X						

As mentioned earlier, Nicosia’s Exemplar involves the creation of an urban network of linked open and green spaces with strong mobility linkages. The project’s idea was based on the need of

several Municipalities to create new open and green spaces, which will enable their citizens to improve their quality of life and increase the available options in their area allowing physical activity, recreation, leisure etc. The proposed plan is included to the Local Strategic Sustainable Development Plan that has been submitted for funding at the Directorate General for European Programmes, Coordination and Development. Several meetings have been held and are planned, with a variety of stakeholders (Municipalities – municipal officers, Government departments such as Department of Forest, Department of Planning and Development, Department of Environment etc, politicians, universities, experts and citizens). Moreover, several public participatory processes took place, to ensure that the needs of different stakeholders are included and considered in the Exemplar. The objectives of this NBS intervention are to:

- Improve citizens quality of life,
- Increase Accessibility to open and green spaces,
- Provide shady areas (Cyprus weather demands this kind of solutions);
- Create a space for physical activity/sports;
- Create bench and picnic areas;
- Facilitate co-design with citizens, attract SMEs.

The second - and complementary to the city-wide park network - Exemplar is the 'adopt a park' scheme. This will be realised by creating and strengthening partnerships between city government (public sector) and businesses/enterprises (private sector). Currently, 200 such spaces have been identified and the adoption scheme for these parks is being developed. The idea for this Exemplar was a response to the limited opportunities available to involve the private sector (businesses) in the project, since the large parks in the region are funded by city/government. The objectives of these interventions are:

- Provide shady areas in summer,
- Facilitate co-design with citizens,
- Involve actively the private sector,
- Increase the sense of ownership.

Step 2: Current status of the location

The stewardship and maintenance for each District/ Municipal Park varies, considering that different stakeholders are involved, are responsible and authorized for the design/ management/maintenance of each park. The table below provides an overview of the main stakeholder(s) responsible for the management of each park.

Table 2: Current status of the NBS		
Name of Park	Management	Design
Athalassa Park	Forest Department (Central Government)	Forest Department, Department of Environment, Department of Planning and Housing
Pedieos Linear Park	Municipality of Lakatamia, Municipality of Strovolos, Municipality of Nicosia	Department of Planning and Housing
Ayios Dimitrios Park	Municipality of Strovolos, Ministry of Health (Makarios Hospital), English School, Private Sector	English School (external contractor) - Strovolos Municipality
Eleftheria Square	Municipality of Nicosia	Municipality, External contractor (Zaha Hadid)
Akadimias Park	Forest Department (Central Government)	Forest Department, Department of Environment, Department of Planning and Housing
Acropolis Park	Municipality of Strovolos	Municipality of Strovolos
Apalos –Kakkaristra Natural Park	Department of Environment (Ministry of Agriculture – Central Government), Latsia Municipality	Municipality, ANEL Department of Environment (Ministry of Agriculture), State Department of Forests
Lourka Forest Park	Forest Department (Central Government), Yeri Municipality	Municipality, ANEL and Forest Department
Urban Park of Pallourokampos	Latsia Municipality	Municipality, external contractor
Neighbourhood/ Pocket Parks	Private sector (businesses/enterprises) – 5 years	Businesses/enterprises (external contractor) - with the approval of the Planning Committee.

Step 3: Required partners

The NBS will not result in a change of ownership of the parks. However, several stakeholders have and will be involved for the design, implementation, and maintenance of the NBS proposed in this project. In some cases, the stakeholders/organisations responsible for the governance and maintenance of a park are willing to transfer part of the responsibility to other organisations/initiatives, but their approval/permission is still required. As a result, different stakeholders are responsible in/ for different phases of the project. However, it should be noted that not all the stakeholders are involved in all NBS interventions. These vary based on the location of the park, the municipal authority, the surroundings as well as the infrastructure, uses and functions in close proximity to the park. Additionally, some of the stakeholders are and will be actively involved in the process, whereas others will have a more supportive/ consulting/ complementary role.

In the context of this project, a first step was to identify all relevant and involved actors (a detailed list of all relevant stakeholders and beneficiaries has been presented in Chapter One of this document). Several of these stakeholders were brought together to develop the contours of the Open Innovation Team that would be instrumental for the project. In order to engage with the various stakeholders, emphasis was placed on what each organisation could obtain from the project (e.g. how the implementation could cater its interest and objectives). Additionally, the roles, responsibilities and potential contributions to the implementation process were identified. The initiatives and role/contributions of these stakeholders are presented in the table below.

Stakeholder	Initiative	Role/ Contribution
ANEL	Supporting municipalities in their development, Achieve goals of CN & Operational Plan	Planning, Facilitation/ Negotiation
Municipalities	Overcome planning /implementation obstacles, Fund raising, Networking/ synergies, Territorial attractiveness	Access to local population/ key stakeholders, Knowledge of local conditions (Data/ Contact), Internal planning (some municipalities)
Central Government	Response to civic demand for greener city (quality, connectivity), Climate change adaptation, Fight against desertification European directives (Mobility/ CO ₂)	Framework for evaluations, Permissions, Agreements, Data for mapping, Co-financing (municipal/ Eu funding)
Land users with large vested interest	Quality of local environments	Cooperation/ Co-financing

Good communication between the involved actors was thought to be the key to success; therefore, a mediator was appointed, responsible to coordinate the discussion and the communication between the different stakeholders involved in each phase of the project.

Cooperation with the Department of Forests and with the Municipalities, which are responsible for some of the targeted areas, was very important. Due to the difficulties that derived from their internal procedures and bureaucracy, informal discussions were arranged both internally and externally.

Additionally, meetings with Mayors or with the heads of the relevant Municipal Departments took place in order to identify the right contact person in each case. Keeping key actors well-informed was considered significant, so relevant newsletters were sent and short face-to-face meetings were arranged.

Moreover, depending on the audience, roundtable discussions, workshops or presentations have taken place with clusters of stakeholders (e.g. mayors, engineers, etc.). Decision making meetings with experts, frequent meetings/ calls with key personnel (e.g. from the Forest Department or the Department of the Environment) have been organised to ask for input, insights, suggestions and updates.

Meetings with the private sector and specifically with officers responsible for the company's Corporate Social Responsibility Policy were also organized and planned in order to inform them about the project, engage with them and try to build a win-win situation, by giving them incentives to invest in the project.

Step 4: Collaborative governance framework

Decision-making on large urban projects is currently very centralised in Cyprus. The central government usually finances major infrastructure projects undertaken by the Municipalities, but this is dependent on each individual project. However, it is crucial to mention that the Government of Cyprus is working on the reformation of the governance model in the Municipalities, so that they can do their job with sufficient results and less dependence on the central government.

As aforementioned, due to the nature of Nicosia's Exemplar, each park has different relevant and/or involved stakeholders. Therefore, there is not one governance model that characterises all parks in Nicosia.

In the context of this project, what is proposed is the establishment of a semi-governmental body/ organization incorporated by law, where the members of the Board of Directors will be appointed by the Minister of Interior (which is responsible for the development of the local authorities) every 3-4 years. The Board of Directors will be made up of representatives from each of the key players/stakeholders, of the city of Nicosia, that are related with NBS projects.

This body will be responsible for planning, implementing and coordinating the involved actors/stakeholders, as well as monitoring and reporting of the NBS and other development projects in the District of Nicosia. Figure 49 illustrates the proposed structure and organisation of the governance model of the NBS in Nicosia's Exemplar, in the context of this project.

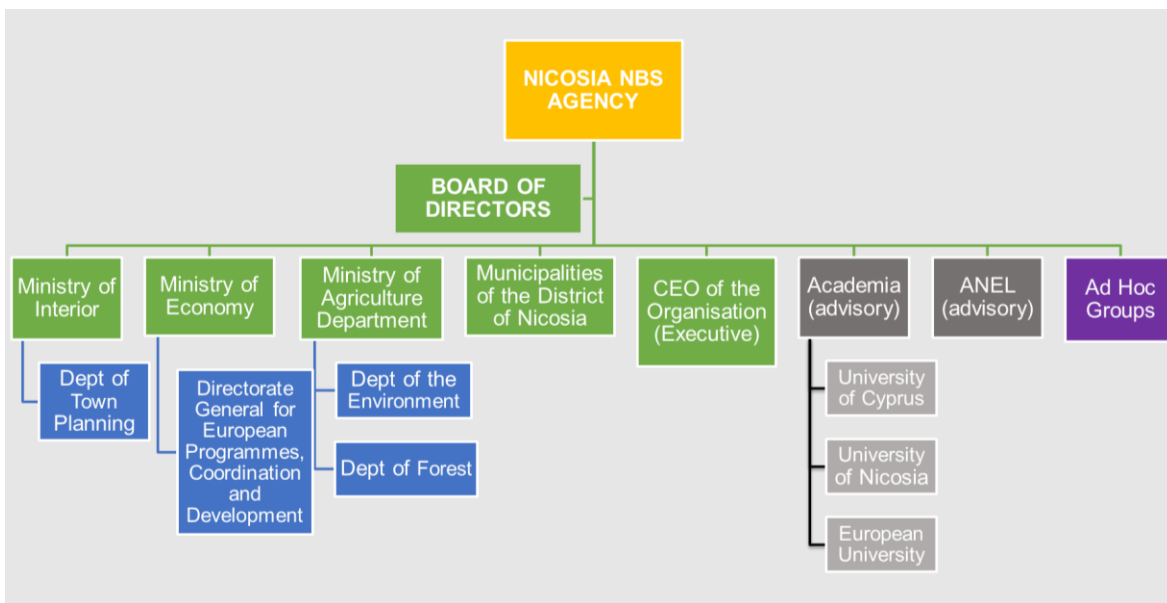


Figure 49 - Proposed Governance Model of NBS

Finance – Business Models

Step 1: Lessons learned from how Nature-Based Solutions have been financed in Nicosia to date

The ways that NBS have been financed in Nicosia to date vary, depending very much on each project. The funding sources that have been used in the different cases are: National Resources, Municipal Funds, European Funds and Private Funds. Below are briefly presented NBS included in Nicosia's Exemplar and the ways they have been financed until now.

Table 4: Current status of the NBS	
Name of Park	Financing
Athalassa Park	Development: funded through Government & EU funds Maintenance: Forest Department (Ministry of agriculture rural development and environment) - Government funds Challenge: Considered a priority for new investments - Underfunded
Pedieos Linear Park	Development: funded through Government & EU funds Maintenance: funded through Municipal funds Challenge: most expensive green space (in terms of maintenance costs) Opportunity: Plans are underway to extend the Pedieos River linear park into Turkish-occupied Nicosia. A bi-communal project aims to bring the Cypriot communities together through recreational activities- A detailed feasibility study has already been completed (extension of approximate 5 km length of the Pedieos River)
Ayios Dimitrios Park	Development: funded through Government & EU funds Maintenance: funded through Municipal funds Opportunity: English School (private entity) prepared a proposal (masterplan) to Strovolos municipality related to the redevelopment of the park that also involves Makarios children hospital.
Eleftheria Square	Development: funded through Government & EU funds Maintenance: funded through Municipal funds Challenge: Maintenance Cost (0.5M / Year)
Akadimias Park	Development: funded through Government & EU funds Maintenance: Forest Department (Ministry of agriculture rural development and environment) - Government funds Challenge: Limited Funding (Maintenance) Opportunity: The project has been included in the Local Strategic Sustainable Development Plan for further funding.
Acropolis Park	Development: funded through Municipal funds Maintenance: funded through Municipal funds

	<p>Opportunity: The project has been included in the Local Strategic Sustainable Development Plan to be funded for the proposed upgrades.</p>
<p>Apalos –Kakkaristra Natural Park</p>	<p>Development: private donation of €2000 by a private contractor Challenge: no budget has been secured for its development Opportunity: a proposal for EU funding (Greece-Cyprus cooperation) to finance technical assistance has been submitted. It has also been included in the Local Strategic Sustainable Development Plan for funding.</p>
<p>Lourka Forest Park</p>	<p>Challenge: no investment has been secured yet Opportunity: it has been included in the Local Strategic Sustainable Development Plan for funding.</p>
<p>Urban Park of Pallourokampos</p>	<p>Challenge: still in its planning phase, uncertain funding & need for permissions from Central Government. Opportunity: a fund of around 1 million euros has been earmarked for Pallourokampos Opportunity: a cost-benefit analysis of a new park in Palloroukampos suggests that there can be revenues from its exploitation. The project has been included in the Local Strategic Sustainable Development Plan for funding.</p>

Step 2: Explore opportunities for innovation in financing, governance and business models.

The proposed NBS could be financed through National Resources, Municipal Funds, European Funds or Private Funds. It is worth mentioning that each NBS in Nicosia is seen as a single project which will seek different funding sources. Opportunities and examples of different funding streams are presented below.

European Funds

The most accessible source of funding for urban projects in the Municipalities of Greater Nicosia is and will be EU funding. According to Charis Sotiriou, who is responsible for EU funding at the financial administration of Central Government, priorities for EU funding in Cyprus will continue to include Environment and Climate-Change Adaptation. Additionally, a horizontal priority will include the sectors of the Smart Specialization Strategy of Cyprus. EU investments in Cyprus in these areas include Research & Innovation/ Research & Development, but also Business Development. The upcoming action plan has a budget of €100 million.

The timeframe of the Connecting Nature Project fits well with the timing of EU funding, as it could help proposing new actions, also for residual funds related to pilot projects. The new ERDF period starts in 2021 and will feature thematic focus on Business Development and SMEs (45%) as well as on the Environment (30%).

Technical studies can also be financed by the EU but only for selected projects. The most relevant EU funds for projects conceived in the framework of Connecting Nature seem to be funds for Research & Development, pilot project based on the priorities of the Development Strategy of Cyprus and the LIFE+ Programme.

Municipal Budgets

Municipalities in Cyprus are funded from a variety of sources. The main sources of revenue are taxes, fees and duties (professional tax, immovable property tax, hotel accommodation tax, fees from issuing permits and licences, fees for refuse collection, fines etc).

Additionally, the revenue of each Municipal Council is subsidised annually by a grant of the Republic proposed by the Council of Ministers and approved by the House of Representatives. Although the amount of the grant paid annually to Municipalities is not prescribed in the Municipalities Law, the Government has committed itself to a stable level of funding now fixed at 1% of the total of Government revenues. The Union of Cyprus Municipalities has requested that the 1% commitment should be endorsed by statute.

The distribution of the total amount of grant between Municipalities has become, as a practical matter, a task undertaken by the Union of Cyprus Municipalities which proposes the rules for

distribution between its members. These are based largely on population figures. A third of the aggregate grant is divided equally between all Municipalities, thus providing an important equalising effect. The division of the remaining two thirds is (pro rata) according to the total number of inhabitants.

The Government also contributes towards the cost of urban development projects (usually road construction projects) which fulfil certain criteria and are approved by the Ministry of the Interior. In order a Municipality to be qualified for this government contribution, such projects must be significant in terms of the main road network or in terms of traffic management. Usually, the Government covers two thirds of the cost (by means of a variety of funding mechanisms) and the Municipality covers the remaining one third. From the point of view of the Municipalities, such shared funding of infrastructural projects is often seen not as a government grant to them, but as municipal contributions to central projects.

Another important feature of the financial regime of Municipalities is the obligation to prepare an annual estimate of revenue and expenditure. The Municipalities Law requires each Municipality to submit its estimate for the approval of the Council of Ministers. The estimate must be submitted to the Minister of the Interior in duplicate by way of the District Officer and the Minister is then required to submit the estimates together with any suggestions and observations of his own to the Council of Ministers for approval. Further provision is made for the revision of estimates and to ensure compliance by Municipalities with the estimates, subject to permitted degrees of variation. On the face of it, these sections of the Municipalities Law impose a severe form of central control (and one not confined merely to questions of legality) over the budgeting procedures of Municipalities. However, the Government regards compliance with the statutory rules as a mere formality since the Council of Ministers has not refused approval of any Municipality's estimates (nor of a transfer between accounts) in recent years. On the other hand, there is a shared understanding that the rules are usefully retained as a protection against possible abuse at a future date. Negotiations are held between the officials of the Ministry of the Interior and the concerned Municipality before the draft budget is submitted to the Council of Ministers for approval.

A potentially important source of funding for parks and gardens are the funds constituted by development fees that are earmarked for new parks.

Examples

In Latsia, the fund contains 2 million euros from development that have been collected since 1989. Only a small amount of the money was spent to plant new trees, while the rest still awaits a specific purpose. The money was not spent because there was no policy for developing new parks.

In Lakatamia, the fund contains 1 million euros. In this Municipality, all subdivisions must devote at least 15% to green space, but the owners can pay into the fund for the creation of green space elsewhere, hence the money in the fund.

Step 3: Planning the financing and business model of Connecting Nature NBS Exemplars

This chapter presents a brief description of the Business Model Canvas that was developed for the Nicosia Exemplar. The Business Model Canvas was completed as part of a co-production process at the initial stages of the project. A detailed presentation of the process can be found in the Chapter of Co-production.

The Business Model Canvas was completed with internal and external stakeholders, as part of an internal and external co-creative process, going beyond engagement between the city and citizens, and involving all quintuple helix actors, including academic, business and investments communities.

Regarding the Business Canvas Model and its content, the main areas explored were the: *key activities, key resources, value proposition, key partners, key beneficiaries, cost structure, cost reduction, capturing value, capital expenditure costs and sources of capital investment* of the proposed NBS. A more detailed reference to most of these topics has been made in other chapters of this document; however, in this section the content of the Business Model Canvas is presented in detail below, as well as in bullet points in Figure 50.

Firstly, all involved actors were identified, which will have a role and/or significance in Nicosia's exemplar. The key actors/stakeholders were divided in two groups: (i) key partners, and (ii) key beneficiaries, which were then categorized under three pillars: (a) environment, (b) economic, and (c) social. A key partner under the *environmental* pillar is the Commission of Environment, key partners under the *economic* pillar were identified as Chrysallis Leap, Municipalities, DGEPC, the Forest Department, the Ministry of Employment, the Ministry of Interior, and ANEL, whereas under the *social* pillar are the Commission of Volunteering, NGOs, Schools, Hospitals, the Health Department and youth boards, and the University. Furthermore, key beneficiaries under the *economic* pillar are businesses in the surroundings of parks, whereas under the *social* pillar are student unions, sports clubs, citizens, and the University. A local stakeholder group meeting was organised, during which it was realised that good communication between the involved actor would be the key to success. For this reason, a mediator has been appointed, who will be responsible for coordinating the discussion and the communication between the different stakeholders involved in each phase of the project.

Moreover, through the Business Canvas Model was defined the way Nicosia's exemplar will create environmental, economic and social value (value proposition).

More specifically, looking at the project through an environmental lens, the proposed green network, new bicycle and pedestrian lanes will contribute to the improvement of air quality in Nicosia. The plantation of trees will create shading, such as in and around the parks, and along the bicycle and pedestrian lanes, which will provide cooling and increase the thermal comfort of

urban dwellers. The importance of selecting the right trees for shade was highlighted, in terms of size, shape, and density, as well as selecting the right location to plant to plant them. The careful selection of trees and their proper placement will ensure better results. Furthermore, the bicycle and pedestrian paths in the park will be natural and will be linked with the turmac lanes found outside the parks. A strategic and well-planned connection/network of parks will result in a park system that can provide healthful recreation and transportation options for Nicosia's citizens. Interconnected trails, greenways, and parks support and encourage activities such as cycling, running, walking, skating, skiing, and even wheelchair travel, which will allow some users to reach and cover distances from their place of residence to their work location. In addition, such a network will contribute to the improvement of quality of life, by providing citizens more options for recreation, additional amenities and outdoor facilities. Lastly, this network will protect and increase local biodiversity, which will enhance the provision of ecosystem services on a local scale.

When it comes to the economic aspect of Nicosia's Exemplar value proposition, the proposed network will increase land, property, and investment values. Moreover, it will contribute to the attraction of startups and incubators, and the creation of sustainable jobs and employment opportunities, for example, for the maintenance and management of the parks, as well as spin off jobs, for the functioning and running of Kiosks, the provision of the necessary furniture equipment, Bicycle rental shops, and more. Furthermore, the network will increase the number of Cypriot enterprises engaged in Corporate Social Responsibility (CSR) and raise awareness on the fact that CSR does not only concern large enterprises, but also smaller ones. At the same time, the park network will promote Green CSR. Finally, it will stimulate increased economic activity in businesses surrounding the parks and interventions.

Lastly, Nicosia's Exemplar will also create social value. For instance, the parks will increase's people's ability to come in contact and interact with nature, which is known to confer several health benefits and enhance the well-being of citizens. This is of increased importance in the built environment, where access, quality, and quantity of nature is limited compared to rural areas. Moreover, the parks will increase physical activity opportunities, which in turn will increase fitness and reduce illnesses such as obesity and cardiovascular diseases. Parks are important resources that can mitigate climate, air, and water pollution, which have severe impacts on public health, and pose additional strains on the national healthcare system. Therefore, investing in such solutions improve health outcomes. Furthermore, the parks will increase social cohesion in the area, as they offer additional places where people can meet, connect, and interact in, which will reduce isolation and foster a sense of equality and belonging. Lastly, the proposed interventions will contribute to the overall improvement of Nicosia's image as a city which offers a great place to work and live in.

In addition, through the Business Canvas Model were defined the most important services or activities which need to happen in order to deliver the environmental, social and economic value (value creation).

For the creation of environmental value, it is crucial to plan and implement bicycle and pedestrian paths to increase mobility and accessibility in Nicosia, updating and enriching the existing local mobility plan. To proceed with the plantation of trees for increased shading, while considering and ensuring a careful selection of the right trees, and their correct placement. The Implementation Plan for the network of proposed and existing parks, will be prepared by ANEL, in collaboration with the Department of Environment. Moreover, it is important to make use of the available Employment and Training programs, contributing to Capacity Building, and grow and strengthen the team with people that have strong environmental backgrounds, expertise, and skills. Lastly, it is important to define and set indicators that will assess/monitor the identification process, air quality and local temperature levels.

To ensure the economic value creation, it is important to create a Management Plan for the Parks. This document will be prepared jointly by Nicosia Development Agency, Municipalities of Nicosia and Ministry of Agriculture, Rural Development and Environment. Moreover, CSR Cyprus will be contacted, to provide access to all large companies in the areas of intervention. As aforementioned, it is key to make use of the available Employment and Training programs, and Capacity Building, which will increase the skills of the workforce, and improve their employability. The Adopt a Park/Tree Scheme will be implemented as a key part of this project, which will increase its feasibility, and ensure the management and maintenance of the parks by the local community and other relevant stakeholders. Furthermore, it is crucial to increase PR and events, to build a Communication Strategy for the project, and to create a brand name for Nicosia's Exemplar, such as "Connecting Nicosia". Lastly, access to start-ups needs to be strengthened, as well as the provision of business incentives, through schemes, funds, and grants, for new businesses that will be situated in and around the parks.

Finally, to ensure the social value of the project is secured, it is important to update and enrich Nicosia's mobility plan, to set health indicators in order to measure health outcomes and facilitate increased social connections.

When it comes to capturing value, some key elements have been identified regarding (a) the cost structure and the major ongoing costs associated with delivering key activities, (b) the opportunities to reduce costs, and (c) capturing value and how success will be measured.

Regarding cost structure, one of the operation costs will be of the agency, for personnel, office rent and other associated costs for communication and branding, Capacity building, as well as monitoring and reporting of the agency and the project's impacts. Additional costs will be associated with the maintenance of the parks, as well as other replacement costs (trees plants, furniture). Finally, the different events organized in the will also contribute to increased costs.

Moreover, through the Business Canvas Model, several ways to reduce costs were identified. These include, Subsidy Employment Schemes, the work of volunteers, sponsorships – donations, CSR

Schemes, the use of technology (best practices and improvements), as well as research funds for the application of technology.

For capturing value, a set of indicators will be needed, which will assess and value the direct revenue generating from (i) operations in the parks, through concerts, markets, open air cinema and more. (ii) the number of new jobs created, either from the agency, or new enterprises established in the parks, (iii) Increased property prices in the areas, increased business activity (Increased footfall) around the parks and along the mobility corridors, (iv) increase in property taxes / income tax receipts from local businesses along and around the parks, (v) Jobs sustained – public and private sector, and (vi) the leasing of kiosks, coffee shops, and other services provided in and around the park interventions.

Finally, the agency will be responsible for capital expenditure costs, as well as identifying sources of capital investments.

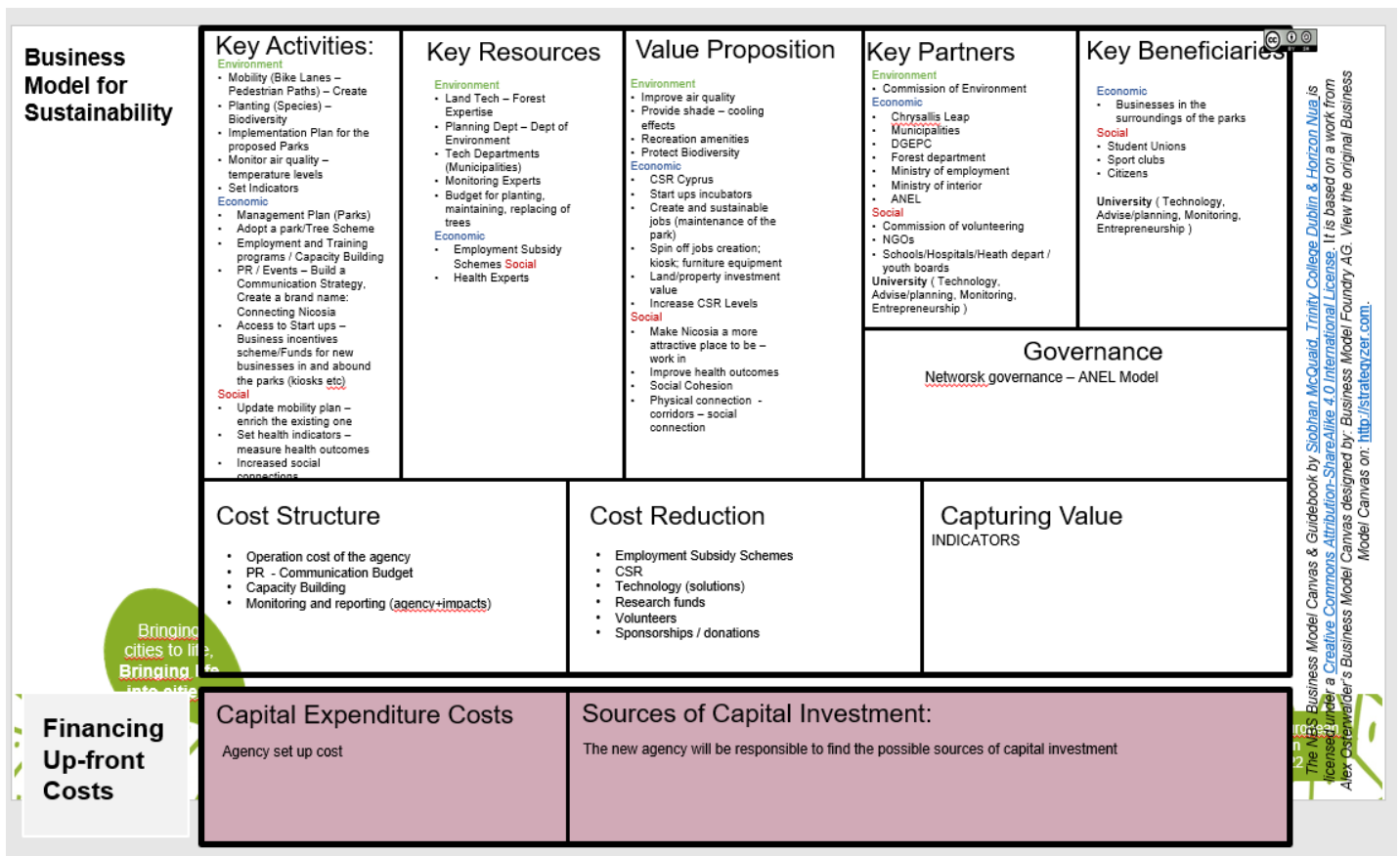


Figure 50 - Business Model Canvas

Step 4: Implementation of financing and business model plans for NBS Exemplar

The table below presents the Financing & Business Model Implementation Plan.

Table 5: Financing & Business Model Implementation Plan

City	Nicosia (Green Network)	Nicosia (Pocket Parks)
Capital financing required for NBS exemplar	€17 M approx	€10-15k per park (200 parks) 50 parks to be targeted in Round 1
Capital financing applications submitted/secured	Urban Park of Pallourokampos : €4.000.000 Saint George Linear Park: €500.000 Lourka Forest Park: €1.500.000 Linear Park of Yialias: €2.250.000 Kakkarista Park: €250.000 €8.5m funding secured for 5 of the 8 parks The funds for the remaining 3 parks are included in the Municipal Budgets but are still awaiting approval (Jan 22 update)	Issuing a call for local businesses for Corporate Social Responsibility (CSR) investment to fund the capital developments. Each municipality has initiated its own call for proposals (end 21) and the first park has been adopted in the Strovolos Municipality by FML Ship Management Ltd
Unsuccessful capital financing	Not applicable	Not applicable
City	Nicosia Green Network	Nicosia (Pocket Parks)
Sources of capital investment 1.City budget (public) 2.Regional / national/ EU /other public sources 3.Private/third sector 4.Financial Institutions	ERDF co-financing and the Governmental contribution. However the exact percentage of each co-financing side has not yet been decided. Awaiting the relevant decision from the Council of Ministers. (Jan 2022)	3 & 4 are the target
New financing partnerships: <ul style="list-style-type: none"> Capital Stewardship 	Capital: A new Public/private collaboration between a private school,Strovolos Municipality and the Ministry of Health for the redevelopment of Ayios	Capital: Privately led financing Stewardship: Private firms and municipalities will collaboratively

	<p>Dimitris Park - one of the 8 parks in the network. COVID delaying progress</p> <p>Stewardship: Talks still underway re ongoing PPP co- operations with regards to Ayios Dimitris Park</p>	<p>oversee the maintenance of the pocket parks.</p>
<p>Key innovations</p>	<p>PPP collaboration is a first for funding and stewardship of public parks in Nicosia and could lead to a new model of cooperation in the future</p>	<p>Using CSR to mobilize and fund NBS</p>

Nature-based entrepreneurship

Step 1: Awareness and strategic alignment

Demand for NBS has increased in recent years, as the concept is being encouraged by organisations from the European Commission (EC) to the United Nations. However, NBS are complex, and most organisations do not have the skills or resources in-house to design, deliver and manage such solutions. Nature-based enterprises (NBEs) can help meet this challenge.

In the case of Nicosia, NBEs do exist but are not aware of this term in order to promote themselves as such. A number of local enterprises use nature directly or indirectly as a core element of their product service offering however, they experience several barriers in growing their businesses; deepen their knowledge on the field in order to advance their own expertise; adaptation of new tools and techniques as well as in identifying and absorbing funding opportunities available (that will be analysed below) to help them excel and sustainably grow.

In this regard, more attention to NBS and therefore to NBEs is necessary, as it has multiple benefits: economic development, environmental protection, social cohesion, health benefits etc. Also, more attention shall be focused on raising knowledge how to support NBEs, especially in public institutions and policy makers (all levels).

NBEs and organizations that exist in Cyprus are generally active in the following sectors:

Direct or indirect use of nature	
Sector	Sub-sector
Ecosystem creation, restoration and management	Ecological & landscape restorations Ecosystem conservation and management Biodiversity conservation Reforestation Marine and freshwater ecosystem restoration Marine and freshwater ecosystem conservation and management
NBS for green buildings	Living green roofs and facades Living green wall indoors & outdoors
NBS for public and urban spaces	Green areas, parks and facades Green infrastructure Green space management Urban forestry Urban regeneration projects
NBS for water management and treatment	Natural flood & surface water management Urban green and blue infrastructure

	Urban water management Urban regeneration projects
Sustainable agriculture & food production	Agroforestry Plant and soil improvement Regenerative farming
Sustainable forestry and biomaterials	Sustainable forestry Biomaterials for construction Biomaterials for food preservation
Sustainable tourism and health & wellbeing	NBS for health & well-being Agritourism Eco-tourism and nature-based tourism Forestry tourism
Indirect use of nature	
Advisory services	Biodiversity and ecosystems Urban greening design & planning Landscape architecture Water management Community engagement for NBS
Education, research & innovation activities	Ecological research Environmental awareness education Research & innovation projects
Financial services	Investment for biodiversity and conservation Natural capital accounting
Smart technology, monitoring and assessment of NBS	Smart technology solutions for NBS Environmental monitoring Spatial tools for environment
(ConnectingNature, 2020)	

Contribution of NBS to the city economic development priorities

As already analysed in more details in the previous sections, the main aim of Nicosia Development Agency (NDA) was to include NbS as policy theme in national and local strategies, using Connecting Nature Framework as a tool, which in turn would prepare and facilitate projects on the ground. Nicosia Development Agency (NDA) decided to work further on the implementation of a very ambitious large-scale project: Network of open and green spaces that will cover the district of Nicosia, which will promote the health and wellbeing of people, improve their quality of life, support the local economy and enhance the environmental quality of the area of

intervention (air quality management actions to reduce air pollution and its associated health impacts).

Nicosia Development Agency has worked closely with the Directorate General for European Programmes, Coordination and Development of the Ministry of Economy as well as with its member municipalities to find the best possible way to achieve that. After several discussions, brainstorming sessions and meetings with several key people (policymakers), Nicosia Development Agency has managed to include the majority of the projects (parks) developed in the context of the Connecting Nature Framework, in the Integrated Spatial Development Strategy (OXA) plan for Nicosia. The OXA plan was submitted in February 2021 and was approved for funding in September 2021.

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

Nicosia Development Agency (NDA) explored ways of involving NBEs in all phases of the exemplar, from planning to maintenance. As discussed in previous sections, an innovative way of involving the NBEs was the “Adopt a Park” Scheme. This Scheme is being developed to promote long term partnerships between Local Businesses/Enterprises (including NBEs) and Local Government, in order to maintain and beautify the neighborhood (small/ medium size) parks of the area of intervention. The idea was born due to the main challenge that Nicosia faces to involve the private sector in this kind of NBS initiatives. As mentioned earlier, the larger parks in Cyprus are all financed and operated by the Government (Ministry of Agriculture, Rural Development, and Environment – Department of Forest and Department of Environment). The identified opportunity was the existence of lots of small green spaces, most of them underused or abandoned, in the neighborhoods, which had the potential for pocket parks. These spaces are owned and supposed to be designed and maintained by Local Authorities (Municipalities) that don’t have the capacity to do so, but are more open in exploring the idea to involve the private sector to invest and develop these smaller green spaces.

Challenges and enablers in involving NBEs in the implementation of NBS

One of the main challenges was first; ways to involve NBEs in all phases of the exemplar and second; to help them identify and overcome certain barriers or limitations they seem to face such as growing their businesses; deepen their knowledge on the field in order to advance their own expertise; adapt new tools and techniques; identify and absorbing funding opportunities available that will help them excel and sustainably grow.

An opportunity (enabler) identified was the existence of lots of small green spaces, most of them underused or abandoned, in the neighborhoods, which had the potential for pocket parks. These spaces were owned by Local Authorities. As mentioned in previous sections, the municipalities

were more open in exploring the idea to involve the private sector (including the NBEs) to invest and develop these smaller green spaces.

Another enabler can be considered the very active start-up ecosystem of Cyprus that could be used as a boost for the NBEs to develop, present and test solutions to the parks involved in the Adopt a Park scheme.

Building alliances

As mentioned above, most of the identified NBEs in Cyprus are not aware of this term in order to promote themselves as such. In addition, the majority of them experience several barriers or limitations such as growing their businesses; deepen their knowledge on the field in order to advance their own expertise; adaptation of new tools and techniques as well as in identifying and absorbing funding opportunities available that will help them excel and sustainably grow. However, it was noticed that the innovation and technology-oriented ones, are more aware of the funding opportunities available in the country compared to the more traditional ones.

The implementation of NBS in Nicosia has not been an easy task, and there have been various barriers hindering the process. Some of the most important barriers were to first understand what NBEs are and therefore, build an NBEs community in order to promote and support further their development, which in turn, will increase the uptake and scale up of NBS in Nicosia.

One of the first things done was the mapping of NBEs in Nicosia in order to examine ways to engage them. The NBE platform that has been launched through Connecting Nature project, was a good occasion to contact them, explore the services or/and products they offer in order to assure they meet the characteristics of a NBE and discuss further this very new terminology for them. The main goal was to attract NBEs' interest, understand their level of knowledge and skills in order to find ways to support them and inform them about available opportunities which can help them grow (in knowledge, expertise and size). In addition, they were encouraged to explore the available opportunities arise on the NBE platform, which is needed to be seen as an important tool, that can help the local NBEs to find the necessary boost, to exchange experiences with other European and international NBEs, extend their knowledge and fill the identified gaps; and explore new available tools and techniques that can be adopted in local level.

Main actors in the innovation ecosystem of Nicosia

In the context of the Connecting Nature project, and Nicosia's Exemplar in particular, it is worth identifying and briefly present the different actors, mechanisms, organisations and institutions that can promote and support further the development of NBEs, which in turn, will increase the uptake and scale up of NBS in Nicosia.

National Research and Innovation System

The system of governance of R&I in Cyprus has recently been revised through a Decision of the Council of Ministers dated 9/10/2018 (Research & Innovation in Cyprus, n.d.). The new system is as follows:

STRATEGY LEVEL

(a) Minister of Finance as Head of Political Affairs for Research & Innovation (R&I).

Research & Innovation (R&I) is part of the Finance Minister's portfolio. In this context, the Minister of Finance is the responsible political head at both national and European level (Research & Innovation in Cyprus, n.d.).

(b) National Research & Innovation Council (NRIC)

The new National Research & Innovation Council (NRIC) is the Government's main advisory body for defining a strategy. The Council is responsible for the promotion and implementation of the Research, Innovation and Entrepreneurship Strategy, submits proposals and recommendations on strategic issues and monitors the implementation of policy-related issues. In addition, it has a supervisory and guiding role in the implementation of the new proposed national R&I framework and has the option of planning corrective and evolutionary actions regarding the functioning of the system and the implementation of the national strategy and individual policy measures. Members of the NRIC are appointed high-profile individuals with expertise in research, innovation and entrepreneurship (Research & Innovation in Cyprus, n.d.).

POLICY LEVEL

(c) Chief Scientist

The Chief Scientist plays a coordinating and guiding role at the policy level of the national framework. In particular, the Chief Scientist has a coordinating and supervisory role in the formulation of R&I Policy and the functioning of the national R&I governance system, including departments and bodies involved at both the policy and technocratic levels. In addition, the Chief Scientist supports the work of the Council to formulate R&I Strategy recommendations, as well as suggestions on the structure and functioning of the governance system (Research & Innovation in Cyprus, n.d.).

(d) Directorate for Research & Innovation

The Directorate-General for European Programmes, Coordination and Development is an independent government agency which is administratively under the responsibility of the Minister of Finance (Research & Innovation in Cyprus, n.d.).

The R&I Directorate has the following responsibilities:

- coordination, support and monitoring of the implementation of the National Research & Innovation Strategy (R&I);
- planning and coordination of R&I policy issues;
- tasks of the NRIC Secretariat
- administrative support from the Chief Scientist, in addition to the support of the Research and Innovation Foundation (RIF).

The coordination of the National R&I Strategy and the management of policy issues is carried out under the guidance of the Chief Scientist and the Minister responsible (Research & Innovation in Cyprus, n.d.).

In addition, the R&I Directorate is responsible for representing the Republic of Cyprus in the relevant European institutions, bodies and working groups, including bodies strategically involved in the implementation of Horizon 2020 and for the preparation of bilateral and multilateral transnational agreements to promote cooperation in the field of R&I. In particular, it provides funding to the main Research Funding Bodies in Cyprus, the Research and Innovation Foundation (RIF), as well as institutional funding to Research Organisations such as the Cyprus Institute of Neurology and Genetics, the Cyprus Institute, the Centre of Excellence for Research & Innovation "KOIOS" and the Research Centre of Excellence "Research Centre on Interactive Media Smart Systems and Emerging Technologies – RISE" (Research & Innovation in Cyprus, n.d.).

EXECUTIVE LEVEL

(e) Research and Innovation Foundation

The Research and Innovation Foundation (RIF) is the executive arm of the Government for R&I. It is an autonomous Private Law Foundation. Since 1996, the RIF has been the main body responsible for coordinating, supporting and financing research activities in Cyprus and organizing Cyprus' participation in the most important European Research Programmes (Research & Innovation in Cyprus, n.d.).

The significant role of scientific research in modern socio-economic development, as well as the vital need to enhance research activities and infrastructures in Cyprus, were determining factors for the founding of the RIF. Following a relevant decision by the Council of Ministers in 2007, the Foundation expanded its range of activities to also support and advance Innovation in Cyprus (Research & Innovation Foundation, n.d.).

RIF's mission is the establishment of all the necessary conditions and requirements that will support the development of Research, Technology, and Innovation in Cyprus. Through innovative actions and programmes, RIF reinforces the domestic R&I ecosystem, contributes to strengthening the competitiveness of the Cypriot economy and develops cooperation and

networking with the international research and entrepreneurial communities (Research & Innovation Foundation, n.d.).

Some other relevant organisations within the national R&I system include (European Commission, n.d.):

- Ministry of Energy, Commerce, Industry and Trade,
- Research Promotion Foundation,
- The Cyprus Institute,
- Department of Fisheries and Marine Research,
- Agricultural Research Institute,
- University of Cyprus,
- Cyprus University of Technology, and
- The Cyprus Institute of Neurology and Genetics.

Innovation Plans & Frameworks

In order to promote R&I activities, actions and investments in Cyprus, a series of development and plans and frameworks have been drafted, which have R&I at the core of their strategy. Some of these documents are presented below.

Research, Technology, Development and Innovation (RTDI)

Cyprus Research and Innovation Strategy Framework 2019-2023 – Innovate Cyprus

Innovate Cyprus is the national strategy framework for research and innovation for the period 2019-2023. The vision of the strategy is to make Cyprus *“a dynamic and competitive economy driven by research, scientific excellence, innovation, technological development and entrepreneurship and to become a regional hub in these fundamental areas”* (Research & Innovation Foundation, n.d.). The Strategic Framework revolves around nine strategic pillars and enablers:

1. Governance,
2. National Strategy for Research and Innovation,
3. Research Excellence,
4. Knowledge Transfer and Commercial Exploitation,
5. Innovative Entrepreneurship,
6. Cultural Change,
7. International Dimension,
8. Communication, and
9. Digital Transformation.

Innovate Cyprus was prepared by the National Board for R&I, after an extensive consultation with private and public sector stakeholders (research and academic institutes, universities, Ministries,

other organisations, etc.) and was presented to the President of the Republic of Cyprus in May 2019 (Research & Innovation Foundation, n.d.).

Smart Specialisation Strategy

The Smart Specialisation Strategy (S3Cy) is a comprehensive economic transformation agenda, tailored to the specific needs of each region or country, aiming to contribute towards economic development (Research & Innovation Foundation, n.d.).

The preparation and approval of the Smart Specialisation Strategy by the EU Member States was a key precondition set by the European Commission for the utilisation of European Structural and Investment Funds (ERDF) for R&I during the Programming Period 2014-2020 (Research & Innovation Foundation, n.d.).

The Smart Specialisation Strategy for Cyprus was prepared under the coordination of RIF, with the support of a research team by the Cyprus Technology University and was approved by the Council of Ministers in March 2015 (Research & Innovation Foundation, n.d.).

Its main goal is to ensure the rational and efficient use of ERDF funds by identifying niche areas of competitive strength for development and growth (Research & Innovation Foundation, n.d.). The priority areas highlighted through the Smart Specialisation Strategy for Cyprus are:

- Energy,
- Tourism,
- Structured Environment/Construction,
- Transport/Shipping,
- Agriculture/Food, and
- Information and Communication Technologies and Environment as horizontal sectors.

Specific focus areas were also identified within each priority area. The priority areas and focus areas selected can make a significant contribution to the development of the economy via investment in R&I (Research & Innovation Foundation, n.d.).

The main implementation tool of the Smart Specialization Strategy is the Strategy Action Plan, which includes measures and actions for the RIF RESTART 2016-2020 Programmes (Research & Innovation Foundation, n.d.).

RIF RESTART 2021-2027

RESTART 2021-2027 is a multiannual development framework of Programmes to support Research, Technological Development and Innovation in Cyprus, which is co-financed from national and European resources and implemented in conjunction with other national initiatives and programmes.

The vision of the RESTART 2021-2027 Programmes is to highlight R&D as a key factor in Cyprus' economic growth, contributing to addressing the key economic and social challenges, and developing the conditions for achieving sustainable development, in line with the principles highlighted by the Europe 2020 strategic framework for smart, sustainable and inclusive growth.

The design of the RESTART 2021-2027 Programmes focuses on the individual objectives, as well as the Priority Areas identified through the Smart Specialisation Strategy for Cyprus (S3Cy).

Operational Programme (OP) "Competitiveness and Sustainable Development" (Will be replaced to THALIA 2021 -2027)

The Operational Programme (OP) "Competitiveness and Sustainable Development" is co-financed by the European Regional Development Fund (ERDF) and the Cohesion Fund and is one of the two Programmes prepared for the effective utilisation of the resources of the Cohesion Policy in the period 2014-2020 (Structural Funds of the European Union in Cyprus, 2014).

The OP "Competitiveness and Sustainable Development" constitutes a programming document that includes specific priorities and indicative categories of interventions which will be implemented during the period 2014-2020, contributing towards the strategic objective of the Partnership Agreement for the restructuring of the economy, the preservation and creation of new jobs and the safeguarding of social cohesion (Structural Funds of the European Union in Cyprus, 2014).

Within the framework of the OP "Competitiveness and Sustainable Development", interventions planned will contribute to the enhancement of economy's competitiveness through investment in the sectors of R&I, ICT and SMEs support. Interventions are also planned in the sectors of Environment, Energy and Transport, as well as for promoting integrated sustainable urban development in deprived areas. The interventions will include investments of the broader public sector, as well as grant schemes/incentives addressed to the private sector (Structural Funds of the European Union in Cyprus, 2014).

RIF Strategic Plan

RIF's Strategic Plan is the organisation's major planning document and serves as a roadmap and implementation mechanism for all its activities and actions, in order to fulfil its mission and achieve its vision (Research & Innovation Foundation, n.d.).

The document describes the Vision and values of the Organisation and revolves around RIF's main Strategic Goals, for a time period of five (5) years. An integral part of the Strategic Plan are the Action Plans (one per Strategic Goal), which describe the implementation activities in detail, including the timeframe, the required resources, the monitoring mechanism and the relevant indicators (Research & Innovation Foundation, n.d.).

The Strategic Plan will define appropriate fields of action to support the achievement of RIF's objectives and goals, hence strengthening the efficiency and effectiveness of the Organisation (Research & Innovation Foundation, n.d.).

Grant/Sponsorship Plan for Increasing Business / Entrepreneurship Innovation

The Plan aims to support and strengthen existing start-ups and other enterprises investing in R&I for the development of competitive innovative products and services that they plan to release to the market, as well as innovative processes for the production of their products.

Additionally, the plan aims to support start-ups who intend to develop innovative products, services, and processes and to promote cooperation between enterprises. The result of the Plan will be to combine private investments in research, development and innovation as a contribution to the development of innovative products/services and processes as investment capitals.

This objective is intended to be achieved by making use of incentives in the form of financial aid for the development of innovative products and services. It can also be achieved through the development of innovative processes and production processes that will offer a competitive advantage to enterprises.

Accelerators and Incubators in Cyprus

Cyprus is rapidly growing as a centre for Information and Communication Technology (ICT) and Research and Development (R&D), and it provides a great environment for start-ups, including start-up incubators, networks of start-up entrepreneurs, R&D centres, and start-up angel investors. Furthermore, Cyprus has introduced a Start-up Visa scheme for third country nationals who wish to reside and invest in innovative businesses in Cyprus.

IDEA Innovation Center

IDEA Innovation Center is a non-profit Incubator – Accelerator and comprehensive innovation centre for entrepreneurs, startups and SMEs in Cyprus, giving great emphasis on the entire spectrum and peripheral activities that build entrepreneurial skills & mindset to people with vision, and emphasizes on commercialization activities (IDEA Innovation Center, 2021).

It hosts start-up companies, offering them high quality of training and services, to turn their innovative ideas into viable businesses with a global outlook. Start-ups that use nature directly or indirectly as a core element of their product service offering, can apply to one of the regular calls of IDEA in order to find the support they need to grow.

Chrysalis Leap

Chrysalis LEAP helps entrepreneurs bring their cleantech ideas to market. Chrysalis Leap is a partner of EIT Climate-KIC, one of the three EIT Climate-KIC Cyprus Hub partners and the official

organiser of EIT ClimateLaunchpad for Cyprus. They undertake various initiatives to promote cleantech entrepreneurship and innovation. This Nicosia-based private company that was developed with the RIS programme Climate KIC with the purpose of a business accelerator was established in 2013 (ChrysalisLeap, 2019).

Its focus lies on training, identifying gaps, needs in different areas and sectors related with “clean tech”. The goal of Chrysalis LEAP is to help people turn their ideas into projects. The teams that enter the accelerator programme are mostly from Cyprus, but also from other places, such as Lithuania, Turkey, Switzerland or Greece (ANEL, n.d.).

Diogenes

Diogenes Business Incubator University of Cyprus, owned by the University of Cyprus, Cyprus’ largest public University, is a high technology business incubator aiming to commercialize R&DI results by creating business value. Diogenes is geared to pioneering the transformation of Cyprus into an important center in the Eastern Mediterranean, in the area of commercializing high technology research and innovative ideas and is committed to developing entrepreneurship in the country as an important component of the process (Diogenes Business Incubator, 2011).

Gravity Ventures

Gravity is a cutting edge, venture building incubator based in Nicosia, that fosters and propels innovation. Their approach focuses on building start-ups from early stage to mature ventures, by assisting them in all the necessary steps and guiding them throughout their journey (Gravity Ventures, 2020).

ARIS

ARIS is a start-up accelerator, founded by Deloitte and the Bank of Cyprus, with the purpose of offering entrepreneurs with the structure, mentorship and network needed to launch successful business ventures. The acceleration programme has been designed and is being curated by Deloitte’s Innovation and Entrepreneurship Centre. The accelerator targets start-ups that want to speed up the execution time of their projects and accelerate their go-to market speed (ARIS, 2021).

ARIS’ objective is to spark innovation and facilitate the creation and development of ideas, products and services that will be solving real problems through the utilization of technological means. ARIS’ vision is to create impactful start-up businesses that grow with their assistance, matching their residents with potential clients and investors (ARIS, 2021).

Kinisis Ventures

Kinisis Ventures is a business acceleration firm partnering primarily with Cypriot ventures that demonstrate differentiated value propositions that can scale in the USA market. Kinisis Ventures

leverage years of multidiscipline USA business expertise and networks to add strategic and tactical value to their portfolio companies.

European University Cyprus (EUC) – Performance Enterprise Accelerator & Knowledge (PEAK) Innovation Center.

The research center EUC-PEAK aims to research, support and accelerate efforts of Entrepreneurship, Business Innovation and Knowledge Transfer. The primary mission is to formulate a research community that creates research on the aforementioned topics. Research in such topics will focus on, but is not limited to, the impact of Entrepreneurship, Business Innovation and knowledge transfer in Cyprus and the near region (EUC-Peak, n.d.).

EUC-PEAK Innovation Center targets to become the hub for research, applications and education for the Cypriot start-up companies, SMEs, industrial and manufacturing community, social entrepreneurship and green entrepreneurship, stakeholders and public authorities and to become a major player in the wider area of Southeast Europe (EUC-Peak, n.d.).

Step 3: Planning, implementing and monitoring a customized support programme

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

- **Adopt a Park Scheme** (Implementation phase):
 - Objective:** involvement of private sector; promote long term partnerships between Local Businesses/Enterprises (including NBEs) and Local Government
 - Challenges addressed:** Ensure the implementation of the agreed designs; maintenance and sustainability of the parks; Job Creation; Lack of awareness.
 - Description:** The Scheme is being developed to promote long term partnerships between Local Businesses/Enterprises (including NBEs) and Local Government, in order to maintain and beautify the neighborhood (small/ medium size) parks of the area of intervention. Each member municipality of ANEL opened a call (with similar guidelines prepared by ANEL, University of Cyprus, Municipal Technical Departments, aligned with recommendations of the Department of Planning & Housing – Ministry of Interior and ETEK)

- **Incubator Programme** (planning stage)
 - Objective:** involvement of private sector; jobs creation; promote green entrepreneurship promote; awareness raising
 - Challenges addressed:** Lack of NBEs

Description: The idea is still in very early stages. The plan is to develop a programme in collaboration with the The Research and Innovation Foundation (RIF) and active incubators such as the IDEA or Chrysalis Leap. The programme will include funding, training, mentoring / advising on how to develop and grow nature-based enterprises. It is still under consideration which will be the focus stage (Ideas or established startups)

NBE Strategy Summary Table

<i>NBS</i>	<i>NBS Phase</i>	<i>Type of NBE Involved</i>	<i>Challenge</i>	<i>Goal of NBE Programme</i>	<i>How will this be achieved?</i>	<i>Partner</i>	<i>What does success look like and how will you measure it?</i>
Adopt a Park	Planning	Landscape architects	Mapping NBE's to do the work - availability once call is issued	To use NBE's to works with Private sector on design, implementation and stewardship of pocket parks	Catalogue of companies to be supplemented once call is issued	Companies	50 companies and NGO's for Round 1 NBE-s - to be determined
	Delivery	Landscape companies	Ensure the implementation of the agreed designs.	Application of the most suitable in each case NBS.	Monitoring of the process.	Companies	The implementation of the designs as agreed on time. Number of visitors (Company events, social events etc)
	Stewardship	Landscape companies	To ensure the maintenance and sustainability of the parks.	Maintenance and sustainability of the pocket parks.	Monitoring of the process.	Companies	Indicators
		Smart tech in the park - monitoring					
Incubator Programme (Jan 22)	All phases	startups that will provide solutions	focus stage, Ideas? Start up's established?	NBS from new start ups or NBEs	Call of proposals	IDEA Incubator Chrysalis Leap	5 new startups related

	for the parks (Stewardship stage)		related to the parks		(still nothing has been agreed formally)	
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Coproduction

Step 1: Define the goals of the co-production process

The development of NBS in Nicosia was based on a co-production method, that fostered collaboration and partnerships and stimulated learning among diverse actors. The initial goal of the co-production process was to achieve a better understanding about the nature and scope of the envisaged project and provide answers to some basic questions regarding the design and implementation process.

The main goals for the co-production process are summarised below:

- Diagnosis & Preliminary Work/ Mapping,
- Definition of scope of interventions,
- Draft programme for each site,
- Planning permissions - Implementation

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

The six design principles suggested by the Connecting Nature Framework and presented below, guided the entire approach that was followed in Nicosia.

- **Inclusivity:** Inclusivity for bringing together diverse actors and multiple types of knowledge at equal level.
- **Openness:** Openness to adopt, integrate and share knowledge throughout.
- **Legitimacy:** Legitimacy to ensure that the process includes legitimate and credible knowledge and is trusted by participants and wider urban actors.
- **Actionable Knowledge:** Actionable knowledge for policy and planning ensures that the co-produced knowledge is immediately relevant and translated into policy and planning.
- **Usable Knowledge:** Usable knowledge and empowerment ensures that the co-produced knowledge outputs are valuable to and taken up by many actors.
- **Extending Institutions:** Extending institutions for N-Synergies ensures that the co-produced knowledge connects to multiple goals, strategies and agendas within the city. This helps to create synergies across sectors.

The Table below demonstrates the ways that these six principles were taken into consideration both at the design and implementation stage of the project in Nicosia, as well as the challenges that were presented in each case.

Table 6: Connecting Nature Framework principles

Principles	What for?	How?	Challenges
Inclusivity	<ul style="list-style-type: none"> – To bring in knowledge of universities and to know what citizens need and want. – To assign distinct roles in distinct stages for the different stakeholders. 	<ul style="list-style-type: none"> – Identify who to involve from the very beginning, and for which stage. 	<ul style="list-style-type: none"> – Citizens: no culture of engagement, hard to have them actively involved and make them more sensitive to keep parks clean. – Universities: could have a more active role in order to improve their contribution to local and regional sustainable growth [e.g. by helping the local authorities to acquire knowledge more effectively and develop solutions to more practical issues they face (e.g. maintenance)]. – Companies: difficult to be engaged due to their profit-orientation.
Openness	<ul style="list-style-type: none"> – Share and communicate the plans, to get feedback and input. – Important throughout the entire process. 	<ul style="list-style-type: none"> – Combination of events/ information dissemination activities. 	<ul style="list-style-type: none"> – Engage more people, NGOs, local companies etc.
Legitimacy	<ul style="list-style-type: none"> – Ensure that the process is trusted and that it keeps in line with goals. 	<ul style="list-style-type: none"> – Employ facilitator to coordinate discussions: The facilitator should be knowledgeable (context knowledge), trusted, open, objective and should understand different 	<ul style="list-style-type: none"> – Flexible, effective, and efficient coordination. – Build a common language.

		<p>languages (e.g. citizens)</p> <ul style="list-style-type: none"> – Form small group of actors to coordinate the process and be responsible for protecting it and ensuring it keeps in line with goals. – Ensure everyone speaks the same language and stays focused. 	
Actionable knowledge	<ul style="list-style-type: none"> – In the process of implementing the plan, new knowledge is generated through new and relevant things. 	<ul style="list-style-type: none"> – Ensure learning and uptake of knowledge that is generated in implementation. 	<ul style="list-style-type: none"> – Involve universities more, in order to share knowledge. – Time, research funding as well as making a project part of what universities are already doing are challenging processes.
Usable knowledge	<ul style="list-style-type: none"> – Learn from knowledge of citizens and academics (also to learn from actionable knowledge). – Involve citizens, e.g. in maintenance of the green areas (parks in Nicosia), which accounts for 20% of the 	<ul style="list-style-type: none"> – Identify and reach out active and interested citizens. 	<ul style="list-style-type: none"> – Challenging to reach out to citizens and entrepreneurs.

	development plan.		
Extending institutions	<ul style="list-style-type: none"> - Create synergies from linking different goals and align action across Municipalities and departments. - Examples: <ul style="list-style-type: none"> -Quality of air is a key issue in Nicosia which can be linked with NBS. -The Network of open & green spaces is linked to pedestrian and bike network (existing mobility plan), which came out of the discussions. -Some Municipalities have other ideas on where to create parks and after presenting them our plan have been persuaded to adopt our proposals. 	<ul style="list-style-type: none"> - Development Agency connects with different departments in Municipalities. - Connect green space network with different goals, e.g. mobility (pedestrian, bikes) and air quality. - Knowing and using existing strategies, speaking the same language. 	

	(boost synergies).		
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Step 3: Plan the co-production activities.

In order to achieve the co-production goals that were set in the case of Nicosia, co-production steps/ activities or workstreams were identified. These varied in order, they were iterative, and they are presented below:

- Joint communication channels
- Monitoring and evaluation
- Mapping of network (Identity of each space, Relationships between parks)
- Facilitate negotiation between stakeholders
- Create an organisational structure
- Synergies in fundraising and management
- Distribution of resources within the network of the parks
- Planning and implementation of the physical interventions
- Operation plan for the network

In the Gantt chart below, the co-production steps/ activities or workstreams were listed providing an estimated timeline for their implementation. Key milestones that were identified are the creation of a comprehensive map of the entire park network that would include specific details about the identity and function of each place, as well as the relationships between the different places. A second milestone is the adoption of an Operational Plan for the park network, a document that would specify the budget, governance model, a catalogue of interventions for all parks and mobility infrastructures (including a plan for maintenance) and an implementation timeline.

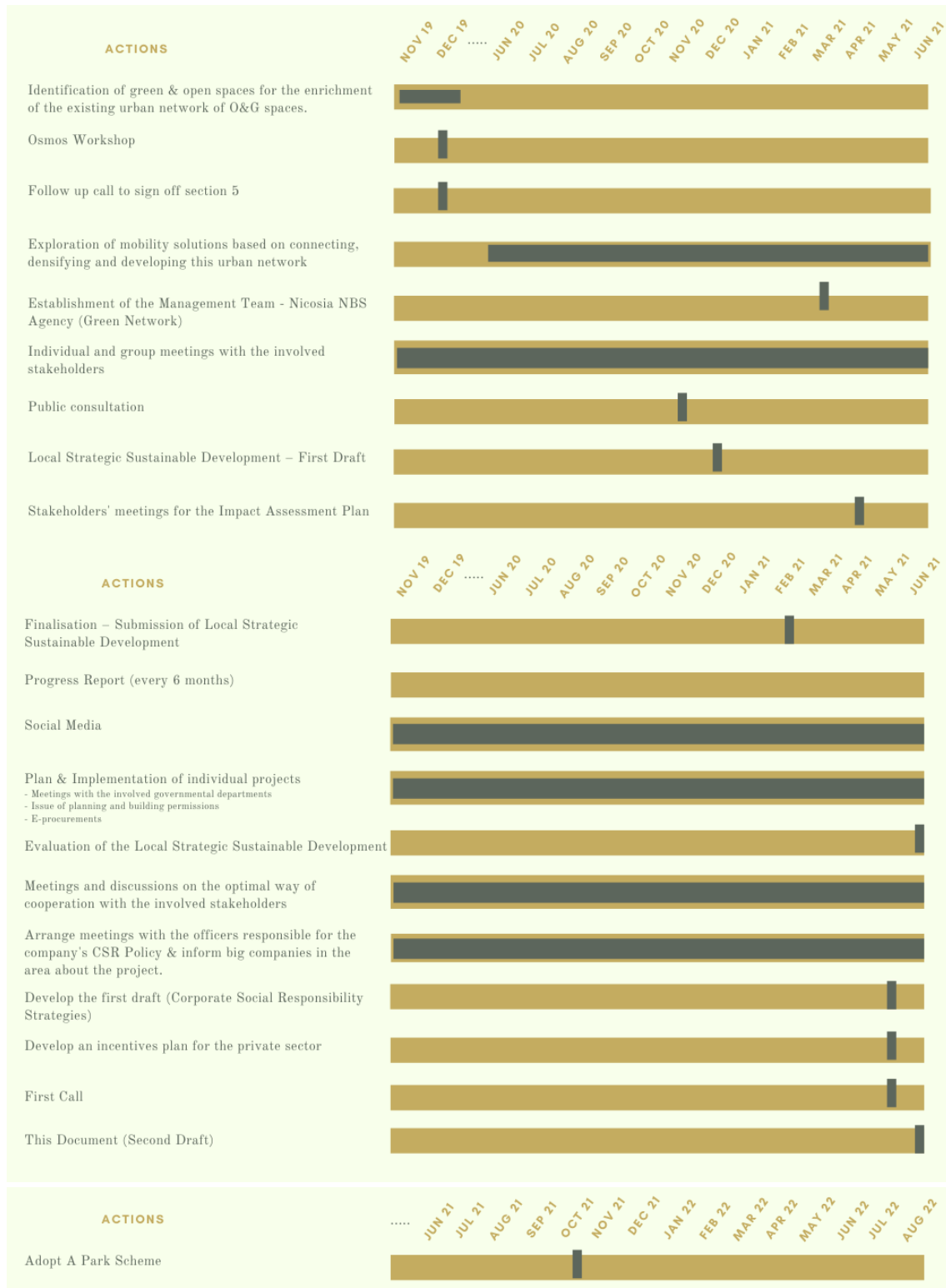


Figure 51 – Connecting Nicosia Project Timeline

Step 4: Select the co-production tools.

In order to implement some of the aforementioned co-production activities, different tools, methods and processes were used.

Business Model Canvas, Financing and Entrepreneurship Workshop

One of the fundamental workshops that was organised at the initial stages of the project in Nicosia was the "Business Model Canvas, Financing and Entrepreneurship Workshop". The workshop was held in 18th and 19th of October 2019 at Latsia Municipality. Even though the workshop's main focus was the organisational and funding aspects of the project, it provided a significant opportunity for all the participants and stakeholders to accomplish a comprehensive and deep understanding of the entire project.

During the first day of the workshop, the Connecting Nature Framework and the criteria for selecting Nicosia's Exemplar were introduced to the participants. Financing, governance and business models for NBS were discussed and the Business Model Canvas Practical Workshop took place with participants identifying value proposition, value creation and delivery of Nicosia's Exemplar as well as value capture and financing of the up-front costs. During the second day of the workshop, an introduction to the NBE Strategy took place and discussions mainly focused on NBE Entrepreneurship and on ways to stimulate and further support it.

Developing Nature-Based Solutions in Nicosia Workshop

The "Developing NBS in Nicosia Workshop" was an event held in 6th December 2019, at the Environmental Information Centre Athalassa national Forest Park, in the context of the Connecting Nature project. Similar workshops happened in other cities across Europe. The workshop also benefited from insights from other cities that are part of the Connecting Nature project and was accompanied by work on organisational and funding aspects that were carried out in parallel. The objective of the workshop was to make progress towards developing NBS in Nicosia.

The workshop brought together the key people involved in NBS in the city in order to facilitate a common understanding about the envisaged project. Basic questions like the following were asked: Where are the NBS happening? What kind of interventions are envisaged? What is the scope, complexity, timeframe of the interventions? What additional infrastructure is needed? How will it be maintained?

The output of the workshop was presented in the form of sketches, diagrams or charts summarising the ideas and possibilities that came out of the group discussions. These would be seen as a first iteration allowing the local partners to move forward in their process towards implementing specific NBS.

Sarajevo Process

In the 2nd, 3rd and 4th of September 2020, the Sarajevo Process - a three-day course - was organised aiming to engage participants with the NBS in Nicosia. The Sarajevo Process is an arts-based approach of co-creation and storytelling. Following a successful pilot in Sarajevo, the process was brought to Nicosia.

The process skeleton came in the form of a proposed agenda that encompassed the key methods and theories that would be used to engage participants with NBS. The proposed methods were Memory work, Immersion-in-nature and Embodied reflection, Eco-therapy, Body mapping and Art Map. The initial agenda was expanded to include a new activity and fit the co-creative ideas of the core team and the Nicosia Development Agency.

DAY 1: 0.5 Day (afternoon or morning session; 3hrs)					
Time	Item	Methods Used/Materials	Output	Outcome	Mapping on to CN Frameowrk
10:00-10:15	Welcome/Introductions				
10:15-11:00	Nicosia to present on their proposed exemplar (within the context of Cn Framework)				
11:00-11:30	Presentation of theory/methodology of each component of the exercise & discussion				
Component 1: What has brought you here?					
11:30-13:00	Memory-work exercise: a) Each participant will bring a meaningful photo to write a short piece (in 3 rd person) that describes a previous experience with nature (20-25mins) b) Participants will present back to the group (2-3 mins)	Method: Memory Work Materials: Participants to bring a photograph that has a meaningful connection to and with nature to work	Component 1 of exercise tested with group; Impressions and reflections are used to refine the exercise.	Individual (photo) → collective experience (word cloud)	How does this map on to the CN Framework

	c) Reflections captured to identify key themes, values, and guiding principles	with during this exercise.	Word Cloud 1 produced.		
DAY 2: Full Day (3/9)					
Time	Item	Method	Output	Outcome	
9:00-10:30	City Walk (Kakkaristra Gorge, Lourka Forest Park, Athalassa Forest Park)– Tell, Show, Share your city with us				
10:30	Arrive at selected nature space. (Athalassa Forest Park)				
Component 2: Where is here? / What does it mean?					
10:30-11:00	<p>Mindfulness Exercise – Immersion in Nature</p> <p>a) Participants will be guided through a short immersion-in-nature (mindfulness) exercise. This will root them in the present moment (10 mins).</p> <p>b) Participants will then spend 20 mins in silence, engaging with nature– touching, smelling, listening etc). (20 mins)</p> <p>c) During full 30 min exercise, they will be asked to record and collect their experience (thoughts, feelings, etc).</p>	Immersion-in-Nature/ Ecotherapy via guided mindfulness	Component 2a of exercise tested with group (outdoor element). Participants will record, in whatever way they want, their experience of being in nature (including taking photos, collecting plants, making notes).	Individual experience	How does this map on to CN Framework?
11:00-13:00/ Souvla & coffee					

13:00-16:00pm (include break for lunch.	Creating Body maps a) Participants will transfer the experience in a nature, including what has been captured on the template onto body-maps (45 mins) b) Presentation of body maps back to group: presentations will be captured in 'real time' rapportage to produce a second word cloud. (45 mins)	Methods: Body-mapping Materials: art supplies (coloured pencils, markers, glue, photographs, paint); Body-map (small version to be completed)	Body maps are produced. Notes taken drawing out key themes, values.	Individual (Body maps) → collective	How does this map on to the CN Framework?
DAY 3: Half day					
Component 3: 'where are you going/how do you get there'? Day 3 (4/9)					
10:00 – 13:00	Reflecting on the whole day; facilitated discussion on how two components help to build story of nature/outputs feeding into CONNECTING NATURE Framework (i.e. an initial mapping exercise). Impressions of Nicosia captured on the exercise; potential links to NBS exemplar and CN Framework? Map Art				

Figure 52: The Agenda of the three-day Workshop

The participants were the close group of 6 colleagues from the Nicosia Development Agency, a facilitator, an illustrator and a filmmaker, responsible to record the process. Over the course of the three days, the participants were guided through a tour of the city as well as a tour through the past, present and future.

The past, the present and the future provided the frame/ lens through which the participants could explore better their relationship with nature.

Various levels of art were generated through the process, as the illustrator and the filmmaker worked alongside the group, recording the creative process. Therefore, there is a set of sketches and a video as both records of the process but also as artistic outputs themselves. These have

been particularly important as dissemination material for the Nicosia Development Agency and the project, but also as data for analysis.

Day 1 – Stage 1

The first day of the process took place in the office. Everyone was asked to bring along pictures of themselves in nature. Most opted for their far past, memories of camping in the mountains, summer holidays, playing as children. One participant brought a picture of her children in the Athalassa park- automatically linking the exemplar to the exercise, as she and her children had only discovered the park through working on it.

Following brief introductions, the group followed the agenda with an introduction to CN and the Nicosia exemplar. During pre-production it has been decided to separate the three main elements into three days, clearly linking each to either the past, present or future. This was clear to the group who said they had no point of reference to really understand the process but were looking forward to it. The discussions took place on the first day were aiming to address the connection between humans and nature through art in its different forms.





Figure 53, Figure 54 & Figure 55: Photos from the first day of the workshop. (Memory Work)

Day 2- Stage 2

The second day of the workshop started with a city tour. It has been decided to visit three out of the 8 parks of the proposed network: Kakkaristra Gorge, Lourka Forest and end up at Athalassa Forest Park for the second part of the day which included Immersion in nature and Eco-therapy and Body Mapping.

City walk:

1st stop - Kakkaristra Gorge:

When the group arrived at the first location, some preferred to stay at the top of the gorge as the trek and the dust was not a welcome addition to the heat for them, although it was still (intentionally) early in the day and its heat. The rest of the team walked in the gorge and enjoyed the art of the nature. The gorge walls and floors are covered in various species of fossilised shells stacked one on top of each other. The participants seemed to have various emotions about this, some were extremely excited to take pictures and touch the shells pondering their unlikely existence, others looked down from the top, not really sharing the enthusiasm.



Figure 56: Photos from Kakkaristra Gorge visit

2nd stop – Lourka Forest:

The next stop was Lourka forest in Geri, which is another part of Nicosia's exemplar for Connecting Nature.



Figure 57: Photos from Lourka Forest visit

3rd stop – Athalassa Forest Park:



The last stop was Athalassa Forest Park. We had a short discussion on the exemplar and on the exercises we were about to implement. First, we proceeded with the meditation and eco therapy practice. Everyone stood up still forming a large circle and took deep breaths under Paulina's instructions. The idea was the participants to think of their surroundings and use their senses to absorb every feeling and clean their heads. Following the meditation, participants went ahead and walked about in silence, used their bodies to interact with nature more consciously and collected materials for their artwork.

Figure 58: Meditation – Eco Therapy practice

After the lunch break, everyone sat on the picnic tables and started to play around with the art supplies and natural materials. The bodymaps were laid out for each individual to select from the pile of male, female and gender neutral bodies.

The art supplies were spread out on the table and included glue, coloured pencils and markers, watercolour paints and brushes, as well as craft making materials of different colours. Natural materials collected from the participants such as feathers, leaves and pine needles, pinecones, tree bark and a salvaged marble. At the beginning there was some joking between the team and teasing but as time passed everyone became more and more absorbed. It was a moment of creativity and bonding, the team truly enjoyed the process and were surprised of how they did.



Figure 59: Body Mapping exercise

When everyone finished a string was hanged across the trees and everyone hang their artwork in line. Then, everyone was invited to say a few words about their artwork.



Figure 60: Body Maps were hanged across the trees on a string.

Day 3- Stage 3

Map art

The last day of the workshop held back at the office. The group started with a discussion of the previous days experiences. Everyone had the chance to digest the 'different stages of the process, the journey from past to present, and felt more ready to share their views and express their feelings.

The last task before closing this 3 day's session was to bring everything from the two previous days (considering the past and present) and applying onto one single piece of collective art about the future. The Canvas was a A1 size land use map of the area of Intervention, Nicosia District.

At that stage, the illustrator Eleana felt there was much to be said about using art as a tool to unlock feelings and emotions. She took a leading role and started talking about the concept of art as more than simply an aesthetic creation, she explained that art was also a record of everyone's experience and how this Map would be transformed in a common art piece, inspired by the team and the experience the group had as individuals and as a team. She helped everyone to unlock their artist creativity without guiding to something specific but felt more like challenging, encouraging and boosting the team to give their best for this final task they had and contribute the maximum they could.





Figure 61 & Figure 62: Map Art Work



Figure 63: Map Art and Body Maps

At the end of the day everyone was invited to take a step back from the map and look at what has been co-created and started discussing on different parts of the artwork and how each one of us reflected on the experience.

ANEL team decided to repeat the process in Autumn 2021 with a different group of people, probably with municipal and governmental officers and experts (such as architects) who are involved in the exemplar in order to see what extra value can be added to the project and to their view for our project. If they will manage to see the exemplar with different eyes as it happened in the case of ANEL group. Most of these professionals are often lost in the paperwork, screens and are spending so much time in the offices that rarely take the time to actually connect with nature and truly understand the importance of this kind of Projects.

Concluding, various levels of art were generated through the process, as the illustrator and the filmmaker worked alongside the group, recording the creative process. Therefore, there is a set of sketches and a video as both records of the process but also as artistic outputs themselves. These have been particularly important as dissemination material for the Nicosia Development Agency and the project, but also as data for analysis.



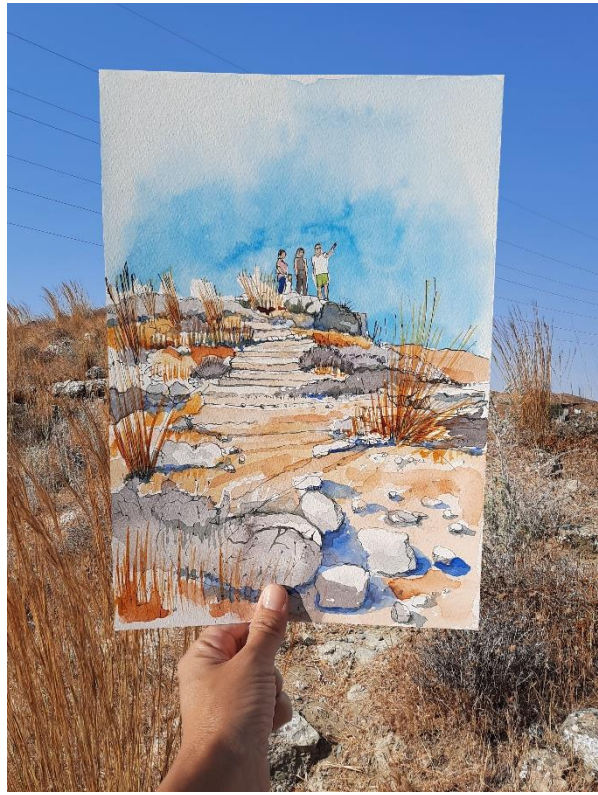




Figure 64, Figure 65, Figure 66 & Figure 67: Some of the designs of the Illustrator, Eleana Chrysanthou

Step 5: Reflect on the co-production process and results.

The co-production methods (Business Model Canvas and Sarajevo Process) applied in Nicosia was agreed to be surprisingly useful and helpful processes for the Nicosia Development Agency and the core team of the project. They were both seen as very innovative techniques which helped Nicosia's team to move one step forward, to broaden up its knowledge and to develop further its skills. Both processes supported in a very comprehensive and holistic way the project's implementation and added significant value to the project itself.

Specifically, the Business Model Canvas was seen as a very useful tool which helped the team to understand and structure better the Exemplar, to prioritize immediate actions and resources, to identify the involved actors in each phase, to set priorities regarding implementation and the tasks to be delivered. Additionally, it helped to build a common understanding as well as a common language among all, in order to communicate more efficiently as a team but also with the involved stakeholders and actors in each phase of the project.

The Sarajevo process was a very different experience. Even though at the beginning of the process, Nicosia's team did not fully understand the reasons and the scope behind this exercise; during the process' development the team started realizing the significant benefits that could arise in two dimensions. The first concerned the implementation of the Exemplar, as the team had the opportunity to spend quality time to the parks included in Nicosia's Exemplar and to the sites that are at the core of the project. The second was related to the ways that Nicosia's team members worked together. Through the Sarajevo process, the participants had the opportunity to work in a very different manner. Art and nature helped the team to unlock a new perspective, utilize personal experiences and memories, approach the project and express in a very fruitful way, thus contributing to the overall team's tasks. After the three days session, Nicosia's team saw Nicosia's Exemplar in a very different perspective.

The Sarajevo Process could be used to engage other groups of people as well. The process could be very beneficial for professionals working on nature (e.g. people working for the Forest Department or the Department of Environment) who are often lost in the paperwork, screens and offices and rarely have the opportunity to connect with nature through their work.

Concluding, the experience of using both co-production methods has significantly impacted the way Nicosia's team works and thus the team is planning to apply the methods for some other projects.

Nicosia's Impact Assessment Plan

Choice of appropriate indicators

Fast Follower Cities (FFC) had the opportunity to participate in a series of (5) webinars (training program) organized and lead by the project partner UDC.

The main objective of this training program is for each FFC to design an impact assessment plan adapted to its NBS. For this it was necessary to fill and send back to UDC all the necessary templates (more information below)

In the case of Nicosia's Exemplar, we proceeded on the selection of the most appropriate indicators, in order to measure the expected results, based on the instructions and guidance we had from UDC. The indicators were grouped in 6 categories: Use, Environmental, Health and Wellbeing, Social Cohesion, Economic, Participatory Planning and Governance.

The table below presents the selection of indicators based on the NBS expected results for both, the **Network of Open & Green Spaces** and the **Adopt a Park Scheme**.

CODE	NAME	NBS expected result
PI4	Perceived quality of space	Improved perceived quality of green space in the district of Nicosia
ENV29	Supporting/increasing biodiversity conservation	Increased biodiversity of the area
ENV35	Species diversity	Increased biodiversity of the area
ENV38	Mapping ecosystem services and spatial-temporal biodiversity legacies	Increase of urban green space in the district of Nicosia
ENV41	Accessibility of greenspaces	Improve accessibility of greenspaces (parks)
ENV43	Ratio of open spaces to built form	Improve accessibility of greenspaces (parks)
Env88	Tree shade for local heat change	Increase tree shade
HW12	Enhanced physical activity	Improved physical activity
SC1	Bonding social capital	Improved social capital
SC6	Place attachment	Increase the feeling of place attachment (citizens)
SC10	Environmental education opportunities	Increase the feeling of place attachment (citizens)
ECO1	New Businesses 'attracted' or started and additional rates received	New jobs in the area
PPG3	Transparency of co-production	Transparency in the implementation process
PPG4	Policies adopted to promote NBS	Improve / increase the PP Collaborations
PPG5	Activation of public-private collaboration	Improve / increase the PP Collaborations

Developing a data plan for impact evaluation

During the training process we have completed 5 templates (building blocks) that helped us structure all the necessary information that needs to be taken under consideration throughout the development and implementation of an Impact Assessment Plan. The information gathered is presented below.

BUILDING BLOCK 1. ENGAGE IN STRUCTURED REFLECTION ON NBS IMPACTS, PATHWAYS AND TRADE-OFFS

City's strategic goals and links with the United Nations Sustainable Development Goals (SDGs)

1. No poverty	7. Affordable and Clean Energy	13. Climate Action
2. Zero hunger	8. Decent Work and Economic Growth	14. Life Below Water
3. Good health and wellbeing	9. Industry, Innovation and Infrastructure	15. Life on Land
4. Quality education	10. Reduced Inequality	16. Peace and Justice Strong Institutions
5. Gender equality	11. Sustainable Cities and Communities	17. Partnerships to achieve the Goal
6. Clean water and sanitation	12. Responsible Consumption and Production	

City's strategic goals	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Increase green spaces			•								•						
Increase the physical activity of citizens			•														
Co-production in urban interventions			•														•
Increase Accessibility to open and green spaces			•								•				•		
Improving quality of citizens life																	
Improve social cohesion			•							•							

NBS DESCRIPTION 1

Type

Urban network of Linked Open and Green spaces

Scale

District level

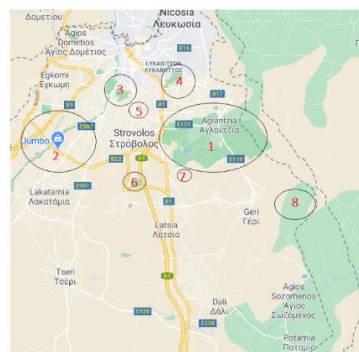
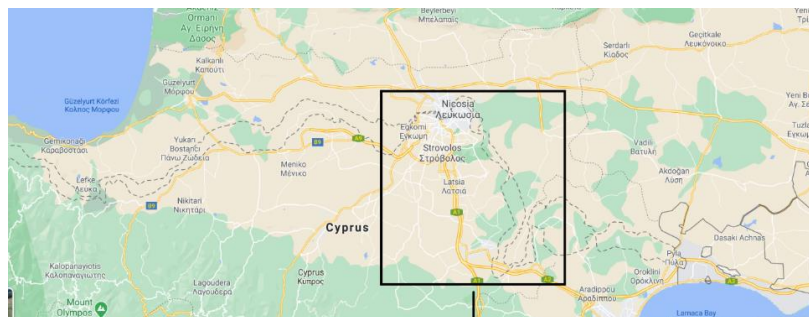
Context description

Creation of a network of Open and Green spaces with strong mobility linkages.

Process of design and implementation

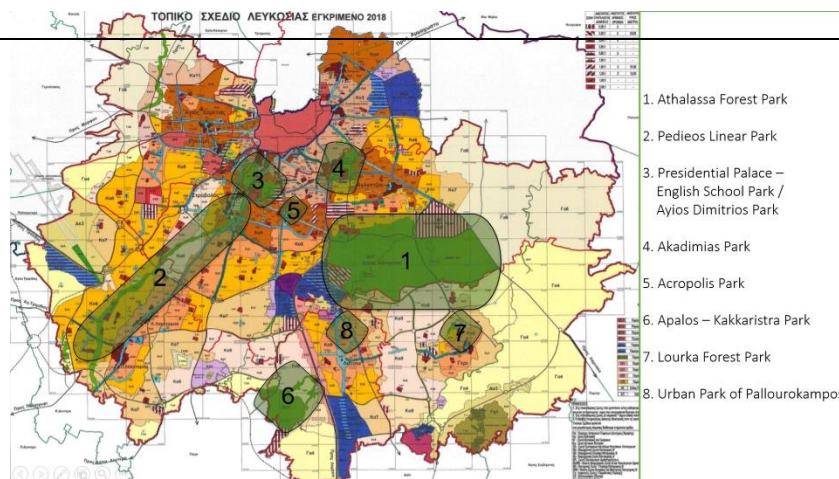
The idea was based on the need expressed by all our member municipalities to create new open and green spaces for their citizens in order to improve their quality of life and the available options provided in their area for physical activity, fan etc. The proposed plan is included to the Local Strategic Sustainable Development Plan that will be submitted for funding at the Directorate General for European Programmes, Coordination and Development.

A number of meetings were held and still planned to be held with different stakeholders (Municipalities – municipal officers, Government departments such as Department of Forest, Department of Planning and Development, Department of Environment etc, politicians, universities, experts and citizens). A public participatory process has been already done in December.



1. Athalassa Forest Park
2. Pedeios Linear Park
3. Presidential Palace – English School Park / Ayios Dimitrios Park
4. Akadimias Park
5. Acropolis Park
6. Apalos – Kakkaristra Park
7. Lourka Forest Park
8. Urban Park of Pallourokampos

NBS



DESCRIPTION 2

Type

Adopt a Park Scheme

Scale

The scale of the park is small / medium

Context description

Partnerships between city government and businesses and enterprises. There were limited opportunities to involve business (the large parks are funded by city/government) so we found these smaller parks/smaller green spaces. The smaller parks are owned by the municipality – more flexible in cooperating with the private sector. At the moment we have identified 200 spaces. A call will be announced of these 200 spaces to be adopted in early 2021. The plan is being developed – and the business adopter will need to meet the guidelines set in order to adopt the park. (Part of the CSR strategies)

Process of design and implementation

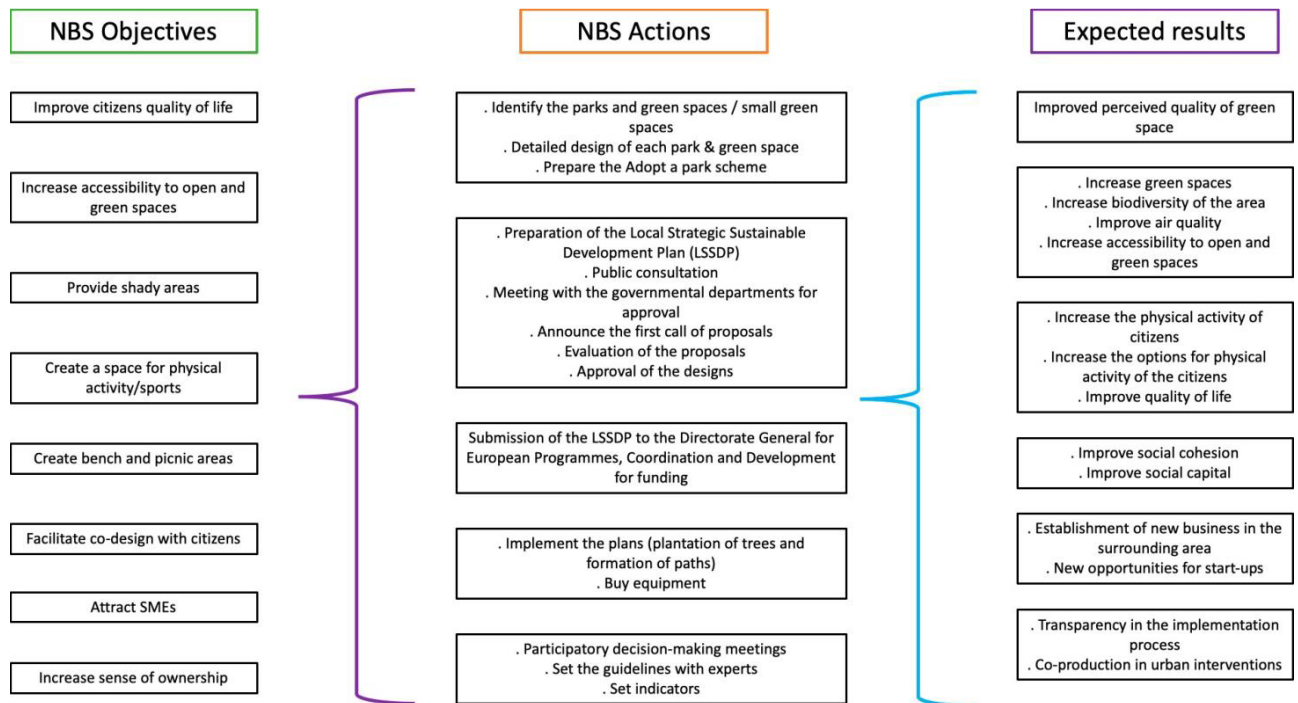
The idea was based on the need identified: limited opportunities to involve business (the large parks are funded by city/government).

A number of meetings with businesses and member municipalities were held in order to find the optimal way of cooperation.

The team is trying to build a win-win situation. Give to the businesses/enterprises incentives to invest in our project. (Corporate Social Responsibility Strategies)

The scheme has been prepared and the first call for adoption (the first 200 spaces) will be announced in early 2022.

Nicosia's Theory of Change

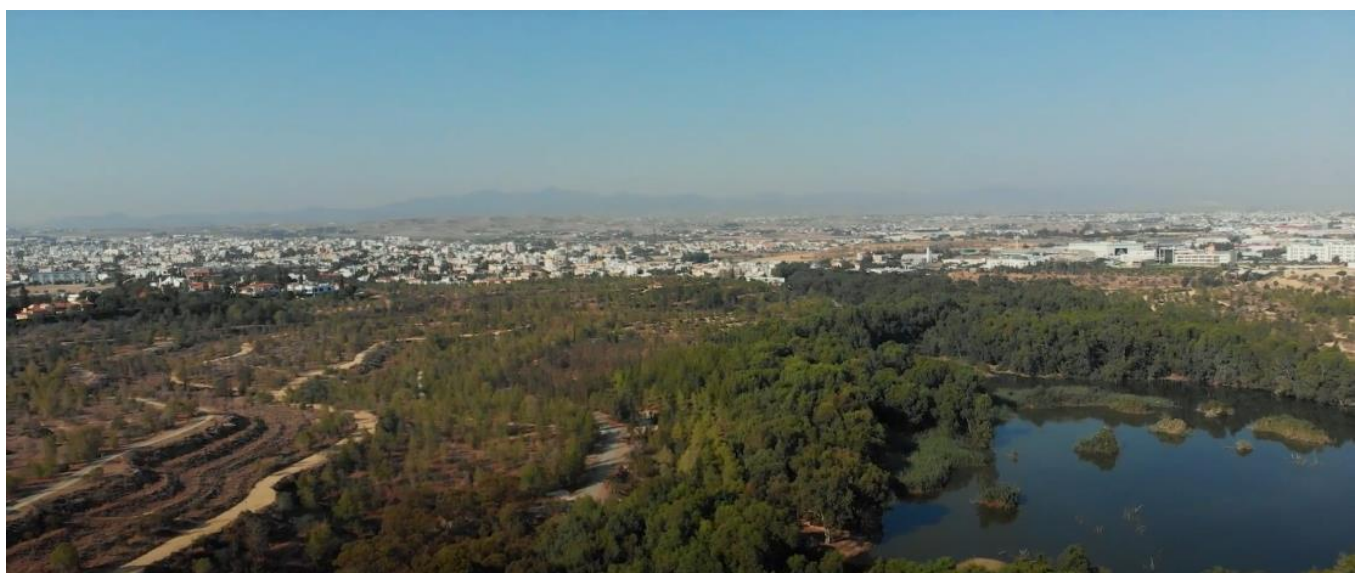


Assumptions, synergies, and trade-offs

NBS Actions	Expected results	Assumptions	Synergies	Trade-offs
Identify the parks and green spaces	Find the most appropriate spaces all over the area of intervention in order to create the most functional network for the use of citizens.	The identification and selection of the right spaces and design of the proper linkages, will help to the success of the proposed network.	More people will use the parks for family gatherings, fun/socialise in general, physical activity, relaxation etc.	Garbage can increase.
Preparation of the Local Strategic Sustainable Development Plan	The plan will include the proposed network and that will help the municipalities to find the funding for implementation.	With the approval of the Plan municipalities along with Nicosia Development Agency will be able to implement faster the proposed activities.	This will help the municipalities to save some of the annual budget for other crucial activities and plans they have.	None
Public Consultation	Transparency in the implementation process	If the design is participatory, access to information will be simpler and more complete	Transparency in implementation will favour perceived quality	None
Submission of the Local Strategic Sustainable Development Plan to the Directorate General for European Programmes, Coordination and Development for funding.	Source of finance.	Quicker implementation.	The involvement of the Directorate General for European Programmes, Coordination and Development will help to the promotion of the network.	None
Detailed design of each of the park & green space	Collaboration of experts.	The detailed design will help to be more accurate when preparing the budgets / expected costs.		None
Set of indicators	Be able to adopt quickly possible changes.		Good management of the plans.	None
Meetings with the Governmental departments for approval	Transparency in the implementation process – More expertise	Secure all the necessary permissions from the government (Planning and building permissions, Environmental permissions etc)	Transparency in implementation will favour perceived quality.	None
Implement the plans – Proceed with the Plantation of trees and formation of paths	Increased biodiversity of the area	Dense vegetation will allow the survival of a greater number of species	Increasing biodiversity will favour a greater perception of quality.	Depending on the species it can increase allergies
Buy Equipment	New jobs in the surrounding area	If more people spend time to the parks this may generate business for the sale either of food and drink, bike rentals, sports equipment, etc	New businesses near the park will favour its perceived quality	If there are no recycling facilities, garbage can increase.
Participatory decision-making meetings	Improved social capital	Being a participatory process, citizens will interact socially with others	Using the park to interact socially will favour its perceived quality	None

BUILDING BLOCK 2. CHOOSING APPROPRIATE INDICATORS

CODE	NAME	NBS expected result	Selection reasoning
PI4	Perceived quality of space	Improved perceived quality of green space in the district of Nicosia	Know the perceived quality of the new park
ENV29	Supporting/increasing biodiversity conservation	Increased biodiversity of the area	Find out if there are more efforts to improve biodiversity
ENV35	Species diversity	Increased biodiversity of the area	Know the number of species currently in the parks – measure the change after the enrichment
ENV38	Mapping ecosystem services and spatial-temporal biodiversity legacies	Increase of urban green space in the district of Nicosia	Nicosia is a grey city and the increase of green spaces is a very important indicator for the selected NBS
ENV41	Accessibility of greenspaces	Improve accessibility of greenspaces (parks)	Ensure the accessibility of all social
ENV43	Ratio of open spaces to built form	Improve accessibility of greenspaces (parks)	Ensure the accessibility of all social
Env88	Tree shade for local heat change	Increase tree shade	The climate in Cyprus requests this kind of interventions. Find out how the implementation of the NBS helped in numbers the improvement of the current situation
HW12	Enhanced physical activity	Improved physical activity	Establish the amount of physical activity that the citizens of Nicosia near the parks do.
SC1	Bonding social capital	Improved social capital	Know how are the social relations between the same social groups
SC6	Place attachment	Increase the feeling of place attachment (citizens)	Establish and empower the feeling of place attachment of the citizens with the parks in their area.
SC10	Environmental education opportunities	Increase the feeling of place attachment (citizens)	Establish and empower the feeling of place attachment of the citizens with the parks in their area.
ECO1	New Businesses 'attracted' or started and additional rates received	New jobs in the area	Establish if there are new businesses since the implementation of the green network and the adopt a park scheme
PPG3	Transparency of co-production	Transparency in the implementation process	Know the public perception of whether the green network implementation process was transparent
PPG4	Policies adopted to promote NBS	Improve / increase the PP Collaborations	Adopt a Park Scheme
PPG5	Activation of public-private collaboration	Improve / increase the PP Collaborations	Adopt a Park Scheme



BUILDING BLOCK 3. DEVELOPING A DATA PLAN FOR IMPACT EVALUATION

Available baseline in the city of Nicosia

CODE	NAME	Baseline data	Source (year)	Granularity	Periodicity
PI4	Perceived quality of space	●	Study from a local university (2019)	Entire city	Specific study
ENV29	Supporting/increasing biodiversity conservation	●	Study from a local university (2019) Forest Department Sensors (24 hours census) (2018) Birdlife Cyprus	Entire city	Every year
ENV35	Species diversity	●	Landstat (2018-2021) Forest Department (2016-2021)	Entire city	Every 5 yrs
ENV38	Mapping ecosystem services and spatial-temporal biodiversity legacies	●	Municipal Technical Departments	Entire city	Every year
ENV41	Accessibility of greenspaces	●	Municipal Technical Departments	Entire city	Every year
ENV43	Ratio of open spaces to built form	●	Municipal Technical Departments	Entire city	
Env88	Tree shade for local heat change	●	Study from the University of Cyprus (Department of Architecture) (2018)	Street	Specific study
HW12	Enhanced physical activity	●	Study from the University of Cyprus (Department of Architecture) & Department of health services - statistics (2018)	Street	Specific study
SC1	Bonding social capital	●	Study from the University of Cyprus (Department of Architecture) (2018)	Entire city	Specific study
SC6	Place attachment	●	Study from the University of Cyprus (Department of Architecture) (2018)	Street	Specific study
SC10	Environmental education opportunities	●	Forest Department (statistics – visitors/month/year of Environmental centres – schools etc) Department of Environment Ministry of Education Study from a local university (2017)	Entire city	Every year
ECO1	New Businesses 'attracted' or started and additional rates received	●	Cyprus Chamber Of Commerce and Industry (2018) Ministry of Finance	ZIP Code	Every year
PPG3	Transparency of co-production	●	Municipalities	Entire city	
PPG4	Policies adopted to promote NBS	●	Ministry of Finance	ZIP Code	Every 5 yrs
PPG5	Activation of public-private collaboration	●	Ministry of Finance Ministry of Interior	Municipal level	Every year



BUILDING BLOCK 4. IMPLEMENTING THE DATA PLAN

New data collection on the exemplar scale from the methods proposed in the Connecting Nature Indicator Reviews

CODE	NAME	Baseline method	Data collection season	Procedure	Data management
PI4	Perceived quality of space	•	Indifferent	Collaboration with the University of Cyprus	Collaboration with the University of Cyprus on the analysis of the results.
ENV29	Supporting/increasing biodiversity conservation	•	Warm season vs Cold	. Data collected from the Forest department sensors - (24-hour census), recording as many species as possible . Observations – Reports of Forest Department	All records analysed by the team of ANEL in collaboration
ENV35	Species diversity	•	Warm season vs Cold	. The Landsat satellite images will be reviewed by registering on the web and accessing the years 2018-2021 . Forest Department Reports and Analysis available from 2016 – 2021	Collaboration with the University of Cyprus on the analysis of the results
ENV38	Mapping ecosystem services and spatial-temporal biodiversity legacies	•	Indifferent	Collaboration with Municipal Technical Departments	Collaboration with the University of Cyprus on the analysis of the results
ENV41	Accessibility of greenspaces	•	Indifferent	Collaboration with Municipal Technical Departments	Collaboration with the University of Cyprus on the analysis of the results
ENV43	Ratio of open spaces to built form	•	Indifferent	Collaboration with Municipal Technical Departments	Collaboration with the University of Cyprus on the analysis of the results
Env88	Tree shade for local heat change	•	Indifferent	Collaboration with the University of Cyprus	The data will be collected and analysed by ANEL
HW12	Enhanced physical activity	•	Warm season vs Cold	Collaboration with the University of Cyprus	Collaboration with the University of Cyprus on the analysis of the results
SC1	Bonding social capital	•	Indifferent	Collect Available data from the University of Cyprus and European University. (2018) Collect data from the Department of health services - statistics	Collaboration with the University of Cyprus on the analysis of the results
SC6	Place attachment	•	Indifferent	Collect Available data from the University of Cyprus	Data Analysis by ANEL
SC10	Environmental education opportunities	•	Indifferent	Available data from the Environmental Centres (managed by the Forest Department) Available data from the Environmental Centres (managed by Department of Environment) Available data from the Ministry of Education	The data will be collected and analysed by ANEL
ECO1	New Businesses 'attracted' or started and additional rates received	•	Indifferent	Cyprus Chamber of Commerce and Industry registers	The data will be collected and analysed by ANEL
PPG3	Transparency of co-production	•	Indifferent	Available data from the Municipalities (In 2019 – 2020 the Union of Municipalities made a research on the topic in collaboration with ANEL and the Centre of Expertise for Local Government Reform of the European Council)	Data Analysis by ANEL
PPG4	Policies adopted to promote NBS	•	Indifferent	Analysis of the available policies updates related to NBS	The data will be collected and analysed by ANEL
PPG5	Activation of public-private collaboration	•	Indifferent	Data available from Ministry of Interior (Department of Planning) and Municipalities related to PPC	The data will be collected and analysed by ANEL

Note. All indicators will be measured with the same methods of the baseline

BUILDING BLOCK 5. INTEGRATING EVIDENCE INTO THE POLICY PROCESS

CODE	NAME	Documentary report	Visual charts	Spatial Dashboard	Scientific partners	Economic sector	Higher political levels	Media	Citizens
PI4	Perceived quality of space	•	•		•	•		•	•
ENV29	Supporting/increasing biodiversity conservation	•		•	•		•	•	•
ENV35	Species diversity	•		•	•		•	•	•
ENV38	Mapping ecosystem services and spatial-temporal biodiversity legacies	•		•	•		•	•	•
ENV41	Accessibility of greenspaces	•	•			•	•	•	•
ENV43	Ratio of open spaces to built form	•		•	•		•	•	•
Env88	Tree shade for local heat change	•	•		•		•	•	•
HW12	Enhanced physical activity	•			•		•	•	•
SC1	Bonding social capital	•	•		•				•
SC6	Place attachment	•						•	•
SC10	Environmental education opportunities	•			•		•	•	
ECO1	New Businesses 'attracted' or started and additional rates received	•	•		•	•	•	•	
PPG3	Transparency of co-production	•			•		•	•	
PPG4	Policies adopted to promote NBS	•			•	•	•	•	•
PPG5	Activation of public-private collaboration	•	•		•	•	•	•	

Note. Columns 3, 4 and 5 show how the city wants to disseminate the results obtained. The last 5 columns indicate to whom the city will communicate the impact of its NBS assessment.

Local, regional or national strategies in which the city considers it would be interesting to include the results of the selected indicators

- Local Strategic Sustainable Development Plans (OXA) – (3 OXA in Nicosia District),
- Local Plans (Planning Department and Housing of the Ministry of Interior),
- Republic of Cyprus' Development Strategy,
- Government Programme,
- Municipal Development Plans – Strategy,
- The National Authority for Cohesion Policy,
- Development Strategy Framework,
- Action Plan for Growth (national)

Local, regional or national organizations to which the city considers it would be interesting to provide the results of the selected indicators to improve the decision-making process

- Local Strategic Sustainable Development Plans (OXA) – (3 OXA in Nicosia District),
- Local Plans (Planning Department and Housing of the Ministry of Interior),
- Republic of Cyprus' Development Strategy(national),
- Government Programme (national),
- Municipal Development Plans – Strategy, National Authority for Cohesion Policy(national),
- Development Strategy Framework (national),
- Action Plan for Growth(national),
- Recovery and Resilience Plan (national)