



NATURE BASED SOLUTIONS

TOWARD THE
IMPLEMENTATION IN
MEDITERRANEAN CITIES



Nature based Solutions in Mediterranean cities

Rapid assessment report and compilation of urban
interventions

2017-2018

IUCN Centre for Mediterranean Cooperation

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MAIN CONTRIBUTORS AND ACKNOWLEDGEMENTS

This research on existing Nature-based Solutions (NbS) interventions in Mediterranean cities has been carried out through the analysis of available documents, strategies, programmes and international cooperation projects on this field, by Cecilia Gañán de Molina, international consultant, commissioned by the IUCN Centre for Mediterranean Cooperation (IUCN-Med).

As main sources for the research, we have reviewed available information from local, national and international institutions and entities working on Nature-based Solutions in the Mediterranean area, such as the International Union for the Conservation of Nature (IUCN), the Union for the Mediterranean (UfM); Interreg MED Programme; United Cities and Local Governments (UCLG); European Commission Directorates (DG RESEARCH, DG NEAR, DG ENV...); European programmes and projects (H2020, URBACT, Naturvation, SUDEPSOUTH, MED, and Intelligent Energy Europe).

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EXECUTIVE SUMMARY

Sixty percent of the Mediterranean population currently lives in urban areas, which has one of the fastest urbanization rates in the world. According to the Union for the Mediterranean, the urban population of the region is expected to increase by an additional 22.5 million by 2030.

This rapid urban growth is generating significant imbalances and dysfunctions at multiple levels: territorial, economic, social, and environmental.

On the other hand, Mediterranean cities have common territorial and climatic specificities which are not shared with other geographical contexts. Mediterranean cities are especially vulnerable to the effects of climate change, while water shortages, droughts, forest fires or heat waves are frequent in the region.

In this context, Nature-based Solutions (NbS) provide a genuine opportunity for the Mediterranean. They have already made significant contributions toward climate resilience; to the conservation and promotion of urban biodiversity; and to the improvement of human well-being. This has been achieved primarily through the expansion of green areas and green infrastructures such as green corridors, green roofs, green walls, blue spaces, and community gardens.

The rapid assessment “Nature-based Solutions in the Mediterranean Cities” was carried out between 2017- 2018, and was commissioned by IUCN-Med in order to illustrate how

the NbS concept is being adopted in Mediterranean cities. The report also aimed to explore how much support NbS are receiving from public policies and local communities, and to understand how their implementation helps practitioners and citizens to improve living conditions and urban biodiversity.

The report includes 50 concrete examples of NbS interventions in cities from 15 Mediterranean countries, covering societal challenges such as climate change, water management, coastal resilience, green space management, air quality, and urban regeneration.

“Nature based Solutions in the Mediterranean Cities” is intended as a preliminary survey of NBS interventions in the region. The main findings will be presented to the international and Mediterranean communities, and analysed so that further development of the concept can be promoted.

According to the results of this assessment, the integration of NbS in existing policy frameworks still faces some significant hurdles. Outside of the environmental community, the NbS concept remains confusing. Additionally, there is a clear need to scale up NbS from pilot phase to more broad application, in order to generate a robust set of results and impacts.

However, the main bottleneck preventing the implementation of NbS policy frameworks appears to be the absence of effective integrated urban policies in most countries of the Mediterranean region.

On the other hand, the success of many NbS interventions seems to be strongly connected with local community acceptance. In this sense, the mainstreaming of effective communications and participatory mechanisms is seen as a key mechanism for assuring citizen-level ownership of NbS projects.

GENERAL BACKGROUND

Sustainable development and Nature-based Solutions are playing a central role in addressing the transition towards a more holistic and integrated approach to urban development.

Nature-based Solutions (NbS) is a concept covering a range of approaches which use natural processes and species to address societal challenges. NbS are defined by IUCN as “actions to protect, sustainably manage, and restore natural or modified ecosystems, that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits”.

IUCN suggests framing NbS and considering its applications as an umbrella concept that covers a whole range of ecosystem-related approaches, all of which address societal challenges.

In the Euro-Mediterranean region, the European Union is a prominent proponent of NbS for cities. Beyond the general framework provided by the Urban Agenda, Nature-based solutions in the EU are horizontally promoted in the European Cohesion Policy (2014-2020), connecting urban, regional, and environmental policies.

According to the European Commission, Nature-based Solutions to societal challenges can be defined as living solutions that are inspired and supported by nature, which are cost-effective and simultaneously provide environmental, social and economic benefits that help build resilience and adaptation to climate change.

INTRODUCTION

IUCN is adopting several actions and undertaking initiatives to incorporate urban dimensions of conservation in its own programme. One example is the IUCN Urban Nature Alliance, which launched September 2018 in response to a 2016 resolution adopted by IUCN’s government and non-governmental Members at the IUCN World Conservation Congress in Hawai’i. The IUCN-Med office is contributing to this resolution by initiating a process of building a network of experts and institutions interested in applying Nature-based Solutions in Mediterranean cities and collecting available information on how Mediterranean cities are integrating the concept of NbS in their local interventions.

This is the framework in which this assessment comes into play, aiming at identifying Nature-based Solutions for cities in the fields of public space, environmental protection, climate change, and public health. The study aims specifically at identifying and disseminating the most suitable NbS needed for developing a new eco-systemic approach in urban policies.

Three starting points have been considered for our study:

1. The “Nature-based Solutions” (NbS) concept, as defined by IUCN: “actions to protect, manage sustainably and restore natural or modified ecosystems, which address social challenges in an effective and adaptive manner, simultaneously providing benefits of human well-being and biodiversity”.
2. Consideration that the solutions we have identified pay tribute in some way to the Mediterranean city model: its density of population, its compactness, its complexity in terms of diversity, and the abundance of legal entities and organizations based there, as well as its social cohesion.
3. The assumption that achieving re-natured cities requires action in all aspects linked to urban sustainability, and the consideration of cities as ecosystems.

Taking these initial assumptions into account, the methodological criteria for the selection of cases have been the following:

- geographical balance of the cases selected, according to the availability of information and the liability of sources
- coherence of the cases with the IUCN Nature-based-Solutions concept.
- relevance of the cases in relation to the societal and natural challenges addressed
- effectiveness of the cases in reaching their intended goals
- transferability of the cases, or provision of a set of lessons learned for other actors or territories.

As a complement to this report, IUCN-Med organised a discussion with a group of international experts in February 2018, with the aim of jointly promoting this concept.

The main conclusions adopted by this expert group are included in Annex I of this document. The main strategic elements identified by this expert group include:

- NbS must always be context-adapted, therefore it is paramount to consider the complex geo-political reality of the Mediterranean.
- Nature in cities must be seen as a source for innovative solutions.
- NbS should always consider issues such as migration, water scarcity, sea protection, or vulnerability to climate-change as peace and justice challenges for the region.
- The Mediterranean city model, characterized by its population density, the compactness of buildings, the complexity of urban uses and functions, and the proximity of services on a pedestrian scale, must be claimed and protected.
- To address contemporary urban challenges, it is critical to manage cities as ecosystems (urban ecology approach).
- Multi-level, multi-sector and multi-actor policy support for NbS must be urgently promoted.

- Climate change resilience, heat-island effect, air pollution and noise related-illnesses, urban mobility, access to nature, and sustainable integrated urban agendas are the main strategic elements for the Mediterranean cities.
- A change in the urban mobility pattern is of central importance to addressing the main challenges (avoiding the urban sprawling trend; re-naturing cities and making cities healthier -by liberating public space from motorized mobility).
- Related to this, a new model of public space is necessary to guarantee residents the opportunity to become “citizens” (with different rights in the public space, not just mobility), and not only “pedestrians”.

POLICY FRAMEWORKS

NbS is a concept directly linked to all the dimensions of sustainability (social, environmental and economic), and the role of NbS in fostering innovation has also been strongly emphasized in the EU context.

In the Euro-Mediterranean region, the European Union represents a prominent example of the promotion of NbS for cities. Beyond the general framework provided by the Urban Agenda for the EU, Nature-based solutions in the EU are horizontally promoted in the European Cohesion Policy (2014-2020).

In the Southern basin of the Mediterranean, the concept is still in its infancy, and we can observe the beginning of some NbS “interventions” at different scales in some municipalities. In many cases, these have more to do with classical “urban environment” interventions and investments than with NbS.

Considering the diversity of economic, social and environmental contexts, there is no “one-size-fits-all” NbS policy framework in the Mediterranean region, rather a suite of potential tools which may be employed in different urban scenarios and contexts. These range from basic tools like informational or monitoring systems to more sophisticated and complex instruments like municipal urban integrated planning, green municipal strategies, and economic incentives.

MAIN FINDINGS OF THE ASSESSMENT

The **integration of NbS in existing policy sectors still faces some challenges**. Outside of the environmental community, the concept is not well understood. On the other hand, there is a consensus on the need to move from a pilot stage, to a “scaled-up NbS application” stage. In order to successfully take this step further, there is a wide consensus on the need for more scientific research and a robust set of results and impacts.

During our research we have confirmed that the **main bottlenecks preventing implementation of NbS policy frameworks seem to be the absence of effective integrated urban policies.**

Regarding topics covered by the NbS collected in this report, more than half address aspects related to green spaces and infrastructure. Other identified interventions are related to integrated urban integrated development, water management, and urban agriculture.

In relation to the public-private roles exercised in the development of these interventions, the role of local administrations appears to be paramount. The importance of citizen participation processes in the development of projects also needs to be highlighted. The role of European funds and international cooperation is key, offering support for interventions in this area. Finally, the emerging role of local associations and neighbourhood initiatives in creative social innovation projects is also very relevant.

LESSONS LEARNED AND CONCLUSIONS

The process of identifying and selecting interventions related with Nature-based Solutions in Mediterranean cities enables us to share the following lessons and conclusions:

1. There is an increasing awareness regarding the benefits of re-naturing cities.
2. There is a wide consensus in Mediterranean cities about the need to adopt an integrated and holistic urban/environmental sensitive / spatial planning approach.
3. In this context, the concept of NbS is clearly gaining attention, at an international level, with a growing number of research papers and projects addressing its use and development.
4. However, there are likely many more research papers than there are cities actively implementing this concept.
5. This forces us to agree on what we may identify as NbS for integration in urban policies.
6. In our research we have found that speaking about "NbS interventions" (addressing cross-cutting societal challenges at a small scale) might be more accurate than using the term "NbS policies".
7. We have also found that, in most cases, NbS act as open innovation drivers for cities, engaging multiple actors and generating benefits that bridge social and economic interests.

8. The potential of NbS for enhancing inclusiveness and social cohesion in cities should be stressed. In this sense, the health and social well-being benefits of implementing urban NbS projects have already been documented. But more evidence is needed to provide more robustness to this umbrella concept.

9. The success of many NbS initiatives is strongly connected with their local community acceptance. In this sense, communication and participation seems to be a key element for assuring ownership of NbS projects at a citizen level.

10. We must welcome projects related to “soft issues” such as monitoring behavioural changes in some Southern Med cities (in relation with energy consumption patterns, for example).

11. There is still a need, however, to develop the NbS concept further. And there are several areas that need specific attention, such as the collection of more data about socio-economic impact, the development of indicators assessing effectiveness, and more studies on the potential negative impacts. In fact, one of the greatest difficulties in characterizing NbS interventions has been the lack of information related to monitoring and evaluation. This topic is currently among the most challenging.

12. There are already good examples of NbS promoting the interconnectedness and the interdependencies between urban and non-urban areas, which is one key aspect of the integrated urban development model.

13. Further research is needed in related issues, such as: how urbanism can act in favor of green and quality public spaces; identification of success factors for expanding biodiversity in cities; and exploration of the best financing models to support sustainable local economy.

14. As a final remark, we may conclude that the need to invest more time and effort in promoting and documenting these initiatives in the Mediterranean cities is of remarkable importance in this moment. Med cities will face huge demographic, climatic, and structural challenges in the coming years. By including NbS approaches in their future development strategies, Mediterranean cities may be much better prepared to compete at a global scale in a more resilient, sustainable, inclusive, and connected way.

COMPILATION OF INTERVENTIONS

1. INTERVENTION, COMMUNITY GARDEN JANINE FOR HOMELESS PEOPLE, AIX-EN-PROVENCE, FRANCE	
Name of the project/activity	Community Garden Janine for homeless people
Location	AIX-EN-PROVENCE, France
Period:	Ongoing
Summary	<p>The Garden Janine (formerly called Jardin Nouveau) group is participating in the "Aix en Transition" initiative, which wants to increase food and energy resilience in order to better prepare for the future.</p> <p><u>This group supports the establishment of a vegetable garden benefiting homeless people, hosted in the "Jas de Bouffan" district at the Humanitarian Pole.</u></p> <p><u>This is to improve the ordinary meals served to homeless people welcomed at the Halte de jour: salads, zucchini, radishes, onions, garlic, strawberries, raspberries, mint, herbs ... and soon an orchard will be installed: apples, pears, apricots, plums, grapes ...</u></p> <p><i>(Source: Naturvation project)</i></p>
Societal challenge/s	<p>Climate change</p> <p>Human health</p> <p>Economic and social development</p> <p>Food security</p>
NbS concepts	<p>Ecosystem-based management</p> <p>Green infrastructure</p>
Involved institutions/stakeholders	<p>Citizen's initiative "Pays d'Aix en Transition".</p> <p>The Transition collective from Aix-en-Provence has already initiated courses in permaculture, support for the creation of collective urban gardens, experiments in local food self-sufficiency (meals of 50 km), promotion of group housing and ecological habitats, actions in favor of soft transport (bicycle, bus, train) or alternatives to fossil fuels (shared energy).</p>

Objective	Promotion and implementation of imaginative local solutions for increasing the city resilience and social justice in the city.
Impact	Promotion of local initiatives aiming at greening the city and expanding public participation towards urban resilience. Social inclusion
Information	http://www.paysdaixentransition.org/1639-2/
Source	Case study included in the research conducted by <u>Naturvation project</u>

2. INTERVENTION, SAVING TREES INITIATIVE, AIX-EN-PROVENCE, FRANCE	
Name of the project/activity	Saving trees initiative
Location	AIX-EN-PROVENCE, France
Period:	Ongoing
Summary	<p>After more than one hundred trees slaughtered in a few months ordered by the city in 2016, the purpose of the association "Défenses des Arbres en Pays d'Aix" (created by multiple NGOs) was to save the plant heritage of Aix-en-Provence. Their main goal was to encourage the city's council to establish a "Charter for trees" of the city.</p> <p><i>(Source: Naturvation project)</i></p>
Societal challenge/s	<p>Climate change</p> <p>Human health</p> <p>Economic and social development</p>
NbS concepts	<p>Ecological restoration</p> <p>Ecosystem-based management</p> <p>Green infrastructure</p> <p>Climate adaptation services</p>
Involved institutions/stakeholders	Association "Défenses des Arbres en Pays d'Aix" (created by multiple NGOs)
Objective	<p>To promote the establishment of a local "Charter for trees".</p> <p>To protect the natural heritage of the city.</p>
Impact	The work of the association was useful as the city decided to engage in a new charter, and prepare a new planting season with 64 trees.
Information	https://www.helloasso.com/associations/apadem/collectes/aux-arbres-citoyens
Source	Case study researched by Naturvation project .

3. INTERVENTION, VEGETAL WALL OF A BUS STATION, AIX EN PROVENCE, FRANCE	
Name of the project/activity	Vegetal wall of a Bus Station
Location	AIX EN PROVENCE, France
Period:	2014
Summary	<p>The construction of a new main bus station in Aix-en-Provence, inaugurated in 2014, is part of a desire to reduce greenhouse gas emissions and to encourage users to favour bus routes. Part of this construction project, <u>a vegetal wall of 210 meters long and 8 meters high has been implemented in order to act on noise (-20 decibels) and visual pollution, and improve air quality.</u></p> <p>The new bus station is actually a new pedestrian gallery in the city. Close to the Place de General de Gaulle at the foot of Cours Mirabeau, it is also a new connection between neighbourhoods.</p> <p><i>(Source: Naturvation project)</i></p>
Societal challenge/s	<p>Climate change</p> <p>Human health</p> <p>Economic and social development.</p>
NbS concepts	<p>Climate adaptation services</p> <p>Ecosystem-based management</p> <p>Green infrastructure</p>
Involved institutions/stakeholders	Agence Duthilleul associated with AREP
Objective	<p>Reduction of greenhouse gas emissions</p> <p>Promotion of a sustainable mobility model for the city</p> <p>Air quality</p> <p>Offer of new quality public spaces for citizens</p>
Impact	The total separation between pedestrian and coach traffic allows a clear hierarchy of spaces and makes all the functionalities understandable.

Information	http://www.agenceduthilleul.fr/restructuration-de-la-gare-routiere-daix-en-provence/
Source	Case study included in the research conducted by Naturvation project

4. INTERVENTION ON A GREEN ROOF, ALICANTE, SPAIN	
Name of the project/activity	Green roof on an underground parking
Location	ALICANTE, SPAIN
Period:	Ongoing
Summary	<p>This underground garage in Alicante Spain received some special treatment “with a <u>green roof makeover</u>. <u>The garden is super low- maintenance and doesn't need any irrigation whatsoever.</u></p> <p>The location of this garden in a relatively protected area, inside the inner courtyards and at the entrance of the building, have allowed to increase the number of species and the variety of colors that would have been more limited in a more exposed area”.</p> <p><i>(Source: Naturvation project)</i></p>
Societal challenge/s	<p>Climate change</p> <p>Human health</p> <p>Economic and social development</p>
NbS concepts	<p>Green infrastructure</p> <p>Ecological engineering</p>
Involved institutions/stakeholders	Urbanarbolismo, a Spanish firm with a strong focus on vegetation, designed and installed this garden in the courtyard of the garage.
Objective	<p>To keep the underground cooler</p> <p>To improve air quality</p> <p>To embellish location</p>
Impact	This vegetable cover not only contributes to the landscape aspect of the building but also improves the quality of the air and reduces the ambient temperature in the patios and in the houses during the summer.

Information	http://www.urbanarbolismo.es/blog/cubiertas-vegetales-en-benisaudet/
Source	Case study researched by Naturvation project .

5. INTERVENTION, VEGETABLE BARRIERS AT THE PORT OF ALICANTE, ALICANTE, SPAIN	
Name of the project/activity	Vegetable barriers at the Port of Alicante
Location	ALICANTE, SPAIN
Period:	Ongoing
Summary	<p>“This measure is integrated within the Plan of Urban Integration of the Port of Alicante, improving the landscape impact and the port-city boundary zones from the southern access of the urban environment, along with the “Parque del Mar”, to the west zone with the installation of vegetal screens in the inner zone of the port, contributing to an important particle retention and CO2 reduction.”</p> <p><i>(Source: Naturvation project)</i></p>
Societal challenge/s	<p>Climate change</p> <p>Human health</p> <p>Economic and social development</p>
NbS concepts	<p>Ecological engineering</p> <p>Ecosystem-based management</p> <p>Green infrastructure</p> <p>Climate adaptation service</p>
Involved institutions/stakeholders	Municipality of Alicante
Objective	<p>Improvement of air quality in the port environment.</p> <p>Keep the waters of the port in good condition.</p> <p>Correct management of waste produced in the port area and promotion of recycling.</p>
Impact	<p>Rationalization in the consumption of the resources used in port activities</p> <p>Assuring an integrated sustainable approach for all decisions concerning this urban area</p>
Information	http://www.puertoalicante.com/el-puerto/medio-ambiente/

Source	Case study included in the research conducted by <u>Naturvation project</u>
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6. INTERVENTION “CAROLINAS COMMUNITY GARDEN”, ALICANTE, SPAIN	
Name of the project/activity	Carolinas community garden
Location	ALICANTE, SPAIN
Period:	Ongoing
Summary	<p><u>"The place where this orchard is located was an abandoned space for 20 years where a large amount of garbage accumulated. The neighbours decided to clean the area by giving it a use with an orchard area, meeting area, gardening.</u></p> <p>The people responsible for it are the assembly of neighbors.</p> <p>All the activity carried out in this community is considered, approved and finally carried out through a participatory system of decision-making".</p> <p><i>(Source: Naturvation project)</i></p>
Societal challenge/s	<p>Climate change</p> <p>Human health</p> <p>Economic and social development</p>
NbS concepts	Ecological restoration
Involved institutions/stakeholders	Local assembly of neighbours
Objective	The Carolinas Community Garden aims at programming and implementing activities that are considered useful and beneficial for the neighbourhood.
Impact	The orchard is a neighborhood meeting point. It is also an action to combat the physical and psychological degradation of the neighborhood, being the community garden an excuse for this, but also a fundamental pillar where these ideas are based."

Information	http://hortcomunitaricarolines.blogspot.com.es/p/historia_12.html
Source	Case study researched by Naturvation project

7. INTERVENTION, URBAN AGRICULTURE OFFICE – CITY STRATEGIC AGENDA, AMMAN, JORDANIA	
Name of the project/activity	Urban agriculture office – City strategic agenda
Location	AMMAN, JORDANIA
Period:	Ongoing
Summary	<p>In 2005 the Amman Municipality established the Urban Agriculture Office, to <u>encourage the farming of urban and peri-urban land, including rooftops and small plots between buildings.</u></p> <p>The Municipality has since launched several successful programs under the City Strategic Agenda (CSA) to <u>promote urban agriculture</u> (UA) and to support inhabitants’ engagement by offering residents training, information, expertise, materials and access to credit. In the process, the Urban Agriculture Office has pursued a sustainable approach to farming by integrating recycling (e.g. collecting used tyres to convert them into flower pots) and other resource-efficient practices for water use, as part of the food security agenda.</p> <p>Instituted in one of the driest countries in the world, the CSA includes <u>various initiatives to provide access to water, including the reuse of grey water, the introduction of droughttolerant plants, rainwater harvesting and the creation of water reservoirs.</u></p> <p>The CSA seeks to substantially improve the life of the urban poor, as home-grown food is cheaper, and the surplus may be sold, thereby generating additional sources of income for urban farmers. <u>The City encouraged the trading of home-grown products by creating a label guaranteeing product quality.</u> The project now encompasses more than 300 rooftops and 4,000 gardens in the city.</p> <p>In order to address Amman’s pressing issues of water and food security, land fragmentation, and poverty alleviation, the municipality instituted the Urban Agriculture Office to incite cross-sectoral and inter-departmental cooperation, notably between the Ministry of Agriculture and the Ministry of Environment.</p>
Societal challenge/s	<p>Climate change</p> <p>Human health</p>

	<p>Economic and social development</p> <p>Food security</p>
NbS concepts	<p>Ecological restoration</p> <p>Green infrastructure</p> <p>Natural infrastructure</p>
Involved institutions/stakeholders	<p>With support from the Resource Centres on Urban Agriculture & Food Security (RUAF) Foundation “From Seed to Table” program, the City Council of Amman established a the <u>Multi-Stakeholders Forum (MSF) for policy formulation and local action</u>. The MSF holds 28 permanent members, including representatives of the Greater Amman Municipality, the Royal Directorate for the Environment, the Ministry of Agriculture, the University of Jordan and a number of urban farmers, credit institutions and civil society organisations.</p> <p>This experience is part of the Urban NEXUS project 2013-2014 was funded by GIZ on behalf of BMZ to develop the "Operationalization of the NEXUS approach in cities and metropolitan regions" ICLEI, as implementing partner of the Urban NEXUS project has documented this case story.</p>
Objective	<p>To foster food security, social inclusion and to promote sustainable use of water through urban agriculture.</p>
Impact	<p>A key outcome of MSF collaboration included of an exploratory feasibility study, policy review and the formation three working groups for media, technical and legal action, ultimately resulting in the City Strategic Agenda.</p> <p>Scope for improvement Amman continues to urbanize at a rapid pace, and as land prices increase, it is more profitable for owners to sell empty plots than to use them for farming. The current land use guidelines that require 15% of each plot should be allocated for greening or agriculture marks a promising start for the urban agriculture, however the target could be further increased.</p> <p>Replication This type of project is replicable, provided there is strong administrative support. The creation of an integrated institution such as Amman’s Urban Agriculture bureau can play an important role in the supervision and coordination of multiple actions and projects.</p>

Information	http://www.iclei.org/fileadmin/PUBLICATIONS/Case_Stories/Urban_NEXUS/26 Urban NEXUS Case Story Amman ICLEI-GIZ 2014.pdf
Source	ICLEI

8. INTERVENTION, THE GREEN ROOF OF THE MINISTRY OF ECONOMICS AND FINANCE, ATHENS, GREECE	
Name of the project/activity	The green roof of the Ministry of Economics and Finance
Location	ATHENS, GREECE
Period:	2008-Ongoing
Summary	<p>Constitution Square (Syntagma Square), considered the most important square of modern Athens from both a historical and social point of view, is located at the epicentre of commercial activity and Greek politics and is situated opposite the Greek Parliament. "The Greek Ministry of Finance installed this <u>green roof</u> on the Treasury in Constitution Square in Athens. The so-called "oikostegi" (Greek – oiko, pronounced eeko, meaning building-ecological, and stegi, pronounced staygee, meaning roof-abode-shelter) was inaugurated in September, 2008. <u>Studies of the thermodynamics of the roof in September 2008 concluded that the thermal performance of the building was significantly affected by the installation.</u> In further studies, in August 2009, energy savings of 50% were observed for air conditioning in the floor directly below the installation. The ten-floor building has a total floor space of 1.4 hectares. The oikostegi covers 650 m², equaling 52% of the roof space and 8% of the total floor space. Despite this, energy savings totaling €5,630 per annum were recorded, which translates to a 9% saving in air conditioning and a 4% saving in heating bills for the whole building.</p> <p>An additional observation and conclusion of the study was that the thermodynamic performance of the oikostegi had improved as biomass was added over the 12 months between the first and second study. This suggests that further improvements will be observed as the biomass increases still further.</p> <p><u>The study suggested that both the micro-climate and biodiversity of Constitution Square, in Athens, Greece had been improved</u> by the oikostegi.</p> <p>Athens and Greece, as a whole, is a seismic hot spot so one of the main limitations of this installation was acceptable load. The wet weight of the build up is under 50 kg / M². The light weight was achieved by incorporating a number of strategies including shallow substrate depth (less than 10 cm) and lightweight substrates. While high water storage capacity</p>

	<p>would be a benefit for roofs in dry Athens, weight considerations prevented this from being viable.</p> <p>In addition, summer irrigation was considered to be undesirable so the plant palette was also limited.</p> <p><u>Mainly local species were selected to be able to survive the harsh conditions of this particular roof.</u> Primarily, the plant selection was composed of indigenous Hellenic aromatic herbs such as several species of thyme, several species of sage, several species of lavender, several species of mint, marjoram, several species of oregano, savoury”.</p> <p><i>(Source: Naturvation project)</i></p>
Societal challenge/s	<p>Climate change</p> <p>Human health</p> <p>Economic and social development</p>
NbS concepts	Green infrastructure
Involved institutions/stakeholders	Greek Ministry of Finance
Objective	The main motivation for this project was <u>to provide a research roof to study the thermodynamic impact of a green roof in hot Athens</u>
Impact	<p><u>Energy savings of 50% were observed for air conditioning on the floor directly below the installation.</u></p> <p><u>The study also stated that while measurements were being made by thermal cameras, a plethora of birds and beneficial insects were observed on the roof,</u> ranging from robin redbreasts, yellow hammers, yellow tits, coal tits, and sparrows to kestrels hovering high above eyeing up the smaller birds. Many species of pollinators have been seen such as honey bees, tiger swallowtail and monarch butterflies, also dragonflies and ladybugs. Obviously this was not the case before installation</p>
Information	http://www.greenroofs.com/projects/pview.php?id=1722
Source	Case study included in the research conducted by <u>Naturvation project</u>

9. INTERVENTION, JOINING TWO PARKS WITH A GREEN MASS CORRIDOR, ATHENS, GREECE	
Name of the project/activity	Joining two parks with a green mass corridor
Location	ATHENS, GREECE
Period:	Ongoing
Summary	<p>The main idea of the project is to join the two parks at the end of the intervention (Pedion Areos and Lofos Likavitou) bringing back the greenery to an area that used to be a green zone in the outside of the old Athens walls.</p> <p><u>“That green corridor is formed by: (1) the existing trees preserved; (2) the new trees added; (3) a continuous floor all along the project with a pattern that is an abstraction from olive tree branches; (4) The artificial activity/bioclimate trees they create”</u></p> <p>The liberation of the space occupied until now by traffic has lead to consider the uses and activities needed to be incorporated to the actuation to make it an attractive, alive and sustainable city”.</p>
Societal challenge/s	<p>Climate change</p> <p>Human health</p> <p>Economic and social development</p>
NbS concepts	<p>Ecosystem-based management</p> <p>Green infrastructure</p> <p>Ecological engineering</p> <p>Climate adaptation services</p>
Involved institutions/stakeholders	Municipality of Athens
Objective	To create a green corridor connecting the two local green poles (Pedion Areos Park and the National Garden of Athens).
Impact	To provide new quality public spaces for citizens
Information	https://www.behance.net/gallery/7191429/Re-Think-Athens-Towards-a-New-City-Centre-Proposal

Source	Case study included in the research conducted by <u>Naturvation project</u>
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10. INTERVENTION, NAVARIONU PARK, ATHENS, GREECE	
Name of the project/activity	Navarionu Park
Location	ATHENS, GREECE
Period:	Ongoing
Summary	<p><u>Restructuring a public derelict land into few private vegetable and fruit gardens.</u> The gardeners practice organic gardening making it more sustainable. This provides foods as well as increasing the soil fertility, reduces the soil erosion. This also creates some extra vegetable and fruit market in the city.</p> <p>This piece of land remained unused for many years in the city.</p> <p><u>The Exarcheia Residents' Initiative, informed the neighbourhood, took action and requested the immediate conversion into an area of high vegetation.</u> On the 7th March 2009, along with the collective "Us, Here and Now and for All of Us", it organised an event where all residents and enthusiastic supporters united to squat on the space and demand the obvious, that the parking turns into a park. The response and determination of all involved exceeded any expectations and the park was born.</p> <p><u>The park is a space for creativity, participation, and social innovation. At the same time, it aspires to be a neighbourhood garden which accommodates part of the social life of its residents,</u> is beyond any profit or ownership-driven logics and functions as a place for playing and walking, meeting and communicating, sports, creativity and expression.</p> <p>The park is being co-created by an open collective and participatory discussions.</p> <p><i>(Source: Naturvation project)</i></p>
Societal challenge/s	<p>Climate change</p> <p>Human health</p> <p>Economic and social development</p>
NbS concepts	<p>Ecological restoration</p> <p>Green infrastructure</p>

Involved institutions/stakeholders	Exarcheia Residents' Initiative
Objective	To offer quality public space for residents To offer a space for community participation, expression and leisure
Impact	The project is a community project which has provided space for collective projects related to sustainability and critical thinking.
Information	http://parkingparko.espivblogs.net/englishfrench/about-the-park/
Source	Case study included in the research conducted by Naturvation project

11. INTERVENTION, CITY STRATEGY OF SUSTAINABLE INTEGRATED DEVELOPMENT, BILBAO, SPAIN	
Name of the project/activity	CITY STRATEGY OF SUSTAINABLE INTEGRATED DEVELOPMENT
Location	BILBAO, SPAIN
Period:	Ongoing
Summary	<p>In 80 years, Bilbao has transformed itself from an obsolete industrial city into a knowledge-based economic centre. Investments in infrastructure have successfully rejuvenated the city and resulted in better social cohesion. <u>A wide range of single interventions in the fields of the environment (the clean-up of the Nervion river), mobility (the underground's construction) and culture (the building of the Guggenheim Museum) have been integrated into a coherent vision.</u></p> <p>The implementation of these projects was possible thanks to a combination of different mechanisms: a perspective on urban development that goes beyond the city's limits, a multisector governance involving both the public and private actors, and an inclusive public participation.</p> <p>Bilbao's urban evolution is the result of a wide range of single interventions integrated into a common, agreed and coherent city vision. <u>Some interventions stand out for being not only emblematic, but for acting as catalysts in the development process.</u></p> <p>a) <u>Environmental restoration</u> of the heavily polluted waters of the Nervion river and estuary.</p> <p>b) <u>Elimination of railway barriers and obsolete associated infrastructures,</u> releasing public space for multiple uses</p> <p>c) <u>Improvement of mobility and accessibility</u> by means of the construction of the underground, the tram and new bridges.</p> <p>d) <u>Massive regeneration of urban public space and social housing development in the river banks</u> in Abando- Ibarra, with the construction of the Guggenheim museum as an outstanding landmark.</p> <p><u>The implementation of those projects was possible thanks to the combination of different mechanisms:</u></p> <p>a) A <u>supra-municipal perspective of urban development,</u> i.e. consideration of the interventions in the context of Bilbao's metropolitan functional area</p> <p>b) <u>Multisector (horizontal) and multilevel (vertical) governance</u></p>

	<p>approach with different formulas and ad hoc public-public and public-private partnerships in place.</p> <p>c) <u>Public administrations at all levels participating and contributing with a land property</u>, resulting from abandoned infrastructures and industrial uses.</p> <p>d) Truly inclusive and <u>open public participation</u>, facilitated by external professionals in the context of the Plan for Urban Zoning.</p>
Societal challenge/s	<p>Climate change</p> <p>Human health</p> <p>Economic and social development</p>
NbS concepts	<p>Ecological restoration</p> <p>Ecosystem-based management</p> <p>Green infrastructure</p>
Involved institutions/stakeholders	<p>Municipality of Bilbao</p>
Objective	<p>The city strategy aims at contributing to the objectives of the EU Operative Program of Sustainable Growth:</p> <p>OT2: Smart City approach in the field of mobility and lighting.</p> <p>OT4: Boosting the transition to a low carbon economy</p> <p>OT6: Rehabilitation of urban areas, and greening of urban spaces towards flood risk reduction</p> <p>OT9: Development of cultural, social and entrepreneur activities in old and disused industrial facilities</p> <p>OT11: Developing institutional capacity, and promoting efficiency in public administration.</p>
Impact	<p>Bilbao has used a holistic and integrated approach in order to cope with its social challenges (poverty reduction, social exclusion), its environmental problems and the loss of competitiveness in the context of a deep economic decline.</p> <p>The experience of Bilbao as a comprehensive city project, incrementally executed through more than 25 urban projects over 30 years and still ongoing, has achieved a profound transformation of the city.</p>

	<u>Bilbao has significantly improved its environment and quality of life, strengthened its social cohesiveness and cultural vibrancy and also increased its economic competitiveness.</u>
Information	http://urbact.eu/urban-evolution-towards-resilience
Source	URBACT

12. INTERVENTION: TREES MASTER PLAN, BARCELONA, SPAIN	
Name of the project/activity	Trees Master Plan
Location	BARCELONA, SPAIN
Period:	2016-2035
Summary	<p>The <u>Trees Master Plan 2016-2035</u> has the overall aim of <u>maintaining a well-managed, healthy and biodiverse woodland to improve green corridors and tackle the urban heat island effect.</u></p> <p>The quantity and quality of trees, and their role as part of the city's green infrastructure, are factors that have been growing in importance in the city in the last few decades. Because of this, a strategy document was needed to guide municipal action in planning and managing all the trees in the city.</p> <p>One particular lesson for Barcelona was enabling enough space for planting street trees. Most street trees have very limited space in the ground for their roots, with very little organic material and a compact soil with deficient nutrition. In most instances, this is because pavements are narrow and tree pits are small. Therefore, in public areas, streets wider than six metres should be designed in a way that provides scope for transforming individual tree pits into continuous pits (Source: ClimateAdapt, 2016).</p> <p><i>(Source: Naturvation project)</i></p>
Societal challenge/s	<p>Climate change</p> <p>Human health</p> <p>Economic and social development</p>
NbS concepts	<p>Ecological restoration</p> <p>Green infrastructure</p> <p>Ecosystem-based management</p>
Involved institutions/stakeholders	Municipality of Barcelona
Objective	To create a veritable green

	<p>To get the maximum environmental, social and economic use out of the city's trees.</p> <p>To have a biodiverse range of trees in good condition</p> <p>To have trees that are resilient and adapted to the climate.</p> <p>To achieve harmony between people and trees, and increase the value that society attaches to trees.</p>
Impact	The city's tree mass is a universal natural resource that connects people with urban nature, and provides the current generation, as well as future ones, with health and a habitable space thanks to its environmental, social and landscaping aspects.
Information	http://ajuntament.barcelona.cat/ecologiaurbana/en/what-we-do-and-why/urban-greenery-and-biodiversity/tree-master-plan
Source	Case study included in the research conducted by Naturvation project

13. INTERVENTION: URBAN GREEN CORRIDOR “PASSEIG DE SANT JOAN”, BARCELONA, SPAIN	
Name of the project/activity	Urban green corridor “Passeig de Sant Joan”
Location	Barcelona, Spain
Period:	2012-2020
Summary	<p>The City of Barcelona, with its <u>Green Infrastructure and Biodiversity Plan</u> up to 2020 (City of Barcelona, 2013) is implementing a range of actions to bring nature into the city. The main objectives are to preserve and improve the natural heritage of the city and to conserve its biodiversity. This would ultimately bring environmental and social benefits for local people.</p> <p>The Greenery and Biodiversity Plan 2012-2020 includes “the development of several urban green corridors to increase ecological and social connectivity within the city. The green corridor of Passeig de Sant Joan is one of the first implemented and it involved tree and shrub planting and permeable green pavement”.</p> <p><i>(Source: Naturvation project)</i></p>
Societal challenge/s	<p>Climate change</p> <p>Human health</p> <p>Economic and social development</p>
NbS concepts	Green infrastructure
Involved institutions/stakeholders	City Council Barcelona
Objective	To preserve and enhance the natural heritage of the city and avoid the loss of species and habitats; to maximize environmental and social services from green and biodiversity and to enhance the value which society assigns to them; to make the city more resilient to emerging challenges such as climate change.
Impact	<p>Connectivity through green corridors</p> <p>Quality public spaces for the citizens</p>

Information	http://ajuntament.barcelona.cat/ecologiaurbana/en/what-we-do-and-why/green-city-and-biodiversity/green-and-biodiversity-plan
Source	Case study included in the research conducted by Naturvation project Impacts documented by OPPLA platform .

14. INTERVENTION: SUPERBLOCKS URBAN MODEL, BARCELONA, SPAIN	
Name of the project/activity	SUPERBLOCKS Urban model
Location	BARCELONA, SPAIN ¹
Period:	Ongoing
Summary	<p>Barcelona City Council is opting for a sustainable urban model by reducing the number of square metres dedicated to private vehicles and reclaiming (and improving) part of this public space for people.</p> <p>The <u>Urban Mobility Plan (PMU) for 2013-2018</u> includes the Superblock Model and organises the city's mobility on the basis of these structures. In order to implement the programme, the municipal government has based it on the guidelines and criteria setting out several municipal sectoral plans and undertakings, such as the Municipal Action Plan, the Commitment to Climate, the Urban Mobility Plan and the Green and Biodiversity Plan.</p> <p>City Council is aiming to start setting up superblocks throughout the city, extending the model to the districts of Eixample, Sant Martí and Gràcia as well as new local areas such as the neighbourhoods of Sant Gervasi, Horta, Sant Andreu and La Prosperitat.</p> <p>The superblock is a new urban cell including in its interior <u>nine blocks (3 x 3), limiting the circulation of vehicles passing to its perimeter and preserving the interior only for the circulation of services, emergencies and neighbours</u>. A network of superblocks in the city would allow a decrease in the volume of global traffic, as well as the recovery of public spaces for people, and a decrease of the acoustic and atmospheric pollution.</p> <p>The concept of superblocks has been put in to place in Poblenou, a neighbourhood of 33,586 inhabitants.</p>

¹ **(Superblocks are currently constructed (or approved for construction) in several Spanish cities. The city of Vitoria-Gasteiz was the winner of the European Green Capital Prize 2012 and Plan for Mobility and Public Space, and has been rated Best Practice by Un-Habitat. The cities of El Prat, Viladecans, A Coruña and Ferrol and different districts of Barcelona, such as the 22 @ and Gràcia and are also home to the Superblock model. In Gràcia, Superblocks achieved first prize for their innovation from BMW in 2011 and were recognized as a sustainable Best Practice by Un-Habitat in 2010).*

	Complementarily to superblocks, the Mobility Plan includes a new network of buses that will reduce the number of bus lines from 84 to 28 and set the frequency of bus passing in 4-5 minutes.
Societal challenge/s	Climate change Human health Economic and social development
NbS concepts	Ecosystem-based management Climate adaptation services Ecological engineering
Involved institutions/stakeholders	City Council of Barcelona Urban Ecology Agency of Barcelona
Objective	Superblocks are being introduced with the aim of responding to the city's scarcity of green spaces, its high levels of pollution, environmental noise, accident rates and sedentarism, and have the following objectives: <ul style="list-style-type: none"> - More sustainable mobility - Revitalization of public spaces - Promotion of biodiversity and urban green - Promotion of urban social fabric and social cohesion - Promoting self-sufficiency in the use of resources - Integration of governance processes
Impact	The Superblock is emerging as an integral solution to the use of public space, uniting urban planning with mobility, and limiting the presence of private vehicles in order to return the public space to the citizen. It significantly improves urban quality while reducing the environmental impacts of vehicles. It also increases the quality of life of residents and visitors, enhances social cohesion and increases economic activity.
Information	http://www.bcnecologia.net/en/conceptual-model/superblocks http://ajuntament.barcelona.cat/ecologiaurbana/en/what-we-do-and-why/quality-public-space/superblocks https://www.theguardian.com/cities/2016/may/17/superblocks-rescue-barcelona-spain-plan-give-streets-back-residents
Source	Agencia de Ecologia Urbana de Barcelona

15. INTERVENTION, BLUEAP, BOLOGNA, ITALY	
Name of the project/activity	BLUEAP
Location	BOLOGNA, ITALY
Period:	2015-2025
Summary	<p>Within the framework of the EU Life+ Project BLUEAP (Bologna Local Urban Adaptation Plan for a resilient city), the City of <u>Bologna (IT) identified and analysed risks, hazards and main vulnerabilities related to climate change, water scarcity, heat waves, extreme weather events. Drawing on its local vulnerabilities, Bologna's Adaptation Plan in 2015 outlined the strategy and actions in the management of green space and water by the different levels of government in the territory.</u></p> <p><u>The Plan consists of a local strategy and an Action Plan that translates these strategies into measures.</u> Strategy and Plan make reference to a medium-term time frame until 2025. In the light of the plan a package of <u>integrated pilot actions</u> has been launched: drinking water saving and water treatment, collection and storage of rainwater, targeted use of plant species to improve the microclimate and reduce air pollution, pre-emptive insurance against risks.</p> <p>The integration of actions and measures from a local to a metropolitan scale was possible only through a strong stakeholder involvement of decision-makers, public bodies, companies, citizens and research institutes. They all were involved in different roundtables with specific themes, in restricted sessions and workshops.</p>
Societal challenge/s	<p>Climate change</p> <p>Human health</p> <p>Economic and social development</p>
NbS concepts	<p>Green infrastructure</p> <p>Natural infrastructure</p> <p>Ecosystem-based management</p> <p>Climate adaptation services</p>

	<p>Ecosystem-based disaster risk reduction</p> <p>Ecosystem-based mitigation</p>
Involved institutions/stakeholders	Bologna city council
Objective	<p>Sustainable environment for urban living and health.</p> <p>Decrease of vulnerable populations exposed to the effects of climate change</p> <p>Increase resilience to heat waves</p> <p>Social cohesion</p>
Impact	<p>The Bologna Adaptation Plan can be considered a good practice for <u>results achieved not only as a planning instrument, but also as a concrete collaborative action plan of the City</u> which represents an example for cities that share Bologna's climate conditions and urban and social environment.</p> <p>As the Plan is the final step of a <u>participatory process</u> which led to its editing, the whole process can be considered a good practice.</p> <p>The Bologna practice achieved some results, as <u>10 pilot actions carried out successfully</u>.</p> <p>An agreement with an important insurance company increased information and knowledge transfer in the reduction of damages and losses in the Bologna area.</p> <p>Finally, knowledge transfer and peer-to-peer networks with other regions have represented an important step to spread the good practice and to learn from other city experiences.</p>
Information	<p>http://urbact.eu/managing-climate-change-city</p> <p>http://www.blueap.eu/site/</p>
Source	URBACT programme

16. INTERVENTION, BOUREGREG VALLEY DEVELOPMENT PROJECT, MOROCCO	
Name of the project/activity	Bouregreg Valley Development Project
Location	Bouregreg Valley Metropolitan area, MOROCCO
Period:	
Summary	<p>The Bouregreg Valley Development Project is one of 12 urban development projects selected during the <u>Project Identification Phase of the Urban Projects Finance Initiative (UPFI)</u>, launched by the Union for the Mediterranean.</p> <p>The Project, which comprises the 3rd Phase of the Bouregreg Valley Development Plan, is the foundation of all <u>urban development in this metropolitan area. It will develop new neighbourhoods for professional and residential use (to help improve social diversity), as well as public amenities and spaces. It will also preserve cultivated land, create natural ecological spaces, carry out reforestation activities and restore water courses that represent a risk of causing gully erosion and landslides.</u></p> <p>The Project will foster an integrated development approach to meet the area’s current and future needs, including benchmark facilities of benefit to the entire metropolitan area (hospitals, restoration of Chellah). Furthermore, it will deliver effective urban continuity between the two towns and improve road infrastructure, links, and traffic flow between the cities of Rabat and Salé.</p> <p>The UfM label delivered in March 2015 is in recognition of the exceptional nature of this Project. With a total budget of €394 million, the Project is being carried out in conjunction with the public authorities and local stakeholders.</p>
Societal challenge/s	<p>Climate change</p> <p>Economic and social development</p>
NbS concepts	<p>Ecological restoration</p> <p>Green infrastructure</p> <p>Natural infrastrucrure</p> <p>Ecosystem-based management.</p>

Involved institutions/stakeholders	The project has the support of the highest authorities in the country and has been entrusted to a state-run public body, the Bouregreg Valley Development Agency (AAVB).
Objective	<ul style="list-style-type: none"> • Promote urban development by providing large, protected spaces with plenty of public amenities to benefit local populations, while providing job opportunities in a wide range of business sectors. • Enable an increase in value and upgrade of the city of Salé, which exemplifies the main risks arising from urban exclusion. • Promote urban development that is sustainable and respectful of the environment, a major concern in the Mediterranean region, especially for coastal towns.
Impact	<p><u>The development of the Bouregreg Valley, which divides the second biggest metropolitan area of Morocco, Rabat-Salé-Témara, will enable the recuperation of the Bouregreg riverbanks and will provide the agglomeration with a high-quality urban area.</u> Moreover, the two towns of Rabat and Salé will be brought closer together and new links will be forged.</p> <p>BENEFICIARIES:</p> <ul style="list-style-type: none"> • The future inhabitants (estimated to be 80,000 people) • The farmers and market gardeners of the Valley • The inhabitants of the greater metropolitan area.
Information	<p>http://ufmsecretariat.org/upfi-bouregreg-valley-development-project/</p> <p>http://ufmsecretariat.org/wp-content/uploads/2016/02/27-BOUREGREG_EN.pdf</p>
Source	Union for the Mediterranean

17. INTERVENTION, URBAN AGRICULTURE IN THE GREATER CAIRO REGION, EGYPT	
Name of the project/activity	Urban Agriculture in the Greater Cairo Region
Location	EL CAIRO, EGYPT
Period:	2014
Summary	<p>This pilot case study* “Urban Agriculture in the Greater Cairo Region – The Example of Rooftop Farming in Informal Settlements” (2014) aimed to exemplify the use of rooftop farming to reduce climate vulnerability in informal settlements.</p> <p>The implementation started with the selection of participants, followed by training and the technical setup. In order to be able to cover the costs for the technical installations, the low-income families received repayable loans (by Schaduf Company), which were repaid by monthly crop sales. Farmers were typically able to repay the loans within one year.</p> <p>Families kept roughly 10 percent of the crops grown for personal consumption; Schaduf Company purchased the remaining produce, reselling it to local markets with profit for the farmers.</p> <p>A hydroponic system of waterbeds was proposed and installed by Schaduf Company directly on the rooftops. The model consisted of 3–4 water beds (of 3.75m² each) on each rooftop.</p>
Societal challenge/s	<p>Climate change</p> <p>Human health</p> <p>Economic and social development</p> <p>Food security</p>
NbS concepts	<p>Green infrastructure</p> <p>Ecosystem-based management</p> <p>Climate adaptation services</p>
Involved institutions/stakeholders	<p>GIZ, commissioned by the Federal Ministry for Economic Cooperation and Development (BMZ), implemented the project in cooperation with two NGOs - the Participatory Development Programme in Urban Areas (PDP) and the Research Center on Urban Agriculture and Food Security (RUAF) - and the private Schaduf Company, which was established in 2010 as an Egyptian</p>

	rooftop farming enterprise designed to empower and sustain Cairo's low-income communities.
Objective	<p>Contribution to climate change adaptation</p> <p>Food security</p> <p>Income for poor families</p> <p>Economic development</p> <p>Integration of marginalized groups</p>
Impact	<p>A preliminary evaluation of the project produced the following results:</p> <ul style="list-style-type: none"> • A broader and more in-depth capacity building and training appears to be crucial relating to specific knowledge about rooftop farming. • Capacity building should target the participants themselves as well as possible partners (NGOs) and have the form of so-called urban producer field schools (capacity building workshops on-site). • More information (e.g. about financial costs of the installation and operational aspects) would enable residents to participate better in the whole project and finally lead to their full empowerment as responsible actors within the project. • Monitoring should start from the selection of residents and evaluation of the training sessions until the end of the production circle (costs, consumption, harvest, etc.). • On the technical side there are several options to cultivate the crops. Aside of the hydroponic system mentioned (waterbeds on the floor), a hydroponic system on tables and a soil-based system on tables were tested. But many more options have been tried in other locations and all of them have their pros and cons and more tests are needed to find the most suitable one for each case. • The biggest challenges for the rooftop farmers were irregular water supply and electricity cuts and the increasing heat stress in the city. • The main driver of motivation is income generation. Microcredits and micro-insurances could ease the implementation of rooftop farming.

	<p>Rooftop farming (as well as other types of urban agriculture) has a positive impact on microclimate and environment, food security and income, economic development as well as community participation. It bears great potential for the integration of marginalized groups, e.g. women and youth, and can be regarded as an option for adaptation to climate change in urban environments.</p>
<p>Information</p>	<p>https://www.weadapt.org/placemarks/maps/view/31826?utm_content=buffere4d44&utm_medium=social&utm_source=twitter.com&utm_campaign=buffer</p> <p>https://panorama.solutions/en/solution/urban-rooftop-farming-heat-wave-buffering-greater-cairo-region-0</p>
<p>Source</p>	<p>Direct research</p>

18. INTERVENTION, COMMUNITY ECOLOGICAL GARDEN, CÓRDOBA, SPAIN	
Name of the project/activity	Community ecological garden
Location	CÓRDOBA, SPAIN
Period:	Ongoing
Summary	<p>The neighbors of the Fuensanta in Cordoba have recovered an abandoned public plot of the old Fuensanta's cinema to transform it into a social and ecological vegetable garden.</p> <p><u>El Huerto Fuensanta is an independent citizen initiative that recovers this abandoned public lot for more than 20 years.</u></p> <p><i>(Source: Naturvation project)</i></p>
Societal challenge/s	<p>Climate change</p> <p>Human health</p> <p>Economic and social development</p>
NbS concepts	<p>Green infrastructure</p> <p>Ecological restoration</p>
Involved institutions/stakeholders	Community-driven initiative
Objective	<p>To provide one local neighbourhood with green spaces and ecological garden</p> <p>To offer public quality space for the citizens.</p>
Impact	<p>To increase the city offer for community gardening areas</p> <p>To increase participation in urban planning decisions.</p>
Information	http://hurbanofuensanta.wixsite.com/huerto
Source	<p>Case study included in the research conducted by</p> <p><u>Naturvation project</u></p>

19. INTERVENTION "ASOMADILLA PARK", CÓRDOBA, SPAIN	
Name of the project/activity	ASOMADILLA PARK
Location	CÓRDOBA, SPAIN
Period:	2004-2007
Summary	<p>The Asomadilla Park is located in the North-Sierra district of the city of Cordoba (Andalusia). With an area of 27 hectares, is the second largest park in Andalusia behind the Alamillo Park in Seville.</p> <p><u>The park was designed to simulate a Mediterranean forest with 18 native species of Mediterranean flora. The water is being reused in order to avoid the depletion of aquifers. Ecological vegetable gardens destined to community horticulture workshops organized by the city council.</u></p> <p><i>(Source: Naturvation project)</i></p>
Societal challenge/s	<p>Climate change</p> <p>Human health</p> <p>Economic and social development</p>
NbS concepts	<p>Green infrastructure</p> <p>Climate adaptation services</p> <p>Area-based conservation</p>
Involved institutions/stakeholders	Municipality of Córdoba
Objective	<p>To give response to a social demand for a park in this area of the city, that neighbors had been demanding for 25 years.</p> <p>To provide the city with a large green space.</p>
Impact	<p>The park was awarded with a special prize in environmental Justice in 2010 by the Biodiversity Foundation through the "Life + European Capitals of Biodiversity" as a project that promotes environmental protection and social integration in the city.</p> <p>This large green space covers the needs of more than 30,000 people living in the perimeter of the park.</p>

Information	http://vivirlosparques.blob.core.windows.net/vlp-parques-cordobaasomadilla2/index.html
Source	Case study included in the research conducted by <u>Naturvation project</u>

20. INTERVENTION, LAND USE AND ECOSYSTEM SERVICE SCENARIOS IN THE GRENOBLE URBAN AREA, GRENOBLE, FRANCE	
Name of the project/activity	Land use and ecosystem service scenarios in the Grenoble Urban Area
Location	GRENOBLE, FRANCE
Period:	
Summary	<p><u>Grenoble is the centre of one of the very active and dynamic French metropolitan areas.</u> This area presents a large variety of physical and natural characteristics, resulting in contrasted heterogeneous landscapes. The region is structured by three mountain ranges. <u>The mountain areas benefit from a wide range of protection measures with 2 natural parks and several conservation areas.</u></p> <p>Through this project an <u>interdisciplinary research team</u> was funded including three PhD students and three postdocs. The methods developed for the <u>participatory assessment of bundles of ecosystem services</u> underpinned by causal ecological mechanisms, and for the participatory development and assessment of land use and ecosystem service scenarios, are of generic value for other sites with diverse landscapes, stakes and groups of actors and decision-makers.</p>
Societal challenge/s	<p>Climate change</p> <p>Human health</p> <p>Economic and social development</p>
NbS concepts	<p>Ecological Engineering</p> <p>Green infrastructure</p> <p>Natural infrastructure</p> <p>Ecosystem-based management</p> <p>Forest landscape restoration.</p>
Involved institutions/stakeholders	<p><u>Laboratoire d'Ecologie Alpine</u></p> <p><u>Biotope</u></p> <p><u>Lund University</u></p>

Objective	<p><u>Analysing future land use trajectories and their effects on networks of biodiversity and ecosystem services for the Grenoble urban area.</u></p> <p>Providing a better knowledge of mechanisms underpinning ecosystem services as well as analysing trade-offs and synergies between biodiversity, critical ecosystem services and territorial management.</p> <p>Facilitating appropriation of tools and concepts by stakeholders and support the integration of the complexity of ecological functioning into debates on territorial planning and management.</p>
Impact	<p>Focusing on territorial development, a topic of core interest for stakeholders, and especially at a time of development of a new plan.</p> <p>Improved awareness and operationalization of the ecosystem service concept.</p> <p>Enhanced coordination and motivation amongst stakeholders.</p>
Information	<p>https://oppla.eu/casestudy/17272</p>
Source	<p>OPPLA database</p>

21. INTERVENTION, P2GREEN, GUIMARÃES, PORTUGAL	
Name of the project/activity	P2GREeN
Location	Guimarães, PORTUGAL
Period:	2015-ongoing
Summary	<p>The city of Guimarães (PT) has created a <u>strategic plan which protects and promotes biodiversity in urban areas</u>. The plan emphasizes the importance of indigenous species and their added value.</p> <p>The P2GREeN good practice comprises two main steps:</p> <p>1) <u>Diagnostic/Characterisation</u>: Alien Species Plan Control; Environmental Education and Reforestation (indigenous species); Creation of a Biodiversity Database;</p> <p>2) <u>Valorisation of natural routes</u>; Promotion of species observation; Improvement of Nature Tourism.</p> <p><u>The strategy recognises the importance to take into account economic and social benefits deriving from nature's contribution, emphasising the importance of multidisciplinary projects to promote/preserve biodiversity</u> and, consequently, to encourage employment and to promote tourism.</p> <p>The mobile app Biodiversity GO! was made under the citizens' science concept, where <u>people were invited to create the municipal biodiversity database</u>.</p> <p>The implementation of P2GREeN Good Practice can help cities to shape the pattern and distribution of urban biodiversity, contributing also to specific social goals, such as community-based management, sustainable development and poverty reduction in cities.</p> <p>The Good Practice is divided into a hierarchy of planning phases. Strategic planning is conducted to make decisions about sustainable harvest levels, plantation of local species while taking into account legislation and policy issues (reference). In addition, it also comprises a series of actions to foster nature-based tourism and promotes participation of the citizen.</p>
Societal challenge/s	<p>Climate change</p> <p>Human health</p>

	Economic and social development
NbS concepts	Ecological restoration Green infrastructure Natural infrastructure
Involved institutions/stakeholders	City Council of Guimarães
Objective	The main objective is to sensitize and educate citizens and local stakeholders through strong leadership.
Impact	More than a hundred activities involving more than three dozen partners reaching all schools in the country. In the first year of implementation the programme took the environmental debate to all students of Guimarães. The forestation program allowed the planting of more than 15,000 trees in Guimarães. Also, other initiatives generated from PEGADAS programme allow students to propose solutions for biodiversity improvement. The mobile application Biodiversity GO! also allows the creation of a <u>database</u> of species found in Guimarães. Natural routes were already identified and integrated in the city routes system. The routes were tested with citizens' participation, and to achieve that, <u>several events</u> were developed. Taken together, these results contributed to the promotion of biodiversity in Guimarães.
Information	http://urbact.eu/protection-and-promotion-biodiversity
Source	URBACT programme

22. INTERVENTION, MULTI-SITE URBAN REGENERATION PROJECT, JERICHO, PALESTINE	
Name of the project/activity	Multi-Site Urban Regeneration Project
Location	JERICHO, PALESTINE
Period:	
Summary	<p>The Multi-Site Urban Regeneration Project in Jericho Project will improve living conditions for 50,000 inhabitants of the city and Jericho Governorate by <u>reorganising and upgrading important public and leisure facilities and extending the city's green spaces</u>. These interventions will bring about the <u>revitalisation of those areas, benefiting commercial activities and local economic development</u>. <u>Moreover, the Project will play a key role in improving the food security chain</u>.</p> <p>The Project responds to the urban development challenges facing the city of Jericho, located in the southern part of the Jordan Rift Valley in the West Bank, and aims to address the environmental and social needs of the population.</p> <p>The Project also provides for the expansion of the municipal park into the current workshop area adjacent to the park and the construction of new leisure facilities (two swimming pools and a 3D cinema).</p> <p>The Project is one of the projects selected by the Urban Projects Finance Initiative (UPFI), which aims to promote and develop sustainable and innovative urban projects that serve as best practice examples and are potentially replicable.</p>
Societal challenge/s	<p>Climate change</p> <p>Human health</p> <p>Economic and social development</p>
NbS concepts	<p>Ecosystem-based management</p> <p>Green infrastructure</p>
Involved institutions/stakeholders	<p>With a total budget of over €4 million over a three-year period (starting in 2017), <u>the Project promoted by the Municipality of Jericho is one of the projects selected by the Urban Projects Finance Initiative (UPFI)</u>. The Initiative aims to promote and develop sustainable and innovative urban projects in the Euro-</p>

	<p>Mediterranean region that serve as best practice examples and are potentially replicable.</p> <p>The Municipality of Jericho is the authority responsible for the implementation of the project, its financing and the management of the newly developed public facilities.</p> <p>All the facilities (slaughterhouse, vehicle workshop and other leisure facilities) are or will be public facilities owned by the Municipality of Jericho, and they will be built on public land. The Municipal Development and Lending Fund (MDLF) is the entity that empowers and provides technical assistance to local authorities, and it will channel external financing from AFDs and other potential donors for the benefit of the Municipality of Jericho.</p>
Objective	<p>Economic development</p> <p>Restoration of strategic installations connected to agricultural activities and tourism</p>
Impact	<p>The relocation of facilities with a high urban nuisance factor into less residential zones will allow the development of municipal land in the city centre in order to expand public spaces open for all. These interventions will bring about the revitalisation of those areas, benefiting commercial activities and local economic development.</p>
Information	<p>http://ufmsecretariat.org/multi-site-urban-regeneration-project-in-jericho/</p> <p>http://ufmsecretariat.org/wp-content/uploads/2017/01/TUDD-UPFI-Jericho_EN.pdf</p>
Source	<p>Union for the Mediterranean</p>

23. INTERVENTION, AREA PLAN FOR LIMASSOL CITY CENTRE, LIMASSOL, CYPRUS	
Name of the project/activity	Area Plan for Limassol City Centre
Location	LIMASSOL, CYPRUS
Period:	2002-2017
Summary	<p>Limassol (CY) has had new life breathed into it as a result of <u>several major urban regeneration projects to improve the city's historic centre, seafront, and other areas.</u></p> <p>The regeneration projects have improved the attractiveness and air quality of commercial and residential areas. Residents of the city - and the wider metropolitan area - have also benefited. As the city became more attractive, its public places increasingly became meeting places for social activities. The projects have helped preserve the cultural identity of Limassol's historic centre by highlighting its traditional architecture: old buildings have been restored and are now use</p> <p><u>The Area Plan for Limassol City Centre determined the functional structures, permitted land use and pedestrian modules and creation of open spaces, all within an existing and structurally defined area, and all were converted to opportunities for a sustainable urban development.</u></p> <p><u>An integrated approach is being applied for interventions combining physical, economic, social and environmental dimensions;</u> and vertical integration in terms of cooperation among all levels of government and local and EU actors.</p> <p>The Local Authority was financially unable to undertake this huge restructuring intervention consisting of large infrastructure projects, due to its limited budget. State involvement, semi-government organisations and private sector initiatives were essential.</p> <p>Additionally, co-financing from the European Union was also crucial, wherever feasible.</p>
Societal challenge/s	<p>Climate change</p> <p>Human health</p> <p>Economic and social development</p> <p>Disaster risk</p>

NbS concepts	Urban integrated approach
Involved institutions/stakeholders	<p>Limassol City Council</p> <p>Public, social and private entities of the city</p> <p>European funds</p>
Objective	<ul style="list-style-type: none"> • The completion and modernisation of the basic infrastructure to respond to the enhanced requirements for the safety, health and comfort of citizens; • The creation of areas of special interest characterizing the city; • The implementation of traffic management measures with an emphasis on pedestrian, bicycle and bus transport and the simultaneous discouraging of vehicular traffic; • Exploitation of the urban free spaces/squares and their contribution to the city's social life by using them as gathering places for events, activities and rest and relaxation; • The identification and promotion of monuments; • A combination of old and new.
Impact	<p>Based on the above, the practice implemented in Limassol changed the city into a <u>more sustainable urban living space as the development was accompanied by measures designed to reduce poverty, social exclusion and environmental problems.</u></p> <p>This integrated approach brought together social and economic actors to implement physical, economic, social and environmental actions, and the integrated development thus promoted a genuine solution to complex urban problems.</p> <p>A number of quality comforts, facilities and installations for public recreation and relaxation included in the projects have made the centre a unique area whose reputation has spread across Cyprus. The local character and colour of Limassol was also conserved and promoted.</p>
Information	http://urbact.eu/new-era
Source	URBACT programme

24. INTERVENTION, BEYOND A CONSTRUCTION SITE, LJUBLJANA, SLOVENIA	
Name of the project/activity	Beyond a Construction Site
Location	Ljubljana, SLOVENIA
Period:	2010-ongoing
Summary	<p>Beyond a Construction Site is a small local initiative proposed in 2010 by two separate NGOs, Bunker and KUD Obrat. The two organizations—noting the importance of urban, <u>community green spaces</u> in promoting solidarity, reducing health inequalities, and promoting adequate nutrition and sustainability—aimed to transform an old construction site into <u>a shared community space</u>.</p> <p>After determining the ownership of the plot (the Municipality of Ljubljana), the initiators issued printed and verbal invitations to anyone who was interested, and in particular to the residents of the Tabor neighbourhood, to become part of the planning, design, and use of the site. Rules for management of the site were developed together with all the initial participants, in which following a signed membership agreement, involved community members agreed they would be responsible for their own vegetable plot. Members were given keys to the garden.</p> <p><u>Besides the urban farming, the site became host to several workshops and community events centered on sustainable urban agriculture and ecological means of consumption.</u></p> <p>In 2012, around 80 community members have taken care of 40 land plots on the former construction site.</p>
Societal challenge/s	<p>Climate change</p> <p>Human health</p> <p>Economic and social development</p> <p>Food security</p>
NbS concepts	<p>Ecological restoration</p> <p>Green infrastructure</p> <p>Ecosystem-based management</p> <p>Area-based Conservation</p>

Involved institutions/stakeholders	Bunker and KUD Obrat (NGOs)
Objective	Social equity Urban farming Social cohesion
Impact	<u>The establishment of an urban community garden in the centre of Ljubljana on publicly owned land also represents a critique of and a much-needed alternative to the city's new policy of organizing and leasing small garden plots,</u> which was adopted by city ordinance in 2009 and came into effect in 2010 with the first model gardens. As a unique example of organizing a degraded urban area, the project could be transferred, as a method or a seed, to other similar locations in Ljubljana with the same "bottom-up" approach.
Information	http://inherit.eu/beyond-a-construction-site/ https://onkrajgradbisca.files.wordpress.com/2012/03/beyond-more-web.pdf
Source	Intelligent Energy Europe Programme

25. INTERVENTION, LJUBLJANICA CONNECTS, LJUBLJANA, SLOVENIA	
Name of the project/activity	Ljubljana Connects
Location	LJUBLJANA, SLOVENIA
Period:	2012-ongoing
4Summary	<p>“The water regime in the Ljubljana river and its tributaries affects the habitats covered by Natura 2000 and also activities related to fisheries, tourism navigation, drainage/sewerage system, sound agriculture and, eventually, the entire infrastructure. During low water levels excessive drainage and subsidence of soil occur, deteriorating the state of the entire infrastructure. In essence, the project is multipurpose and multifunctional.</p> <p><u>The aim of Ljubljana Connects funded by Life+ - is to improve connectivity between Natura 2000 sites.</u> Started in 2012, the project aims to remove barriers to fish migration, enhance and restore habitats, improve the water management infrastructure, and put in place a water monitoring system”.</p> <p><i>(Source: Naturvation project)</i></p>
Societal challenge/s	<p>Water security</p> <p>Human health</p> <p>Economic and social development</p>
NbS concepts	<p>Area-based conservation</p> <p>Natural infrastructure</p> <p>Ecosystem-based management</p>
Involved institutions/stakeholders	<p>European Union</p> <p>City Council of Ljubljana</p> <p>University of Ljubljana</p>
Objective	<p>To control the city water levels</p> <p>To enable the migration of fish along the river</p>
Impact	<p>This project is providing restoration of the river Ljubljana's function as a corridor, improvement of water management and creating better links between Natura 2000 sites.</p>

Information	http://ksh.fgg.uni-lj.si/ljubljanaconnects/ANG/default.htm
Source	Case study included in the research conducted by Naturvation project

26. INTERVENTION, MAKING LJUBLJANA CITY CENTRE AN ECOLOGICAL ZONE, LJUBLJANA, SLOVENIA	
Name of the project/activity	Making Ljubljana city centre an Ecological Zone
Location	LJUBLJANA, SLOVENIA
Period:	
Summary	<p><u>The city administration has closed the city centre for motorised traffic, planted 63 ash trees and created an urban "Ecological Zone", gradually expanding it so that today it covers over 100,000 m2. Biking and sustainable mobility have been promoted, in line with providing new green areas for social and sporting activities on former degraded areas. Finally, the river Ljubljanica has been the focus of an ecological restoration project.</u> This was done with the aim of reducing pollution and returning the city centre to the citizens, by incentivising pedestrian and bicycle commute.</p> <p>The water regime in the Ljubljanica and its tributaries affects the habitats covered by Natura 2000 and also activities related to fisheries, tourism navigation, drainage/sewerage system, sound agriculture and, eventually, the entire infrastructure. During low water levels excessive drainage and subsidence of soil occur, deteriorating the state of the entire infrastructure. In essence, the project is multipurpose and multifunctional. The project 'Ljubljanica Connects' connects the Natura 2000 and other aforementioned activities.</p> <p><i>(Source: Naturvation project)</i></p>
Societal challenge/s	<p>Climate change</p> <p>Human health</p> <p>Economic and social development</p>
NbS concepts	<p>Ecological restoration</p> <p>Natural infrastructure</p> <p>Green infrastructure</p> <p>Ecosystem-based management</p>

Involved institutions/stakeholders	European Union Ljubljana City Council
Objective	The aim of Ljubljana Connects funded by Life+ - is to improve connectivity between Natura 2000 sites. Started in 2012, the project aims to remove barriers to fish migration, enhance and restore habitats, improve the water management infrastructure, and put in place a water monitoring system.
Impact	This will restore the river Ljubljana's function as a corridor, improve water management and so provide better links between Natura 2000 sites. The fish species in question are Danube roach, Danube salmon and striped chub.
Information	http://ksh.fgg.uni-lj.si/ljubljanaconnects/ANG/default.htm
Source	Case study included in the research conducted by Naturvation project

27. INTERVENTION, QUISSI GIOCA, MACERATA, ITALY	
Name of the project/activity	QUISSI Gioca
Location	MACERATA, ITALY
Period:	2017-ongoing
Summary	<p><u>QUISSI Gioca!</u> is a pilot project for the re-use of <u>playful urban green areas</u>, overseen by the municipality of Macerata (IT), encouraging participatory methodologies and integration. It <u>relates to a public green area in the Quartiere Pace, a neighbourhood with a high number of immigrants, a junior high school, municipal and private child-care centres, and a primary school</u>. The purpose was to rethink this area, highly frequented by children, and rich in cultural diversity.</p> <p>The project explored co-management of the green space, a different concept of security, the creation of aggregation contexts, and social inclusion. It involved building games, and defining spaces together with inhabitants. This first operation gave start to QUISSICRESCE, a participatory planning project to improve the outdoor space of five municipal child-care centres, to share a different approach to outdoor education.</p> <p>The starting project was divided into six self-construction dates during which the participants have achieved together a playful device, starting from the track on the ground of a square, the labyrinth. The Association Les Friches has played a role in facilitating the dialogue. In collaboration with the Meridiana social cooperative, and with the support of the environment technical office, it has organised the construction site, planned jobs to support activities with the children and done the work of making the area safe.</p> <p>The same approach was then applied in green areas of the five municipal child-care centres through a two-year process of participatory planning, training and self-training which involved the teachers, parents, local administrators and technicians</p>
Societal challenge/s	<p>Climate change</p> <p>Human health</p>

	Economic and social development
NbS concepts	Green infrastructure Ecosystem-based management
Involved institutions/stakeholders	City Council Macerata Association Les Friches Meridiana Social cooperativa
Objective	Social cohesion Redevelopment of green spaces Participatory and sustainable design of public space dedicated to children
Impact	<p>From an economic and environmental sustainability point of view, the project has led to the redevelopment of public green spaces, without building large fixed structures but rather based on the existing environmental and focusing on its potential.</p> <p>The playful devices were made with materials selected from among those stored in municipal nursery: all of natural origin (wood and stone) or recovery, thus ensuring a low economic and environmental sustainability impact.</p> <p>In terms of social sustainability, that process has created a community around a green space through the exchange of ideas in which all citizens had the right to participate. The sharing and use of this place has strengthened the relationships among those who live here, and stimulated the sense of community.</p> <p>The project has already been replicated in other small towns in the territory. The project has enjoyed great recognition thanks to its selection in the "Space Stories" of the international conference "Education, Earth, Nature".</p>
Information	http://urbact.eu/play-and-grow
Source	URBACT programme

28. INTERVENTION, MADRID + NATURAL, SPAIN	
Name of the project/activity	MADRID + NATURAL
Location	MADRID, SPAIN
Period:	Ongoing
Summary	<p>Madrid + Natural is a program promoted by the City Council of Madrid for <u>the implementation of nature based solutions for the adaptation of the city to the effects of Climate Change.</u></p> <p>The Madrid City Council has already launched a number of initiatives within the framework of this program: the integrated urban sanitation system, the regenerated water network, the urban orchard network or the information protocols in case of heat waves and other threats of climate risks.</p>
Societal challenge/s	<p>Climate change</p> <p>Human health</p> <p>Economic and social development</p>
NbS concepts	<p>Climate adaptation services</p> <p>Ecosystem-based management</p> <p>Ecological engineering</p>
Involved institutions/stakeholders	Madrid City Council
Objective	This program is launched in order to promote an urban green infrastructure offering social benefits and services to the city.
Impact	<u>The program is structured in three scales: the building, the neighborhood and the city: projects have already been launched in each of these areas.</u>
Information	http://www.madrid.es/UnidadesDescentralizadas/UDCMedios/noticias/2016/11Noviembre/08Martes/NotasdePrensa/M%C3%A1s%20natural/ficheros/M+N_dossier.pdf
Source	Direct research

29. INTERVENTION, MADRID RIO, SPAIN	
Name of the project/activity	Madrid Rio
Location	Madrid, SPAIN
Period:	Ongoing
Summary	Madrid Rio is a major urban infrastructure redevelopment plan which sought to transform the unused southern sector of an urban highway. The section of the highway was closed after an underground tunnel was built to replace it, leaving a large swath of urban land available for redevelopment.
Societal challenge/s	Climate change Human health Economic and social development
NbS concepts	Ecological restoration Green infrastructure Natural infrastructure Ecosystem-based management Climate-adaptation services Area-based conservation
Involved institutions/stakeholders	Madrid City Council
Objective	Urban infrastructure redevelopment plan aimed at giving a new use to the urban area left free after the transformation of the southern segment of the M-30 urban highway into an underground road.
Impact	Most of the area was transformed in an urban park connecting two southern districts of the city. The park uses the natural way of the Manzanares River and brings closer various southern districts of the Spanish capital. Alongside green areas, regenerated space was left for cultural and sports infrastructure. Though the costs of creating this infrastructure plan were high, the potential gains they posed to health and wellbeing for

	<p>various income deprived districts of Madrid were substantial enough to warrant the investment.</p> <p>Evaluation work by the City Hall has recently been conducted, though results and methodologies are not yet available,</p>
Information	<p>http://inherit.eu/madrid-rio/</p>
Source	<p>Intelligent Energy Europe Programme</p>

30. INTERVENTION, NEW STORMWATER RETENTION BASINS, MARSEILLE, FRANCE	
Name of the project/activity	New stormwater retention basins
Location	MARSEILLE, France
Period:	2014-2018
Summary	<p>In the event of severe thunderstorms, the sewage networks are saturated and part of the water is then directly discharged into the sea without going through the sewage treatment plants. To avoid these phenomena, <u>five new stormwater retention basins will be developed.</u>" "This is one of the most important documents of recent years in terms of environmental protection. It foresees in the next 5 years, 185 million euros of major works.</p> <p><u>Actions of preservation or recovery of the natural environment with the establishment of warning stations on the coast and rivers, measures to promote the progression of cystose algae (which form shelters and pantries for many species of coastal fish) in Cortiou, creation of shelters for fish in the ports.</u></p> <p><i>(Source: Naturvation project)</i></p>
Societal challenge/s	<p>Climate change</p> <p>Human health</p> <p>Economic and social development</p> <p>Disaster risk</p>
NbS concepts	<p>Public health and well-being</p> <p>Coastal resilience</p>
Involved institutions/stakeholders	Agreement with the Agence de l'Eau Rhône, Méditerranée and Corse
Objective	To guarantee a good quality of bathing water over Marseille's beaches by controlling the sanitation system.
Impact	<p>Creation of hydraulic simulation tools, much like weather systems that help to "predict" the weather.</p> <p>Adaptation of the network to the seasons.</p> <p>Constantly monitoring of the quality of the seawater</p>

Information	http://www.marseille-provence.fr/index.php/competences/eau-et-domaine-public/assainissement/l-eau-et-la-preservation-de-l-environnement
Source	Case study included in the research conducted by Naturvation project

31. INTERVENTION, VISA VERT, MARSEILLE FRANCE	
Name of the project/activity	VISA VERT
Location	MARSEILLE France
Period:	2015-ongoing
Summary	<p>Since October 2015, the City of Marseille has implemented a vegetation permit called "<u>Visa Vert</u>" (Green Visa), as well as a "<u>Charter for the vegetation of public spaces in Marseille</u>", which allow individuals to occupy temporarily and free public space by installing plants while respecting the safety and use of the tracks by other users (people with reduced mobility, firemen ...).</p> <p>Plants, flowers and shrubs can thus be pampered, develop, contribute to the beautification of the living environment and bring a bit of nature into the city."</p> <p><i>(Source: Naturvation project)</i></p>
Societal challenge/s	<p>Climate change</p> <p>Human health</p> <p>Economic and social development</p>
NbS concepts	Green infrastructure
Involved institutions/stakeholders	Municipality of Marseille
Objective	Greening the city while allowing public participation in the process.
Impact	Empower population allowing them to participate in making the city more green, participative and harmonious.
Information	http://environnement.marseille.fr/nature-en-ville/vegetalisation-des-rues
Source	Case study included in the research conducted by <u>Naturvation project</u>

32. INTERVENTION, MILAN URBAN FOOD POLICY PACT, MILAN, ITALY	
Name of the project/activity	Milan Urban Food Policy Pact
Location	MILAN, ITALY
Period:	2015-ongoing
Summary	<p>Population growth in cities brings many challenges to municipalities, such as providing food in a sustainable and equal way, reducing food waste, promoting healthy diets and purchasing food which respects the environment and workers' dignity. To overcome these issues, Milan (IT) launched in 2015 the <u>Milan Urban Food Policy Pact, an international protocol focusing on food policies aiming at engaging cities in a more sustainable urban development.</u></p> <p>Thanks to the Pact, Milan experienced the regeneration of suburban areas of the city, among which the historical Lorenteggio market, which became a social integration centre, and the Cascina Nosedo farmhouse, that will be turned into a place for innovation, fostering entrepreneurship and peri-urban agriculture.</p> <p><u>The practice presents an integrated, holistic and sustainable solution to different problems experienced by the city of Milan, by fostering the regeneration of suburbs, the promotion of open innovation, entrepreneurship, innovation policy and labour, by reducing food waste, promoting healthy diets, encouraging the purchase of food produced in an environmentally respectful way, and by respecting human rights and workers' dignity.</u></p> <p>It is an integrated practice because food turns out to be the main changing factor of suburban areas and society. The Pact leads to <u>concrete actions including the restructuring of some peripheral areas of the city of historical importance</u> (i.e. Cascina Nosedo and Lorenteggio market), and the implementation of the Milan Urban Food Policy Pact, the commitment to the coordination of international food policy which has been subscribed by 137 cities since its launch.</p>
Societal challenge/s	<p>Food security</p> <p>Human health</p> <p>Economic and social development</p>

NbS concepts	Ecosystem-based management
Involved institutions/stakeholders	The stakeholders involved in the actions related to the implementation of the food policy and urban regeneration are mostly local actors with a solid experience in food and management.
Objective	The pact aims at making the city more sustainable, and addressed the urban cycle of food (production, processing, logistics, distribution, consumption, and waste) following these priorities: <u>ensure healthy food and sufficient drinking water as a primary element for the population</u> , promote the <u>sustainability of the food system and consumer awareness of healthy, safe, culturally appropriate, sustainable food produced and distributed with respect for human rights and the environment, the fight against waste, and the support and promotion of scientific agri-food research.</u>
Impact	<p>Food is the key driver of every action presented in this best practice: food for the regeneration of suburban areas focusing on its valorisation as a factor of change, for the promotion of innovative entrepreneurship targeting the agri-food sector in particular, and food as means of fostering international cooperation, and sustainable and fair urban policies.</p> <p>The City of Milan improved its administrative procedures and problem-solving strategies with an integrative method. In fact, the municipality enhanced its approach in facing urban issues by starting to analyse problems, then implementing an integrated approach to solving these issues through the involvement of different levels of local government, actors and stakeholders.</p>
Information	http://urbact.eu/food-cities
Source	URBACT

33. INTERVENTION, DIDACTIC PARK, NAPLES, ITALY	
Name of the project/activity	Didactic park
Location	NAPOLI, ITALY
Period:	2010-ongoing
Summary	<p><u>The didactic park Salvatore Buglione links its agricultural tradition and presence of plants and trees with social and cultural innovation</u> (namely a playground for kids, a didactical botanical garden and an organized reading lab). The "Salvatore Buglione" Agricultural and Educational Park, inaugurated by the City of Naples in 2010, is a green area of 10,000 square meters.</p> <p><u>"A specialized lab aims at promoting civic and eco-functions, in line with the overall project of the city of Naples to allocate 2 million euros to regenerate the green areas of the city. The project "Orti Sociali" of the park represents an attempt to reach social inclusion and environmental awareness, underlying the crucial function of public parks in terms of environmental and social services".</u></p> <p><i>(Source: Naturvation project)</i></p>
Societal challenge/s	<p>Climate change</p> <p>Human health</p> <p>Economic and social development</p>
NbS concepts	<p>Green infrastructure</p> <p>Ecosystem-based management</p>
Involved institutions/stakeholders	<p>Local associations</p> <p>City Council of Napoli</p>
Objective	Promoting an integrated civic and eco-solid vision of the park and defining, in a participatory way, community uses and functions.
Impact	Social enhancement of the park, through interventions and actions of "civic gardens" where to develop activities of civil coexistence and mutual enjoyment, in contact with nature and the community, in the form of environmental community spaces.

Information	http://www.ortidipace.org/?p=2785
Source	Case study included in the research conducted by Naturvation project

34. INTERVENTION, REGENERATION OF BAGNOLI COASTAL AREA, NAPLES, ITALY	
Name of the project/activity	Regeneration of Bagnoli coastal area
Location	NAPLES, ITALY
Period:	Completed project
Summary	<p>The city of Napoli has implemented a comprehensive plan of <u>urban regeneration of the Bagnoli coastal area</u>. The national agency Invitalia has been in charge by the government to develop a plan of regeneration. In particular, the main points of the project related to NBS concern the development of a waterfront, namely the regeneration of the coast including the main park, the beach, and the experimentation of botanical species to reduce the environmental impact of the area.</p> <p>This plan is finalized to the requalification and recovery of the green area, and to the mitigation of urban pollution.</p> <p><i>(Source: Naturvation project)</i></p>
Societal challenge/s	<p>Climate change</p> <p>Human health</p> <p>Economic and social development</p>
NbS concepts	<p>Ecological restoration</p> <p>Natural infrastructures</p> <p>Ecosystem-based management</p> <p>Ecosystem-based adaptation and mitigation</p>
Involved institutions/stakeholders	Invitalia (National Agency for Investment Attraction and Enterprise Development, owned by the Ministry of the Economy of Italy).
Objective	<p>Regeneration of coastal area</p> <p>Recovery of green areas</p> <p>Mitigation of urban pollution.</p>
Impact	<p>Providing the city with quality blue and green spaces</p> <p>Providing better access to quality public spaces</p>

	Improving the environmental conditions for citizens
Information	http://www.invitalia.it/site/new/home/cosa-facciamo/rilanciamo-le-aree-di-crisi-industriale/rilancio-bagnoli/cosa-facciamo/articolo19012171.htm
Source	Case study included in the research conducted by Naturvation project

35. INTERVENTION BIO FOR POLIC, NAPLES, ITALY	
Name of the project/activity	BIO.FOR.POLIS. Protecting and increasing biodiversity and ecosystem and social services of Forests in the Naples-Caserta metropolitan area
Location	Napoli and Caserta /Italy
Period:	2016-ongoing
Summary	<p><u>BIO.FOR.POLIS is a project for the cities of Caserta and Napoli, aiming at improving the biodiversity of the two forests under study. The projects deal with the construction of streams within the Castelvolturno forest to connect the different parts of it.</u> The two forest areas are localized within an urban environment.</p> <p>The habitats of the two Reserves represent an environment that is still too 'poor' or unsuitable to allow nesting of many bird species and the retreat of some species of mammals.</p> <p>BIO.FOR.POLIS will try to increase the availability of nesting sites and for the birdlife and some mammals through 'enriching' the pines of the Reserves with artificial nests and shelters.</p> <p><i>(Source: Naturvation project)</i></p>
Societal challenge/s	<p>Climate change</p> <p>Human health</p> <p>Economic and social development</p>
NbS concepts	<p>Ecological restoration</p> <p>Ecosystem-based management</p> <p>Area-based conservation</p> <p>Forest landscape restoration</p>
Involved institutions/stakeholders	City Councils of Caserna and Napoli

	Local associations
Objective	To improve and care for the natural habitats and biodiversity of the two Reserves.
Impact	Increasing the protection of biodiversity and natural 'metropolitan area Caserta-Naples. Public offer of new didactic-naturalistic activities for citizens Improvement of quality natural spaces.
Information	http://www.esperienzeconilsud.it/bioforpolis/2016/08/21/bio-for-polis-un-po-piu-in-dettaglio/
Source	Case study included in the research conducted by Naturvation project .

36. INTERVENTION, BLUE SPACES, OUREM, PORTUGAL	
Name of the project/activity	BLUE SPACES
Location	OUREM, PORTUGAL
Period:	2016-2018
Summary	<p>This study is examining the health and wellbeing impacts of temporary improvements to an urban stream in central Portugal.</p> <p>The area of focus is in the parish of <u>Rio de Couros</u>, part of the municipality of Ourém, and includes several small bodies of water separated by paths. <u>The project will employ ‘urban acupuncture’ to make a series of temporary changes that improve the aesthetic value the area – which is subject to a significant risk from flooding.</u></p> <p>The team will then analyse how their intervention has affected the use of the area for recreation by local residents and people from further afield. Between 50 and 80 residents from the local area will be recruited, and these will be asked to respond to surveys both before and after the interventions take place.</p>
Societal challenge/s	<p>Water security</p> <p>Climate change</p> <p>Human health</p> <p>Economic and social development</p>
NbS concepts	<p>Ecological restoration</p> <p>Natural infrastructure</p> <p>Ecosystem based management</p> <p>Area-based conservation</p>
Involved institutions/stakeholders	<p>The programme is being led by researchers at the University of Exeter Medical School’s Truro campus in Cornwall (United Kingdom), with the participation of ISGlobal in Barcelona (Spain), and others partners of leading institutions from Sweden, Estonia, the Netherlands, Germany, Greece and Italy.</p>

	ISGlobal, the research partner of Barcelona, is in charge of coordinating and developing the part of the project focused on Community-level Interventions in the city
Objective	<p>Assessment of blue spaces effects on health and well-being of citizens.</p> <p>Develop guidelines on how health should be considered when creating and improving access to aquatic environments.</p>
Impact	<p>Patterns of behaviour will be observed and mapped.</p> <p>The impact of the intervention will be evaluated using an adaptation of the BlueHealth Survey and SoftGIS. The quality of the environment will be assessed using the BlueSpace Survey, questionnaire data and environmental monitoring data.</p>
Information	https://bluehealth2020.eu/projects/urban-stream/
Source	H2020 projects

37. INTERVENTION, CORRIDOR PARQUE DE LAS VIAS, PALMA DE MALLORCA, SPAIN	
Name of the project/activity	Corridor Parque de las Vías
Location	PALMA DE MALLORCA, SPAIN
Period:	
Summary	<p><u>A rehabilitation and development project along an urban transit way that would allow the space to be recovered as a public space for citizens</u> and would improve the urban sustainability of Palma.</p> <p>Aside from the infrastructural development the intervention also included <u>tree planting and green cover maintenance</u>.</p>
Societal challenge/s	<p>Climate change</p> <p>Human health</p> <p>Economic and social development</p>
NbS concepts	<p>Ecological restoration</p> <p>Ecosystem-based management</p> <p>Ecosystem-based adaptation and mitigation</p>
Involved institutions/stakeholders	Palma de Mallorca City Council
Objective	<p>Providing the city with more green spaces</p> <p>Green corridor connecting the city and the nearby rural areas</p> <p>Providing better access to quality public spaces.</p>
Impact	Overall, the city of Palma would enjoy a 2.5 km continuous Central Park formed by the Park of the Stations, the Park of the Vías and the Park of Son Fuster. It would provide a continuum between the city center and the nearby rural areas.
Information	http://www.mallorcaweb.net/parcdelesvias/proyete.php
Source	Case study included in the research conducted by <u>Naturvation project</u>

38. INTERVENTION, PARIS GREENING PROGRAM, FRANCE	
Name of the project/activity	PARIS GREENING PROGRAM
Location	PARIS, France
Period:	2007-2020
Summary	<p>Since 2007, the Greening Program of Paris is one of the aspects of the strategy adaptation of Climate and Energy actions plan of Paris preparing the city to climate change and the depletion of resources. It covers all areas of vegetation in the city, accounting for nearly a quarter of the Paris area, by repeated and interconnected touches in order to improve the quality of life and attractiveness of Paris.</p> <p>One of these goals is to reduce the urban heat island effect in Paris and its suburbs. In connection with the biodiversity plan of Paris, voted in 2011, is how to characterize the vegetation such as public facilities, can meet the dual challenge of refreshment and biodiversity.</p>
Societal challenge/s	<p>Climate change</p> <p>Human health</p> <p>Economic and social development</p>
NbS concepts	<p>Ecosystem-based management</p> <p>Green infrastructure</p> <p>Natural infrastructure</p> <p>Ecological restoration</p> <p>Climate adaptation services</p>
Involved institutions/stakeholders	City of Paris, Parks and Environment directorate

Objective	<p><u>Specific goals for 2020</u> :</p> <ul style="list-style-type: none"> • Reduce the urban heat island effect and improve the comfort of Parisians in summer • Planting of vegetation on all new constructions • 100 additional hectares of roofs and facades planted with vegetation in Paris, 1/3 of which used for the production of fruit and vegetables • 30 hectares of new green spaces in Paris • 20,000 more trees in Paris • 200 local areas to be planted In connection with the Paris Biodiversity Plan: • Study and define the framework of green and blue infrastructures endorsed by the Grenelle process • Reinforce the green network and its role as an ecological corridor.
Impact	<p>Preparing the city for the hazards of climate change by providing a consistent urban green infrastructure.</p> <p>Improving access and use of natural spaces for the well-being of citizens.</p>
Information	<p>http://www.energy-cities.eu/db/Paris_Programme-vegetalisation_2014_en.pdf</p> <p>http://www.eumayors.eu/about/signatories_ga.html?city_id=221&benchmarks=1472</p>
Source	<p>Global Covenant of Mayors for Climate and Energy</p>

39. INTERVENTION, URBAN GARDENING, ROME, ITALY	
Name of the project/activity	Urban gardening
Location	ROME, ITALY
Period:	2015-ongoing
Summary	<p>Using an important area of its territory that is suited to agriculture (51.7 ha), the city of Rome (IT) developed a participatory urban gardening project. <u>The aim of the project is two-fold: it fights social exclusion and poverty and allows brownfield recovery.</u></p> <p>The project already concerns 27 ha of the available land, thus promoting a sustainable and eco-friendly urban gardening approach. Working with NGOs, citizens, disadvantaged people and minorities, the city uses the urban and suburban agriculture as a means to improve governance processes.</p> <p><u>Alongside employment policy, social and intercultural dialogue has a pre-eminent role to play. The importance of other factors such as housing, health, culture and communication should also be acknowledged.</u></p> <p>Participatory mechanisms for communities and citizens in the new UPA policies/actions allow the former groups a greater capacity for action and decision making on Urban Governance: Urban Agriculture management strategies herein are oriented towards participatory citizenship.</p> <p>Stakeholder like local NGOs and horticulture associations did contribute to the set-up of the Regulation of urban gardens (City Council Resolution, July 2015) activating local representatives of such communities in a process of social and intercultural integration. <u>Socialisation among different communities is the core of this activity.</u></p>
Societal challenge/s	<p>Climate change</p> <p>Human health</p> <p>Economic and social development</p> <p>Food security</p>
NbS concepts	Ecocystem-based management

	Green infrastructure
Involved institutions/stakeholders	The aforementioned projects' approach to tackling urban challenges is the result of a territorial cooperation process, involving different partners of the Mediterranean Basin under ENPI CBC MED Programme: the Royal Botanic Garden and the National Department for Forests and Agriculture (Jordan), the city of Mahdia (Tunisia), the metropolitan area of Barcelona and the City of Rome.
Objective	<ul style="list-style-type: none"> - social inclusion - challenge-oriented approach - sustainable urban development. - improvement of the governance processes by connecting different competencies and municipal offices such as social, environment, urban planning and innovation departments. environmental protection.
Impact	<p><u>The previous experience allowed the City of Rome to create 3 pilot projects that cover more than 70 ha assigned to different non-profit, multipurpose associations in charge of needy and disadvantaged people.</u> At present, approx. 300 people are direct beneficiaries of the parcels. Dozens of associations and thousands of citizens are involved in the pilot projects, and awareness was raised among municipal officers and citizens.</p> <p>The Regulation of the Urban gardens of Rome (City Resolution of July 2015 or "Regolamento degli orti urbani") is to be considered an important outcome as a governance tool.</p> <p>The sustainability of the UPA pilot project is ensured by the commitment of the City of Rome (i.e. the "Regolamento"), the Districts, the associations as "managers" of the pilots, the thousands of citizens involved, and by the coordination with a network of urban gardens and other local and national organisations.</p> <p>Finally, as a Territorial Cooperation European project, the good practice has been conceived to be reproducible in cities that wish to start a process of urban regeneration and social cohesion.</p>
Information	http://urbact.eu/resilient-urban-and-peri-urban-agriculture#
Source	URBACT programme

40. INTERVENTION, METROPOLITAN GREEN CORRIDOR, SEVILLE, SPAIN	
Name of the project/activity	Metropolitan Green Corridor
Location	SEVILLE, SPAIN
Period:	Ongoing
Summary	<p>This large urban and peri-urban corridor crosses the area of <u>Sevilla and connects the city to neighbouring towns</u>. It is 68 km long, starting at the Bridge of the V Centenario it continues to five end points in the area. (Santiponce, Los Palacios, Dos Hermanas, Parque del Alamillo, Parque de La Corchuela)</p> <p>With the creation of this Corridor the recovery of landscapes and the construction of bike lanes was possible.</p> <p>This initiative tries to improve the nexus of the city, facilitating the population access to a sporting, cultural, educational and contact with nature. The use of livestock routes as connective systems contributes fo avoiding the fragmentation of the rural environment and the urban environment and supports the promotion of green spaces for citizens.</p> <p>This route is part of the European Green Network in the western Mediterranean, which will connect the south of Portugal with northern Italy across the Mediterranean regions of Spain and France.</p> <p><i>(Source: Naturvation project)</i></p>
Societal challenge/s	<p>Climate change</p> <p>Human health</p> <p>Economic and social development</p>
NbS concepts	<p>Ecosystem-based management</p> <p>Green infrastructure</p> <p>Natural infrastructure</p> <p>Ecosystem-based adaptation and mitigation.</p>
Involved institutions/stakeholders	<p>Municipalities of Seville, Santiponce, Los Palacios, Dos Hermanas.</p> <p>Regional Ministry of Environment of Andalusia.</p>

Objective	The objective of the Green Corridor is to contribute to the creation of an authentic Network of Free Spaces, articulated and vertebrate with the system of settlements and communications in the metropolitan area of Seville, where the Livestock Roads play a fundamental role as physical and environmental support.
Impact	The creation of this Green Network has a positive impact in social, economic and environmental aspects, conserving the landscape and recovering, maintaining and putting in value the goods of public domain, particularly the natural and cultural heritage.
Information	http://www.juntadeandalucia.es/medioambiente/corredorVerde/mostrarFicha.do?idCorredor=25
Source	Case study included in the research conducted by Naturvation project

41. INTERVENTION, SFAX TAPARURA REHABILITATION PROJECT, TUNISIA	
Name of the project/activity	Sfax Taparura Rehabilitation project
Location	SFAX TAPARURA, TUNISIA
Period:	2013-2019
Summary	<p>Sfax is the second biggest city in Tunisia and the most important industrial and commercial centre in the country's southern region. As the site of the phosphate industry, it has suffered from significant pollution which has hampered its development. Following the clean-up of the northern coast of Sfax, Tunisia's second biggest city, <u>the project plans to restore its beaches and create 420 hectares of land to increase the size of the metropolitan area</u>, for the benefit of its inhabitants and those of Greater Sfax. The Sfax Taparura project is the second flagship project to be carried out within the scope of the Urban Projects Finance Initiative (UPFI).</p> <p>The action plan is divided into two phases: • <u>Phase 1: depollution work and rehabilitation of Sfax's northern coast.</u> • <u>Phase 2: adaptation and rehabilitation actions</u> that will bring about urban transformation in the area.</p> <p>Finally, the Project aims to establish a harmony between the natural environment and economic development by providing a sustainable development dynamic that enhances the area's economic attractiveness.</p>
Societal challenge/s	<p>Climate change</p> <p>Human health</p> <p>Economic and social development</p>
NbS concepts	<p>Ecological engineering</p> <p>Ecological restoration</p> <p>Green infrastructure</p> <p>Natural infrastructure</p> <p>Ecosystem-based management</p>
Involved institutions/stakeholders	The Taparura Project is being developed by national and local authorities. The Tunisian State (Ministry of Equipment) is the main contractor and the Société d'Etude et d'Aménagement

	<p>des Côtes Nord de la Ville de Sfax (SEACNVS), created in 1985, is the second main contractor, with responsibility for the research and implementation of the Project.</p> <p>PARTNERS • European Commission (EC) • French Development Agency (AFD) • European Investment Bank (EIB) • KfW Development Bank • Caisse des Dépôts et Consignations (CDC) • European Bank for Reconstruction and Development (EBRD)</p>
Objective	<ul style="list-style-type: none"> • <u>Upgrading of the area and development of a new urban centre with basic facilities and infrastructure to integrate it with the rest of the city of Sfax.</u> • <u>Building of new housing, commercial activities and services, green spaces, areas of public facilities</u> and hotels will take place, allowing it to receive about 50 000 residents and create employment opportunities upon completion of the project. • <u>Establishing the coexistence between the natural environment and economic development,</u> by providing a sustainable development dynamic that enhances the area's economic appeal.
Impact	<p>The highlights of the Project include the following:</p> <p>Decentralises cooperation in the metropolitan area (mainly through the participation of international partners, such as MedCities, on behalf of the cities of Barcelona and Marseille).</p> <p>Provides technical assistance designed to strengthen the institutional framework.</p> <p>Sets an example for Mediterranean coastal cities wishing to undertake major projects to reclaim, clean-up and restore their seafronts.</p> <p>Integrates sustainability into the project right from the urban and architectural design phase, which seeks to link the environmental and urban aspects (eco-buildings).</p> <p>Covers a large urban area for restoration and infrastructural improvements, offering an integrated and multidimensional approach to urban planning.</p>
Information	<p>http://ufmsecretariat.org/upfi-sfax-taparura-project/</p> <p>http://ufmsecretariat.org/wp-content/uploads/2016/02/26-SFAX_EN.pdf</p>
Source	Union for the Mediterranean

42. INTERVENTION, BLUE SPACES, THESSALONIKI, GREECE	
Name of the project/activity	BLUE SPACES
Location	Thessaloniki
Period:	2016-2017
Summary	<p><u>A significant part of the Thessaloniki Waterfront has recently been renovated and opportunities exist for promoting people to interact with the blue environment.</u></p> <p><u>This study will assess how individuals' health and wellbeing is affected by spending time during the working day at the city waterfront.</u> They will be compared with a second group who have normal working days with no time to visit the waterfront.</p> <p>The experiment will be repeated twice at different times of the year to capture seasonal variation and influence by other factors likely to affect health. It will focus on local residents, office workers, older people and schoolchildren in the downtown area of Thessaloniki.</p> <p>Data collection will take place between early December 2016 and late July 2017.</p>
Societal challenge/s	<p>Water security</p> <p>Climate change</p> <p>Human health</p> <p>Economic and social development</p>
NbS concepts	<p>Ecological restoration</p> <p>Natural infrastructure</p> <p>Ecosystem based management</p> <p>Area-based conservation</p>
Involved institutions/stakeholders	<p>The programme is being led by researchers at the University of Exeter Medical School's Truro campus in Cornwall (United Kingdom), with the participation of ISGlobal in Barcelona (Spain), and others partners of leading institutions from Sweden, Estonia, the Netherlands, Germany, Greece and Italy.</p>

	ISGlobal, the research partner of Barcelona, is in charge of coordinating and developing the part of the project focused on Community-level Interventions in the city.
Objective	<p>Assessment of blue spaces effects on health and well-being of citizens.</p> <p>Develop guidelines on how health should be considered when creating and improving access to aquatic environments.</p>
Impact	The impact of the intervention will be evaluated using an adaptation of the BlueHealth Survey and SoftGIS. The quality of the environment will be assessed using the BlueSpace Survey, questionnaire data and environmental monitoring data.
Information	https://bluehealth2020.eu/projects/thessaloniki/
Source	H2020 projects

43. INTERVENTION: THESSALONIKI RESILIENCE STRATEGY, GREECE	
Name of the project/activity	Thessaloniki Resilience strategy
Location	Thessaloniki, Greece
Period:	20 17-ongoing
Summary	<p>Thessaloniki bases its resilience on participation and collaboration. More than 40 organizations and 2,000 citizens have participated in the Greek city's resilience. This ongoing co-creation process fosters the potential of finding innovative bottom-up solutions for residents and the wider community.</p> <p><u>The city offers solutions such as permeable surfaces, rain gardens, green walls, but also supports urban agriculture in inner courtyards and small communal gardens, which also have a low cost</u> (something very important in times of austerity). These solutions not only involve the design of residents, but encourage agriculture and nutrition, integrate migrants or refugees and maintain a cultural heritage of agricultural tradition.</p> <p><u>The Resilience Strategy is based on eight city values</u> (social cohesion, local identity and heritage, environmental management, health and wellbeing, youth empowerment, multi-stakeholder engagement, technology adaptation, economic prosperity), which represent Thessaloniki's identity and will guide how the city will plan for the future.</p>
Societal challenge/s	<p>Climate change</p> <p>Human health</p> <p>Economic and social development</p>
NbS concepts	<p>Green infrastructure</p> <p>Ecosystem-based management</p>
Involved institutions/stakeholders	Municipality of Thessaloniki
Objective	To promote Resilience through participation, education, community, connection, integration and many others soft' factors that can provide greater effectiveness than the technical measures alone could have.

	<p>The values expressed in the Strategy cut across the city’s four main goals that together form the basis of the strategy:</p> <p>Shape a thriving and sustainable city</p> <p>Co-create an inclusive city</p> <p>Build a dynamic urban economy and responsive city</p> <p>Re-discover the city’s relationship with the sea.</p> <p>These goals are broken down into 30 objectives and more than 100 actions, each with multiple benefits for the resilience of the city and population.</p>
Impact	<p>For its valuable green infrastructure, the city developed the <u>Adopt your Green Spot program</u>, which facilitates the active participation of citizens in the maintenance of urban green areas using the format of co-ownership of public space and reducing the cost of public coffers.</p> <p>This program has another positive aspect: it is an activity that educates people, contributes to the local economy and creates or promotes local communities and social cohesion.</p>
Information	<p>https://www.arup.com/publications/research/section/thessaloniki-resilience-strategy</p>
Source	<p>Direct research</p>

44. INTERVENTION, GREENMYCITY, TOULOUSE, FRANCE	
Name of the project/activity	GreenMyCity
Location	TOULOUSE, France
Period:	Ongoing
Summary	<p>GreenMyCity is a project aiming towards <u>vegetalization in the cities, by demultipling gardening initiatives in order to locally produce organic food, reduce energy consumption of vegetalized buildings, increase local food distribution systems and reinforce social links.</u></p> <p>The Toulouse based project <u>Green My City is a community collective focused on creating sustainable consumption and a sustainable environment</u>, and anticipates constructing thousands of square meters of organic vegetable gardens on the roofs of the city of Toulouse, saving 50 tons of CO2 emissions per year.</p> <p>The project defines itself as a prospective tool, which intervenes in the stream of gardening initiatives: it maps, selects, and then accompanies</p>
Societal challenge/s	<p>Climate change</p> <p>Human health</p> <p>Economic and social development</p>
NbS concepts	<p>Green infrastructure</p> <p>Natural infrastructure</p>
Involved institutions/stakeholders	Community project
Objective	Support environmental initiatives by engaging networks of citizens, communities, businesses and designers to help create an urban oasis.
Impact	A cooperative platform and services to foster collaborative urban gardening
Information	https://www.greenmycity.eu/index.en.html
Source	Direct research

45. INTERVENTION, GRAND PARK GARONNE, TOULOUSE, FRANCE	
Name of the project/activity	Grand Park Garonne
Location	TOULOUSE, France
Period:	2015-2020
Summary	<p>The Grand Park Garonne urban project aims to <u>rehabilitate and develop the banks of the river Garonne</u> that runs 32 kilometres through the city.</p> <p>“A discovery trail, accessible to pedestrians and bicycles, includes several walks forming a large loop connecting the Garonne, Lake Sesquières and the Canal du Midi.</p> <p>These walks will allow the discovery of the neighbourhood, its history, its natural heritage, its agriculture ... They will be punctuated with reading tables and informative totems. This course was designed in consultation with neighbourhood associations.</p> <p>In addition, five pedestrian and bicycle paths will be created in the Quinze Sols market area, located in Blagnac and Beauzelle.</p> <p>A plan for the valorization of the harbors is also part of the project”.</p> <p><i>(Source: Naturvation project)</i></p>
Societal challenge/s	<p>Climate change</p> <p>Human health</p> <p>Economic and social development</p>
NbS concepts	<p>Green infrastructure</p> <p>Natural infrastructure</p> <p>Ecosystem-based management</p> <p>Climate adaptation services</p> <p>Area-based conservation</p> <p>Ecological restoration</p>
Involved institutions/stakeholders	Toulouse Metropolis area

Objective	<p>In charge of the landscape architect Henri Bava, the urban project will fulfill four objectives:</p> <ul style="list-style-type: none"> - develop pedestrian and bicycle routes; - improve the natural heritage; - strengthen the uses linked to water (navigation, water sports); -develop new spaces of culture and coexistence.
Impact	<p>From 2015 to 2020, several development projects will be carried out for a total of 28.7 million euros across 3 areas: the Garonne downstream, Toulouse center and the city's "green lung" Island of Ramier. Within these are 12 sites 40 pilot projects will be operating. Among these are projects focused on protecting and restoring natural habitats and species in order to create a citywide green corridor.</p>
Information	<p>http://www.toulouse-metropole.fr/projets/grand-parc-garonne</p>
Source	<p>Case study included in the research conducted by Naturvation project</p>

46. INTERVENTION, GROW GREEN, VALENCIA, SPAIN	
Name of the project/activity	GROW GREEN
Location	VALENCIA, SPAIN
Period:	2017-2022
Summary	<p>The initiative of the European project Grow Green is developed by Valencia and three more cities – Manchester (UK), Wroclaw (Poland) and Wuhan (China). This project searches and develops natural solutions related to the challenges of the climate change and the sustainability.</p> <p><u>The program is going to be carried out in the neighborhood of Benicalap</u> and it will receive an important investment package which will help with its revitalization and exaltation. Through these projects, the solutions for the sustainability like vertical gardens or spaces for the local food movement, are going to be considered. It is also planned the creation of a green corridor around L'Alqueria de Tormos to bring closer the approach of the forest and the urban area.</p>
Societal challenge/s	<p>Climate change</p> <p>Human health</p> <p>Economic and social development</p>
NbS concepts	<p>Ecological restoration</p> <p>Green infrastructure</p> <p>Natural infrastructure</p> <p>Ecosystem-based management</p> <p>Forest landscape restoration</p>
Involved institutions/stakeholders	<p>European project Partners cities:Valencia (Spain), Manchester (United Kingdom), Wroclaw (Poland) and Bujan (China).</p> <p>City Council of Valencia</p>
Objective	Integrated and sustainable urban development
Impact	The project helps to speed up the expansion process of the Parque de Benicalap and to complete with an specific urban forest the north border of the city.

	The challenge of the forest's area is the construction of a sustainable drainage system that allows to make the most of the rainwater through a water harvesting system and then re-use it in the gardens or in the forest for irrigation and maintenance,
Information	http://cordis.europa.eu/project/rcn/210514_es.html
Source	H2020 Programme

47. INTERVENTION, GREEN URBAN DATA, VALENCIA, SPAIN	
Name of the project/activity	Green Urban Data
Location	VALENCIA, SPAIN
Period:	ONGOING
Summary	<p>Green Urban Data, is a local start-up from Valencia, which has developed a <u>Big Data application for cities</u> on sustainable mobility, and which has been awarded by the municipal foundation of Valencia Las Naves. The app. informs the user of the <u>most suitable route to reach any urban destination on foot</u>, using the criteria chosen by the pedestrian: higher environmental quality, lower noise, low concentration of allergens or more shade.</p> <p>Green Urban Data provides, for example, environmental quality information of a city by neighborhoods, based on temperature, proportion and type of vegetation, percentage of construction, degree of concentration of airborne particulates and noise.</p> <p>The application allows to locate the best pedestrian or bicycle routes in front of different criteria: better urban environmental quality, more shade, less noise or less allergens.</p>
Societal challenge/s	<p>Climate change</p> <p>Human health</p> <p>Economic and social development</p>
NbS concepts	<p>Natural infrastructure</p> <p>Ecosystem-based management</p>
Involved institutions/stakeholders	GREEN URBAN DATA (start-up)
Objective	<p>Promotion of sustainable mobility</p> <p>Citizen's awareness of environmental issues related to the city.</p>
Impact	The Green Routes AppWeb emerges as an example of practical application of Big Data environmental in the city of Valencia. It is an application for the promotion of sustainable mobility and the improvement of the quality of life of citizens.
Information	https://www.greenurbandata.com/

Source	IUCN-Med
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48. INTERVENTION, URBAN GREENUP, VALLADOLID, SPAIN	
Name of the project/activity	URBAN GreenUP
Location	VALLADOLID, SPAIN
Period:	2017-ongoing
Summary	<p>The URBAN GreenUP project (funded under the EU Horizon 2020 programme), aims to contribute to the <u>mitigation of climate change risks in cities, increase the resilience to climate change effects and improve air quality</u>. The project will raise awareness about the benefits of re-naturing cities and making cities more sustainable places.</p> <p>“RUP – Re-naturing Urban Plan” is the new keyword, offering a green transformation in cities, through Nature-Based Solutions (NBS). URBAN GreenUP partners will also focus on the “green economy in cities” approach – they want to explore and promote an innovative and dynamic economic concept that supports employment, generates new business models, attracts talent and provides goods and services.</p> <p><u>The activities to be planned and carried out in the three demonstrator cities include innovative, technological elements which connect with citizens and improve awareness, in addition to well-being, educational, mentoring and support activities</u>. Solutions generated by the URBAN GreenUP project will be readily transferable to other cities</p> <p>In the case of Valladolid, a set of interventions is planned, such as green roofs and facades, vertical mobile gardens, filtering pavements, green barriers against noise, intelligent soils that reduce irrigation and fertilizer needs, and the creation of a floodable park as an example of the effectiveness of these solutions in reducing the risk of flood damage.</p> <p>The general idea is to maintain an integrated approach, in order to connect a set of green corridors in different areas of the city.</p>
Societal challenge/s	<p>Climate change</p> <p>Human health</p> <p>Economic and social development</p>
NbS concepts	<p>Ecosystem-based management</p> <p>Climate adaptation services</p> <p>Ecological engineering</p>

	<p>Green infrastructure</p> <p>Natural infrastructure</p>
Involved institutions/stakeholders	<p>URBAN GreenUP is a project funded under the European Union's Horizon 2020 research and innovation programme. Under the coordination of CARTIF Technology Centre, 25 partners from 9 countries are working together to develop a new strategy for re-naturing cities through Nature-Based Solutions. Activities will take place in the three demonstrator cities of Valladolid (Spain), Liverpool (UK) and Izmir (Turkey) and will be replicated across Europe, Latin America and Asia.</p>
Objective	<p>To develop a methodology and a series of demonstration projects in the field of urban solutions based on nature.</p> <p>Contribute to the development of the green economy in European urban areas, with the generation of green jobs and new opportunities and business models.</p> <p>Increase urban resilience</p>
Impact	<p>Through introducing nature back into cities it is hoped that the cities will become more sustainable and resilient and be better placed to cope with current and predicted climate change risks and other environmental and social challenges. Today Valladolid, Liverpool, and Izmir will jointly commit to develop their RUPs (Re-naturing Urban Plans) and to implement these ambitious interventions in their cities through URBAN GreenUP.</p> <p>More than 100 NBS interventions in the three cities will be delivered ensuring that not only the technology and innovation but also their related business models are researched and validated making URBAN GreenUP a reference for a new concept of EU cities". Raúl Sánchez-Francés, Project Coordinator of URBAN GreenUP, CARTIF.</p>
Information	<p>https://projects.leitat.org/urban-greenup-new-strategy-re-naturing-cities-nature-based-solutions/</p> <p>http://www.valladolidadelante.es/sites/default/files/Dossier%20Urban%20Greenup%20castellano_ver4.pdf</p>
Source	<p>H2020 programme</p>

49. INTERVENTION, GREEN BELT, GREEN AREA PROGRAM, AND SUSTAINABLE MOBILITY PLAN IN VITORIA-GASTEIZ. SPAIN

<p>Name of the project/activity</p>	<p>Green belt, green area program, and Sustainable Mobility Plan in Vitoria-Gasteiz.</p> <p>GREEN CAPITAL Award.</p>
<p>Location</p>	<p>VITORIA GASTEIZ, SPAIN</p>
<p>Period:</p>	<p>Ongoing</p>
<p>Summary</p>	<p>The objective of the Vitoria-Gasteiz strategy is to <u>promote healthier and environmental sustainably lifestyles in relation to the environment and green spaces</u>, offering a platform for exchange of good practices and disseminating ideas. The city has an extensive green urban fringe area that constitutes the “<u>Green Belt of Vitoria-Gasteiz</u>”, a network of green spaces, allowing nature to integrate with the city in a smooth transition which is unusual in most cities</p> <p>Concerning sustainable mobility, Vitoria-Gasteiz, a pedestrian-scale compact city, has a long track record in developing and implementing policies for achieving a sustainable City that offers a high quality of life for its citizens. <u>The Sustainable Mobility and Public Space Plan (SM&PSP) seeks to reverse the upward trend in the use of the private car and to establish a new public space and mobility scheme</u> to minimise the dysfunctions caused by the high use of motorised modes, especially the private car, and to improve sustainable mobility modes. Another objective of this ambitious Plan was to create a <u>good bus network similar to a metro system</u>. To boost the use of public transport, the frequency of the bus was reduced by 25 to 10 minutes, also increasing its capacity of circulation by the city, and reducing the space of the car.</p> <p>Complementarily, the <u>implementation of the superblocks concept</u> in the city, carried out by the Urban Ecology Agency of Barcelona, started in 2010. At the interior of these urban cells, only cars from residents are allowed to enter, and at a reduced speed. Decreased noise and pollution, and enhanced circulation of the bicycle with more lanes are some of the effects produced in these areas. A key for the success of the project was the political and social consensus about this program.</p> <p><u>The European Union chose Vitoria in 2012 as Green Capital.</u></p>

	The ongoing program aims also at involving citizens for these changes, provide a showcase of the city and its initiatives, and disseminating the Green Capital ideas and values.
Societal challenge/s	Climate change Human health Economic and social development
NbS concepts	Ecological restoration Green infrastructure Climate adaptation services
Involved institutions/stakeholders	City Council of Vitoria-Gasteiz
Objective	<ul style="list-style-type: none"> - Integrated sustainable urban development - Promoting the city as an attractive destination for ecotourism - Sustainable mobility model - Environmental education and participation.
Impact	<p>–Sustainable Mobility Plan, a new bus network, a tram system, over 90 km of bike lanes and an extensive network of parks and city walks, a sustainable water-management system, and established recycling habits and policies .</p> <p>– Annual program of education and awareness activities for sustainable development targeted to the whole population, all age groups, to promote a support a change in behaviours and lifestyles.</p> <p>– Action plan to make the city more attractive as a destination for ecotourism.</p> <p>– Different initiatives to promote knowledge among citizens and changes in lifestyles including programs (such as guided tours) to enable people to explore the “green heart” of the city.</p>
Information	<p>http://inherit.eu/green-belt-and-green-area-program-in-vitoria-gasteiz/</p> <p>http://www.bcnecologia.net/en/projects/central-superblock-vitoria-gasteiz</p> <p>http://ec.europa.eu/environment/europeangreencapital/wp-content/uploads/2011/04/European-Green-Capital-Award-2012-13-nuevo-estandar.pdf</p>

Source	Intelligent Energy Europe Programme
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50. INTERVENTION, ZAGREB FOR ME, CROATIA	
Name of the project/activity	ZAGREB FOR ME
Location	ZAGREB, CROATIA
Period:	2015 ongoing
Summary	<p>“Zagreb for Me” is an ambitious and comprehensive project launched in 2015 by the Zagreb Society of Architects in cooperation with the Faculty of Architecture at the University of Zagreb and the City of Zagreb. The goal of the project is to <u>start a revitalization of public spaces through the realization of 17 urban interventions in the whole city area at the same time.</u></p> <p>Although Zagreb has some significant historical parks and squares in its centre, as well as a few recreational zones, the rest of the city has plenty of neglected open spaces that have no specific function. This project aims to <u>decentralize designed public spaces and draw attention to some forgotten city spots.</u> At the same time, the project, created from a “bottom-up” initiative, establishes a new model of <u>public participation</u> as well as new forms of collaboration”</p> <p>The <u>method of work</u> consisted of three steps:</p> <p><u>Step 1 – Integration and synthesis of the results of the City Acupuncture research and the Urban Planning Study.</u> On the same thematic map, the top-rated locations in the City Acupuncture research (indices 5-9) and the top-rated locations in the Urban Planning Study (groups A- B) were shown.</p> <p><u>Step 2 – Identification of those locations which were recognised as significant in both studies.</u> Once the identification criteria were set, the highest ranked locations were singled out. The analysis resulted in the identification of 33 locations which were to be proposed for redesign.</p> <p><u>Step 3 – Description of locations proposed for redesign.</u> Each location was described including an indicated theme, with the position of the 8 location and its areal scope and limits defined, and with the urban and sociological significance of each location underscored.</p>

	<i>(Source: Naturvation project).</i>
Societal challenge/s	Economic and social development Climate change
NbS concepts	Green infrastructure Ecosystem-based management
Involved institutions/stakeholders	Zagreb Society of Architects Faculty of Architecture at the University of Zagreb City of Zagreb
Objective	<u>Revitalization of Zagreb's public spaces using public participation as a tool.</u> Decentralisation of designed public spaces Draw attention to some forgotten city spots. Promotion of a new model of public participation as well as new forms of collaboration.
Impact	Revitalization of Zagreb's public spaces using public participation as a tool. At the same time, the project establishes a new model of public participation as well as new forms of collaboration. This distributed approach will improve the general “image of the city” and raise the quality of urban life in segments of housing, recreation, leisure and social cohesion
Information	http://urbact.eu/revitalisation-public-spaces http://www.energy-cities.eu/resources/cities-actions/zagreb-for-me-urban-revitalization-project-zagreb~1719
Source	Case study included in the research conducted by <u>Naturvation project</u>

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ANNEX I

MAIN CONCLUSIONS OF THE IUCN-MED EXPERT GROUP ON NBS

As part of the work of research done in the identification of Nature-based-Solutions in cities of the Mediterranean region, IUCN-Med organised a discussion with a group of international experts, in order to discuss the opportunity of joining efforts in promoting this concept; and to identify the most suitable scope of a common project in that field.

A group of seven experts, together with members of the IUCN-Med team, met in Malaga last 21st. February 2018 for that purpose. The participating experts came from different trans-disciplinary fields of expertise, covering urban ecology, research, public administration, international organisations, entrepreneurial network, and public agencies related to Mediterranean cities. All of them participated in a facilitated interaction and dialogue about NbS.

List of participants

- o Chantal Van Ham, IUCN Europe. Brussels
- o Gregorio Sgrigna, CNR, Greeninurbs, EKLIPSE. Rome
- o Miguel Mendez, Junta de Andalucia, Head of departament of Climate Change. Seville.
- o Francesc Baro, Universidad Autónoma de Barcelona, Naturvation Project. Barcelona
- o Jesus Iglesias Saugar, Ecopreneurs4Climate, Málaga.
- o Bernard Valero, Avitem, Marseille
- o Salvador Rueda, Agency of Urban Ecology, Barcelone
- o . Andrés Alcántara, IUCN Centre for Mediterranean Cooperation
- o Lourdes Lázaro Marín, IUCN Centre for Mediterranean Cooperation
- o Cecilia Gañán de Molina (Moderator), International Consultant.

Main ideas resulting from the inputs provided by the experts group

Strategic elements to achieve re-natured cities and sustainability-related challenges in the Mediterranean cities/urban areas

1. Nature in cities must be seen as a source for innovative solutions.
2. NbS must be always context-adapted, and therefore, it is paramount to consider the complex geo-politic reality of the Mediterranean.
3. NbS should always consider issues as migration, water scarcity, sea protection or vulnerability to climate-change as peace and justice challenges for the region.

4. The Mediterranean city model, characterized by the population density, the compactness of the building, the complexity of urban uses and functions, and the proximity of services on a pedestrian scale, must be claimed and protected.
5. To address contemporary urban challenges, it is key to manage cities as ecosystems (urban ecology approach).
6. Multi-level, multi-sector and multi-actor policy support for NbS must be urgently promoted.
7. Climate change resilience, heat-island effect, air pollution and noise related-illnesses, urban mobility, access to Nature, sustainable integrated urban agendas are the main strategic elements for the Mediterranean cities.
8. A change in the urban mobility pattern is of central importance to address the main challenges (avoiding the urban sprawling trend; re-naturing cities and making cities healthier -by liberating public space from motorized mobility-...).
9. Complementarily, a new model of public space is necessary to guarantee residents the opportunity to become “citizens” (with different rights in the public space, not only the mobility), and not only “pedestrians”.

Suitable NbS to get the best results, in terms of societal and biodiversity benefits

Multiple challenges faced by Med-cities concerning social inequities and disconnection with Nature could be adequately addressed by NbS. However, NbS concept and impacts should be better defined.

1. There is no “one-size-fits-it-all” NbS policy: the best NbS must always be adapted to the local circumstances and needs.
2. NbS applied to the Mediterranean urban areas should consider three main connections:
 - Urban-peri-urban territory
 - Land-sea connection
 - Urban green corridors
3. Greening and re-naturing cities is a strategic NbS addressing multiple benefits: contribution to climate change adaptation, reduction of the heat-island effect, reduction of noise, improvement of health and well-being of residents, avifauna attraction, new visual and acoustic urban landscapes.
4. “Superblocks” are seen as an adequate urban model to promote sustainable and healthy cities in the Mediterranean, by changing the mobility model and releasing new public spaces for uses such as green corridors, community gardens, social and cultural activities, leisure, environmental education, etc.
5. Trees are strategic elements for re-naturing cities and providing, simultaneously, environmental and multiple societal benefits. Paying attention to species selection is important though; and also the promotion of a stronger collaboration between municipalities in this regard.

6. Urban agriculture is part of the solution: a great interest for community initiatives promoting proximity for local production and consumption is shown all over the region.
7. A right to energy, efficient and inclusive, with gender perspective, should be developed in the Mediterranean cities.
8. Marine NBS should be the next step in the process of implementing bio-inspired solutions in the urban areas of the region.

Tools to facilitate NbS implementation in Mediterranean cities

Awareness, education and communication tools

- Actions to promote empowerment of local population as drivers of change, taking advance of the sense of “community” that is intrinsic in the Mediterranean region.
- Education in values linked to long-term sustainability vs short-term profit making values.
- Communication and awareness innovative actions allowing ownership of NbS concept.

Regulatory tools

- Consider the accessibility to Nature as a social justice challenge/right.
- Long-term NbS policy with compulsory rules.
- Promotion of more links health-green cities.
- A shift in public procurement regulations (avoiding the “auction” effect).
- Alignment of economic indicators to environmental and societal concerns.

Governance tools

- Integrated policy frameworks are key for supporting sustainable urban integrated agendas and the implementation of Nbs
- Stronger political commitment for breaking down silos and work across sectors.
- Promotion of initiatives of collaborative and decentralized economy.

Capacity-building tools

- Transdisciplinary knowledge about urban biodiversity.
- More policy-citizens-science integration
- Training politicians and officials on NbS.
- Development of an “NbS expert” figure/profile to manage NbS.

Economic and Financial tools

- Development of financial tools and tax incentives for the implementation of NbS.
- Encouragement of public-private investments in ecosystems.
- Development of more funding for eco-entrepreneurs and green SMEs.

Information and knowledge-exchange tools

- Development of prospective and information tools for identifying scenarios in support of NbS decision-making processes.
- More evidence-based and tailor-made information.
- Creation of a platform for capacity-building in the Mediterranean, exchange of knowledge, and documentation of good practices.

Technical tools

- A new model of ecosystemic urbanism is needed. It should take into consideration not only the urbanistic planning at the surface level, but also at the underground and at the roof levelⁱⁱⁱ for assuring a new model of re-natured and sustainable city and maximising, at the same time, the ecological efficiency of the urban space (enhancing urban biodiversity, the water cycle, and clean forms of energy).
- Indicators to assess impacts for a new ecosystem urbanism.
- Indicators measuring intangible value in the urban space (qualitative assessment vs. quantitative economic indicators).

ⁱ Superblocks are areas (from 16 to 20 Ha.) of the city where the traffic is restricted to the roads in the superblock perimeters. Cars are only allowed in the streets in between if they are residents, emergencies or providing local businesses, and at a reduced speed of 10km/h.

ⁱⁱ 1/3 of the green spaces in Med-cities should be created on height –roofs-, to give a new use and ecological function to these areas.