Urban Agenda for the EU

ORIENTATION PAPER

Sustainable Use of Land and Nature-Based Solutions

** As The Urban Agenda for the EU has no legal basis and as participation is voluntary, the actions presented in this Orientation Paper are not compulsory. They are recommendations. **

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1. INTRODUCTION

This Orientation Paper sets the background for the work of the Urban Agenda Partnership on Sustainable Use of Land and Nature-based Solutions (SUL_NBS). It includes the specific challenges to be addressed and the description of main topics that characterize the Partnership.

Works of the Partnership consider vast diversity in the density of urban populations, and differences in economic, social, environmental and spatial backgrounds, that result in various urban priorities and policy responses across Member States. Nevertheless, many of the issues and challenges outlined in this document are shared among European Urban Areas and many urban authorities across EU are undertaking various measures to deal with them.

This document describes objectives and working arrangements of the Partnership, including deliverables and meetings in order to prepare, adopt and implement the Action Plan.

The working method was agreed and programmed with all interested partners during the kick-off meeting which took place on July 13th, 2017 in Warsaw. In order to facilitate the development of this Orientation Paper, it was decided to invite all partners to fill up a survey aimed at identification of the Partners' key interests and opportunities to contribute to the further works of the entire Partnership. Therefore, each Partner was asked to fill up the Scoping Fiche, which allowed:

- identifying possible topics and sub-topics to be dealt with as well as bottlenecks and emerging evidence base,
- mapping relevant expertise and ranking the topic according to the criteria selected;
- defining possible actions to explore and conclusions for further works.

Based on the results from scoping fiches and interactions among partners during the first phase of our work the main objective of the SUL_NBS Partnership was identified: **to ensure the efficient and sustainable use of land to help create compact, liveable and inclusive European cities for everyone.**

The Partnership was divided into two main topics: 1) Liveable compactness and 2) Nature-based solutions in urban areas. For the mentioned priority topics recommendations will be developed and knowledge shared in the fields of better regulations, better financing and better knowledge and the main deliverables of the Partnership will be articulated in the Action Plan.

This document was edited by the coordination team of the Partnership with the contribution of all partners.

This document was consulted with all the partners by email between 13th and 25th September 2017 and finally discussed during the meeting held in October 2017 in Barcelona. It includes the gathered remarks, comments and observations.

This document was endorsed by Directors Generals on Urban Development on 24th of October 2017.

2. PARTNERSHIP COMPOSITION

SUL_NBS Partnership includes partners representing 9 urban authorities, 6 Member States, 4 Directorate-Generals of the European Commission as well as 2 stakeholders, 1 observer and 2 supporting organizations. The full list of partners includes:

Coordinators

Ministry of Economic Development (Poland)
City of Bologna (Italy)

Partners representing Urban Authorities

Águeda (PT)
Antwerp (BE)
Cork (IR)
Métropole Européenne de Lille (FR)
Stavanger (NO)
Verband Region Stuttgart (DE)
City of Zagreb (HR)
EUROCITIES

Partners representing Member States

Cyprus

Lithuania
Luxembourg
Portugal
Slovenia

Partners representing the European Commission

Directorate-General for Regional and Urban Policy (DG REGIO)
Directorate-General for the Environment (DG ENV)
Directorate-General for Research & Innovation (DG RTD)
Joint Research Centre (DG JRC)

Partners representing Stakeholders

European Investment Bank (EIB)
Institut Català del Sòl (INCASÒL)

Observers

URBACT

Support

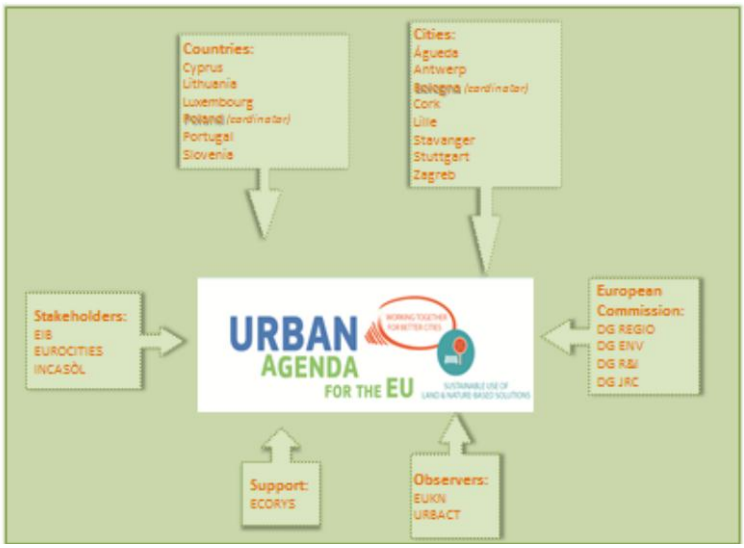
Ecorys
EUKN

The activities of the Urban Agenda for the European Union are coordinated during the Directors-General Meetings on Urban Matters (DGUM), which will be also validating the Partnership's Orientation paper and Action Plan. The Urban Development Group (UDG) is an informal advisory body to the DGUM and the deliverables and progress will be discussed at the DGUM before being presented to the DG meeting on Urban Matters for final validation.

The Partnership receives technical support from the European Agenda Secretariat (Ecorys) as well as EUKN (European Urban Knowledge Network), which work closely with the Partnerships' Coordinators and the members. Also, the works of the Partnership is supported by external experts from Italy and Poland, working closely with the Coordinators.

The Partnership composition may be expanded to include other partners representing observers (experts, NGOs, economic and social partners, private sector representatives), interested in the process and outcome of the Partnership's works.

Figure 1. Partnership composition: Sustainable use of land and Nature-based solutions



3. OBJECTIVES OF THE PARTNERSHIP

3.1 Presentation of SUL_NBS

3.1.1 Main problems and challenges

It is commonly understood that the development of urban areas will have a major impact on the future sustainable development (economic, environmental, and social) of the European Union and its citizens. This is associated with the recognition that urban areas of all sizes can be engines of the economy which boost growth, create jobs for their citizens and enhance the competitiveness of Europe in a globalised economy. As a result, it is recognised that the success of European sustainable urban development is highly important for the economic, social and territorial cohesion of the European Union and the quality of life of its citizens. The Partnership discussions (Partnership meetings in Warsaw and Barcelona) highlighted a number of problems corresponding with the thematic scope of the Partnership which present areas for further consideration and more precise elaboration, as the work of the partnership progresses. These issues include:

- the lack of overarching European Land Use Policy;
- inefficient or poor data on spatial development and its use for urban governance and efficient tools for planning and re-use of land. Mostly it relates to urban sprawl which is broadly analyzed but there is no comprehensive analysis, in particular, which EU policies and policies at national level exacerbate or limit urban sprawl;
- insufficient capacity of urban municipalities and their planning services to deal with complexity of socio-economic and spatial development and its interconnections;
- shortcomings or lack of efficient regulatory or financial instruments integrating multi-functional and circular management of land use in urban governance (at level of district, city or functional urban area), and combining spatial planning with socio-economic development, the spatial mismatch between the de facto urban territories (administrative borders of cities) and the de jure city borders (functional urban areas);
- lack of effective regulatory and fiscal incentives to attract private investments on brownfields
- lack of knowledge/capacity of staff & human resources in municipalities dedicated to implementation mechanisms for unlocking development on brownfield land – e.g. EU funding, blending various financing instruments;
- nature-based solutions are not high on agenda of urban authorities due to low awareness of its social and economic benefits (i.e. positive effect on people's health, reduction of flood risk, air quality, urban biodiversity, public health and well-being).

Cities remain both a part of the problem and a part of the solution. Green, compact and energy-efficient cities make a key contribution to sustainable growth. They play a crucial role in implementing various projects and initiatives at the European level such as, for example, these two flagship projects "Resource-Efficient Europe"[1] and "An Integrated industrial policy for the globalisation era"[2] or Urban Innovative Actions.

Nowadays, Europe is considered to be one of the most urbanized parts of the world, with the estimation that over 80% of Europe's population will live in the urban areas by the middle of this century[3]. This brings about a number of unprecedented challenges and issues to be dealt with in the years to come. These include unsustainable consumption and production patterns, loss of biodiversity, pressure on ecosystems, pollution, natural and man-made disasters, climate change and its related risks, undermining the efforts to end poverty in all its forms and dimensions and to achieve sustainable development. Recent OECD calculations clearly indicate that the volume of developed land in recent years grew mostly outside the urban core while density patterns remained unchanged inside cities[4]. Thus, urban sprawl is a major concern for many countries and cities; it has become a subject of popular debate and policy initiatives from governmental bodies, local authorities and non-profit organizations. Its negative impact on financial, environmental and social aspects is visibly growing. On a larger scale, this reduces biodiversity, land for agriculture and increases greenhouse gas emissions and air pollution. Environmental challenges and urbanisation opportunities are closely connected. On the one hand, many cities struggle to cope with social, economic and environmental

[1] „A resource-efficient Europe – Flagship initiative under the Europe 2020 Strategy", Brussels, COM(2011).

[2] „An integrated industrial policy for the globalisation era – Putting competitiveness and sustainability at centre stage", Brussels, COM(2010).

[3] UN World urbanization prospects, New York,2014.

[4] Conclusions from the OECD 5th GGSD Forum, 2016.

problems resulting from pressure such as overcrowding, decline in the physical fabric of buildings/neighbourhoods, social inequity, pollution and traffic congestion. On the other hand, densifying urban population also means shorter journeys to work and services, more walking, cycling or use of public transport, whilst apartments in multi-family houses or blocks require less heating and less ground space per person. Finding the **balance between compactness on the one hand, and achieving high standards of quality of life in a healthy urban environment on the other one, is the major challenge for Europe's urban areas**.

Moreover, it is recognised that a city might be compact but it could be unliveable (i.e. overcrowded) and also be too exclusive (i.e. reflecting the often higher cost of land in urban centres along with the privatisation of some urban spaces). Thus, there was also some consideration within the first partnership meeting discussions that the overall objective of the Partnership should also reflect social aspects in order to ensure that cities are "inclusive" – so that everyone can benefit from a compact city.

As mentioned above, cities offer solutions for a more sustainable way of life, but in spite of efforts for improving urban environment, as well as to mitigate and adapt to climate change, European cities still face a number of environmental and social challenges[5]. Main challenges include, in particular:

- Prevention and management of urban sprawl;
- Promotion of sustainable land use;
- Principles and strategies for urban development policy;
- Support for the infill and transformation, prioritizing renewal, regeneration and retrofitting of urban areas and the redevelopment of brownfields
- Provision of high-quality buildings, public space and mobility policies.
- Protection of urban green areas and promotion of nature-based solutions for the environmental protection.

3.1.2 What has already been done

As far as the urban areas and sustainable urban development are concerned, the most important documents to be taken into account at the European level are:

- „Sustainable Urban Development in the EU: a framework for action" (COM (98) 605)
- Strategy on Urban Environment (COM (2005) 0718)
- Leipzig Charter on Sustainable European Cities (2007)
- The Declaration of Marseille (2008)
- Green Paper on Urban Environment
- Europa 2020 Strategy
- The Toledo Declaration (2010)EU Biodiversity strategy to 2020 (COM, 2011,244)
- The Roadmap to a Resource Efficient Europe (COM(2011) 571)
- The Charter of European Planning (ECTP-CEU, 2013)
- The Communication on Green Infratsructure (COM 2013/0249)
- 7th Environmental Action Programme (2014-2020);
- The Territorial Agenda of the European Union 2020 (2015/C 195/05) towards more sustainable Europe
- The UN sustainable development goals (2015)
- The Pact of Amsterdam (2016)
- The New Urban Agenda (HABITAT III, 2016)

A number of policy documents, both at European and national levels, have been developed in the area of sustainable land use.. There is a vast amount of research focused on the theme of this partnership conducted by various European and national institutions such as EEA, DG ENV, DG R&I[6].

Main challenges highlighted across the above key strategic documents (and their associated initiatives and actions being undertaken at the European level)[7] are relevant to the SUL_NB. The Partnership acknowledges existing knowledge and expertise on the topic and aims to make the best use of it and fill in existing gaps.

During the first phases of the Action Plan preparation, the Partnership will explore in more detail:

- the ongoing policies in Member States, including urban authorities approaches and good practices;

[5] „Cities of tomorrow - Challenges, visions, ways forward", EC, October 2011.

[6] Examples: http://ec.europa.eu/research/infocentre/theme_en.cfm?item=Environment&subitem=Land%20management
https://www.eea.europa.eu/themes/landuse#tab-publications
http://ec.europa.eu/environment/land_use/index_en.htm

[7] They closely correspond to challenges and objectives identified in the New Urban Agenda adopted during UN Habitat III Conference, Quito, 2016.

- the experience of URBACT initiatives and Interreg projects;
- other relevant experience analyzed and recommended by partners.

As it is evident from above, there is a rich and diverse experience amongst cities in developing and implementing policy on sustainable urban development. In addition, policies also differ with regard to their effectiveness, which calls for constant improvement of the approaches of solutions implemented. It has been agreed by partners that reviewing them and improving through providing better regulation and inputs for financial plans on the basis of knowledge sharing seems to be necessary step to be taken and an appropriate area for the SUL_NBS Partnership to focus on.

3.1.3 Objectives and potential solutions

As mentioned in the introduction the main objective of the SUL_NBS Partnership is to ensure the efficient and sustainable use of land to help create compact, liveable and inclusive European cities for everyone. The Partnership was divided into 3 main topics:

1) Liveable compactness
2) Nature-based solutions in urban areas
3) Tools and policy approaches.

The last topic is not an independent issue but is to be considered in relatioship to the previous topics.

There is a general agreement at European level on the principle of densification of urban cores as a preferential path for cities development. The densification of urban areas can give rise to more energy-efficient forms of housing, transport and service provision; consequently providing measures to address climate change. Introducing the nature-based solutions (NBS) is associated with the use of healthy ecosystem functions to tackle some of the above-mentioned challenges while protecting the environment and providing sustainable socio-economic benefits. Implementing NBS means also increasing the presence of green/blue spaces and infrastructures within the city, thus contributing to the compact and sustainable model, by mitigating, e.g. urban heat islands, hydrological risks due to soil sealing, air pollution, lost of ecological heritage, etc [8]. In line with the above-mentioned problems, challenges and objectives, the partnership aims to:

- review and understand the processes of suburbanization and the role of nature-based solutions within the current development processes and the regeneration of the existing city;
- formulate specific concepts and modes of action regarding sustainable use of land and implementation of the nature-based solutions within urban areas as well as concrete proposals for territorial instruments and funding;
- identify best practices in innovative urban development across Europe (with respect to both the above-mentioned themes).

Introducing and developing these concepts require, in many cases, employing innovative tools and policy approaches. At the same time, as land is a non-renewable and scarce resource, more and more Member States and regions need to start to develop spatial development policies to reduce land take and to bring an end to soil sealing. This could be achieved through more efficient land-use and mixing functions within the city. In addition, issues in urban regeneration, redevelopment of brownfields and rededication and reuse of vacant and underutilised land, and promoting public transportation have to be taken into account as well as other policies that indirectly affect spatial and land use planning.

Thanks to the partners' experience and knowledge, the best practices within the scope of the Partnership's will be identified – i.e. developing compact and sustainable cities development concepts with a special focus on reducing urban sprawl, introducing nature-based solutions in urban areas as well as identifying new tools and instruments in order to achieve both objectives in an efficient way. This work is useful for the the partnership to work towards the identification of the needed support in relations to identified challenges (funding, knowledge, regulation at EU level).

The partnership's work is based on the common understanding of the below issues:

- Cities are different, have different densities and experience regarding the efficient use of land;
- Nature-based solutions should be integrated into broader urban land use planning;
- Preventing urban sprawl through the mechanisms of brownfield development and rededication and reuse of vacant and underutilised land should be a priority, incorporating and valuing green infrastructure into planning and development;
- Quality of life is important in land use planning and in our cities – we have a responsibility to make liveable places, and to consider what people want and how they like to live;

[8] Naturing Cities, Final Report of the Horizon 2020 Expert Group on Nature-Based Solutions and Re Naturing Cities, European Commission, Directorate General for Research and Innovation, 2015.

- Land in cities needs to be multi-functional;
- City authorities need to think “smart” about reusing, recycling and retrofitting land (the partnership needs to provide practical guidance on this);
- The functional area approach has to be emphasised as a need to reach outside of the city administrative borders when tackling urban sprawl.

Taking into account the above-mentioned issues, specific subtopics of the partnership were identified, that will be considered in the preparation of the Action Plan and may be better defined during the next working phases.

Table 1. Topics and sub-topics

1. Liveable Compactness	1. Policentric urbanization, functional urban areas and rural-urban interface 2. Social, economic and physical regeneration of urban neighbourhoods through the compact city model 3. Redevelopment of brownfield and re-edification and reuse of vacant and underutilized land
2. Nature-based solutions in urban areas	1. Ecosystem services 2. Green and blue infrastructures 3. Framework conditions for NBS and resilience projects
3. Tools and policy approaches	1. Urban governance and territorial instruments, regulations and policies 2. Participation and citizens/civil society engagement . 3. Improvement of existing infrastructures/new infrastructure for resilient cities 4. Financial models, financing mechanisms and business cases (finance)

3.2 Liveable compactness

During the last decades the compact city model has been conceived as the best way to deal with dispersed development by taking advantage from the reduced distances between dwellings, work places, businesses and public services and facilities. It led to enhancing public transport and, consequently, reducing air and noise pollution and increasing protection of agricultural land and open spaces. At the same time, the compact city form has been challenged for guaranteeing more attractive and healthy environments in respect of low density suburban areas. Therefore, increasing urban compactness and consequently reducing urban sprawl (also known as suburbanization) requires rethinking spatial development policies by directing them towards both a drastic reduction of land take and a strong promotion of urban regeneration and of reuse of vacant and underutilized areas. This shall be obtained by influencing the way urban development is currently undertook by undertaking a sustainable use of land[9]. This means to achieve an efficient use of land in urban areas by addressing the questions of how to facilitate adequate and sustainable compactness and how to restore the existing city through social, economic, physical regeneration the redevelopment of brownfields, the reuse of vacant and underutilised land. Indeed, brownfield re-development, reuse of vacant and underutilised land and regeneration of already built-up areas are seen by the Partnership as crucial actions for achieving sustainable land use.

Starting from the assumption that the urban sprawl is a pressing issue and a consequence of poorly managed land use, the Partnership needs to understand its key causes to effectively make European cities sustainable. The Partnership will focus, first of all, on identifying and understanding urbanization and suburbanization phenomena, including legal frameworks and territorial culture of regions/countries/cities, which generate and fuel suburbanisation processes. In this framework attention will be paied to the “shrinking cities” phenomenon occuring in European cities, as well as gentrification processes in order to understand demographic tendencies (population decrease and ageing) and its impacts in European cities and then to identify a good scale of planning and economic complementarity of territories to promote their rationale regeneration.

[9] Naturing Cities, Final Report of the Horizon 2020 Expert Group on Nature-Based Solutions and Re Naturing Cities, European Commission, Directorate General for Research and Innovation, 2015.

On this basis, the Partnership will then look at effective and innovative spatial and urban planning practices, tools, as well as solutions applied across European urban areas on how to contain, reverse and prevent urban sprawl and, inversely, on how to promote compact and multifunctional cities with adequate densities and facilities. The Partnership will also carefully explore the cases where the policies failed to deliver the expected results to identify the main barriers to making compact cities sustainable and liveable.

Consequently the Partnership will explore and propose recommendations for developing incentive-based and financial instruments able to support effective spatial and urban policies.

Proposed subtopics:

Policentric urbanization, functional urban areas and rural-urban interface

Urban and transport planning play a crucial role in controlling urban sprawl. Transport networks and systems infrastructures are the backbone of urbanization since they represent a precondition for urban development, therefore an integrated urban and transport planning is fundamental to control urban sprawl and to undertake a compact and well connected urban system. This means to reinforce the territorial structure connecting central and denser agglomerations with their metropolitan suburbs by considering interactions and possible relationships and exchanges between densely populated urban cores and their less populated surrounding territories within an unique metropolitan perspective.

The goal is to rebalance flows, services, and land uses between central and suburban areas in order to rebalance the entire metropolitan area in terms of housing supply for a social mix, of accessibility and of closeness to services.

Social, economic and physical regeneration of urban neighbourhoods through the compact city model

Urban regeneration policies aim at addressing specific challenges affecting the modern city, such as enhancing the overall quality of existing buildings and open spaces by improving e.g. energy efficiency, livability and public health, but also by enhancing land-use and social mix as well as public transport, walking, and cycling, and more efficient utility and infrastructure provision[10]. This means to conceive urban regeneration within a urban regulatory framework based on densification strategies which ensure that denser plots and urban fabrics are compatible with urban systems and infrastructures and with environmental and social conditions, thus ensuring the sustainability and livability of regenerated neighborhoods and districts.

The aging population is one of the main problems of European cities and to adapt the society to its elderly population is another important challenges of public and private sectors. Thus, it must be taken into consideration when defining strategies and policies concerning sustainable urban development.

Redevelopment of brownfield and re-edification and reuse of vacant and underutilized land

In general, brownfield redevelopment and urban renewal/ regeneration/ retrofitting are distinct approaches involving different issues and urban contexts – for example, brownfield development might refer to previously developed land that is not currently in use, whilst renewal and retrofitting implies an attempt to reverse decline in the existing physical fabric of neighbourhoods/ building which are still in use.

Europe has some experience in brownfield regeneration, but the context changes and a new land approach based on circular land management is needed to deal with a real policy that limits, prevents and reverses urban sprawl.

In the several decades, more and more brownfield sites have become available in Europe but only a small share of brownfield sites in Europe are redeveloped. In most cases local authorities are very willing to redevelop these areas and see the sustainable benefits of doing so, such as reducing use of greenfield land, creating new denser developments, promotion of sustainable transport modes and use of existing infrastructures.

Private developers are often unwilling, from a commercial point of view, to bear the costs of redevelopment related to decontamination and demolition.

Identifying mechanisms to provide resources to facilitate brownfield development should thus be central to the focus of this subtopic.

[10] Jenks & Jones, 2010; Dempsey 2010; Jenks & Dempsey, 2005; Burton, 2002.

3.3 Nature-based solutions in urban areas

Nature-based solutions have been defined by the European Commission as a way to address societal challenges with solutions that are inspired and supported by nature, which are cost-effective, simultaneously provide environmental, social and economic benefits and help to build resilience. Such solutions bring more nature and natural features into cities, landscapes and seascapes, through locally adapted, resource-efficient and systemic interventions.

The implementation of such solutions results in many benefits for the environment, economy and society, and they offer an opportunity to turn challenges that urban areas face into innovation opportunities. Nature-based solutions may contribute to sustainable urbanisation and improving well-being in urban areas, including restoration of degraded ecosystems, urban regeneration and adaptation to climate change. For instance, to reduce pollution and increase livability in cities, networks of green areas and waterfronts in cities are important due to the ecosystem services that they provide and should thus be preserved.

On the one hand, the preservation and conservation of nature can be perceived as an obstacle to urban development but on the other hand, it has to be considered as an opportunity to regain the territory, biodiversity and improve quality of life in cities.

The actions of the Partnership in this area aim at enhancing the evidence base on the social, economic and environmental benefits of nature-based solutions reffering to e.g.: health impacts (i.e. decreased air pollution, increased physical activity), social benefits (i.e. crime reduction, inclusion), climate adaptation and climate related risk reduction.

The partnership will also focus on the comparison between traditional and grey infrastructure, and green and nature-based solutions. Moreover it will investigate the limits of nature-based solutions, understanding the transferability to different geographies and regulatory environments, and the impact on the overall attractiveness of a city (tourism, circular economy, attracting business, developing socially responsible businesses, making cities attractive for the high-skilled labour).

Proposed subtopics:

Ecosystem services

Nature-based solutions often (but not exclusively) build on the ecosystem services that urban green infrastructure provides. According to the Millenium Assesment from the United Nations ecosystem services are the benefits people obtain from ecosystems. These include provisioning services such as food and water; regulating services such as flood and disease control; cultural services such as spiritual, recreational, and cultural benefits; and supporting services, such as nutrient cycling, that maintain the conditions for life on Earth. Nature-based solution can act as ecosystem services and provide the same range of benefit to the urban system.

In this sense, solutions based on urban green infrastructure are cost-effective, environmentally friendly and multifunctional; can be seen as complementary, and in some cases cost effective comparingto standard “grey” solutions. Ecosystem services are contribution to human well-being. They support our survival and quality of life[11]. Within the Partnership, we will assess the value of the services provided by nature-based solutions in economic, social and environmental terms.

Green and blue infrastructures

In the context of an urbanised environment, green and blue infrastructure is understood as all natural and semi-natural landscape elements that form a green-blue network: re-naturing cities through the conservation, restoration and expansion of green and blue infrastructure serves as the foundation for benefiting from nature-based solutions.

However, urban green and blue infrastructure is often under threat from land take and soil sealing and, in this sense, the partnership will have a closer look at the relation between such infrastructure, sustainable

[11] According to TEEB, ecosystem services can be categorized in four main types:

- Provisioning services, are the products obtained from ecosystems such as food, fresh water, wood, fiber, genetic resources and medicines.
- Regulating services, are defined as the benefits obtained from the regulation of ecosystem processes such as climate regulation, natural hazard regulation, water purification and waste management, pollination or pest control.
- Habitat services, highlight the importance of ecosystems to provide habitat for migratory species and to maintain the viability of gene-pools.
- Cultural services, include non-material benefits that people obtain from ecosystems such as spiritual enrichment, intellectual development, recreation and aesthetic values.

land use and the regeneration of the built environment, mostly in terms of regulation and funding possibilities.

Indeed, the distribution and the quality of green spaces can play a key role in in the “sustainable city” and the “compact city” model. Accessibility to urban green spaces promotes health by offering opportunities for physical activity and by providing places for leisure and social interactions (and providing also space for urban gardening and urban agriculture), with the effect of increasing the quality of life of city residents.

Framework conditions for NBS and resilience projects

So far, urban development has not gained enough attention to nature-based solutions. Soil is often considered a support for real estate and landscape as a décor. It is quite new approach that nature is taken into account in urban projects so that it is protected, preserved and used as a solution for regeneration (i.e. decontamination of soils or water cleaning with the help of plants).

The discussions around “financing NBS” should be moved to “How can NBS be made attractive for financing”. Funding for NBS is often available and it is rather a matter of convincing decision maker (public and private) to put their money on NBS instead of investing in more traditional solutions. At the same time, these solutions should be designed together with local communities (citizens, associations, investors, etc.) who will be the one who co-fund, co-mantain, use these solutions.

3.4 Transversal topics and policy approaches

The two identified topics: sustainable land use and nature-based solutions, clearly present overlapping challenges and interests. For this reason the partnership has identified transversal topics and policy approaches. In this context, proposed activities for the preparation of an Action Plan include identifying innovative urban development patterns for the development of a compact city and the integration of nature-based solutions within urban investments, policies, planning and financing, assessing the transferability of these solutions to different territories and conditions. It is important to emphasize integration of nature-based solutions into policy, regulations, project planning, financing and at the same time exploring how a compactness approach can be systematically integrated into urban planning, taking into account also social acceptance of this approach and structural and physical constraints due to the presence of existing infrastructures, buildings and urban activities.

The partnership will investigate how to create positive synergies for land use policies to improve cost-effectiveness, environmental sustainability and social inclusion. We will look at different kinds of incentives, instruments, regulations aimed at orienting the potential development in city core, especially on brownfields, rededication and reuse of vacant and underutilised land and in regard to urban renewal/regeneration in the existing built environment.

The focus will be also on developing territorial instruments enhancing urban governance and local and regional cooperation, financing urban regeneration and compactness, nature-based solutions and green growth activities (application of existing instruments, e.g. the EIB-EU blending instrument called Natural Capital Financing Facility). This process should be supported through city investment programmes thanks to grant-loan blending and revolving funds, preparing recommendations for development of new territorial instruments, and developing strategies for attracting private investment.

Cities should conduct their infrastructural investments in a reasonable manner that follows the sustainable development principles. It means in particular that they should strive to achieve maximum effects for minimum costs (not only financial costs, but also costs related to other resources, e.g. open space, natural resources). The basic rule should be the maximum use of the existing infrastructure (which might sometimes require minor investment undertakings or modification of the system to tap this potential). Only when these actions result to be insufficient, a new investment should be planned. In this context the partnership will also explore concrete examples of how investing in existing infrastructure can be more cost-effective than investing in new infrastructure that often encourages further land take.

<u>Proposed subtopics:</u>

Urban governance and territorial instruments, regulations and policies

One of the main difficulties in mitigating urban sprawl is that its externalities (e.g. increased demand for transport, energy, waste and water infrastructure and public services) can be, and usually are, externalised both in space and in time (“burden shifting”), impeding a balanced comparison of different (green vs. brownfield) development options. The ability to control sprawl is further weakened when there is a mismatch

of authority making decisions on land use and that/those bearing the impact (uneven distribution of externalities). Apart from land use regulations, many policies influence land use indirectly (e.g. taxation) and can create unintended land use incentives that contradict land use objectives.

Participation and citizens/ civil society engagement

The management of policies for a compact city may be quite difficult. There is a general agreement that cities should be compact, but we need to ask how people want to live. The aim is to introduce a participatory approach that is efficiently and commonly implemented in urban regeneration and nature-based solutions projects as broader principle in realization of projects co-financed from EU funds in urban areas, to make urban planning as an ongoing, inclusive process that is the result of a collective procedure instead a top-down vision. As a general rule more projects managed / implemented by self-government units on urban areas should be co created with citizens i.e. approved in a partnership with local NGOs or representatives of local society as recipients of local projects (this concern at least objectives and technical details of projects to be realised).

Acceptance is crucial wherever additional development (infill, new housing, infrastructure) is planned. Without sufficient support / acceptance among the local civil society efficient / sustainable locations cannot be developed what means additional impact / less sustainability.

Improvement of existing infrastructures/new infrastructure for resilient cities

It is important to emphasize the theme of re-infrastructuring the city in the context of its inner "redevelopment". This applies both to the implementation of green infrastructure and nature-based solutions (e.g. rainwater management), other technical infrastructures (e.g. drainage system). Climate change is obliging us to redefine the basis of the design of city infrastructures such as the drainage system, the transport networks or parking spaces. Urban mobility plans are aiming to reduce the place of cars in urban areas in favor of soft modes of transport and to encourage the use of public transports.

Financial models, financing mechanisms and business cases

The mobilization of finance is a critical issue for reaching the objectives of the partnership. The way incentives and financial instruments are proposed and created influences the development of the city. The purpose is to explore the way for creating incentives for integration of spatial planning of self-government units (municipalities, maybe districts if it concerns them) within urban functional areas and for the implementation of nature-based solutions funded by private partners. It is also essential to develop strategies for attracting private investment keeping, at the same time, our cities affordable for citizens.

Moreover, it is important to explore the possibility to introduce conditionality in EU regulations regarding spending cohesion funds for integrated urban development (or broader for any type of areas) that would force integration of socio-economic and spatial planning so that fiscal policies will help in orienting the market towards the partnerships' goals. So far, urban development has not given enough attention to nature-based solutions. Soil is often considered as a support for real estate and landscape as a décor. It is quite new that nature is taken into account in urban projects to be protected and preserved and used as a solution for regeneration (i.e. decontamination of soils or water cleaning with the help of plants).

Table 2. Summary of Partners' main interests

1. Liveable Compactness	Policentric urbanization, functional urban areas and rural urban interface	AGU, PT, LX, BCN, ANR, ZGR, LT, PL, Co, Lil, SL
	Social, economic and physical regeneration of urban neighbourhoods through the compact city model.	BO, LX, BCN, SL, Co, Lil, LT, ZGR
	Redevelopment of brownfield and re-edification and reuse of vacant and underutilized land.	PT, CY, STR, PL, Lil, LT

2. Nature-based solutions in urban areas	Ecosystem services	AGU, PT, Co, Lil, EIB
	Green and blue infrastructures	AGU, LX, SVG, Lil, STR, PT, ZGR
	Framework conditions for NBS and resilience projects	EIB, Lil, PT
3. Tools and policy approaches	Urban governance and territorial instruments, regulations and policies	Eurocities, PL, STR, LT, PT
	Participation and citizens/ civil society engagement	AGU, BO, PL, ZGR
	Improvement of existing infrastructures/new infrastructure for resilient cities	AGU, STR, Lil, LT
	Financial models, financing mechanisms and business cases (finance).	EIB, Lil, PT

3.5 Specific objectives of the Partnership

Based on the above thematic objectives and in line with the scope of the Partnership strives to involve Urban Authorities in achieving Better Regulation, Better Funding and Better Knowledge (knowledge base and exchange). This need comes from the following considerations (as stated in the document of Pact of Amsterdam):

- EU legislation is to a large extent implemented in Urban Areas and has direct and indirect implications for Urban Authorities. EU legislation sometimes has conflicting impacts and its implementation at local level can be difficult. Therefore, EU regulation should anticipate and prevent these difficulties.
- Urban Authorities are among the key beneficiaries of EU funding. Access to existing funding is however sometimes administratively burdensome. The Urban Agenda for the EU aims to improve accessibility and coordination of existing funding possibilities and to contribute to their simplification.
- Knowledge on how Urban Areas evolve is fragmented and successful experience can be better valorised, diffused and exploited. The Urban Agenda for the EU therefore intends to enhance a better urban policy knowledge base and the exchange of good practice[12].

3.5.1 Better Regulation

In the area of better regulation, the Partnership aims to[13]:

1. Identify the good practices regarding the themes of the partnership in the area of regulations;
2. Identify to what extent these practices are of general nature and – at the same time – to what extent these are replicable across Europe;
3. Formulate recommendations – both for EC and for Member States – regarding policy alternatives.

3.5.2 Better Funding

In the area of better funding, the Partnership aims to[14]:

1. Identify the best practices regarding the funding schemes;
2. Identify to what extent these practices are of general nature and – at the same time – to what extent these are replicable across Europe;
3. Formulate recommendations – both for EC and for Member States – regarding alternatives in funding schemes.

3.5.3 Better Knowledge

In the area of better knowledge, the Partnership aims to[15]:

[12] Establishing the Urban Agenda for the EU 'Pact of Amsterdam', May 2016.
[13] On the basis of the scoping fiches analysis.
[14] On the basis of the scoping fiches analysis.
[15] On the basis of the scoping fiches analysis.

1. Identify the best practices regarding knowledge creation, sharing and dissemination;
2. Identify to what extent these practices are of universal nature and – at the same time – to what extent these are replicable across Europe;
3. Formulate recommendations – both for EC and for Member States – regarding best possible modes of making the knowledge available to all key stakeholders.
4. Explore the role of existing data: GIS / spatial data infrastructure / remote sensing / statistics. Due to different methodologies of collecting data, there are different data available which are not always appropriately comparable as well as harmonized. Therefore, we would like to explore state of art in different administrative levels to find appropriate models and instruments for urban sprawl monitoring.
5. Standarize vocabulary base in the discussed area. The language effect usually brings obstacles while comparing data and implementing policies that consider concepts that are not applicable to all realities and territories, among others. Thus the partnership should also pay attention to the need of standardization/uniformization of vocabulary.
6. Identify the main projects, data sources concerning land take and nature-based solutions in order to consolidate the knowledge concerning both the description of the diverse phenomena and the way the related challenges can be faced

3.5.4 Cross-cutting issues

As stipulated in the previous parts of this paper, the complexity of urban challenges requires integrating different policy aspects to avoid contradictory effects and to make interventions in Urban Areas more effective. In line with the competences and responsibilities of the different participants and taking into account that the EU does not have competences on some of these issues, the Partnerships shall consider the relevance of the following cross-cutting issues for the selected priority themes (as presented in the document of the Pact of Amsterdam, p. 7-8):

12.1 Effective urban governance, including citizens participation and new models of governance
12.2 Governance across administrative boundaries and inter-municipal cooperation: urban-rural, urban-urban and cross-border cooperation; link with territorial development and the Territorial Agenda 2020 (well-balanced territorial development).
12.3 Sound and strategic urban planning (link with regional planning, including 'research and innovation smart specialisation strategies' (RIS3), and balanced territorial development), with a place-based and people-based approach.
12.4 Integrated and participatory approach.
12.5 Innovative approaches, including Smart Cities.
12.6 Impact on societal change, including behavioural change, promoting, among other things, equal access to information, gender equality and women empowerment.
12.7 Challenges and opportunities of small-and medium-sized Urban Areas and polycentric development.
12.8 Urban regeneration, including social, economic, environmental, spatial and cultural aspects, also linked to the brownfield redevelopment with the objective of limiting greenfield consumption.
12.9 Adaptation to demographic change and in- and out migration.
12.10 Provision of adequate public services of general interest (within the meaning of Article 14 TFEU in conjunction with Protocol Number 26).
12.11 International dimension: link with the New Urban Agenda (Habitat III) of the UN (to be agreed upon), the Sustainable Development Goals (SDGs, 2030 Agenda on Sustainable Development) of the UN and the Paris Agreement on climate change of December 2015

In all project phases the Partnership will take into account the following cross-cutting issues:

- Effective urban governance;
- Sound and strategic urban planning;
- Innovative and integrated territorial approaches;
- Urban regeneration;
- Provision and coordination of adequate public services
- Governance across administrative boundaries (this is indispensable for effectively addressing urban sprawl)
- integrated and participative approach (this is crucial for sustainable redevelopment of urban areas)
- Challenges and opportunities for small and medium sized urban areas and polycentric development
- Adaptation to demographic change

4. FUNCTIONING

4.1. Working arrangements and internal communication

The partners are the foundation of the Partnership, they are fully engaged in the works of main and sub-topics as well as in the process of the content development. All partners are asked to:

- contribute to the thematic working groups;
- actively participate in the partnership meetings, engage experts and expertise from external networks and promote the activities of the partnership;
- share knowledge and experience, generate ideas for the Partnership works;
- make available the necessary resources needed to guarantee these commitments to the partnership.

The works of the Partnership are being coordinated by: the Ministry of Economic Development of Poland (Department of Strategy Development, Urban Policy Unit) and City of Bologna (Urban Regeneration Department and Office for International Relationships and Projects). Such an involvement of departments allows sharing the organizational and thematic duties as well as exchanging experience in order to provide a clear, cohesive and productive coordination of Partnership's activities.

The responsibilities of the coordinators are as follows:

- Organising the Partnership meetings: preparing the agenda, sending the invitations, providing the meeting rooms (in their Ministry, City Hall, etc.), inviting (external) speakers where appropriate, drafting the minutes, etc.
- Chairing the Partnership meetings;
- Organising the work between Partnership meetings: written consultation, asking for contributions, preparing documents, etc.
- Being the link between the Partnership and the Urban Authorities, the Commission, Member States, including the UDG13 and DG14 meetings, (including drafting a concise annual report), wider range of interested parties such as Urban Authorities, Member States not involved in the specific partnership and other stakeholders (in particular inform on the progress and offer the possibility to contribute e.g. through consultations, e-mails, updates, conferences, etc.);
- Cooperation with the other Partnerships, when deemed of added value;
- Participating and contributing to other working groups/ networks;
- Coordinating the drafting of the Action Plan;
- Monitoring and reporting on progress;
- Coordinating the work: ensuring that the contributions are prepared on time and at a good quality, mediating if there are different positions with a view to arriving at an acceptable position, etc.
- Coordinating the communication on actions and results (visibility);
- Responsible for transmitting results from the Partnership to the DG meeting.

The coordinators created a **support network** for the Partnership's work. It consists of the experts from relevant national ministries, municipal departments, research institutions, universities dealing with the urban issues, spatial planning and environmental protection. The network members are informed about the Partnership's work on a regular basis. They also bring a thematic expertise on specific issues and extra ideas to deal withing the Partnership.

The coordinators will set up **working groups** on specific issues. The coordination of the working groups will be left to one of the partners. The responsibilities of the working group leaders include:

- Organising, preparing and chairing working group meetings (face-to-face, phone/sky conferences)
- Defining and allocating the work among working group members
- Reporting on progress towards coordinators
- Delivering work results according to Partneship timetable
- Delivering information for second circle (via website, articles, etc.)
- Communicating and exchanging with other UA partnerships.

The results of the working groups will be discussed with all partners at the Partnership's meetings.

The coordinators and the Secretariat have developed a **communication strategy** for the Partnership, which includes:

- regular tele- and video-conferences;
- effective use of the Partnership FUTURIUM website;
- attending external events;
- public relations (press releases, articles, information material, etc.);

- online file sharing (Share Point).

In order to provide technical support, the tasks of **Secretariat (Ecorys)** consist of:

- Supporting internal communications between partnership members. Activities will include maintaining the distribution list for members, facilitating the sharing of information and documents and ensuring smooth consultation on emerging priorities and actions.
- Supporting external communications to stakeholders not directly linked to the partnership about its work, composition, progress made and its emerging actions. This communication will focus on strengthening the website and have the overall goal of making the partnership more visible to the outside world.
- Helping collect and understand the progress made and deliverables produced (papers, reports, studies, presentations, etc) by the partnership and its sub groups so that there is a compendium of information on the partnership all in one place.
- Supporting coordinators and partners in the organisation of partnership meetings. This could involve supporting the registration process for future meetings.
- Attending partnership meetings throughout the year and sub group meetings. The attendance would include taking the minutes, helping facilitate (if needed) any breakout groups, providing opinion and feeding into discussions.
- if required, undertake background research to inform the emerging actions found in the action plan to ensure they are robust, supported by clear evidence and are articulated in the right way.

The following persons are supporting the Partnership:

- Technical Director: Mr Tim Fox
- Senior Research Manager: Ms Jenny Molyneu

5. WORKING PLAN

5.1 Overall working method

The working method was agreed and programmed with all interested partners according to what has already been described in the introduction of this document.

5.2. Work plan steps

Step n° 1 - Stocktaking

In the first step, the members of the Partnership identified the existing work carried out on the Priority Theme (strategies, actions and working groups/ networks covering these issues at EU level). As the aim is to avoid duplication but rather ensure coordination and reinforce what is already being done, this step is crucial to decide how to move forward in building the Partnership. In this stocktaking step, the members of the Partnerships have also identified the sources of funding and expertise which could be made available for the functioning of the Partnership. The Commission will contribute by providing the stocktaking at EU level.

Step n° 2 - Preparatory actions (Identifying bottlenecks and potentials)

In the second step, the members of the Partnership will identify the bottlenecks and the potentials to identify the areas on which the Action Plan should focus. This will require in depth research and analytical work, conducted both at EU, national and local levels. It will lead to a list of preparatory actions that are needed to define the final actions. The Partnership will take into account and respect the available data from Member States whose representatives are not included in the Partnership.

Step n° 3 - Define the objectives and deliverables

In the third step, the members of the Partnership will agree on a set of actions that address the issues of the Priority Theme (Action Plan). The proposed actions need to respect the principles of subsidiarity and proportionality.

Step n° 4 - Implementation of the Action Plan

In the fourth step, the members of the Partnership will coordinate the work (aimed at Better Regulation, Better Funding and Better Knowledge) on the implementation of the Action Plan with partners of the partnership and other interested. The members of the Partnerships shall develop links with the relevant authorities/ organisations/ enterprises/stakeholders and work in full transparency.

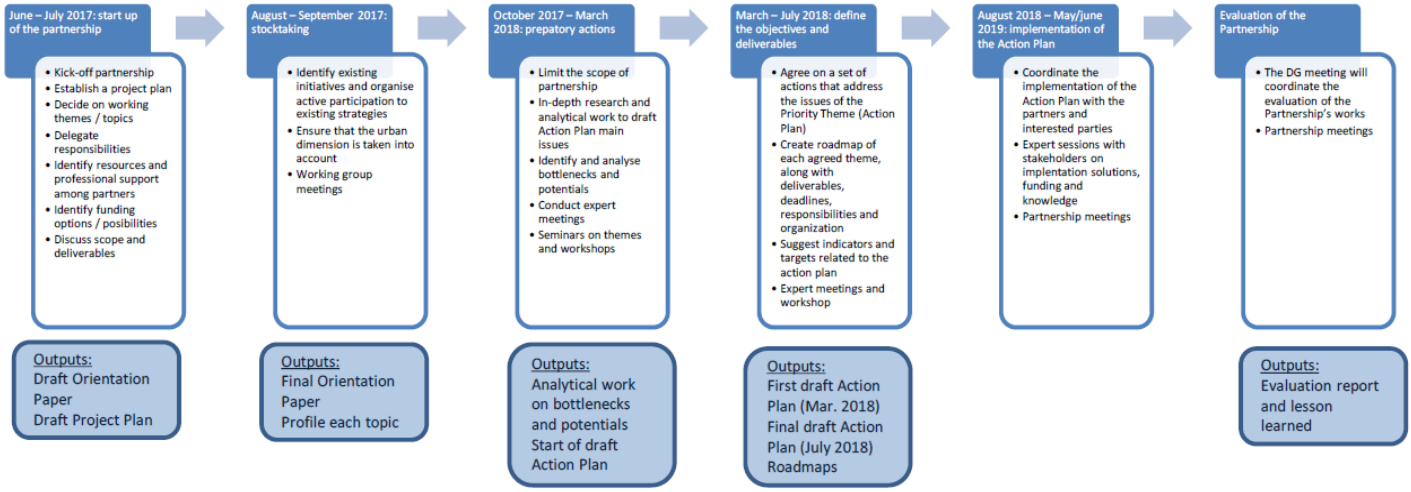


Figure 2. Work plan – phases

5.3 Deliverables, milestones and timing

The main deliverables of the Partnership will be outlined in the Action Plan, concurring the requirements from the Working Document of the Urban Agenda and guidelines given by the DG meeting on Urban Matters.

Among the expected results the following elements were identified (as stated in the Scoping paper):

- Preparing recommendations for European and national policies taking into account territorial impacts, as well as for territorial instruments, encouraging more compactness, re-use of brownfields, innovative green growth, limiting land take on the urban fringes.
- Enhance framework conditions for nature-based solutions. Integrate nature-based solutions into policy, regulation, project planning, financing.
- Prepare proposals and recommendations for new/existing territorial instruments for sustainable development in cities and their functional urban areas with the prioritization of using nature-based solutions where recommendations can be used and implemented as a pilot after Partnership.
- Investigate how EU policies and funding may further enhance efforts made in cities and regions.
- Enhance policies of circular land management in Europe based on a multi-functional approach of soil.
- Improve the knowledge and evidence base, exchange of good and innovative solutions, including innovative policy approaches to investing, data on anti-sprawl policies, in the field of spatial planning, sustainable land use and economic and environmental effectiveness of nature-based solutions in the urban context.

As a result, the Partnership will present different actions based on the selected main and sub-topics, aiming at comprehensively addressing the Partnership's theme. Each of the Actions will address a real need: an important issue, a real and visible impact and concern for the European cities.

Delivery of the Orientation Paper draft: 6th October 2017

Validation of the Orientation Paper: 24th October 2017 (DGUM)

Draft Action Plan: July 2018

Final Action Plan: the end of 2018

According to the work progress, there will be up to five Partnership Meetings with all partners while working on the draft of the Action Plan:

October 2017: Barcelona
December 2017: Zagreb
February 2018: Bologna

Two more meetings will be defined to be held between April and June 2018.

When possible, Partnership Meetings will be linked to the relevant conferences, workshops, thematic events (e.g. European Week of Regions and Cities, EUROCITIES Forum, ...).

Table 3. Contact details of the Partners

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ANNEX I

THE COMMISSION'S CONSOLIDATED MAPPING – LAND USE

	LAND USE
Legislation	
Funding	Urban Innovative Actions http://www.uia-initiative.eu/ - Land Use will be a subject of the 4th call at the end of 2018 ESIF Funding - http://ec.europa.eu/regional_policy/sources/docgener/guides/blue_book/blueguide_en.pdf Especially through Sustainable Urban Development Strategies (Article 7 of ERDF) and investments falling under TO 6(c) – *taking action to improve urban environment, to revitalise the cities, regenerate and decontaminate brownfield sites(including conversion areas) reduce air pollution and promote noise reduction measures*

Knowledge (Projects - data)	• **Global human settlement layer**. Web site: http://ghsl.jrc.ec.europa.eu/ (JRC.E.1 - Disaster Risk Management) • **Urban Data Platform**. Web site: https://ec.europa.eu/jrc/en/territorial-policies/platforms-models/urban-data-platform (JRC.B.3 - Territorial Development) • **Mapping and assessing urban ecosystems and their services** (http://catalogue.biodiversity.europa.eu/uploads/document/file/1340/MAES_report_urban_ecosystems.pdf) (JRC. D. 3. - Land Resources) • **EnRoute** (Enhancing Resilience of urban ecosystems through green infrastructure). Web Site: http://oppla.eu/enroute (JRC. D. 3. - Land Resources)
	FP7 "strategic" projects on land use, soil and sustainable transitions through NBS ***FP7 project INSPIRATION: Towards a strategic research agenda on soil, land-use and land management in Europe.*** **http://www.inspiration-h2020.eu/page/horizon-2020** ***FP7 Project VOLANTE Visions of Land-Use transitions in Europe*** http://www.volante-project.eu **The Volante Roadmap** Towards Sustainable Land Resource Management in Europe ***URBAN NEXUS*** http://cordis.europa.eu/result/rcn/175641_en.html **ARTS** Accelerating sustainable transitions with NBS **SECOA** http://www.projectsecoa.eu/ **PATHWAYS** to: http://cordis.europa.eu/project/rcn/111082_en.html

FP7 "technical" PROJECTS on brownfield and on resource efficient land use

RECARE 603498

Preventing and remediating degradation of soils through land care

http://www.recare-project.eu/

BRIDGE 211345

sustainaBle uRban plannIng Decision support accountinG for urban mEtabolism

SUME 212034

Sustainable Urban Metabolism for Europe

www.sume.at

HOMBRE 265097

Holistic Management of Brownfield Regeneration

http://www.zerobrownfields.eu/

TIMBRE 265364

An Integrated Framework of Methods, Technologies, Tools and Policies for Improvement of Brownfield Regeneration in Europe

http://www.timbre-project.eu/

H2020 public procurement project on Soil Decontamination

The Grant Agreement with the successful consortium is currently in preparation, for the moment just the text of the call can be accessed:
http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/sc5-26-2017.html

	Studies related to land use undertaken under ESPON Programme: Comparative Analysis of Territorial Governance and Spatial Planning Systems in Europe ReSSI – Regional strategies for sustainable and inclusive territorial development – Regional interplay and EU dialogue Thinking and Planning in Areas of Territorial Cooperation SPIMA – Spatial dynamics and strategic planning in metropolitan areas Green infrastructure and ecosystem services [Not commenced]

More on the FP7 project INSPIRATION: Towards a strategic research agenda on soil, land-use and land management in Europe.

http://www.inspiration-h2020.eu/page/horizon-2020

INSPIRATION is a coordination and support action funded by the European Commission in order to develop a Strategic Research Agenda (SRA) for Europe on soil, land use and land management.

Land is a limited resource. There are different – synergistic or competing – options how land can be used. Any use does impact our soil, sediment and water system to which the land is linked. A good understanding of these complex linkages is essential in order to steward land to a more sustainable future for Europe's citizens and its global partners. Research contributes to facilitate sustainable land management and support evidence based policy making.

INSPIRATION adopts a bottom-up approach. We are aiming for an research agenda that is accepted by all societal groups in the EU member states. Therefore, groups are represented by national key stakeholders (NKS) coming from funders (public and private), knowledge producers, end users of research and NGO's in the participating INSPIRATION countries. Our work plan is based on the collation of land-use and soil related research demands from the perspectives of these stakeholders.

The INSPIRATION goals are in particular to:

- Collate national research demands based on key stakeholder interviews, workshops and desk-work.
- Establish critical knowledge gaps between the societal challenges for sustainable land-use and the current knowledge on land management and net impact of land-use.
- **Synthesize current state of research demands.**
- Formulate, consult on and revise a strategic research agenda (SRA) to fill uncovered gaps.
- Scope out models for funding and implementing the SRA.
- Convene and consult with groups of policy makers, research funders, end users and knowledge creators/ disseminators from both within the EU and beyond.

INSPIRATION collaborate with networks like http://www.nicole.org/NICOLE, a leading forum on industrially co-ordinated sustainable land management in Europe, promoting co-operation between industry, academia and service providers on the development and application of sustainable technologies.

Contact: Stephan Bartke, stephan.bartke@ufz.de- Helmholtz – Zentrum für Umweltforschung GmbH – UFZ

Consortium

More on others FP7 "strategic" projects on land use, soil and sustainable transitions through NBS

SECOA The project investigates the effects that human mobility has on growth of urban settlements in fragile environments such as coastal areas. SECOA aims to: identify the ongoing and possible contrasts, analyze their quantitative and qualitative effects on the environment, create models to synthesize the complexity of the different social, economic and environmental systems. For more information please go to: http://www.projectsecoa.eu/

The project PATHWAYS will analyse case studies related to the power system, transport, household energy use, food production and consumption and bio-energy. For more information, please go to: http://cordis.europa.eu/project/rcn/111082_en.html

FP7 "technical" PROJECTS on brownfield and on resource efficient land use

Policy Output reports for these projects are produced by a team of experts in the framework of a FP7 project's Review and would be transmitted to the Secretariat as soon as they would be ready to be communicated.

RECARE 603498 Preventing and remediating degradation of soils through land care http://www.recare-project.eu/ Project's coordinator: ALTERA, WAGENINGEN UNIVERSITY	The main aim of RECARE is to develop effective prevention, remediation and restoration measures using an innovative trans-disciplinary approach, integrating and advancing knowledge on soil sealing, soil compaction, soil erosion remediation methods, covering a range of soil threats in different bio-physical and socio-economic environments across Europe.
BRIDGE 211345 sustainaBle uRban plannIng Decision support accountinG for urban mEtabolism Project's coordinator: Foundation for Research and Technology Hellas (FORTH), Greece	Like any living system, urban communities consume material and energy inputs, process them into usable forms, and eliminate the wastes from the process. This can be seen as ""metabolism"" of industry, commerce, municipal operations, and households. Understanding the pattern of these energy and material flows through a community's economy provides a systemic reading of the present situation for goal and objective setting and development of indicators for sustainability. At present, planning policies often reflect the logic of the market. They would better reflect a vision of urban development, in which environmental and social considerations are fully embedded in spatial planning policies at all steps of the policy cycle from problem identification and policy design through to the implementation and ex-post evaluation stages. Therefore, the widespread inclusion of sustainability objectives in urban planning at all scales (from regional to site level) is necessary, providing the opportunity for the incorporation of bio-physical sciences knowledge into the planning process on a routine basis. To this end, the proposed project BRIDGE aims at bridging the gap between bio-physical sciences and urban planners and to illustrate the advantages of accounting for environmental issues on a routine basis in

	design decisions. BRIDGE will provide the means to quantitative estimate the various components of the urban metabolism (observation of physical flows and modelling), the means for quantitative estimate their impacts (socio-economic and environmental impact assessments and indicators), as well as the means for resource optimisation in urban fabric (support the decision making in urban planning). BRIDGE will focus on the interrelation between energy and material flows and urban structure."
SUME 212034 Sustainable Urban Metabolism for Europe www.sume.at Project's coordinator: ÖSTERREICHISCHES INSTITUT FUR RAUMPLANUNG Mrs Saringer-Bory sume@oir.at Mrs Hofstaetter hofstaetter@oir.at	Spatial expansion of Europe's big cities could be avoided, even in the EU's most dynamic municipalities such as Munich, Stockholm and Vienna. The main objective of the SUME project was to predict land and energy consumption in these areas until the year 2050. Urban planning is a technical process concerned with controlling the use of land and energy resources related to city expansion. This is important given that larger development projects change existing structures and the city system. Computer models of metropolis growth predict building- and transport-related energy flows. As such, their use has the potential to significantly enhance the quality of urban life. The 'Sustainable urban metabolism for Europe' (SUME) project simulated urban development for seven large European metropolitan areas (Athens, Marseille, Munich, Newcastle, Oporto, Stockholm and Vienna) until the year 2050. The project team applied four integrated approaches to predict future spatial distribution of people, jobs and transport systems. The team took into account many factors that might affect development policies in these cities. For example, it considered that the expansion of many European cities will be considerably slower in the future. Hence, current models have to be adjusted to provide a balanced development plan for population, land and energy resources in future urban development. In order to increase the quality of urban life, the consortium developed a cross-sectional approach, integrating infrastructure provision and urban planning with housing, energy and transport policies. This model is essential for future development of the sustainable, resource-oriented restructuring of European cities.
HOMBRE 265097 Holistic Management of Brownfield Regeneration http://www.zerobrownfields.eu/ Project's coordinator; STICHTING DELTARES Hans van Duijne, hans.vanduijne@deltares.nl Maaike.Blauw@deltares.nl;	HOMBRE seeks to achieve a paradigm shift in sustainable brownfield land management practice. This strategic goal can be expressed in four underlying objectives: • Better understanding why, how, where and when brownfields are formed in order to avoid future brownfields. • Better solutions for long term land use of current and potential future brownfields. • Better operations, better implementation of state of the art technologies into practice and development of more sustainable integrated regeneration technologies for successful brownfield regeneration • Improving the dividend from brownfield remediation for the environment, economy and society in the surrounding area by means of integrative management methodologies in cooperation with stakeholders The project recognizes four different main tasks as part of a HOlistic Management of Brownfield REgeneration (HOMBRE) to be accomplished in associated case studies (mining, urban, industrial) with stakeholder participation: • Zero brownfields strategy: a better understanding of the life cycle of urban, industrial and mining sites and the origination of brownfields in these settings is necessary to device a successful overall brownfield redevelopment program. • Assessment of brownfield regeneration scenarios: development of an improved sustainable spatial (land-, urban) planning and decision making processes to enhance the up-take of brownfield regeneration projects based on a holistic approach. • Integrated Regeneration Technologies: combination of technologies that address different site aspects or issues (eg. linking soil, water, energy and materials) to create faster and cheaper solutions during brownfield regeneration. • Intermediate Renewal: solutions for greening, landscaping and amenity improvement of brownfields to ensure

	social, economical and environmental cohesion with the surrounding land use.
TIMBRE 265364 An Integrated Framework of Methods, Technologies, Tools and Policies for Improvement of Brownfield Regeneration in Europe http://www.timbre-project.eu/ Project's coordinator: Helmholtz – Zentrum für Umweltforschung GmbH – UFZ Stephan Bartke, stephan.bartke@ufz.de Also Contact for the INSPIRATION Project	Brownfield regeneration is essential for sustainable land management in European Member States. Currently, the success in brownfield regeneration is unsatisfying in terms of financial and eco-efficiency or social acceptance. Many useful and innovative technologies site clean-up as well as methods to support decision making processes exist, but they are only rarely applied using their full potential. An immense diversification of tools with little connection to each other as well as a lack of consideration of regional and cultural specificities deters end-users from application. Sometimes the non-visibility of tools is the reason that problem owners, managers, local authorities and other stakeholders do not regenerate brownfields using the best technology available. Additionally, emerging challenges, such as the urgent demand for soil remediation and the reuse of on-site infrastructures, call for the development of new and integrated solutions. This project will overcome existing barriers to brownfield regeneration by developing and providing customised problem- and target-oriented packages of approaches, technologies and tools. As a unique asset, these packages deliberately include the cultural and administrative characteristics and their regionally distinctive features. By providing a customisable toolbox specifically addressing the diverse processes that have to be dealt with during the course of a regeneration project, end-users will be enabled to find best practice based solutions. Improvement of existing means to support brownfield regeneration will be further accomplished by filling methodological core topics such as intelligent remediation in terms of technological advancements with regard to phytoremediation and partial source removal technologies. The project will deliver a tailored training and dissemination programme as part of an information centre that will transfer existing and emerging knowledge to the scientific community and end-users.

More on FP7 projects on ecosystems services for urban and periurban areas

GREEN SURGE 603567 Green Infrastructure and Urban Biodiversity for Sustainable Urban Development and the Green Economy http://greensurge.eu/ Project's coordinator: KOBENHAVNS UNIVERSITET	GREEN SURGE will identify, develop and test ways of connecting green spaces, biodiversity, people and the green economy, in order to meet the major urban challenges related to land use conflicts, climate change adaptation, demographic changes, and human health and wellbeing. It will provide a sound evidence base for green infrastructure planning and implementation, exploring the innovation potential, and linking environmental, social and economic services with local communities. Working from the local to the city-regional level, the project aims to: 1) Develop urban green infrastructure as a planning concept for both integration and promotion of biodiversity and ecosystem services, and adapt it to local contexts; 2) apply an innovative biocultural diversity perspective to develop successful governance arrangements facilitating socio-ecological integration and local engagement in planning of urban green spaces; and 3) explore how valuation and real market integration of biodiversity and ecosystem services can facilitate choices in favour of the development of multifunctional green spaces in urban areas. Approaches and tools under these three interlinked objectives will be developed and implemented through an integrative, iterative and transdisciplinary process. GREEN SURGE will embrace a three-tiered approach of comparative European cases, synthesis of good practices, and establishment of five Urban Learning Labs strategically selected to represent different urban situations in Europe. GREEN SURGE will work within cooperative Learning Alliances, a specific type of multi-stakeholder involvement designed to enhance a process of shared learning and understanding in situations with a high degree of complexity and un-predictability. Two-loop learning applied combines a project-wide science-driven approach based on a common framework methodology with a bottom-up knowledge or experience-based approach at the local level.
TURAS 282834 Transitioning towards Urban Resilience and Sustainability http://www.turas-cities.org/ Project's coordinator: UNIVERSITY COLLEGE DUBLIN	The “TURaS” project aims to bring together urban communities, researchers, local authorities and SMEs to research, develop, demonstrate and disseminate transition strategies and scenarios to enable European cities and their rural interfaces to build vitally-needed resilience in the face of significant sustainability challenges. To ensure maximum impact, the TURaS project has developed an innovative twinning approach bringing together decision makers in local authorities with SMEs and academics to ensure meaningful results and real change are implemented over the duration of the project. 11 local authorities or local development agencies are involved as partners in the project and they will orient research and development from the outset towards the priority sustainability and resilience challenges facing their cities. 9 leading academic research institutions and 6 SMEs will work with these cities helping them to reduce their urban ecological footprint through proposing new visions, feasiblity strategies, spatial scenarios and guidance tools to help cities address these challenges. The specific challenges addressed in TURaS include: climate change adaptation and mitigation; natural resource shortage and unprecedented urban growth. Over the five year duration of the project, the feasibility of these new approaches will be tested in selected case study neighbourhoods and new measures to enable adaptive governance, collaborative decision-making, and behavioural change towards resilient and sustainable European cities will be tested. The impact of these new approaches will be measured and results compared between participating cities before a final set of strategies and tools will be developed for demonstration, dissemination and exploitation in other European

	cities. SMEs are highly involved in all work packages of the project and specific measures have been put in place to ensure the optimal economic impact of the project is achieved.
OpenNESS 308428 OPERATIONALISATION OF NATURAL CAPITAL AND ECOSYSTEM SERVICES: FROM CONCEPTS TO REAL-WORLD APPLICATIONS http://www.openness-project.eu/ Project's coordinator: SUOMEN YMPARISTOKESKUS	Despite improved understanding of the links between ecosystem health, provision of ecosystem services and human well-being, further conceptual and empirical work is needed to make the ideas of ecosystem services (ESS) and natural capital (NC) operational. OpenNESS will therefore develop innovative and practical ways of applying them in land, water and urban management: it will identify how, where and when the concepts can most effectively be applied to solve problems. To do this, it will work with public and private decision makers and stakeholders to better understand the range of policy and management problems faced in different case study contexts (ranging across locales, sectors, scales and time). OpenNESS will consolidate, refine and develop a range of spatially-explicit methods to identify, quantify and value ecosystem services, and will develop hybrid assessment methods. It will also explore the effectiveness of financial and governance mechanisms, such as payments for ecosystem services, habitat banking, biodiversity offsetting and land and ecosystem accounting. These types of interventions have potential for sustaining ESS and NC, and for the design of new economic and social investment opportunities. Finally, OpenNESS will assess how current regulatory frameworks and other institutional factors at EU and national levels enable or constrain consideration of ESS and NC, and identify the implications for issues related to well-being, governance and competitiveness. OpenNESS will analyse the knowledge that is needed to define ESS and NC in the legal, administrative and political contexts that are relevant to the EU. The work will deliver a menu of multi-scale solutions to be used in real life situations by stakeholders, practitioners, and decision makers in public and business organizations, by providing new frameworks, data-sets, methods and tools that are fit-for-purpose and sensitive to the plurality of decision-making contexts.
OPERAS 308393 Operational Potential of Ecosystem Research Applications http://www.operas-project.eu/ Project's coordinator: THE UNIVERSITY OF EDINBURGH	Human use and exploitation of the biosphere is increasing at such a pace and scale that the sustainability of major ecosystems is threatened, and may not be able to continue to function in ways that are vital to the existence of humanity. Re-framing environmental resource use has led to the emergence of the concepts of ecosystem services (ES) and natural capital (NC). This discourse indicates not only a change in our understanding of planetary functions at the ecosystem scale, but also a fundamental shift in how we perceive the relationship between people and the ecosystems on which they depend. OPERAs (OPERATIONAL POTENTIAL OF ECOSYSTEMS RESEARCH APPLICATIONS) aims to improve understanding of how ES/NC contribute to human well-being in different social-ecological systems in inland and coastal zones, in rural and urban areas, related to different ecosystems including forests and fresh water resources. The OPERAs research will establish whether, how and under what conditions the ES/NC concepts can move beyond the academic domain towards practical implementation in support of sustainable ecosystem management. OPERAs will use a meta-analysis (systematic review) of existing ES/NC practice to identify knowledge gaps and requirements for new policy options and instruments. New insights, and improved or novel tools and instruments, will be tested in practice in exemplar case studies in a range of socio-ecological systems across locales, sectors, scales and time. Throughout this iterative process, available resources and tools will be brought together in a 'Resource Hub', a web-based portal that will be co-developed by scientists and practitioners representing different interests and perspectives on the development, communication and implementation of the ES/NC concepts. The Resource Hub will provide the main interface between OPERAs and a 'Community of Excellence' (CoE) for continued practice that will benefit from OPERAs outcomes.

But also:

TESS aimed to assist the integration of biodiversity information from the local level into planning and land-use decisions, while at the same time encouraging local people to collect such information in order to maintain and restore biodiversity and ecosystem services. For more information, please go to: http://cordis.europa.eu/publication/rcn/15309_en.html

More on the H2020 portfolio of projects on sustainable Cities and land use through Nature Based Solutions

EU Research and Innovation policy is supporting the deployment and mainstreaming of Nature Based innovations in and around cities. ***Nature-based solutions (NBS) to societal challenges are solutions that are inspired and supported by nature, which are cost-effective, simultaneously provide environmental, social and economic benefits and help build resilience. Such solutions bring more, and more diverse, nature and natural features and processes into cities, landscapes and seascapes, through locally adapted, resource-efficient and systemic interventions.***

https://ec.europa.eu/research/environment/index_en.cfm?pg=nature-based-solutions

The H2020 Expert report "Nature–Based Solutions & Re-Naturing Cities" lays out the opportunities that Nature Based Solutions bring **for urban areas**, detailing the multiple benefits for the economy, the society and the environment. NBS are shown to be more efficient, cost-effective and adaptable to changes than more traditional approaches. The experts report highlights the numerous business opportunities for Europe and the market potential for NBS in and outside Europe. Among their recommendations for an NBS R&I agenda, experts focus on "urban regeneration through NBS", as well as using "NBS for improving wellbeing in urban areas". The report builds and supports other related concepts and policies, such as ecosystem approach, ecosystem services, ecosystem-based adaptation and disaster risk reduction as well as green infrastructure and natural water retention measures.

The recommendations were reflected in the **Horizon 2020 calls for proposals for 2016 -17**: Nature Based Solutions for "climate and water resilience" (2016 call) resulting in the selection of the big-scale demonstration projects "UNALAB", "Connecting", "GROW GREEN" and "URBAN GREEN UP") and "urban regeneration" (2017 call currently under evaluation). Within these projects, NBS will be demonstrated in and around 13 cities, whilst 26 additional (follower) cities will be mentored to act as potential replicators of these solutions. Systemic, trans-disciplinary, and integrated approaches, integrating **solutions into sustainable urban and land use planning** as well as living labs are innovative features of these projects. Furthermore, state-of-the-art technologies, ICT and other innovative communication will be deployed, ensuring open access and interoperability of the data collected and produced.

Innovative business, governance and financing models, as well as methods for economic Impact assessment will be developed in parallel by specific R&I projects:"NATURVATION" and "Nature4Cities" , will identify and propose ways of overcoming regulatory and economic barriers and , NAIAD , will focus on tools for assessing the Nature Insurance Value for risks related to water – a project which will also engage cities and companies through 8 demonstration sites.

Clustering between all these projects, which would all have potentially positive interactions, will foster synergies and enhance impact.

An Impact evaluation framework has also been developed to support the local implementation and evaluation of nature based solutions, through the Eklipse Science Policy Mechanism. This framework provides a first set of criteria for assessing NBS' performance in dealing with challenges related to climate and water resilience in urban areas. It also identifies the potential actions and expected benefits of NBS for 10 main challenges faced by cities, thanks to a thorough review of the existing literature.

A multi-stakeholder dialogue platform and think tank to promote innovation with Nature based solutions ("ThinkNature") has been launched which would **engage cities and stakeholders** across sectors and discipline, as well as from all across Europe and beyond. The data platform OPPLA, (http://oppla.eu/) resulting from 2 FP7 projects is in turn a knowledge marketplace. In OPPLA, the outputs of research and innovation are made accessible to end-users, within and beyond the natural capital, ecosystems services and NBS community of science, policy and practice.

The H2020 projects on NBS are all contributing to the provision of a **robust, EU-wide evidence base** regarding the benefits, cost-effectiveness and economic viability of these solutions, **the establishment of a European reference framework** on nature-based solutions and the creation of **a global market**.

THE COMMISSION's CONSOLIDATED MAPPING – NBS

	Nature- based solutions / Green infrastructure
Legislation	• **Treaty on European Union - Article 3** • **Treaty on the functioning European Union - Article 192, and 170 to 172**
	The **EU Research and Innovation policy agenda on Nature-Based Solutions and Re-Naturing Cities** aims to position the EU as leader in 'Innovating with nature' for more sustainable and resilient societies. In this context, we define nature-based solutions to societal challenges as solutions that are inspired or supported by nature, which are cost-effective, simultaneously provide environmental, social and economic benefits and help build resilience. The main goals of the policy agenda are to: Enhance the framework conditions for nature-based solutions at EU policy level; Develop the European Research and Innovation Area (ERIA) for nature-based solutions; Provide the evidence and knowledge base for nature-based solutions; Advance the development, uptake and upscale of innovative nature-based solutions; Foster cooperation on nature-based solutions within the international R&I agenda. For more information, please go to http://ec.europa.eu/research/environment/index.cfm?pg=nbs Two main thematic and spatial areas, which both include cross-cutting issues such as climate change adaptation and mitigation and risk management and resilience, constitute the focus of the EU R&I policy agenda for Nature-Based Solutions and Re-Naturing Cities: Re-naturing cities Territorial resilience
Policies	• **7th Environment Action Programme** http://ec.europa.eu/environment/action-programme/ The 7th EAP is guiding European environment policy until 2020. It identifies three key objectives: i) to protect, conserve and enhance the Union's **natural capital**; ii) to turn the Union into a **resource-**

efficient, green, and competitive low-carbon **economy;** iii) to **safeguard** the Union's citizens from **environment-related pressures** and risks to health and wellbeing. The program (in its first priority) has Identified **Green Infrastructure** as an important step towards protecting Europe's natural capital.

The political importance of the urban issue is also demonstrated by its inclusion under Priority Objective 8, entitled, *Sustainable Cities: "Working together for Common Solutions".*

- **EU Biodiversity Strategy to 2020**
  http://ec.europa.eu/environment/nature/biodiversity/strategy/index_en.htm

  In 2011, the EU adopted an ambitious strategy setting out 6 targets and 20 actions to halt the loss of biodiversity and ecosystem services in the EU by 2020 (read the Strategy). The mid-term review of the strategy assesses whether the EU is on track to achieve this objective. It shows progress in many areas, but highlights the need for much greater effort.

  On 16 December 2015, the Environmental Council adopted Conclusions on the mid-term review of the EU Biodiversity Strategy to 2020. On 2 February 2016, the European Parliament adopted a Resolution on the mid-term review of the EU Biodiversity Strategy to 2020.

  Target 2 of the EU Biodiversity strategy: *'By 2020, ecosystems and their services are maintained and enhanced by including green infrastructure in spatial planning and restoring at least 15 % of degraded ecosystems*'. This will contribute to the EU's sustainable growth and help mitigate and adapt to climate change. It will promote economic, territorial and social cohesion and safeguard our cultural heritage. It will also ensure ecosystems are better connected, within and between Natura 2000 areas as well as in the wider countryside. The strategy mid-term review provides a detailed assessment of progress towards target 2.

- **Roadmap to a Resource Efficient Europe** (COM (2011) 571 final, OJ C 37 of 10.2.2012)
  http://ec.europa.eu/environment/resource_efficiency/about/roadmap/index_en.htm
- The roadmap has Identified Green Infrastructure as an important step towards protecting Europe's natural capital.

- **EU Green infrastructure Strategy:**

http://ec.europa.eu/environment/nature/ecosystems/strategy/index_en.htm

On 6 May 2013, the Commission adopted an EU-wide strategy promoting investments in green infrastructure, to restore the health of ecosystems, ensure that natural areas remain connected together, and allow species to thrive across their entire natural habitat, so that nature keeps on delivering its many benefits to us. The strategy promotes the deployment of green infrastructure across Europe as well as the development of a Trans-European Network for Green Infrastructure in Europe, a so-called TEN-G, equivalent to the existing networks for transport, energy and ICT. This can also help enhance the health and wellbeing of EU citizens, provide jobs, and boost our economy.

- **Nature Action Plan**
  http://ec.europa.eu/environment/nature/legislation/fitness_check/action_plan/index_en.htm

  Following a thorough evaluation of the Birds and Habitats Directives, the European Commission has adopted the Action Plan for nature, people and the economy in April 2017, to improve their implementation and boost their contribution towards reaching the EU's biodiversity targets for 2020. The Action Plan focuses on four priority areas and comprises 15 actions to be carried out between now and 2019. The Plan is complemented by detailed factsheets (download all linguistic versions here) providing more information on each of the 15 actions. **Several of those actions are directly relevant to urban green infrastructure: Actions 10, 12 and 13.**

- The European Commission (DG Environment) is working more generally on improving the urban environment in a number of ways:

  - Through the EU's general environmental legislation, working to ensure that European citizen's enjoy cities with clean air and water, avoiding exposure to excessive noise and cities that deal properly with waste, and that protect their nature and biodiversity, and promote better green infrastructure – and many more. For more information click on the 'Policies' tab at the top of the page.

  - Through **the European Green Capital** and the **European Green Leaf** initiatives, which allow cities to showcase their environmental performance.

	- A new tool for cities: The Commission is defining a set of environmental criteria that can be used by cities, amongst other things, as a basis for assessing their environmental performance. The Commission has developed an urban environment self-assessment tool that is now ready for testing. To try the beta-version of the tool and send us your feedback please go here: https://webgate.ec.europa.eu/greencitytool/home/. The tool will be launched in full in the second half of 2017.
Funding	• **Guide to Multi-Benefit Cohesion Policy Investments in Nature & Green Infrastructure** http://ec.europa.eu/regional_policy/en/newsroom/news/2013/08/guide-to-multi-benefit-cohesion-policy-investments-in-nature-and-green-infrastructure This guide underlines the crucial interconnections which exist between nature, society and the economy. In particular it shows that investments in nature, biodiversity and green infrastructure are relevant for cohesion policy. Further, it emphasises how investments of the ERDF and Cohesion Fund in nature and green infrastructure can actually contribute to several policy objectives and deliver multiple benefits, in particular socio-economic development. And eventually it assists authorities and stakeholders with practical recommendations to improve the delivery of the co-funded programmes and projects. • **Structural Funds (European Regional Development Fund (Chapter 4) and European Social Fund)** • **Cohesion Fund, European Maritime and Fisheries Fund; European Agricultural Fund for Rural Development,** • **LIFE+** • **Research funding programmes** • **European Fund for Strategic Investment**

	• **Horizon 2020 and Nature based solutions** • **Natural Capital Financing Facility (NCFF):** The Commission and the European Investment Bank (EIB) have established a Natural Capital Financing Facility. The NCFF will finance investments in natural capital projects, including **in green infrastructure**, which generate revenues or save costs and contribute to nature, biodiversity and climate change adaptation objectives. The NCFF is open to public and private entities, where appropriate cooperating in partnerships. Investments could for example focus on ecosystem restoration projects as insurance against floods or draughts or to improve water quality.
	H2020 Work Programme 2018-2020: information will be published on https://ec.europa.eu/programmes/horizon2020/ as well as during the Info Day **Urban Innovative Actions** http://www.uia-initiative.eu/ - Land Use & NBS will be a subject of the 4th call at the end of 2018 **ESIF Funding** - http://ec.europa.eu/regional_policy/sources/docgener/guides/blue_book/blueguide_en.pdf Especially through investments falling under TO 6(d) – protecting and restoring biodiversity and soil and promoting ecosystem services, including through Natura 2000 and green infrastructure
Knowledge /Projects	• **Mapping and Assessment of Ecosystems and their Services** (MAES): http://biodiversity.europa.eu/maes • The **fourth MAES report on urban green infrastructure** provides **guidance for mapping and assessing urban ecosystems and urban Green infrastructure** and includes an indicator framework to assess the condition of urban ecosystems and services, which is used at European, Member State and local level. • **EnRoute**: '***Enhancing Resilience of urban ecosystems through green infrastructure'*** **http://oppla.eu/enroute**

	EnRoute is a project of the European Commission (DG ENV and JRC) in the framework of the EU Biodiversity Strategy and the Green Infrastructure Strategy. EnRoute provides scientific knowledge of how urban ecosystems can support urban planning at different stages of policy and for various spatial scales and how to help policy-making for sustainable cities. It aims to promote the application of urban green infrastructure at local level and delivers guidance on the creation, management and governance of urban green infrastructure. Importantly, it illustrates how collaboration between and across different policy levels can lead to concrete green infrastructure policy setting. • The Commission has funded various studies related to green infrastructure. The **Biodiversity Information System for Europe** (BISE) also contains a wealth of online information on green infrastructure, including a library of relevant documents. • **Supporting the Implementation of Green Infrastructure** (2015) • Information and recommendations on how to promote GI, build capacity for its deployment, improve information exchange, assess related technical standards and innovation opportunities, and explore opportunities for a Trans-European Network for Green Infrastructure (TEN-G). More information and country factsheets in Annex 1: • Country factsheets: DE, DK, ES, IT, LT, MT, PL, PT, RO, SI • **Green Infrastructure and climate adaptation** • **Green Infrastructure and water** • **Green Infrastructure and energy**

	• **Green Infrastructure and rural abandonment** • **Green Infrastructure and transport** • **Green Infrastructure and finance** • **Green Infrastructure and health** • **The Multifunctionality of Green Infrastructure** (March 2012, Science for Environment Policy) • **Building a green infrastructure for Europe**, Brochure, 2013, de en es fr
	H2020 projects **Horizon 2020 calls for proposals for 2016 -17**: Nature Based Solutions for "climate and water resilience" (2016 call) resulted in the selection of the big-scale demonstration projects "UNALAB", "Connecting", "GROW GREEN" and "URBAN GREEN UP"). The 2017 call "urban regeneration" is currently under evaluation). Within these projects, NBS will be demonstrated in and around 13 cities, whilst 26 additional (follower) cities will be mentored to act as potential replicators of these solutions. Systemic, trans-disciplinary, and integrated approaches, integrating **solutions into sustainable urban and land use planning** as well as living labs are innovative features of these projects. Furthermore, state-of-the-art technologies, ICT and other innovative communication will be deployed, ensuring open access and interoperability of the data collected and produced. **Innovative business, governance and financing models,** as well as methods for economic Impact assessment will be developed in parallel by specific R&I projects:"NATURVATION" and "Nature4Cities" , will identify and propose ways of overcoming regulatory and economic barriers and , NAIAD , will focus on tools for assessing the Nature Insurance Value for risks related to water – a project which will also engage cities and companies through 8 demonstration sites.

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FP7 projects on ecosystems services for urban and periurban areas

TURAS

1. Reducing Land Consumption "Tag": http://www.turas-cities.org/its_tag/81

Example: Fiscal policy in Sofia to balance the cost of Urban Sprawl

http://www.turas-cities.org/pilot/27

2. Urban sprawl "tag "http://www.turas-cities.org/its_tag/63

3. Lack of Green spaces "tag": http://www.turas-cities.org/its_tag/69

Example:

Green Confort Zones in challenging urban hotspots http://www.turas-cities.org/topical_strategy/1

4. Tools and instruments

STIMULATING SUSTAINABLE URBAN DEVELOPMENT THROUGH THE **IMPLEMENTATION OF NEW FISCAL AND REGULATORY**

	TOOLS http://www.turas-cities.org/topical_strategy/6 **OpenNESS Policy Brief: NBS in Urban Planning** **Green Surge** ADVANCED URBAN GREEN INFRASTRUCTURE PLANNING AND IMPLEMENTATION Innovative Approaches and Strategies from European Cities **OPERAS** 308393 Operational Potential of Ecosystem Research Applications http://www.operas-project.eu/ TESS: http://cordis.europa.eu/publication/rcn/15309_en.html