



Integrated NBS-based Urban Planning Methodology for Enhancing the Health and Well-being of Citizens

D2.2

Report on the local site analysis and list of relevant issues/problems and resource (Version 1)

WP2 – Stakeholders and Communities’ Engagement and Benchmarking



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Executive Summary

This document presents Deliverable D2.2 “**Report on the local site analysis and list of relevant issues/problems and resource**” and it is a main outcome of the Work Package 2.

Since the euPOLIS project deals with potential positive impacts of implemented Nature Based Solutions (NBS), in open public spaces on human health and wellbeing (PH&WB), this report sets-up the stage for the whole project development by presenting the basics of NBS (in this project also called BGS – Blue Green Solutions, thus NBS/BGS, or BGS/NBS) and the means of assessing their positive impacts. Successful implementation of the range of NBS based measures strongly depends on the knowledge and skills (competence) of the broad range of stakeholders identified and introduced in D2.1. The main purpose of the Task 2.2 is the introduction of the relevant BGS/NBS which is done in Chapter 2 of the report. In this way the major points of this task consist in opening-up the “stage” for the training/education of all groups of stakeholders and enhancing their expertise, so that they can carry out their tasks and voluntary actions in order euPOLIS to meet its goals and detailed objectives both of this task and the project as a whole.

Given that all four FR (Front Runner) and five FL (Follower) cities will be trained on the basis of specific conditions in FRs’ demo sites (DS) and FLs’ case studies (CS), the main results of this task is systemic identification of the training needs for the individual stakeholders groups, thus preparing the ground for initial training to be done in next four months and creating conditions for full-scale ‘learning by doing’ to be done in the WP6.

The main body of this report contains 3 major parts: (i) Stakeholder Education Guide Principles, presented in Chapter 3, (ii) Report on Demo Sites’ Specific Conditions-presented in Chapter 4, and (iii) Report on Stakeholders issues, Concerns and Resources, in Chapter 5 of this report. The initial background material needed for the Chapters 4 and 5 are obtained through the questionnaire Q2 and the Workshops performed in all 4 FR cities, and through direct contributions of the cities and supporting partners. The additional, more detailed material will be obtained through the Questionnaire 3 (Q3), the template of which is presented in the Appendix 8.4 and the final results will be presented in the D2.3.

The work done in this part of the WP2 (T2.2) and the results (contents of this report) set-up the stage for the work to be done practically in all other WPs but particularly in WP3, WP4, WP6, WP7 and WP8.

It is concluded that the basic principles of training/education, presented in this report, and the relevant framework implemented throughout the project, will be also enriched by contributions of the relevant stakeholders, based on the experience gained in the months March-August 2021 and presented will be in the final report (Deliverable D2.3) by the deadline 31 August 2021.

The final recommendation is that each of the stakeholder’s groups grasps the essence needed for performing their tasks both in the euPOLIS project, based on the material presented in this report, accomplished by reports of the other work packages to be implemented afterwards in their professional affairs and to meet their needs.

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List of Acronyms /Abbreviations

Table 1. Acronyms/Abbreviations

Abbreviation	Explanations
BGD	Blue Green Dream – EU Climate_KIC project
BGS	Blue Green Solutions
BVOC	Biogenic Volatile Organic Compounds
CD	Communicable disease
CICES	Chartered Institution of Civil Engineering Surveyors
CoP	Community of Practices; in this case euPOLIS stakeholders
CP	Communicable Practices; in this case innovative BGS/NBS planning system
CS	Case Studies
DS	Demo sites
Eco-edu	Ecological/educational (hub in FR Cities)
ESS	Ecosystems services
FL	Follower cities
FR	Front Runner cities
GA	Grant Agreement of the euPOLIS project
GDPM	Goal Driven Planning Matrix
LCC	Life Cycle Costs
MAES	Mapping and Assessment on Ecosystems Services
MD	Multi-disciplinary
MF	Multi-functional
NCD	Non-communicable disease
PH	Public Heath
Q1	Questionnaire 1
Q2	Questionnaire 2
Q3	Questionnaire 3
UHI	Urban Heat Island
WB	Well-being
WS	Weather station
WWTP	Wastewater treatment plant

Glossary of generic terms used in the D2.1. and supposedly to be used throughout the other WPs and Tasks of the euPOLIS project are presented in the D2.1. Full list of definitions will be provided in the D2.3.



1 Introduction

This report represents the Deliverable D2.2. named "Report on the local site analysis report and list of relevant issues and resources" of the euPOLIS project. It serves as a basis for production of the final version (Version 2, entitled as D2.3.) which is due in M12 (Deadline: August 2021). This report contains 3 major parts:

- (i) Stakeholder Education Guide Principles - Chapter 3 of this Report
- (ii) Report on Demo Sites' Specific Conditions - Chapter 4 of this Report and
- (iii) Report on Stakeholders issues, Concerns and Resources - Chapter 5 of this Report.

Since the urban planning methodology adopted for the euPOLIS project is based on the innovative Nature Based System (NBS), developed within the Blue Green Dream (BGD)¹ project which is called BGS (Blue Green Solutions) urban planning system² the stakeholders' education is based on this methodology, further enhanced with the contributions of the euPOLIS project partners. Therefore, in the planning for NBS implementation in redevelopment/retrofitting of the existing and development of new NBS based demo sites in 4 euPOLIS's Front Runner (FR) cities the same BGS methodology will serve as a basic euPOLIS planning system.

Although, the euPOLIS's scientific and professional paradigm is based on its own unique/bespoke BGS methodology of systemic urban/spatial planning for sustainability, climate resilience and cost efficiency, its complex analytic GDPM (Goal Driven Planning Matrixes) methodology is disaggregated in its basic steps and components and customised for simple implementation in training all local stakeholders, using the "learning by doing" methodology. In doing so, urban planners, but also all other stakeholders in euPOLIS's 4 FR (Front Runner) and 5 FL (Follower) cities, will be trained on the basis of specific conditions in FRs' demo sites (DS) and FLs' case studies (CS). These conditions will include technical, environmental and socio-economic status before and during the implementation of BGS/NBS (in FRs) or analysis of the possible interventions in FL cities (initially presented in this report) as well as PH (Public Health) and WB (Well-being) of the relevant groups of stakeholders (volunteers) at each of the DS.

The training/education methodology tailored to the needs of each of the stakeholders' groups enables each of the group members to "master"/grasp the essence needed for performing their tasks both in the euPOLIS project and afterwards in their professional affairs and to meet their needs.

Normally, the education of euPOLIS's stakeholders would take place in their direct personal contact with the BGS instructor (in-person teaching), but under the specific conditions created by COVID-19, in the initial phase of euPOLIS project, the teaching interactions have been adjusted to online methodology both for lecturing, hands-on training and concrete (co)planning for full scale implementation of the NBS/BGS intervention.

The main feature of BGS based planning is that participatory planning i.e., all stakeholders' engagement in planning from the preliminary phase (site analysis, BGS/NBS resources and conceptual design) till the final phase (final design, construction and its supervision). The education methodology follows this principle. Due to time constraints, budgetary limitations and COVID-19 related issues, the teaching is based on "blended" methodology i.e. combination of online lecturing followed by "learning by doing" methods, using BGS and the material collected at each of the 4 FR demo sites in training the local stakeholders from that city.

¹ Blue Green Dream (BGD) website: www.bgd.org.uk

² Božović, R., Č. Maksimović, A. Mijić, K. Smith, I. Suter, M. Van Reeuwijk, (2017) Blue Green Solutions, A Systems Approach to Sustainable, Resilient and Cost-Efficient Urban Development, Climate_KIC, EIT, European Institute for Innovation and Technology.



The final report will contain more detailed methodology, as well as working examples, and the results of the feedback form the training/design sessions.

The site-specific conditions are being collected in the following step-by-step process:

- a. The initial information provided in the application documents are further discussed in the Workshop 1, separate for each of 4 FR cities, held in November 2020.
- b. The data and information that are easily obtainable are collected firstly from the cities and their institutions: urban planning and urban services companies (water and greenery), through the tailor-made (euPOLIS bespoke) questionnaire Q2. This initially obtained information has been used in the initial phase of training (workshops held in November 2020).
- c. Additional data obtained directly from other local stakeholders (residents, neighbourhood, local businesses, etc.) collected by the Questionnaire 3 (Q3) in by both official cities' institutions and other stakeholders from March 2021 onwards.
- d. Items that require more time and resources will be collected "on the go" and gradually introduced in the training and planning process, to be done in the WP6.

As it can be seen from the above, this is a continuous process that will be carried out even during the interventions (instating NBS assets in the demo site) and further enhanced in the post-construction period in which the impacts of NBS on PH & WB will be monitored.

As for the interactions with the other WPs, the data collected and initially processed in the WP2 (T2.2) will be used as inputs the WP3 (T3.1). Further links with other WPs and their tasks will be presented in that WP (Task).

The stakeholders' issues, concerns and resources are being acquired by similar considerations.

These items are collected by several different methods separately or in combination:

- a. During the 4 initial workshops with all stakeholders of FR cities carried out in November 2020 using the Mentimeter³ platform (Results in section 5.1).
- b. The feedback obtained online and through the Questionnaire 2 distributed to the 4 FR cities in Mid-January 2021 (Preliminary FR cities answers in Appendix 8.5);
- c. Answers to the Questionnaire Q3 (Template Q3 in Appendix 8.4) distributed to local stakeholders through local social media in March 2021; and finally
- d. With answers given to questionnaire Q3 received by offline methods (for example by interviews).

All 4 sources of data are processed by cities and supporting partners, to produce a unified consistent set of data and information which define baseline conditions and inputs for T3.1 and T3.2 in identifying the performance indicators of the existing NBSs and prediction of the ones, for the planned and implemented NBS in all 4 FR cities' demo sites.

All of them are used in planning by both official planning institutions and with participation other stakeholders.

³ <https://www.mentimeter.com>



1.1 Introductory note on the concept of the report

In order to facilitate, both understanding and acceptance of key inputs by the participating partners, in this report the most essential parts of both technical and socio-economical aspects of the BGS planning methodology are briefed in particular section.

Specific attention in the Task 2.2 to updating and discussing the roles of FR and FL Cities in adopting the products and recommendations of D2.2 in developing their own agenda for full-scale implementation of:

- a) customize guidelines for stakeholder education.
- b) creating plans for deployment of the stakeholder's training programme.
- c) creating framework for full-scale engagement for the trained of professionals and volunteers in the customized programmes for the DSs and CSs' up-grade to the benefit of local visitors, residents and all other citizens.

Additionally, Partners will develop skills and programmes for up-scaling implementation of euPOLIS' deliverables.

2 Definitions of BGS/NBS Interventions and Planning System

2.1 BGS/NBS Planning System

Implementation of NBS, which we call BGS in this project, is a crucial concept of the future urban and spatial planning for increased sustainability and resilience to climate changes and cost-efficiency of both retrofitting/rehabilitation of existing urban areas, as well as the planning of new ones. In the euPOLIS project we implement a so called “inverse paradigm”: instead of the concept of “protecting nature/environment”, “we use nature (implement NBS/BGSs) for protecting people and their health and well-being”. At the same time, this is the best way to protect the nature and the environment. We achieve the goal of “healthy cities for happy people”. Although, initially implemented in the natural environment (forests, wetlands-bogs)⁴, this concept is now implemented also in densely populated urban environments⁵. In the euPOLIS project we introduce a well organised planning system, accompanied by identification, quantification and optimization of interactions between urban infrastructure systems, ESS (eco systems services) and people (their health and wellbeing). As Maes (2017) states, concrete application of NBSs in a research and innovation agenda requires a sharper definition of NBSs, focusing on the accumulated knowledge on ecosystem services⁶. In addition to the “sharper definition” within the euPOLIS project, these solutions are planned with the environmental framework agreed upon by a multidisciplinary team of experts and other stakeholders, and implemented with their performance indicators, monitored and documented, and with the findings embodied into final educational design guideline.

Systemic Implementation of BGS/NBS is a crucial pre-requisite for the success of the future EU Green Deal programme. Broader spectrum of BGS/NBS include more assets/items than what will be implemented in the euPOLIS. In that broader framework BGS tackle the nexus between water, energy, soil and waste in whole range of urban solutions and infrastructure, including both the indoor and the outdoor environment. Urban blue-green infrastructure is a network of nature-based features situated in built-up areas that provide different benefits to citizens and environment⁷. In the euPOLIS project we implement only a smaller number of these interventions which are pertinent to open public spaces, such as parks, squares, streetscape etc. In doing so, special attention is drawn to longevity and sustainability of the implemented solutions as well as their multifunctionality (MF). For example, in accordance with the euPOLIS paradigm most of these solutions meet the criteria of circular economy (resource recycling). However, in many recently applied solutions these systems have failed because planners did not ensure functional stability (for example, plants died). There must be synergy between the components (green & blue), whereby green vegetation areas and their blue supporting components are harmonized (for example, green spaces are irrigated during long dry summer months, without rainfall).

⁴ Nesshöver, K., Assmu, T., Irvine, K.N., Rusch, G.M., Waylen, K.A., Delbaere, B., Haase, D., Jones-Walters, L., Keune, H., Kovacs, E., Krauze, K., Kylvik, M., Rey, F., Van Dijk, J., Vistad, O.I., Wilkinson, M.E., Wittmer, H. (2016) The science, policy and practice of nature-based solutions: An interdisciplinary perspective. *Science of the Total Environment*, Science of the Total Environment. Volume 579.1 February 2017, Pages 1215-1227. Available from: <https://doi.org/10.1016/j.scitotenv.2016.11.106>

⁵ Van den Bosch, M., ÅOde Sang, A., (2017) Urban natural environments as nature-based solutions for improved public health – A systematic review of reviews, *Environmental Research*. Volume 158, October 2017, Pages 373-384 Available from: <https://www.sciencedirect.com/science/article/abs/pii/S0013935117310241>

⁶ Maes, J., Jacobs, S., (2017) Nature-Based Solutions for Europe’s Sustainable Development. *Conservation Letters*. A journal of the Society for Conservation Biology. Available from: <https://conbio.onlinelibrary.wiley.com/doi/full/10.1111/conl.12216>

⁷ Mijic, A., & Brown, K. (2019) Integrating green and blue spaces into our cities: Making it happen. Grantham Institute Briefing Paper, No 30. Imperial College London. Available from: <https://www.imperial.ac.uk/media/imperial-college/grantham-institute/public/publications/briefing-papers/Integrating-green-and-blue-spaces-into-our-cities---Making-it-happen-.pdf>

A schematic with the range of BGS/NBS solutions implemented in the euPOLIS's FR demo-sites (DSs) is presented in figure 1. The same numbering used for NBSs are used in the schematics of all NBSs presented in the Grant Agreement (GA) of the project. They will be systematically implemented in WP6. In the captions of figure 1, each of the NBS groups (I, II, III) is characterized by preferential impacts of PH.

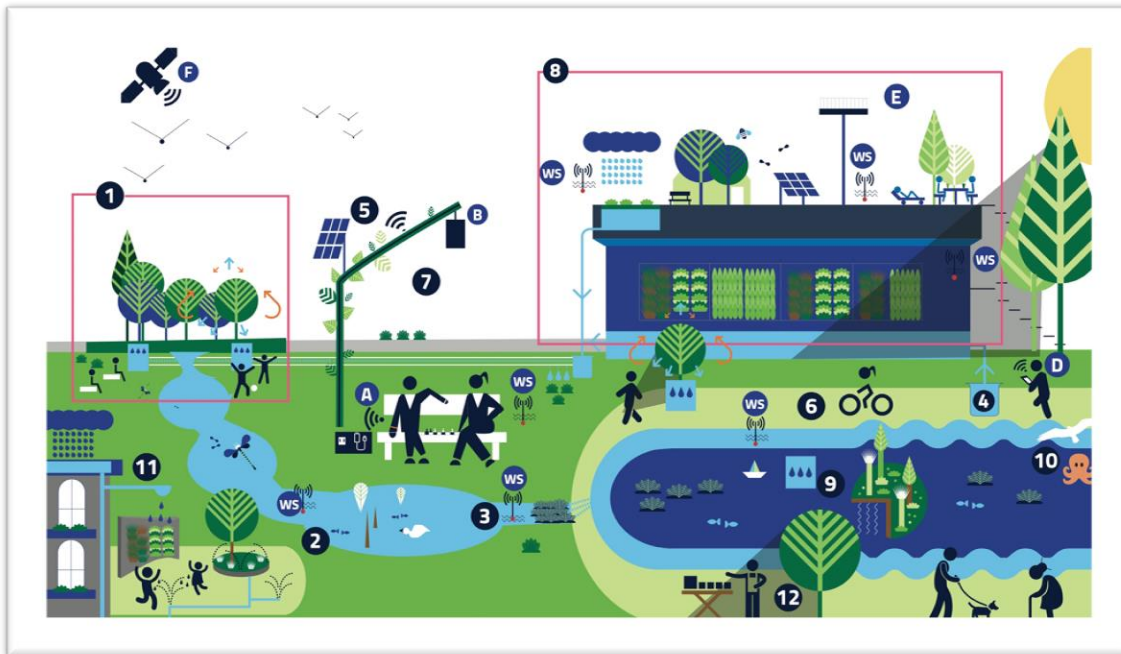


Figure 1. Principal components of demo-sites in FR cities

Group I NBS Clusters/ interventions:

1. NBS-based multi-functional (MF) pocket parks, accessed by NBS locally conditioned pathways and shared spaces (1.1 -1.9), affecting PH&WB by reducing stress, depression, anxiety levels; the reduction of the number of risk factors for NCDs such as (obesity, depression, stress, etc.); encouragement of outdoor activities as a result of fostered socialization; Cycling and walking in the shade will optimize psychophysical body load; create positive emotional attachment.
2. Waterway with mini biotope nodes, aquatic biodiversity – feed from groundwater aquifer or purified surface runoff; affecting visual improvements, quality access, and positive emotional attachment to the neighbourhood. Positive impact of nature/water sounds on psychophysiological functions and psycho-emotional condition.
3. NBS for surface runoff quality and pluvial flood management, reducing risk of surface water pollution and communicable diseases (CD).
4. Groundwater abstraction for water, energy, greenery nexus, reducing risk of CD and short-cutting of pollution of abstracted portable water.
5. MF NBS canopy for socializing, “recharging electronic devices“, or „green bus stop“ etc., augmentation of the use of NBS-enhanced public space, increasing the number of citizens in outdoor activities and interactions, creating a positive emotional attachment.
6. MF Live vegetation shaded waterfront promenade, encouraging walking, which optimizes psychophysical body load allowing more activities, reducing stress and anxiety levels, fostering new functions in space as well as social ties.
7. Air pollution abatement shrubs, trees and vertical green curtains, reducing the risk of NCDs levels and improving noise conditions; generally improved ecological status; positive impact on PH of all vulnerable groups, such as children, elderly and disabled persons.



8. Metabolic hub with MF ecotechnology demonstration/promotion, roof garden and art and culture performance, stimulating relaxation and restoration; strengthening the social cohesion; minimizing the output of GHG and reducing the global warming effects through lower carbon emission; fostering the sense of place and trust in NB solutions; prevention of CDs through development of ecological awareness hygiene measures.
9. MF floating island, river water purification, improving local microflora and cleanness of water; reduced risk of CDs of the urban water body (rivers, lakes, wetlands) users and waterfront promenade visitors.
10. Coastal sea bottom marine aquatic biotope with euPOLIS-NBS, reduced risk of diarrhoea and skin diseases caused by contact with polluted water; positive aesthetic experience and pleasure created in contact with visual attraction of dryland/marine aquatic interaction.
11. MF euPOLIS Urban square/streetscape and other NBS (biotopes, sensory garden, waterfall, biodiversity & kitchen garden for socializing, recreation), improvement of local outdoor environment quality such as cleaner air and microclimate control, reducing of risks for NCD's, improving socialization or recreation, and reducing post-illness healing duration in urban biotopes.
12. Space for NBS business activation and promotion, setting the base for sound business models introducing employment as an important precondition for WB and social determinant of PH; long-term social and WB impacts by strengthening small business.

Group II Monitoring- ICT System:

- A. Wearable devices for monitoring PH & WB.
- B. Visualisation equipment.
- C. Renewable energy sources.
- D. Citizens observatories.
- E. Sensor network.
- F. Remote sensing, WS. Micro-climate / wireless weather station.

Group III Ecological-educational Hub (eco-edu) containing selection of sample BGS/NBS, showroom for presenting raw data and process information, and hosting/dissemination centre

It is broadly known that the implementation of BGS/NBSs is essential in supporting full functionality of eco-systems services (ESS) in urban areas for providing their future sustainability and resilience. However, when it comes to the full-scale implementation, there is a lot off misunderstanding/confusion on the means of their implementation and assessments of their impacts. As a full-scale demonstration of their meaningfulness, euPOLIS will link the concrete examples of BGS/NBSs, with definition and impact of each of the bellow functions (a-c).

- a. **ESS Provisioning functions** (provision of clean air, crops, food, raw materials, etc.) have been dramatically degenerated within our living environments.
- b. **ESS Regulating functions** (micro-climate, air quality, carbon sequestration and storage, water purification, soil quality, etc.) of ES: **euPOLIS** will introduce mapping of existing regulating potentials and enhance systematically its impact with adequate urban components such as greenery, water, etc.
- c. **Socio-Cultural ESS** (interaction and recreation facilities for mental and physical health, positive emotional experience and sense of place, slow- tourism, etc.) of ES represent an area that is not included in the standard planning criteria. Supporting services (habitat supporting, maintenance of genetic diversity, photosynthesis, nutrient cycling, etc.), and systematic activation of ESS and the use of their MF components in euPOLIS project will be documented with concrete indicators in both

baseline and implemented conditions. ESS classification to be used will be in line with CICES⁸. The principles of Working Group on Mapping and Assessment on ES and their Services (MAES)⁹ will be systematically implemented in euPOLIS.

2.2 Why is BGS Planning System needed

2.2.1 Planning objectives matched by capacity building/education of stakeholders

Present day State-of-the-Art urban planning methodology at global scale struggles to cover the needs of modern societies and the concerns caused by urgent planetary issues like: climate change/global warming; pollutions of natural resources: air, water and soil; and meeting the UN sustainability development goals (SDGs). In Europe the guiding principles are defined by the EU regional and urban development strategic documents and linked to the relevant EU Directives. The basic links of these strategic document and euPOLIS mission and actions are introduced in the Section 3.1.1.

Analysis of successes and failures of the urban development carried out recently and during past half a century, reveals that there is a big mismatch between city growth challenges and contemporary planning strategies. This results in suboptimal efficiency of the current planning methodology in creating new opportunities to improve sustainability, resilience to climate changes, and cost efficiency of urban solutions. Urban open spaces and their role in improving PH & WB (which is the topic dealt with in this project) are no exceptions, on the contrary, they are often planned with the other principal criteria in mind (aesthetic for example) rather than PH & WB. This calls for innovative integrated planning system. euPOLIS has adopted the BGS planning system developed in the EU Climate_KIC project¹⁰ Blue Green Dream.

For the comprehension of BGS role is important to understand why the concept of BGS is needed in the context of the PH&WB. As shown in the figure 2 there is a mismatch (gap) between city growth challenges and contemporary urban planning strategies. The essence of the euPOLIS project is to address this mismatch and to feel these gaps with the particular emphasis on PH&WB.

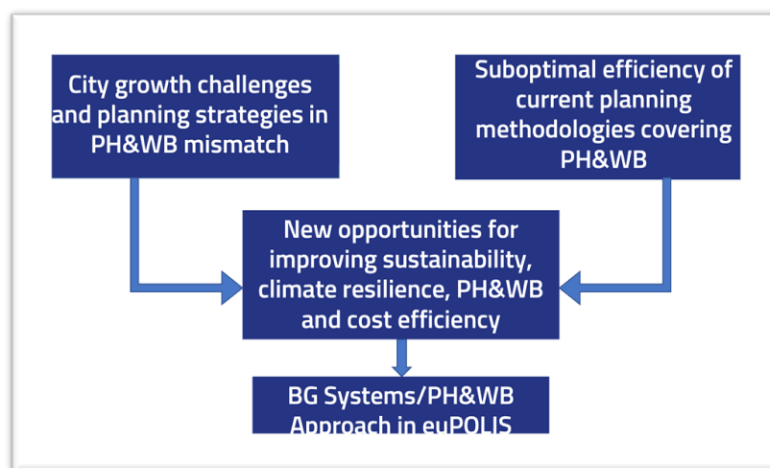


Figure 2. Mismatch between city growth challenges and contemporary urban planning strategies determining the education character of euPOLIS system

⁸ Chartered Institution of Civil Engineering Surveyors www.cices.org

⁹ MAES https://ec.europa.eu/environment/nature/knowledge/ecosystem_assessment/index_en.htm

¹⁰ www.bgd.ogr.uk

This euPOLIS project is driven by the need to demonstrate and quantify positive impacts of NBS/BGS in urban open spaces and to use the results obtained to enhance competence of both urban planning experts and all other institutions, in particular citizens (jointly called stakeholders), which share interest in benefiting from this new paradigm. However, this requires a range of concerted actions in expanding the education/training capacity of the whole spectrum of stakeholders. To reach this goal, practically, almost all partners will play a role. Engaged will be not only academic partners (ICL, NTUA, FCEBG/Medical team, ISS) but also FR cities', "horizontal" supporting partners (ERCE, ENPL, MIKS, BYSP, AMPHI, GSH), technology supply partners (VFI and BPL) as well suppliers of medical/monitoring and IT equipment in training particular groups of stakeholders (BIO, SENT, PLEG) and in data processing (RISA). Their roles indicated in this report will be further defined "perfected" during the coming 6 months and presented in the final (D2.3) report.

2.2.2 Multi-disciplinarity and multifunctionality as the basic principles of BGS Planning System

To achieve the goal of training our stakeholders and to be able to scale-up the euPOLIS "wisdom", each person involved (regardless of their level of previous professional education/vocational training and skills) will master the basic principles of BGS functions and planning/operational principles, explained in easy to comprehend methods. The principal features of euPOLIS's NBS/BGS planning system are as follows:

- Multidisciplinary (MD)/overarching character of BGS, we tackle all urban infrastructure systems in their mutual interactions- see figure 3)
- Multifunctionality (MF), each of the urban components/infrastructure systems plays several "non-conventional"/interacting roles (see for example the role of trees shown in figure 9)
- Analytical character of mutual interactions between them: interactions identified, modelled, quantified, optimised, financially evaluated and their benefits demonstrated through cost efficiency (preferably lower LCC). In the case of euPOLIS project both tangible (numerically quantifiable) and non-tangible benefits will be demonstrated through its monitoring/assessment/educational and scaling-up system.



Figure 3. Overarching character of BGS applied in the euPOLIS project: All urban components, infrastructure systems, ESS ecosystem services, socio-economical and resource recycling facilities are encompassed

BGS call for rethinking existing ways of planning, designing, constructing, operating and maintaining urban water systems (blue assets), urban vegetated areas (green assets, biomass production), and buildings, to take into account energy, air quality and city behaviour under climate extremes, not as separate systems but in combination. The innovative advantage of this method is the fact that interactions between the components of urban categories including Ecosystem Services, are quantified, therefore, enabling the design team to optimize the entire project, based on parametric results (analysis) with direct implication on cost and quality.

2.2.3 Planning methodology - euPOLIS's BGS/NBS innovative planning system/methodology in the nutshell

First of all, implementation of the innovative and integrated euPOLIS's BGS/NBS requires two important changes to take place. **Systemic education accompanied by demo sites evidence is needed.**

1. All **big urban issues** of modern days, caused by: (a) natural disasters (floods, droughts, weather extremes etc.), (b) anthropogenic actions (water, air and soil pollution, noise, vibration, urban heat islands etc), (c) poor performance of technical systems (low energy efficiency, big water losses), and (d) socio-economical (including gender) issues (all of which are affecting human health and well-being) are traditionally seen as big problems. However, in the BGS approach, they are seen as challenges and opportunities, which can lead to new societal (next generation) and economic developments. This approach (as shown in Figure 4) is accepted by euPOLIS as the planning paradigm.

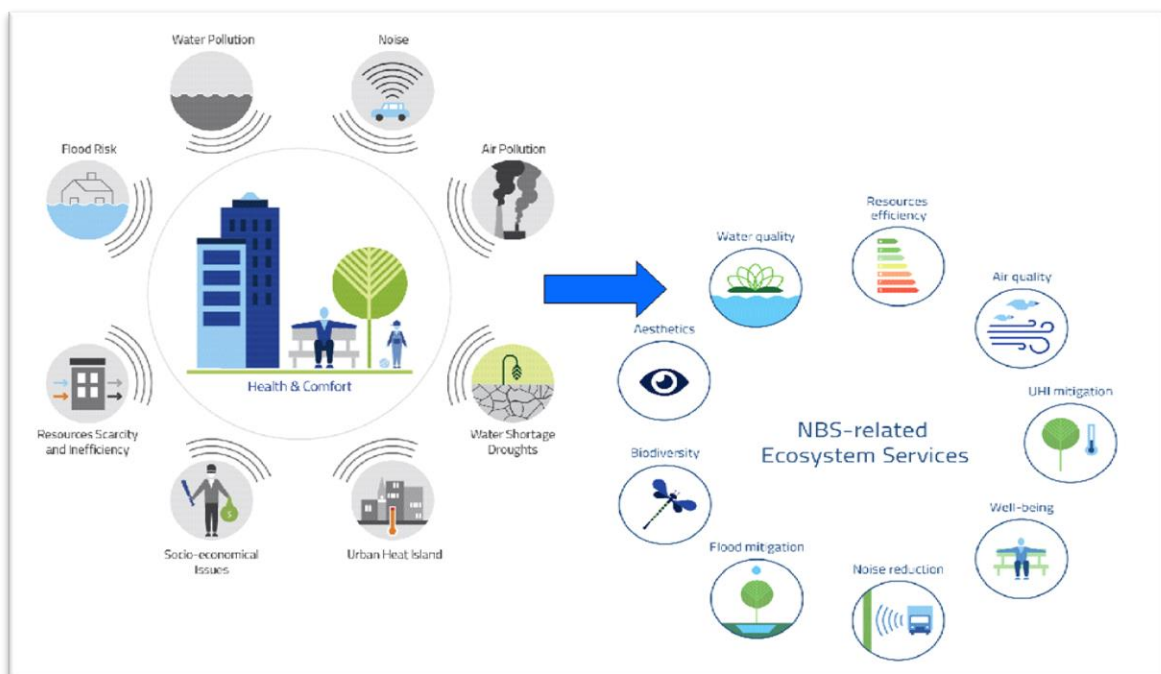


Figure 4. Converting urban problem/issues into challenges/opportunities

2. The current planning methodology is usually compartmentalised (silo based), meaning that each discipline has little interaction with the others. On the contrary BGS method requires systematic interactions between all disciplines (experts). This requires change of planning framework and introduction of the BGS based integrated planning system as shown in figure 5.

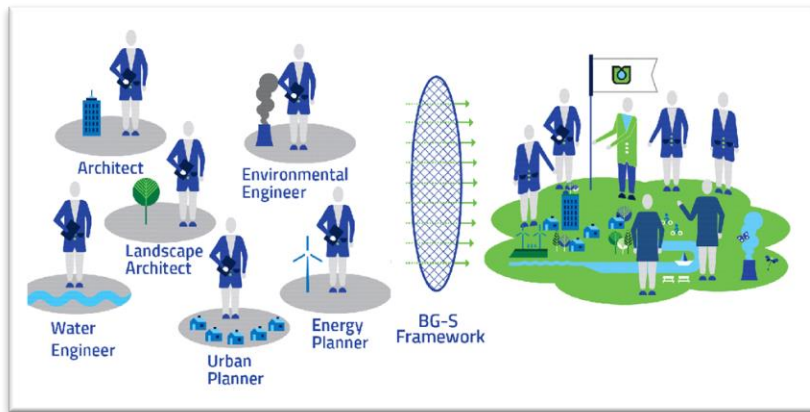


Figure 5. Change of the planning framework / mindset (mental setup change) as a prerequisite for implementation of euPOLIS NBS/BGS methodology

In all 4 FR cities and 5 FL cities, a training program for implementation of these principles in participatory planning will be customised to local conditions and euPOLIS goals for PH and WB in open urban spaces. Details will be developed in the period March – August 2021.

2.2.4 Goal Driven Planning Matrix and its customization for implementation on euPOLIS

The analytical procedure and implementation tools/mechanisms to be implemented in euPOLIS project is called Goal Driven Planning Matrix (GDPM). Its essence is presented as follows:

- Systemic interaction of all urban infrastructures/ESS Eco system services (Figure 6). These interactions identified, quantified, optimized and financially evaluated.
- GDPM and its components – 7 matrixes are shown in figure 7.
- These matrixes are essential component of the participatory planning education of stakeholders. The details on how they are incorporated in the educational units (Section 6.1-Principle1).

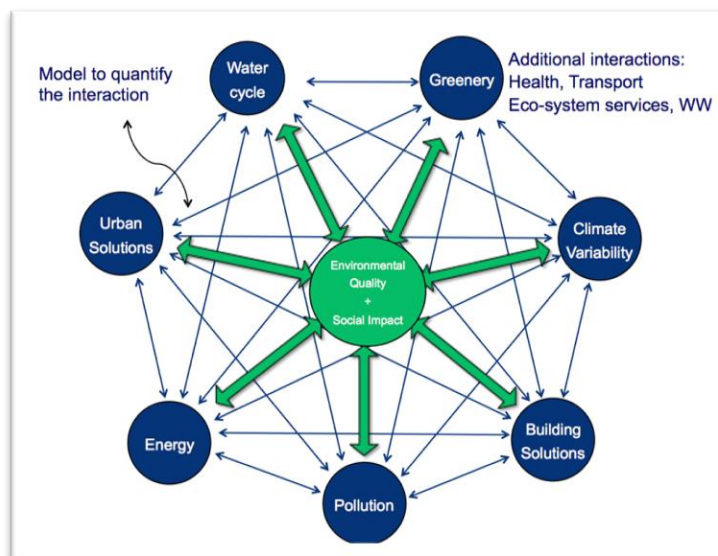


Figure 6. Interactions between urban components and infrastructure systems, as a bases for their quantification, optimization and financial evaluation



Figure 7. GDPM (Goal Driven Planning Matrix) as an overarching item of other BGS Planning Matrixes used in production of innovative design brief of BGS/NBS paradigm

A description of the meanings, roles, and implementation mechanism of each of the GDPM matrices in the participatory planning training/education in the euPOLIS will be presented in detail in the guidelines for training in co-planning D2.3. These guidelines will be used in running training courses and in participatory planning for full-scale implementation of BGS/NBS In FR and in FL Cities in WP6.

A simple demonstration of the importance of reviewing NBS’s interactions and their potential effects (both positive and negative) can be illustrated by looking at a generic tree vs. a specific group of trees relative to their surroundings. The benefits and negative effects of a single tree are illustrated. In the figure 8. Figure 9 however, illustrates how specific trees interact with their surroundings, and their specific quantifiable benefits.

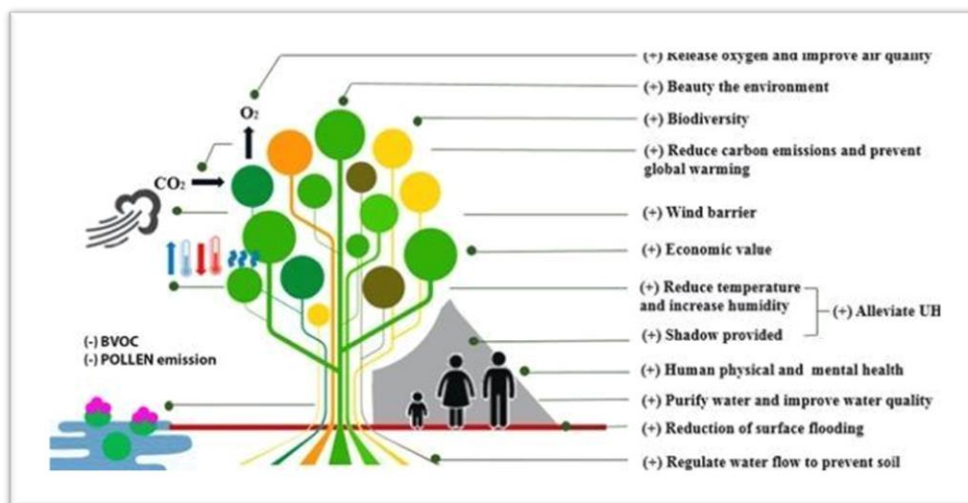


Figure 8. Examples of positive and negative aspects creating criteria for planning, adopted from MSc thesis ¹¹

¹¹ Wang, Xuran, (2020) Impact and benefits of vegetation species used in BGS based landscape, MSc Thesis defended at ICL, supervised by C. Maksimovic and F. Zhang and B. Qiu

Not every tree is good in all aspects. In figure 8, positive aspects of tree species are shown on the righthand side. On the contrary, negative aspects, such as release of biogenic volatile organic compounds (BVOC) from the tree canopy usually results in creation of highly corrosive ozone and other air quality impermeant elements, with can have highly negative impact on PH & WB. In the euPOLIS project we introduce the selection of tree species for separate BGS clusters, so that the positive impacts are enhanced, and negative impacts are supressed.

This procedure for identifying tree functions linking them with the interactions with an urban component and ESS and the resulted synergies in benefits are presented in figure 9.

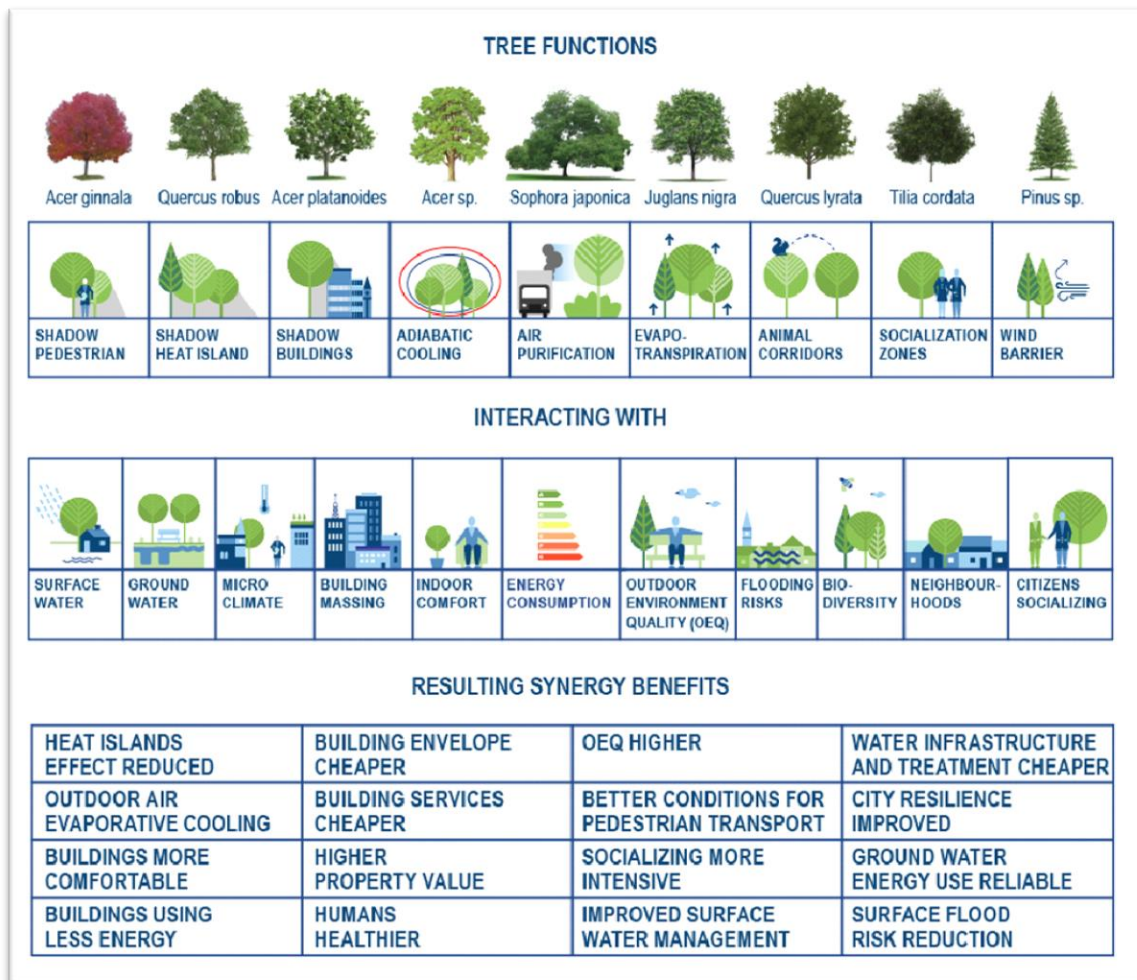


Figure 9. Procedure for identifying and quantifying benefits from interactions between trees and urban functions and solutions

2.2.5 Examples of BGS/NBS interventions to be implemented in euPOLISs FRs

Implementation of BGS principles in planning for upgrades of urban open areas of euPOLIS sites in 4 FR cities, and demonstration of implementation of innovative participatory planning in both FR and FL cities is based on evidence obtained at the 4 demo sites: in Belgrade (Serbia), Gladsaxe (Denmark), Lodz (Poland) and in Piraeus (Greece). In each case there will be an ecological/educational (eco-edu) hub furnished to host mock-up or full-scale versions of BGS/NBS interventions implemented at the site, plus the facilities for presenting the



results of monitoring and data-processing and on the impact of implemented BGS/NBSs. Additionally, each of the hubs will be used for hosting the visitors and researchers supporting euPOLIS programme.

The basic components in each of the 4 FR demo sites, as shown in figure 1 are:

1. Individual and groups of BGSs.
2. Sensors, monitoring and data transmission equipment.
3. Eco-education Hubs containing a sample selection of NBS/BGS, demo and training, and euPOLIS knowledge dissemination facilities, and visitor centre. The hub is planned to be continuously used even after the euPOLIS project is finished.

These eco-educational hubs in 4 FR cities will be located as follows:

1. Belgrade: Purpose built euPOLIS multifunctional facility

The multifunctional facility of the Belgrade FR DS is selected to demonstrate the impact/value of existing and additional euPOLIS developed BGS/NBSs. The location of Usce Park will be enhanced by a range of innovative BGS/NBSs currently not existing at the location. These include practically all facilities presented in figure 1. The advantage of this location is its close proximity to two big rivers, which have positive cooling impacts during hot summer days and also positive 'warming/slowing down cooling' impact during cold winter days. The other advantage is popularity of the site to the recreation/sport/cycling/walking visitors, which will be further enhanced by the implementation of new innovative BGS/NBS that will add value to basic functions (irrigation of the grass areas, of the existing lawns). These advantages will be used for the selection of the optimal location for the multifunctional edu-eco hub, explained above, and further enhanced with links to the exiting Museum of Contemporary Art which, will be motivated to develop joint eco-art functions with euPOLIS.

In the second location (Linear Park) potential impacts of the newly built BGS/MBS and their possible synergy with the Museum of Science and Education, located in the neighbourhood, for possible hosting of edu-eco activities will be examined.

2. Gladsaxe: DAMP Project Area

Gladsaxe's supporting partners team are working on the plan of how to work with residents and most importantly, how to identify the groups of citizens that will be a part of the planning process. The DAMP project-building site is starting from this spring and will be used as an eye-catcher for citizens. It is possible to extend the education/training information on the existing DAMP-project website with the euPOLIS information and constant updates on what is going on. This will result in creation of a real and virtual platform for citizens' engagement in planning for possible additional BGS/NBSNBS that will be planned for added value. The Danish site is different from others as it is on the private propriety and it has 117 residential units on the plot, of which hopefully half will participate.

3. Lodz: ERCE UNESCO Chair in Ecohydrology and Applied Ecology

Eco-edu hub in Lodz will be located at the University of Łódź/the UNESCO Chair in Ecohydrology and Applied Ecology¹² (the twin institute of ERCE). The UNESCO Chair is a body dedicated to the education of students

¹² <https://www.ehaeunescochair.org>



and professionals with guaranteed funding in long-term, it will serve as eco-edu hub to continue beyond EuPolis.

4. Piraeus: Ralleion School premises

The Ralleion School of Piraeus was identified as an area of various available resources.¹³ It is a complex pilot school which educates children belonging in a wide range of ages (4-18 years).

The Ralleion School is located in the broader Mikrolimano/Akti Dilaveri neighbour area. (5 minutes walking distance away of Mikrolimano).

Hence, the school's facilities are designed to be part of the eco-centre of Piraeus. This eco-educational hub will contain some NB/BG solutions and ecologic, educational, demo functions with positive impact to urban areas.

More precisely:

1. A pocket park and a cool pathway parallel to the road.
2. Green roof and urban vertical farming in the library building shall be considered and evaluated.
3. Small grey water treatment modules (showers, sinks, washing machines), so that treated effluent from the school can be used for irrigating the local greenery.

The Ralleion Complex Pilot School is selected to be the eco-edu hub, as it will combine the implementation of NB/BG solutions with the educational infrastructure and facilities. Also, it is a place which combine the interaction of different ages, from children up to teenagers, their families, and teaching and administration staff who are residents of the area. The group is a very active and valuable part of the community. This group will be educated and initiated to these new proposed solutions, during and after the end of the euPOLIS project. In parallel, an environmental association is active in the school, and, as a result the maintenance and sustainability of the facility after project is secured. In parallel there is deep engagement of the school community, which will be enriched with relevant educational activities.

The key element in pursuing euPOLIS capacity building will be creation of specific (outpost) education and training units in the FR's demo-sites which are called **eco-edu hubs**. They will host demo-units and mock-up of innovative BGS technologies plus the facilities to receive visitors, students, researchers, professionals and carry out awareness-raising and training sessions.

Eco-education hubs will also host permanent or temporary rigs demonstrating full scale facilities of technology supplying partners (VFI – vertical farm institute and BPL – Biopolus) and will also serve as permanent outpost (field) research/educational unit to both local organisations: academic, school, professional learned societies, NGO and the like. During the euPOLIS period, education in participatory planning of stakeholders can take place on the spot, at the eco-edu hubs. They will be managed by the city supporting partners.

The following figure 10 is an example of a permanent eco-educational unit for NBS based wastewater treatment plant (WWTP) and its treatment by product resources recycling which will be implemented at Belgrade demo site's eco-edu hub. It will consist of a basic water factory production platform.

¹³ Tsafaridi, Eleni-Anastasia, 2020. Assessment of the potential for implementation of BG Solutions and resource recycling with participation of local stakeholders, MSc Thesis defended at ICL, supervised by C.Maksimovic and S.Boskovic



Figure 10. An example of possible WWTP demo-unit to be implemented at Belgrade demo site

In addition to accompanying scientific research, the edu-eco hubs will primarily serve as a demonstration object for stakeholders to show innovative BGS implementation methods in urban areas.

This Task 2.2 will produce final deliverable in D2.3, defining both BGS/NBS implementation framework, educational role of DSs eco-edu hubs and their role in long-term nurturing of BGS/NBS legacy.

3 Stakeholders Education Guidelines

3.1 The Mission and the Contents of the Education Guidelines

3.1.1 The Mission

The basic topics and principles of the EU regional and urban development are defined in the document Urban development¹⁴ which stipulates the following concerns and priorities:

- a. Cities are seen as both the source of and solution to today's economic, environmental and social challenges. Europe's urban areas are home to over two-thirds of the EU's population, they account for about 80 % of energy use and generate up to 85 % of Europe's GDP. These urban areas are the engines of the European economy and act as catalysts for creativity and innovation throughout the Union. But they are also placed, where persistent problems, such as unemployment, segregation and poverty, are at their most severe.
- b. The urban dimension of Cohesion Policy will be strengthened, with 6% of the European Regional Development Fund dedicated to sustainable urban development strategies. There is also a new European Urban Initiative to support cities to innovate, access knowledge and understand policy, and support networking and capacity building.
- c. The various dimensions of urban life – environmental, economic, social and cultural – are interwoven. Success in urban development can only be achieved through an integrated approach. Measures concerning physical urban renewal must be combined with those promoting education, economic development, social inclusion and environmental protection. It also calls for strong partnerships between local citizens, civil society, industry and various levels of government.

The basic principles of participatory planning are introduced in the D2.1 as follows:

Participatory planning is based on a set of democratic activities and citizens' engagement methods in the decision-making processes. It aims to identify peoples' needs and solve problems faced by the local community. It is based on the close partnership between the authorities, planners, and residents as well as other important local actors.

Participatory planning aims to engage citizens - individuals, families, informal groups, local communities, and civil society organizations. It is based on the open conversation between the authorities and the remaining stakeholders, that leads the joint decision making (see figure 3).

Participation can be:

- **Vertical** – like the relationship of local or central authorities with other stakeholders as defined in Table 2 (see page 32) including citizens/residents.
- **Horizontal** – based on the collaboration of various groups of people and institutions in achieving a common goal.

The education of stakeholders in the **euPOLIS** project, both vertical and horizontal participation, will be practiced. As the leaders of the planned interventions, cities' authorities will be practicing "vertical" collaboration by dealing with other stakeholders including citizens/residents in their own cities. However, in the euPOLIS project several internationally reputable partners (including technology delivery companies) are engaged to assist and support both cities and other partners throughout all countries with FR and FL cities.

¹⁴ https://ec.europa.eu/regional_policy/en/policy/themes/urban-development/



This constitutes horizontal participation/collaboration which will be utilized in participatory planning as well as in engaging the supporting partners and organizations in the decision-making and planning activities. The main aim of the education component is to raise the level of competence of partners and to build an active cooperation between partners as well as monitoring of the effect of NBS on their health and wellbeing. These principles will be customised to the local conditions and implemented in 4 FR cities. Details to be described in D2.3 (Deadline: August 2021).

a. Belgrade

In the case of Belgrade there are already several EU projects, strongly related to euPOLIS, where initial clustering activities with euPOLIS have been already established. Some specific (complementary) aspects of the stakeholder's engagement in one of the DS (Linear Park) in Belgrade are coordinated with euPOLIS. For example, euPOLISs BGS/NBS planning methodology with analytical GDPM procedure are planned to be implemented by clustering activities with Clever Cities. Furthermore, contributions from both projects are suggested to the City of Belgrade to be used in the potential eco-edu hub, possibly located at the Museum Science and Education.

b. Gladsaxe

The resident board in Pileparken ⁶ is a key stakeholder to the project and the start-point of the engagement of the site. The board is elected by the residents to represent their interests. The board is a gatekeeper to communication with the residents and can help present the mission of the project and help with valuable knowledge about local conditions and issues. The engagement has started by working out a plan for the next year of actions in Pileparken. The plan has two tracks: a track of activities to create a base of communication between the stakeholders and the physical planning and a communication between the residents and stakeholders in general through common activities. A sketch of a plan for engaging residents has been made and it is being further developed together with the resident board. The plan is a dynamic document that will be detailed and developed together with the residents as more stakeholders will be included in the project. The principal element of the communication strategy will be the implementation of a vegetable garden on a central spot in the settlement. The gardens will be the pivotal point of arrangement and training. It is the aim to make this place an attraction that make people step out of their apartments and into a common social space. It will be a space of learning about gardening, learning about the NBS planning at the site and a space of discussion about individual and common problems and needs.

As the vegetable grow up, so will the first phase of the local complementary water project be constructed, and the plan is to move the vegetable garden into the so-called 'evaporation square' in which all local NBSs (using the water evaporation) are clustered. The evaporation from the future "vegetable gardens" will support the management of local rainwater balance by evaporation. We work on the idea to let the vegetable garden being made together with the resident's moveable.

When the garden moves to the new facilities at the 'evaporation square' the garden will be able to move on to a new site in the neighbourhood and to host meetings with:

- Friends of the board and curious neighbours.
- General information in the neighbourhood.
- Garden experts.
- Urban ecological Centre.
- The Library of Møkhøj and later from April to June with Local healthcare.
- Health Promotion Centre.
- The Neighbourhood Mothers.



The list will be expanded when new target groups will be able to see their role in the project and as new groups are introduced by stakeholders within the coming four months. The initial experience gathered from other projects will be synergized for added value to be complemented by the "added value" of the euPOLIS group of BGS/NBS, planning methodology, construction, and monitoring program.

c. Lodz

The stakeholders identified in Lodz are a diverse group, ranging from top-level professionals to ordinary citizens (often from marginalized communities). Therefore, in order to build an informed and involved community, a series of meetings is planned - their form will be subject to discussion due to the constraints of the Covid-19 outbreak. The meetings will aim to raise stakeholders' awareness of the NBS, participatory planning and project synergies and motivate them to take part in advanced stages of planning, or "added value" euPOLIS BGS/NBS interventions, monitoring and synthesizing for the development/customizing of innovative planning guidelines suitable for the future scaling-up.

One option to create a communication base between stakeholders is the use of posters and leaflets, and information boards. Firstly, they will have a promotional and informational function through which residents and other stakeholders will learn about the planned project. Secondly, they will help those people who are not computer proficient, those that will not participate in meetings (including on-line), and those that would not have time, to obtain information. The leaflets will allow the stakeholders to express their opinion on a given issue (information about the project, presentation of possible options and a request to indicate which of them is the most important for them, space for additional information from the residents, their plans and ideas). The completed leaflets should be placed in predetermined places, e.g., in an urn set up in a fixed, accessible place. Additional option is on-site standby (in a place accessible also to people with disabilities) and telephone standby - for people who cannot/will not use other forms but have a need to express their opinion. On-site standby should take into account the pandemic situation and existing constraints. Finally, online meetings - to achieve higher participation, it is necessary to reach more people with information about the meeting through: website, Facebook, information on leaflets and posters.

The above preparatory activities will be enhanced with a more "all Inclusive"/ proactive euPOLIS method based on the systemic implementation of the euPOLIS's GDPM planning methodology, which will enhance the existing planning practice.

d. Piraeus

The city of Piraeus implements the vertical participation approach with mapped stakeholders per demo site. Specifically, city of Piraeus hosted an online meeting for the stakeholder's engagement and the participatory planning process for the Akti Dilaveri Demo Site, on 14th of January 2021. The existing situation/conditions of the Demo Site area and the stakeholder's issues and concerns were discussed and the next steps regarding the co-design process was agreed upon. The same process has been planned for the Ralleion Complex Pilot School. This online meeting will take place on 12th of March 2021. The stakeholders of this demo site are the educational community, the pupils, and their parents. The goal is, the proposed interventions and the stakeholders needs and concerns will be presented and discussed, in order to a develop a master plan for this demo site.

3.1.2 Matching the EU strategic needs by euPOLIS concept and participatory planning

Being aware that there is a big gap between the above declarative principles and the State-of-The-Art of urban planning, the overarching goal of the euPOLIS project is to fill in the gaps within integrated urban planning and to document/quantify the methodology in achieving it. The above principles have been adhered



to in the application document of euPOLIS project and formulated in the Grant Agreement (GA). To ensure full success of the project it is essential that:

- a. All project partners and stakeholders in all FR and FL cities reach high level of mutual understanding of common goals, methods to achieve them and needs to undergo the change in their practicing framework (“mental setup change”) and implementation methodologies.
- b. The fastest method to achieve the item a is by **gradual mastering/adopting the euPOLIS methodology/paradigm by planning professionals, involving all other stakeholders in the (participatory) process**, implementing them in demo site areas and creating conditions for their scaling-up/extrapolation to other areas in the city and other cities. This can only be achieved by implementation of the Stakeholders Education Guidelines, particularly on innovative BGS planning system (Type 1 of NBS education).
- c. Furthermore, to raise the level of interest /motivation of all other groups of stakeholders, who are not professional planners) i.e. to incentivize them to take an active role in participatory planning (to raise their capacity), it is necessary to integrate their proposals into the final solutions and to make them aware of the tangible benefits that they can have from the improved (NBS/BGS based) environmental and public health conditions, and by creating opportunities for job creations/small business development in the “eco-friendly economy”. This can be achieved by implementing appropriate (bespoke/customised/tailor made educational tools based on selected sets of euPOLIS planning tools such as Business activation, Gender related planning and Blend-in Matrixes (see figure 7).

As indicated in the Introduction, since the urban planning methodology adopted for the euPOLIS project is based on the innovative Nature Based System (NBS), developed within the Blue Green Dream (BGD) project¹⁵ which is called BGS (Blue Green Solutions) urban planning system¹⁶, the stakeholders’ education is based on this methodology. Participatory planning is an intrinsic part of BGS urban planning system.

The implementation principles of stakeholders’ education is defined in the Grant Agreement as follows: “Workshops at all 4 demonstration sites of the project will be organised (starting from month 3 of the project) to inform participants of basic participatory planning components and to enable them to attain the highest practical level of competence for constructive quality involvement in the preparatory, planning, implementation, approval and usage phases of each site project.”¹⁷

To meet these objectives this chapter will present the basic principles of the stakeholders’ education taking into account the needs of major groups of stakeholders as defined in the D2.1.

3.2 Educational needs of different stakeholder groups

Note: The stakeholder groups identified in D2.1 has been modified/updated to define the initial approximation of the education needs. The next iteration will be obtained by asking selected representatives of particular groups for their update/improvement of the relevant contents of the table.

¹⁵ www.bgd.org.uk

¹⁶ Božović, R., Č. Maksimović, A. Mijić, K. Smith, I. Suter, M. Van Reeuwijk, 2017, Blue Green Solutions, A Systems Approach to Sustainable, Resilient and Cost-Efficient Urban Development, Climate_KIC, EIT, European Institute for Innovation and Technology

¹⁷ euPOLIS Grant Agreement No 869448, p. 14

Table 2. Educational needs of the euPOLIS stakeholders' groups

Stakeholders group		Sub-group	Educational needs to be further refined
1	Project partners	Partner Front Runner (FR) cities Belgrade, Gladsaxe, Łódz, Piraeus	All partners need to “speak the same BGS language i.e., to be brought to the same/similar level of understanding the basic principles BGS – The detailed description of BGS planning system, particularly Project Proposal item 1.4.1.1
		Academic and research NTUA, ICL FCEBG, ISS, GSH, research and partners supporting local FR cities (ERCE AMPHI, BYSP, ENPL, CEE	
		Technology delivery partners BPL, VFI, BIO, SENT, RISA, PLEG	
		Horizontal services providing partners ICL, ISS, MIKS, ENPL, FCEBG (HE team), CRG, CDP	
		Follower cities: Palermo, Limassol, Trebinje, Bogotá, Fengxi New City	
1a	“Friends of the Project”/ Project Associates Local Partners	Related academic institutions: Faculty of Architecture - Urban Departments / Faculty of Forestry – Spatial Planning, Landscaping / Faculty of Political Science – Political Ecology dpt. / Social Sciences	euPOLIS Workshops for local media will be organised together with MIKS (Lead partner in WP9 (, to brief the press, out of the invited group, several media partners will be selected. This concept will be replicated in all 4 FR cities.
		Partners in all similar EU FUNDED PROJECTS conducted in 4 FR Cities – Horizon – NBS, Social engagement, etc. whose results can be used as the springboard for our project (to avoid overlapping)	
		Institutions with relevant experience, knowledge or data holders in the fields relevant to the project: Research Institutes and organizations / Market research and Opinion polling Agencies/ Science Centres/Statistical Offices. To bypass the lack of official data through some alternative sources	
		Media Partners in each city – friendly media willing to learn more about NBS, Climate Change and Innovative practices and follow the project from the beginning to the end	
2	City planning authorities, other departments and services in FR cities	Departments for Urban planning, Environmental protection, Energy, Water management Food supply - city market, Land Development Public Agency, Public landscaping company, Departments of social activities (NBGD), Departments of commerce and economy (local, national, international relations)	Detailed description of BGS planning system, particularly, Project Proposal item 1.4.1.1
		Health services, Participation and Communication units, Social dialogue committee	
		Environmental Protection Units	
3	Consultants & designers for the final planning	Architects, Urban Planners, Water, Energy engineers Consultations with the existing local “green” initiatives, community urban gardeners, bee-keepers,	Detailed description of BGS planning system, particularly Project Proposal item 1.4.1.1

D2.2 Report on the local site analysis and list of relevant issues/problems and resource

	and design of NBS in FR cities / Producers of NBS relevant material	<p>biodiversity initiatives, etc. to be embraced by the project. /</p> <p>Local horticulturists, greenhouse producers, small scale urban farmers, landscape designers, engineers with experience in urban farming/ indoor farmers concepts, rooftop & green facades manufacture, Food-waste activities</p> <p>University-institutes: visionary design- and art-related topics, master-design courses (architecture, landscape design, graphic design) with semester-topics all around urban vertical farming</p>	
		Each FR city to define subgroup(s)	Detailed description of BGS planning system, particularly Project Proposal item 1.4.1.1
4	Contractors for NBS in FR cities	<ul style="list-style-type: none"> ○ hospitals and similar ○ European Nutrition Councils (existing or interest for foundation) ○ Other food, energy, water, environment - related NGOs 	The description of NBS system as presented in the item 1.3.1., Overall Concept, as well as item Table 1. NBS interventions at the DS, affected KPI's and impacts on PH&WB
5	(Health-related organizations and local) NGOs to coordinate and or support (Group 2) volunteers' actions in FR cities	Specific residents' and community groups	The NBS planning concept and methodology, with accent on participatory planning, in a simple understandable form for people who are not professional in the urban planning category
6	Citizens from the Demonstration Sites neighbourhood for co-planning/co-design		The NBS planning concept and methodology, with accent on participatory planning, in a simple understandable form for people who are not professional in the urban planning category
7	Other stakeholders international NGOs and local CSOs, unions, community	Depending on the type of business Establishment of localized vertical farm institute on association level combining academia, business and engaged community, preferably interconnection with existing NGOs dealing directly or indirectly with local food on dissemination, events, active work and communal activities (e.g., meetup-groups)	The NBS planning concept and methodology, with accent on business activation algorithm, in a simple understandable form for people who are not professional in the urban planning category, possibly with recognisable example
8	Local businesses	<ul style="list-style-type: none"> ○ Political activists, ○ young movements/parties, ○ citizens' lists with focus on climate change, ○ gender equality, ○ engagement for big-picture EU-ideas and strengthening grassroots democracy, 	The NBS planning concept and methodology, with accent on participatory planning, in a simple understandable form for people who are not professional in the urban planning category
9	Any other stakeholders not included above (1-8)	<p>Volunteer-group-categories:</p> <ul style="list-style-type: none"> ○ academia, ○ SME, ○ engaged citizens, 	The description of NBS system as presented in the item 1.3.1., Overall Concept, as well as item Table 1. NBS interventions at the demo sites, affected KPI's and

		categorized in age (cross-fertilization regarding future perspective, climate change, experience, systemic know how)	impacts on PH & WB. description of testing process technicalities and logistics (testing manual for volunteers)
10	Group 1 Volunteers From all stakeholders' groups (1-9) for permanent collaboration with euPOLIS project in FR cities	Health team experts (HE) to define categories meeting the criteria for example: (a) age strata of local residents, (b) typical gender groups	
11	Group 2 Volunteers (Sub-group of the Group 1) recruited for monitoring of NBS / BGS impacts on PH & WB (by wearables and by interviews etc.)	To be defined during the project in collaboration with CDP Coordinated by ICL in collaboration with NTUA. ENPL, ISS, MIKS and RG, Vertical Farm Institute, Cropify Systems, SKYBERRIES Conference and SKYBERRIES Academy	This should be prepared by the dissemination WP
12	Stakeholders for the global dissemination of the euPOLIS results	To be defined by the FL cities partners in euPOLIS Especially for Fengxi: Cross-fertilization with the municipality of Shenzhen, Shanghai and Dutch Greenhouse Delta (if necessary, we have direct contacts on municipality and C-level)	The NBS planning concept and methodology, with accent on participatory planning, in a simple understandable form for people who are not professional in the urban planning category The NBS planning concept and methodology, with accent on business activation algorithm, in a simple understandable form for people who are not professional in the urban planning category, possibly with recognisable example The description of NBS system as presented in the item 1.3.1., Overall Concept, as well as item Table 1. NBS interventions at the demo sites, affected KPI's and impacts on PH & WB
T	Stakeholders in FL cities		

Table 3. An example of bespoke/customised/tailor-made participatory planning topics based on GDPM matrices for a group of Piraeus stakeholders

Group No	Stakeholder Group	Anticipated engagement level	euPOLIS education for possible motivation increase
1	Project Partners	Very High	All Matrixes Modelling and optimisation tools Health Impact quantification
2	City Planning Authorities in FR cities	Very High	All Matrixes Modelling and optimisation tools Impact quantification
3	Consultants and designers for the final planning and design of NBS in FR cities	High	All Matrixes Modelling and optimisation tools Impact quantification
4	Contractors for NBS in FR cities	Medium	Introduction to NBS/BGS, Business development, Blend in
5	NGOs to coordinate and /or support (Group 2) volunteers' actions in FR cities	High	Introduction to NBS, Gender matrix, Climate change, Blend in, Health indicators, Wearable devices technology suppliers. NBS interventions at the demo sites, affected KPI's and impacts on PH & WB
6	Citizens from the Demonstration Sites neighbourhood for co-planning/co-design	Medium	Participatory process, advantages, Blend-in, Gender and Climate change matrixes
7	Other stakeholders, such as NGO and community organisations, women charities, entities working with people with disabilities and alike	Medium	Introduction to NBS, Gender Matrix, Business development, Climate change
8	Local Businesses	Medium	Introduction to NBS, Blend-in, Business development matrixes
9	Any other stakeholders not included above (1-8)	Medium	Introduction to NBS, Climate change, Health impact indicators, Gender matrix
10	Group 1 Volunteers from all stakeholder groups (1-9) for permanent collaboration with the euPOLIS project in FR cities	High	Introduction by the wearable device suppliers, Health Indicators, Introduction of NBS, Climate change
11	Group 2 Volunteers (Sub-group of Group 1) recruited for monitoring of NBS/ BGS impacts on PH & WB (by wearables and by interviews etc.)	Medium	Introduction by the Wearable device suppliers, Health Indicators, Introduction of NBS, Climate change
12	Stakeholders for the global dissemination of the euPOLIS results	Very High	Climate change, Health indicators, Blend in
13	Stakeholders in FL cities	Very High	General GDPM application introduction to NBS, Blend in, Cost saving

Columns 1,2 and 3 are taken from D2.1, while column 4: Assessment made on the preliminary results of Q2 (appendix 8.5.4) and will be updated after Q3 processing)



Additional table (Table 4): 'An example of possible areas of training of specific group of stakeholders to increase motivation and support to euPOLIS, Piraeus' (see page 72) on local stakeholders' group and their needs in Piraeus is presented in the appendix 8.1.

Based on the above table detailed planning for education in all FR and FL cities will be further developed and in part implemented in the forthcoming Workshops within the Task 2 and presented in the final report. The educational needs of different stakeholder groups will be addressed based on the concrete situation at FR and FL cities.

3.3 Stakeholders' participatory planning education needs and goals within the framework of the euPOLIS project's capacity building

The goal (the main objective) of the euPOLIS stakeholders participatory planning is to enable city management and planning to implement euPOLIS co-planning principles and then educate stakeholders on basic principles of euPOLIS (NBS/BGD based) innovative planning system so that all major stakeholders are truly motivated to implement this planning methodology and to develop the sense of co-ownership of the future solutions.

This principle stems from one of the "established" project goals: keep maintaining and "nourishing" euPOLIS project's strength: Introducing and implementing euPOLIS's unique innovative planning concept /system for healthy (blue green) cities, high professional level (beyond "cheap mass production" triviality – superficiality), raising awareness i.e. performing target orientated training of all project participants and groups of stakeholders in which the education and dissemination/communication tools have to share the same visual identity, presented in simple, imaginative, attractive easy to understand fashion, motivating people to grasp it (join and support us) for their own benefit.

Therefore, the first workshops held in November 2020 has been conceptualized and planned with the above principles and basic tasks defined in Task 2.2 description in the GA¹⁸.

The improvement of stakeholders participatory planning capacity is to be achieved by engaging them in planning (not just consultations), together with the planning professional from the preliminary phase (site analysis, NBS resources and conceptual design) till the final phase (final design, construction and its supervision). The education methodology follows this principle. This goal is achieved by the following detailed objectives/ actions related to T2.2:

- a. Approaching / reaching out a broader community
- b. Carrying out detailed survey (through the Questionnaires Q2 and Q3, see the annex 8.3 and 8.4. of stakeholder's general knowledge and perception/views on the project, local FR & FL cities' conditions, characteristics of their demo sites, issues, concerns and targets,
- c. Defining educational needs of different stakeholder groups (combined with the initial assessment of these needs as defined in the Table 3)
- d. Performing the initial education of the top-level planners in all FR and FL cities (October 2020), first group of stakeholders (4 FR cities Workshop 2, November 2020), second group of stakeholders (workshops 3. "mini workshops"/ Community meetings/Direct interactions) and producing the concepts and initial findings (intermediate results) in the D2.2
- e. Producing the initial data, information and findings on further needs for stakeholders detailed training to be performed in full-scale (learning by doing) in the WP6 and other WPs.
- f. Summarizing the T2.2. results in D2.3 [M12].

¹⁸ Ibid.



This report provides the evidence that the items a-e have been completed in this reporting period and the above activity (f) will be presented In D2.3 as planned.

3.4 Stakeholders' long-term interests as reasons for co-planning.

3.4.1 Questionnaire (Q3) for Citizens in 4 FR Cities and 5 FL Cities

Stakeholders' interests, needs and expectations will be explored both in FR Cities demo-sites' and in FL cities case studies through the bespoke on-line Questionnaire (Q3) (Appendix 8.4) prepared by euPOLIS Partners to involve citizens in bringing healthier nature to their neighbourhoods to improve the health and wellbeing of people who visit the site.

The data collected in this survey will be analysed by the euPOLIS expert team and included in the proposal of interventions and solutions in (demo/case location).

The survey is divided into 7 sections, starting with a general section collecting basic information about the person, continuing with sections in which we map the person's relationship to the Demo/Case site (Q3 sections 2, 3) their opinions on different aspects of the current status of the demo site (Q3 sections 4, 5), as well as their interest and availability to take an active role in the euPOLIS project (Q3 sections 6,7).

Every city will have an opportunity to adapt and customize the Questionnaire Q3 to their local conditions. Participants' answers are anonymous, but they can leave their email address if they wish to be contacted for project updates and participate in its further steps, and to benefit from co-design and their participation.

3.4.2 Engagement through the on-line Questionnaire

Within the month of March (2021), FR and FL cities will receive the following materials required to conduct a survey and engage as many citizens as possible during the estimated 30 days period for collecting the answers.

- The general press release, which is to be translated to the local language, and adjusted to present City's role in the euPOLIS project, and the demo-location.
- The survey template which is to be translated and adapted to the specifics of the FR Cities demo-sites or FL case-studies, nearby population (cities with two demo-location will create two Google Forms for each location and adapt them accordingly).

3.4.3 Following steps to be taken by FR and FL Cities

1. Disseminate the translated and adapted press release to your relevant media offices.
2. Leave e-mail contacts in the footer section, offer further assistance, and more details to the media office, a statement or an interview with City's representative regarding the euPOLIS project.
3. Post the survey visuals on City's social media profiles and link them to the Google Form (survey) with a short invitation for the citizens to participate in the process of improving their neighbourhood.
4. Boost post targeting the right audience (depending on the boosting budgets, you can either choose 30 days span or if the survey is not going well from some point, boost the post for a specific duration).
5. Contact mapped stakeholders and invite them to participate, as this is the first step in this permanent co-creation of the scientist and citizens:
 - Send them an e-mail with a survey attached to it for their office staff to fill it in.
 - Ask them to introduce the project to other interested parties and conduct the survey among this broader network of stakeholders.
 - Ask them to post or re-share this survey on their social media profiles (this will also later be your CAR materials).



D2.2 Report on the local site analysis and list of relevant issues/problems and resource

6. Face-to-face visit to the FR Cities' demo sites and FL Cities' case studies: to hire volunteers, equip them with tablets, and instruct them how to handle a survey (*Note: when creating the google form, set it up for multiple entries by one user so that volunteers on the field wouldn't have to sign in and out when submitting new answers*).

Cities will also engage with the local media partnerships through media offices online sections as society, health lifestyle, innovation etc.



4 Specific Conditions for the FR and FL Cities DSs

4.1 Methodology of data & information gathering

Six initial Workshops with the FR Cities Stakeholders were held in November 2020, which provided very valuable data and information described in this section, indicating the additional needs for education/training of various groups of stakeholders:

- Workshop - Meeting of Supporting Partners to 4 FR cities held on 29.10.2020.
- Workshop with Urban Planning and design experts from 4 FR cities held on 13.11.2020.
- Meeting of the euPOLIS FR City's Gladsaxe Stakeholders held on 18.11.2020.
- Meeting of the euPOLIS FR City's Piraeus Stakeholders held on 20.11.2020.
- Meeting of the euPOLIS FR City's Lodz Stakeholders held on 23.11.2020.
- Meeting of the euPOLIS FR City's Belgrade Stakeholders held on 25.11.2020.

Specific groups of stakeholders are volunteers from which crucial information on impact of BGS/NBS on their health and wellbeing will be gathered at specific demo-sites in FR Cities. In order to make sure that they are both educated and motivated to be cooperative and to have personal benefits it is important that they also be subjected to initial training before they start performing their walking and collecting data. This specific training will be provided by combined teams by:

- a) BGS core-team.
- b) monitoring equipment (wearables) technology providers.
- c) Team of medical experts – providers of horizontal services support.

The euPOLIS team has produced a series of Questionnaires. Q2 (Appendix 8.3) for the specific status and information regarding the FR Cities demo sites and their specific characteristics. Q3 (Appendix 8.4) will be used and adapted to the local conditions by both FR and FL cities to collect citizens' interests and concerns.

4.2 FR Cities DS preliminary information on specific conditions

The relevant parts of the material obtained from the Questionnaires are processed in this report, the other parts pertinent to the tasks T3.1 and T3.2 will be presented in their correspondent reports. Answers to the Questionnaires, presentations during the various task meetings, together with materials presented in workshops provided the preliminary picture about specific conditions in FR and FL cities are described in the following sub-sections.

4.2.1 FR City Belgrade – Linear Park and Ušće

In order to establish a connection with stakeholders and to collect information and demo site data, the first meeting of the euPOLIS FR City Belgrade with stakeholders was held on 25th November 2020. A total number of 97 participants was registered. Some of the participants has explicitly expressed their intention to collaborate with / contribute to euPOLIS project in both participatory planning and other project's activities.

There were 2 interactive sessions organized as a forum in which all stakeholders taking part in euPOLIS could express their opinion related to the existing methodologies for involvement of stakeholders in participatory planning and other euPOLIS related activities can be enhanced. This was planned to "boost" their participation in/support to the project, but they should also benefit from its deliverables. The participants accepted euPOLIS team's proposal of stakeholders engagement methodology under the Covid-19 restrictions: each of this workshop' committed participants try to motivate 10 to 20 other interested stakeholders, to participate in future euPOLIS events and activities. This is complementary to the polycentric

network creation proposed by the socio-economic team. All newly engaged stakeholders will be given due attention after entering into euPOLIS data base.

The participants contributed to the creation of the list of initial commitments/roles of the stakeholders. High priority activities on promotion, recruitment and education of these stakeholders will be carried out in the following months. Belgrade will demonstrate the benefits of the euPOLIS approach in two demo-sites: Park Ušće / Zemun Quay and Linear Park at Dorćol, with following characteristics.

The Linear Park in Belgrade (Figure 11) is a completely new park space, planned to be created by transforming a cancelled railway track from the old industrial storage building "Beton hala" to the Pančevo bridge on Danube (Appendix 8.5.1). The Linear Park passes through diverse urban zones, from relatively well regulated and active zones beneath the Belgrade fortress, to the decaying areas of the Port of Belgrade industrial zone. With the planned realization, a complete transformation of the surrounding urban tissue is expected as well, which has already begun with intensive construction in lower Dorćol area in the past several years.



Figure 11. City of Belgrade. Linear Park plan and its zones of influence

In the surrounding areas of the planned park there are already diverse urban functions - from existing housing complexes that already create defined architectural and urban areas, to low-density decaying and slum housing that will be transformed; from business and commercial functions to storage and industrial buildings; from port and railway buildings and other transport-related functions to sports and recreation facilities; from devastated built structures to protected heritage such as the electric power plant Power and Light, Nebojša tower and other monuments.

The existing conditions on the planned location for the demo park shows that these are zones that are planned for complete transformation from a port and industrial area of devastated built and natural environment, into a landscaped park environment.



Figure 12. City of Belgrade. Existing view of the future Linear Park area

Presently, as shown in the figure 12, none of the planned facilities exist at the subject location, so the following park functions will be realized within the Linear park and the euPOLIS demo park projects: bicycle and pedestrian paths, green areas of rest, gathering and leisure, playgrounds and park squares etc.

Ušće Park in New Belgrade is located at the waterfronts of Sava and Danube, and has the total are of approximately 91 ha, from the Hotel Jugoslavia to Branko's bridge on Sava. The park (Figure 14) is specific for its location in the city central area, allowing for vistas towards the Belgrade fortress, the confluence of Sava and Danube, and the Large War Island (natural reserve in urban area).



Figure 13. City of Belgrade. Usce Park area plan

In the vicinity housing and commercial functions are located: two business towers, a shopping centre "Ušće", the government building Governmental Palace Serbia (Figure 13), mixed-use blocks, Hotel Jugoslavia and the planned location of the future Philharmonic hall. Also, the Museum of Contemporary art is located within the park.

Terrain morphology is mostly flat, excluding the river embankment, which is beneficial for creating bicycle and pedestrian paths and other park facilities. The existing park is lacking in additional amenities to attract more visitors. Therefore, it is not well visited, most likely due to: its size, lack of orientation, poor lighting and security. The existing conditions on the demo park site shows that the space is already used as a park, with existing running track, bicycle path and pedestrian path on the river embankment.

Currently the location has no other facilities planned by the euPOLIS project. The existing trees and greenery are not distributed in an adequate manner and in relation to existing amenities.



Figure 14. City of Belgrade. Existing view of the Park Ušće area

Existing groups of trees in this location (Figure 14) will be conserved and used, with additional planting in accordance with the principles of the euPOLIS project.



Further information on citizens' involvement in participatory planning will be obtained by Q3. Series of complementary clustering actions is already in progress in several EU projects in which Belgrade plays a role (Clever Cities, Terrifica).

4.2.2 FR City Gladsaxe – Pileparken

The first connection with Stakeholders was established during the first meeting of the City of Gladsaxe that was held on 18th November 2020. Total number of registered participants was 15. For the first FR city Gladsaxe workshop, it was decided to invite main stakeholders (project partners, city's planning authority - social and health department, housing association administration, local department of operations and resident board) who are all essential and key figures in the local decision making for the future NBS implementation and for the facilitation of citizen contribution.

The remaining stakeholders will be involved as the project unfolds. During the FR city workshop, it had been agreed that there would be a follow-up meeting, with the local resident board, to discuss further about actions for the involvement of residents and 3 key stakeholders would also be invited, GLM, AMPHI and BYSP.

The chosen site in Gladsaxe has different conditions as a result to city strategies, a local development project and the character of the housing at the site, predefining a framework for the euPOLIS Urban Planning Methodology.

The project is based on interdisciplinary cooperation involving local Municipality, Utility, architects, engineers, scientists, residents, and operating staff to achieve green recreational solutions to obtain local management of water exclusively based on evaporation.

euPOLIS will be built in conjunction to DAMP¹⁹. euPOLIS will combine the green potential and expertise from the technical water treatment project to develop NBS solutions for urban revitalization. The DAMP project team has established dialogue with the residents since summer 2018, through workshops, creating a local awareness of the rainwater and the technical project process. euPOLIS will build into this dialogue to create the best social adoptable recreational solutions and to make citizen-driven processes as an integrated part of the design process.

In Denmark, there are about half a million social housing homes²⁰. Social housing is for everyone, but at the same time it contains a special obligation towards population groups with particular housing needs.

For example, young students, the elderly, the disabled, single parents, refugees and residents in need of rehousing because of urban renewal. Homes in the social housing sector are appointed by seniority in relation to a waiting list system.

Social housing is democratically structured with a majority of residents in all governing organs. Each estate is a self-supporting economic unit, and the finances of the estate cannot be used elsewhere in the housing association. As a resident in a social housing estate, you can influence your local housing conditions as well as the direction of the housing association by taking active part in the work of your local estate committee.

As described in Q2 answers (appendix 8.5.2) the Gladsaxe site includes Pileparken 6, built in 1969 and renovated in 2010 (Figure 15). A social housing estate built by means of public funding. In return, the

¹⁹ DAMP project website: www.fordampning.dk

²⁰ Social Housing in Denmark: The Tenant Democracy, published on: August 16, 2020 Available from: <https://futedistributed.org/social-housing-denmark/>

municipality can dispose over every third vacant home for housing purposes. Pileparken 6, a housing association, contains 4 apartment blocks, 117 apartments, 1700 inhabitants, and 16 500 m² of property.



Figure 15. City of Gladsaxe. Existing view of the Pileparken

The chosen site (figure 16) in Gladsaxe has different conditions as a result to city strategies, a local development project and the character of the housing at the site predefining a framework for the euPOLIS Urban Planning Methodology. The euPOLIS project will "cluster/establish synergy with/add value to the DAMP project which started earlier in the same neighbourhood. The DAMP project is an urban climate adaptation demonstration program launched by the Municipality of Gladsaxe in 2018. The project team consists of 8 private and public partners including the University of Copenhagen and the Public Water Utility, landscape architects, engineers, researchers, and biologists. The DAMP project aims to develop scalable green solutions to treat rainwater exclusively by evaporation. The techniques will be demonstrated in a full-scale project developed for the euPOLIS site in Gladsaxe.

The project is based on interdisciplinary cooperation involving the local municipality, the Water Utility service, architects, engineers, scientists, biologists, residents, and operating staff to achieve green recreational solutions to obtain local management of water exclusively based on evaporation.



Figure 16. City of Gladsaxe. Existing view of the demo site Pileparken

euPOLIS builds on top of DAMP. euPOLIS will combine the green potential and expertise from the technical water treatment project to develop NBS solutions for urban revitalization. Some specific conditions which are related to the training/capacity building needs in Pileparken (Figure 16) are:

- Low labour market attachment, education level and income.
- Increasing number of households with single parents.
- Increasing number of citizens on early retirement.
- Higher rate of absenteeism in the schools and lower examination marks.



- Higher absence and lower finishing grades in primary schools.
- 10% of the residents are lonely parents with children
- 5% of the residents has charge from the police
- 58% of the residents are employed
- 18% of the residents of the working age are on public services
- The average household income level is 200.000,- kr. / 26.000,-Euro. (The average household income in Denmark is 500.000,- kr. / 65.000,- Euro)
- Figures on special groups are not available.
- Figures show that Pileparken is developing conditions similar to the status "ghetto" in Denmark.
- When families have children, they typical move out very fast.
- An important tool is to find a way to maintain residents.

Together with the Danish supportive partners, GLM provided the strategy used by the municipality for citizen engagement. This strategy will help identify possible synergies with the euPOLIS approach. Additionally, as a cross-fertilization action the potential contribution of the euPOLIS project will be proposed to this strategic planning document in its future update.

4.2.3 FR City Łódź – Pasaz Anny Rynkowskiej

The first meeting with Stakeholders was held on November 20th 2020 and was run in Polish language with 2 presentations by foreign speakers presented in English. Simultaneous translation was organised between these 2 languages. The total number of the registered participants was 27, and the number of presenters in the Workshop was 8.

Łódź is a leading centre for innovation, education and implementation in Poland. The city's management is based on an efficient and integrated system ensuring access to information for all, based on the Strategy for Łódź²¹. Investors and authorities respect ecological properties of land and waters. Infrastructure services, the functions and requirements of an environmentally secure city. They are reliable, and they meet the needs of all the city's population and assure a good status of aquatic ecosystems. The area of Łódź demo site is covered by a master plan - the Green Polesie Programme²² - and is located in the revitalisation area specified by a separate resolution and the Local Revitalisation Programme – it is significantly larger than the area covered by the Spatial Development Programme.²³

As illustrated in Q2 answers (Appendix 8.5.3), selected demo-site, shown in figure 17, is a group of downtown urban blocks and is a part of the W3B city unit (areas for transforming historic structure). It includes different functions: residential, sport and recreation areas, (open air food and drinks serving area), grounds for public greenery, transport and technical infrastructure.

²¹https://uml.lodz.pl/files/public/dla_mieszkanca/architektura_i_urbanistyka/publikacje/STRATEGIA__druk_24.07bez_markerow.pdf
https://bip.uml.lodz.pl/files/bip/public/miasto/dokumenty/BSM_strategia_ang_20131018.pdf

²² <https://mpu.lodz.pl/opracowania/zielone-polesie/>

²³ Study of Spatial Development Conditions and Directions for the City of Łódź" adopted under the Resolution No. LXIXI/1753/18 of the Łódź Assembly of 28 March 2018, amended under the Resolution No. VI/215/19 of the Łódź Assembly of 6 March 2019.
https://mpu.lodz.pl/files/mpu/public/STUDIUM/obowiazujace/zm_studium_2019/2019_SUIKZP_zal_1.pdf



Figure 17. City of Lodz. Pasaz Anny Rinkowskiej demo-site.

The existing state of the neighbourhood is the following. In the vicinity of the area under development there are mostly dense tenement buildings and more extensively developed post-industrial (former factories) areas. In the immediate proximity there are residential areas (often in poor condition), an extensively developed fire station area and a municipal kindergarten. In the current local zoning plan, the neighbouring properties are envisaged as residential, service or residential-service use (symbol MW/U), except for the area at Kosciuszki Street, where the function of educational services is envisaged (symbol UO). Detailed description of zones can be found in the preliminary Q2 answers (Appendix 8.5.3).

The demo site is a pedestrian/bicycle connector, as shown in figure 18, (not passable for cars) between three main streets of the city centre. There is an outdoor gym (established in the place exposed to the Sun in the sunny place so it can be uncomfortable during the summer months), playground and a few benches. There is also an unattractive, asphalted space in the square (probably the old playground) currently unused. Shading is provided in several places by surrounding buildings and existing trees.



Figure 18. City of Lodz. Pasaz Anny Rinkowskiej demo-site.

Main users of the public spaces are local inhabitants who take their dogs for a walk or pedestrians who want to take a short-cut through passage and the users of outdoor gym are also common visitors. The area covered by the project is a place where people in crisis of homelessness often stay. The Environmental Management Department of the City of Łódź Office undertakes a wide range of actions aimed at implementing blue-green infrastructure solutions in the city. The activities outlined below are in the conceptual and design stages. Implementation of these issues will take place in future years. It is likely that they will be carried out in parallel with the investments of the euPOLIS program as well as after their completion.

Local projects in Lodz:

- 1) NBS type solutions indicated in the study of hydrological expertise for Podolski Park, prepared for the local Department, presenting analyses and proposals for small retention solutions.



2) With the assistance of the Department, in the currently prepared project of the hydrodynamic model of the combined sewerage system - conducted by the Lodz Infrastructure Company - basic locations of combined sewerage relief points will be introduced.

Cross-Local Projects:

- 1) Actions to unseal the urbanized drainage basin of the "Lamus" watercourse. Due to the very extensive scope of work, the project will rely on external funding sources.
- 2) Construction of rain gardens and rain barrels at schools in Lodz. Due to a very large scope of works, the project will be based on external sources of financing.

The experience gained in euPOLIS will be very useful in carrying out a modern process of broadly understood public participation, which will translate into the creation of greater functionality of new investments based on the expectations and needs of the inhabitants. Also, co-creating a new identity of the city and using innovative technical solutions of NBS type in the design and investment process.

4.2.4 FR City Piraeus – Mikrolimano, Akti Dilaveri and Ralleion

On November 23rd, 2021 the Piraeus euPOLIS online workshop meeting was held. The participation made an active pic around 10.00 and concluded with an active participation of 39 participants online. There was a short speech from City's authorities, showing the Piraeus Municipality board interest on the blue green growth NBS actions that will be implemented in the case study area Mikrolimano –Akti Dilaveri – Ralleion Complex of Schools.

The Primary School Director and President of the Parents of the schoolchildren are taking an active participation on the NBS solutions. These include green terrace, grey water recycling and children interaction. Since the school has started the information and communication with the children describing the solutions and putting the children in an active position, thus in the future the children will take part of the planting, was an interesting surprise. The lockdown online school is giving a push toward collaborative future actions that can strengthen the interest and the collaborative aspect of the project. This specific stakeholder group is of particular interest, since these schoolchildren will be the adults of the future, who will have to deal with climate change effects. Additionally, a group of Municipality engineers, planners and social scientist were also online.

The Nautical Clubs (NOEF) and the Peace & Friendship Stadium staff participation and interest for the blue actions and the combined green NBS actions is also important. Specifically, the area of Akti Dilaveri is in the neighbourhood with the Peace & Friendship Stadium and there is great interest for the consolidation of the blue green growth NBS actions. The Cavo Doro hotel participation shows that the commercial market can also be attracted and be active in a second step from the euPOLIS initiatives. The participation of the Mikraciatic Union with some input in the chat for new B2B was appreciated.

As conclusion, face-to-face meetings will be scheduled, and new smaller teams' workshops will be organized. The material is available via the Municipality website²⁴ under the euPOLIS tab and we will make available a form of interest in order to approach more e-friends/supporters. Note: The Greek mentality prefers live interaction and not digital. Also, these neighbourhoods have older people as residents, so the clubs-unions participation can be a "bridge" of spreading the euPOLIS news, e.g., the Mikraciatic Union, so there will be bigger citizen's interaction.

²⁴ <https://piraeus.gov.gr/>



Figure 19. City of Piraeus. Three demo-site areas (1. Mikrolimano, 2. Akti Dilaveri and 3. Ralleion School)

As illustrated in figure 19 (from Appendix 8.5.4 Q2 Piraeus answers), demo-sites of Piraeus are constituted of three areas in close proximity to one another and directly connected to the Mikrolimano area Ralleion Complex Pilot School (RCPS) and Riverine inland area in Akti Dilaveri. As shown in figure 20 there are plans for further development.



Figure 20. City of Piraeus. Mikrolimano demo-site visualisation

Piraeus also plans to develop a park and pathway parallel in front of the Ralleion Complex Pilot School (RCPS) on Tzavella & Alexandrou Street using appropriate planting, cool pathway construction works and solar panel lighting, similar to those specified for the Mikrolimano project to improve the microclimate and mitigate air pollution. Currently, the plants offer limited opportunities for people – plant interactions are limited and used as a buffer zone, the hard landscape constitutes mainly of concrete paving slabs contributing to the urban heat island effect and surface runoff. The goal is to develop accessible MF roof gardens and potentially a vertical farming wall at the library of RCPS. The school’s library roof and facade will provide such opportunities and could raise pupils’ awareness to NBS. A permanent euPOLIS eco-edu hub is planned to be based on this site. Details will be developed within the WP6.

4.3 FL Cities CS preliminary information on specific conditions

4.3.1 FL City of Bogota’ – El Reencuentro Case Study

El Reencuentro is an area that has an important value for the city of Bogotá, it contains large public spaces and city-scale facilities, as shown in figure 21, such as: Central Cemetery, El Renacimiento Park, District Administrative Centre, City Council etc. It is located on an axis that has an important historic and symbolic

value that connects the project to other facilities such as the National University and the International Airport El Dorado (Figure 22).



Figure 21. City of Bogota'. El Reencuentro case study

For the euPOLIS project case study, a smaller area was defined (52.6ha). In this area two Master Plans are in place, one is ongoing (24th Street) and the other is an existing one (26th Street). The existing plan defines a central of public transportation connections.



Figure 22. City of Bogotá. El Reencuentro case study. Panoramic view

euPOLIS methodology will be used as an integral part of the participatory process of “Juntos Construimos” or Building Together, a new co-design strategy led by the ERU to promote co-creation process in the planning scheme of the city.

4.3.2 FL City Limassol – Public Garden Case Study

Limassol Municipality's methodologies of data & information gathering vary according to each scenario. In the case of the euPOLIS Project and the public garden's case-study, Limassol Municipality will most probably organize a number of focus groups, where stakeholders will be given the opportunity to discuss the barriers and some room of improvement of the Public Garden of Limassol.



Figure 23. City of Limassol. Public Garden Case Study

The Public Garden of Limassol (Figure 23) is located in the city centre (Limassol is located in the southern coast of the island), right in the heart of the city and at the coastal front of Limassol's touristic area. Its location gives the opportunity of being visited not only by the local people but also by tourists, as it is very accessible, near to many accommodation services and in walking distance from the famous Limassol's embankment and the pedestrian street.

Limassol Municipality aims to create a green area for the public (locals and tourists) to use it during leisure and exercising time, introducing green paths for motivating the public to walk. The vision is to succeed a transformation of the existing Limassol's public garden to a garden with all kinds of Cypriot and generally Mediterranean shrubs and herbs, with trees along the way and benches for people to rest after their walk, exercise or even to enjoy their afternoon coffee.



Figure 24. City of Limassol. Public Garden Case Study.

Future plans of the Limassol Municipality include the enhancement of public health and well-being by introducing the project of a new botanical garden along the green paths and by constructing small artificial islands with plants. Aquatic plants such as water lilies and other aquatic plants will be placed onto the islands and into the water, while wooden bridges will be built that will connect the artificial islands and be accessible to the public so that people will also be given the opportunity to study the aquatic world. Overall, the aim is to increase the green areas in the Limassol Urban Area and consequently promote sports and activities near the neighbourhood so that citizens do not have to drive to other parks or areas of the city for their personal exercise and leisure walking (Figure 24).

The public garden is a well-known popular sightseeing place due to the existence of the house of the "Garden's Theatre" which hosts various performances and concerts especially during the summertime and for the occasionally special events, festivals (like charity events), and the Cypriot annual wine festival. It is also houses the Limassol Zoo, which gives an added value to the garden concept and makes the area an ideal

family spot. Currently there is a playground inside the garden, some old exhibition buildings with references to historical activities, some paths for walking along and some trees that provide small shading areas for the visitors.

4.3.3 FL City of Palermo – Villa Turrisi Park

As in previous experiences with other European projects, like MUV (Mobility Urban Values - Horizon 2020) and its most interesting output (the Muvigator²⁵), a guide to build happy cities and communities), the Municipality of Palermo has chosen an integrated approach combining co-creation (with citizens/communities) and co-design (with planners/professionals) to develop new scenarios starting with:

- Learning
- Experimenting
- Testing
- Validation

It is an iterative process according to the "Build-Measure-Learn" scheme. The first step of this iteration will be mainly based on the information collected from the Q3, which will be used as a database for a subsequent co-creation workshop. This approach addresses urban challenges in a comprehensive way by using bottom-up and top-down processes by actively engaging local communities, decreasing individual CO2 emissions and improving the community's inclusiveness, safety, resilience and sustainability; and by opening up the policies making processes with the use of crowd-sourced data.



Figure 25. City of Palermo. Villa Turrisi Case Study.

The urban centre of the city of Palermo, shown in figure 25, is located on a plain, known as the "Conca D'oro" (gold basin). Once a beautiful green area²⁶, rich in citrus trees, today it is a densely built urban environment (Figure 26). However, several green discontinuous areas remain, but they are not all preserved and protected. Precisely, the historic agricultural estate of Villa Turrisi is among those for which a protection action has not taken place yet.

²⁵ <https://muvigator.muvgame.com/>

²⁶ Chirco, Adriana (2006) Palermo la città ritrovata – itinerari fuori le mura, Dario Flaccovio Editore



Figure 26. City of Palermo. Villa Turrisi Case Study.

Since 2011, the area has been one of the sites identified by the Municipality of Palermo with the aim of increasing green infrastructure. According to the new master plan, it will be one of the new urban parks. The area was also involved in an international design competition, launched in October 2017, to transform unused railways into green way cycle lanes. An important axis of soft mobility (passing through Villa Turrisi Park) could be designed in addition to the city's cycle paths network, involving plenty green areas of the city. The feasibility project is currently ongoing. This area has an important hydrological historic (heritage) background. Baron Nicolò Turrisi (1817-1889), an important politician and once owner of the lands, was a brilliant agronomist and did part of his experiments in his estate²⁷. The estate had an articulated land irrigation system based on an underground drainage duct, approximately 1.5km long, which may still exist and in this case deserves protection as a historic work of hydraulic engineering. Two streams of considerable importance flow in Villa Turrisi Park. The Passo di Rigano canal and the Borsellino stream. They are currently completely canalized (converted to sewer turn) and covered. Re-naturalization of covered waterways will be eco-designed with contribution of the euPOLIS project's planning methodology.

4.3.4 FL City of Trebinje – Otok

The case study, called “Otok” (meaning Island in English) is located on the left bank of Trebišnjica river (known as the biggest sinking river in Europe) illustrated in the bird's-eye view in figure 27.



Figure 27. City of Trebinje. Otok Case Study.

Since the initial planning of this area was done by conventional methodology, in which there is significant room for enhancement of the environmental/eco value, Trebinje will implement advanced planning technologies that will be available through euPOLIS in this case study, which it will lead to improvement of citizens' health and well-being. Of particular importance is the impact of NBSs on shading and evaporative

²⁷ Brucoli, G., (2007) Una tutela attiva per il patrimonio identitario locale, in M. Leone (a cura di) “Nuovi Paesaggi urbani per la campagna di Palermo, Roma, Aracne

cooling in the prevailing hot summer months. This site is planned to be a core location for karst-related specific/adventure tourism linked to Trebisnjica²⁸, the biggest sinking river in Europe. The experience gained in the euPOLIS project on specific aspects of Innovative planning, customised to the development of the karst region, and specific NBS/BGS will be used in cities with similar geomorphological features. Scaling up will include other cities with similar ambitions to develop new lifestyles and a specific form of tourism based on the advantages created by karstic formation features. As seen in the wider urban area, the boundaries of the case study are formed by live urban streams of exceptional beauty and could, if properly planned, have big ecological value. On the north boundary is the river of Trebisnjica, on the east, west and south the area of Otok is surrounded by the urban canal. Blessed with sufficient water (which is a scarce resource in the karstic region) and with a lots of sun during all 4 seasons, this place has a great potential for sustainable development of specific forms urban life.



Figure 28. City of Trebinje. Otok Case Study. View from the river

The area, illustrated in figure 28, covered by the CS is approximately 15,5 ha. The main road divides this area into two parts: 5,5 ha and 10 ha. On the smaller part, the construction of sports and the recreation centre is planned, and on the larger part housing and hospitality facilities, hotels, etc.

The city has started with the construction of bicycle and pedestrian paths along the river canal. A row of plain trees has been planted along the landscaped canal, which will provide natural shade in the future. It is planned to build public lighting through solar panels. The euPOLIS planning methodology will be practiced in renewal of the spatial and urban plans for the site.

4.3.5 FL City Fengxi New City – National Pilot Sponge City

Fengxi New City is located in the Shaanxi province of China, close to the historic city of Xian. It is a part of the National new area, National pilot sponge city²⁹ and represents the UN demonstration pilot project of ecological hydrology. Since 2011, Fengxi New City, shown in the figure 29, has introduced the idea of regional rainwater management into its city planning, and actively carried out research. The project developed and put in practice a low impact rainwater management system, known as the "Sponge city program".

²⁸ Vukojevic, D., (2011) Geomorphological specific features of Trebinje as tourist attraction, Journal of the Geographical Institute Jovan Cvijic

²⁹ Haifeng Jia, Zheng Wang, Xiaoyue Zhen, Shaw L.Yu, (2017) Opportunity and Challenge, China's Sponge City Plan, Sponge Cities Special Issue, August 2017 Available from: https://www.researchgate.net/publication/311887922_Opportunity_And_Challenge-China%27s_Sponge_City_Plan



Figure 29. Fengxi New City Case Study. Project visualisation

In April 2015, Fengxi New City has been selected as one of the first batch of pilot sponge cities by the Chinese government. Also, in July 2019, it was authorized for the global ecological demonstration pilot project of hydrology by the United Nations educational, scientific and cultural organization (UNESCO). The development of green energy is another successful of Fengxi New City. Here, the city uses deep geothermal energy to replace coal or natural gas for heating in winter, which is very environmental, green and sustainable. Now the city has compiled some standards and technical guides for the development of deep geothermal energy. Fengxi New City (Figure 30), is working to toward building an integrated energy system, to build a lower-carbon, more ecological, sustainable, and healthy city.



Figure 30. Fengxi New City Case Study. View.

Currently, Fengxi New City promotes³⁰ the concept of sponge city throughout the entire city, and it has finished a lot of successful projects, including sponge neighbourhoods, roads, parks and other public service projects. Urban drainage and water-logging prevention capacity has been significantly improved, and the quality of the water environment has continued to improve.

Most of the Fengxi New City was built recently, implementing NBSs BGSs mainly inspired by Chinese concept of sponge cities³¹. There is an area (red polygon) which has yet to be planned and developed. euPOLIS team will aim to use its innovative planning system, to stretch beyond the sponge city concept. It will work to include designs to bring together what has already been achieved through the Sponge City program with new concepts such as the harvested storm water (resource recycling), grey water and possibly wastewater recycling, renewable energy and urban farming. The concept can be replicated at other locations in Fengxi and at other cities in China. This case study area will be used to help train local planners.

³⁰ World Future Council Website: <https://www.worldfuturecouncil.org/sponge-cities-what-is-it-all-about/>

³¹ Maksimovic, C., Boskovic, S., Yiwen, C., Yu, J., (2018) Integration of Sponge City concept into Blue Green Solutions (BGS) system" in International Sponge Cities conference. X. 2018, pp. 81-99



D2.2 Report on the local site analysis and list of relevant issues/problems and resource

The experience on the NBS impacts on PH and WB gained in FR Cities will be used in shaping the training needed for the FL Cities.

5 Stakeholders Issues, Concerns and Resources

This first part of this Chapter is based on the material collected from the participants in workshops of all FR cities' stakeholders held in November 2020. The second part will be completed after processing the feedback on the Questionnaire 3 and T2.2 workshops / "Mini workshops"/ Community meeting / Interaction to be held in Spring 2021.

The structure of the Sub-Chapters for each of the FR cities is based on the above-mentioned information.

5.1 FR Cities - preliminary stakeholders' issues

5.1.1 Belgrade preliminary DS's stakeholders' issues

Material from the interactive sessions of the Workshop held in Belgrade on 25th November 2020 were analysed and graphics were created to visualise the preliminary list of citizen's concerns on their previous experience in involvement in participatory planning and issues connected to the demo sites.

During the first Workshop in Belgrade, held, which was attended by 97 participants, there were three types of interaction with stakeholders:

1. Via Zoom-Chat where audience could ask questions, which were answered, and participants were allowed to add comments related to the presentations of the speakers.
2. Live questions sessions after the presentations
3. Interactive session of the meeting via the Mentimeter platform

Figures 31-34 show the main questions addressed during the interactive session:

Question 3, translated from Serbian language: What do you see as the main shortcomings of that (consultation) process? (What aspects of that process should be improved?)



Figure 31. Material from the interactive session in Belgrade Workshop (November 2020). The screen copy of the answers to the question 3

Some answers in figure 31 can be summarised as: bad timing, lack of networking, low confidence of citizens, bad dynamics, lack of timely information, insufficient transparency, "managed" expectations, etc, strong involvement of politics etc.



Figure 34. Material from the interactive session in Belgrade Workshop (November 2020). The screen copy of the answers to the question 7

The overall conclusion from the above answers, lays in the clarification that the euPOLIS's NBS/GDPM based planning system secures that all relevant stakeholders' inputs will be included in the early phase of the planning process; therefore, full impact from engagement of stakeholders is secured automatically. This addresses stakeholders' concern based on previous participation (consultations) in the planning process in which their engagement had limited or no impact at all. Participants underlined the main concerns regarding the demo-site: the accessibility by bicycle and public transport, the lack of green areas, inadequate urban lighting in the walking areas, low level of maintenance, security etc.

5.1.2 Gladsaxe preliminary DS's stakeholders' issues

Based on stakeholders input during the first Workshop in November 2020, the following section summarizes the current situation in the Pileparken Area. During the day, a number of young people pass through the site on their way to and from the high school located nearby. At night young people from the neighbourhood are occasionally hanging out in small groups on the site. They are not allowed to stay on the property, and it makes some of the residents feel insecure. Sometimes young people from the neighbourhood take over the playground area, driving out the residents. The residents are afraid that there will be sales of drugs in the outdoor areas. It is a problem in the neighbourhood but at the moment this is not a problem on the site.

Potential resources: The resident board and the administration of Pileparken is very committed to the euPOLIS project and has already been a strong partner in relation to the DAMP project. However, the board itself experiences that they encounter difficulties in engaging other residents in activities and resident democracy in general. Therefore, they see a potential in benefiting from euPOLIS project together with DAMP project, as an action-based approach with urban gardens and as a tool to engage more residents in the activities of the department. Gladsaxe Municipality also sees an obvious opportunity to use the euPOLIS project to connect to the other initiatives that are taking place in the Social Balance initiative in Mørkhøj. The DAMP project introduces a new approach to handle rainwater locally in urban context. The facility stores and exposes water on the surface terrain. The recreational potential of the water will be explored through the development of the project.

The evaporation technology, that will be enhanced/enriched by the euPOLIS project, will promote biodiversity on site. New habitats for the local biodiversity will be created, both for plants and animals, thus generating a recreational and educational potential. By combining the evaporation facility with kitchen gardens, the project hopes to create a feeling of ownership among the residents. Like this, there is a potential for integrating and preserving the new nature-based solution brought in by euPOLIS. The evaporation facilities are expected to have an impact on both the local natural environment and the social behaviour. The new urban space is expected to draw attention to education by organising visits to the site with the local schools and by planning visits with visitors having a technical interest in NBS or simply because they are curious.

Solar energy will be a part of the energy source for the operation of the evaporation facilities by using solar pumps and having measuring equipment to monitor weather, rainwater quality and evaporation. The aim is to explore the potential of using rainwater to extract energy using heat exchange technology.

5.1.3 Łódź preliminary DS's stakeholders' issues

During the November workshop in Łódź, there was a specific session dedicated to the identification of interested stakeholders. The tool Mentimeter was used to obtain answers for two questions.

Question 1: "The most interesting aspects of euPOLIS in Łódź (as already seen or potential)" (Figure 35)

Question 2: "What role do you think you can play in euPOLIS?" (Figure 36).

Some examples of Mentimetr graphics shown here bellow.



Figure 35. Workshop in Łódź (November 23rd 2020) Mentimetr session – Question 1



Figure 36. Workshop in Lodz (November 20th 2020) Mentimetr session – Question 2

From the Q2 answers (Appendix 8.5.3) here is the list of already known concerns in DS area:

- Unemployment.
- Presence of marginalised groups.
- Lack of safety.
- Lack of monitoring system/cameras.
- Lack of pedestrian crossing.
- Lack of cycle paths near Anna Rynkowska Passage.
- There is only one pavement for pedestrians in this area.
- No sanitation facilities.

There are people interested and involved daily, taking care of the natural environment of the demo site. They place water drinkers in the area in summer and keep bird feeders in winter. Around some of the tenement houses there are small gardens also sustained by the members of local communities.

Intentions of future actions:

- It is important to find out what needs (for which activities) the local residents and people connected to the area have regarding the space.
- In order to reach these stakeholders, it may be helpful to have interviewers who would be present at the site and in the immediate vicinity, to collect the opinions of passers-by.
- Distribution of the materials through various channels.
- Another option is posters and leaflets, information boards.

Firstly, they will fulfil the promotional and informational function, thanks to which the local inhabitants and other interested entities will learn about the planned project. In addition, they will help obtain information from people who are not fluent in computer skills, those that will not participate in meetings (including on-line) or those that do not have time. Through leaflets, stakeholders could give their opinion on the topic. The leaflets will include: information about the project, a presentation of possible options and a request to indicate which of them are most important to them, and space for additional information from residents, their plans and ideas. The content will depend on the negotiable scope of the project. Completed leaflets should be placed in predetermined places, e.g., in an urn set up in a permanent, accessible location. It is worth discussing this with the National Fire Service who, as you mentioned, are interested in participating in the process.

Further options:

- Vox Populi- gathering information through a platform, for people with internet access.
- On-site standby (in a place accessible also to people with disabilities) and telephone - for people who cannot/do not want to use other forms and have a need to express their opinion. On-site standby duty should take into account the pandemic situation and existing restrictions.
- On-line meetings - to get more attendance than before it is necessary to reach more people with information about the meeting. Website, fb, information on flyer and poster.



D2.2 Report on the local site analysis and list of relevant issues/problems and resource

- In the case of this type of consultation, research walks around the project area are a good option (in the case of a pandemic, they may take the form of several meetings in smaller groups), preceded by reaching all groups with an invitation.
- Children and youth, students - in the nearby area there is a kindergarten, there is a Social Academy of Science, and a bit further there is an XXI L.O. It is worth taking their voices into account and inviting them to design the space in a way that is appropriate to their age and abilities. It is possible to reach them through the management of these institutions, telephone contact, e-mail, through direct invitations for dialogue, together with a request to make the information available to pupils, students, parents (by agreeing to pass leaflets, hanging posters, e-mail information).

Inhabitants of urban properties (mainly tenement houses).

In this case, it is important to contact the administrators of the Tenants Service Area under the ZLM. It is worth giving them detailed information about the project and inviting them to cooperate. They can pass on materials to the residents, inform them about the project (by phone, e-mail, and during face-to-face meetings) and encourage them to participate in the planned activities (permission to distribute leaflets, posters/help with distribution).

Residents of apartment buildings, private properties. The property manager, who can be contacted by e-mail and telephone, can support the process in a similar way to the city manager, and certainly, the leaflets and posters should be agreed with him/her.

Local businesses - we also need to take their opinion into account. They may be contacted directly (in their offices, shops, etc.), by mail, by phone. Information materials should reach them as well as the inhabitants of the surrounding properties. If the local company is located in a property with residential units, the help of administrators and managers will be used.

5.1.4 Piraeus preliminary DS's stakeholders' issues

City of Piraeus hosted the first online meeting for the stakeholder's engagement and the participatory planning process in Piraeus, on 23rd of November 2020. The mapped stakeholders were invited, in order to draw their attention to the purpose and general effect of the project. They were informed about the purpose and the pursued effect of the proposed interventions, the details of the social survey and the scope of engagement.

In the interaction session, the most of them expressed their thoughts and concerns about the existing conditions of the demo sites area and specifically the air pollution, the lack of cleanliness, the lack of green spaces and the noise pollution and all the questions asked were answered.

Also, during the workshop process the President of the 3rd Municipal Community of Piraeus and the President of the Ralleion educational community and NOEF Sailing Club were willing to contribute to the co-process and the implementation of the project, engaging the members of their communities, according to its requirements. In the framework of the co-design process, it was agreed, an online survey will be designed, based on the questions of the Q1 and the collected answers / thoughts/ issues of the participants of this workshop. In order to explore the existing conditions of the demo site, separate meetings per demo site area will be scheduled.

Additional material from the online survey was graphically visualized to illustrate the preliminary list of citizen’s concerns on their previous experience in involvement in participatory planning and issues connected to the demo sites. Some of the questions are highlighted below.

The Question 1, translated from Greek language: Please define in which of the following demo site area you are located/activated for any reason (only 1 selection), is shown in Figure 37.



Figure 37. Material from the from the online survey in the City of Piraeus December 2020). The screen copy of the answers to the question 1

The Question 4 translated from Greek language: How often are you visiting the above selected area (only 1 selection) is shown in figure 38.

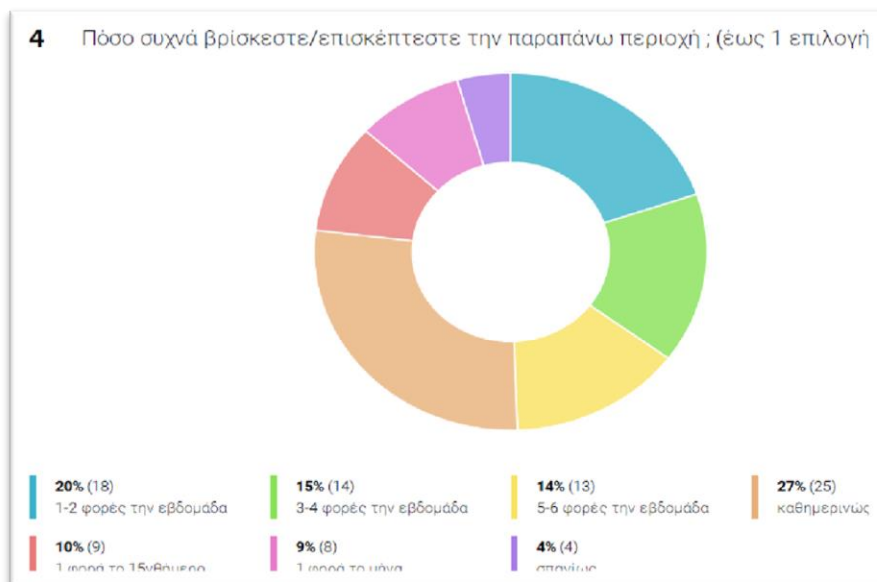


Figure 38. Material from the from the online survey in the City of Piraeus December 2020). The screen copy of the answers to the question 4

Figure 39 shows the Question 10 (Translated from Greek language): How far do you agree (scale 1 to 5) with the following statement: The citizens’ opinion, about the design of projects in Piraeus, is always taken into account. (scale 1 to 5, where 1 not at all and 5 very much).



Figure 39. Material from the from the online survey in the City of Piraeus December 2020). The screen copy of the answers to the question 10

The Question 17 (Figure 40): What kind of plants do you prefer for planting in the city (only 1 selection)

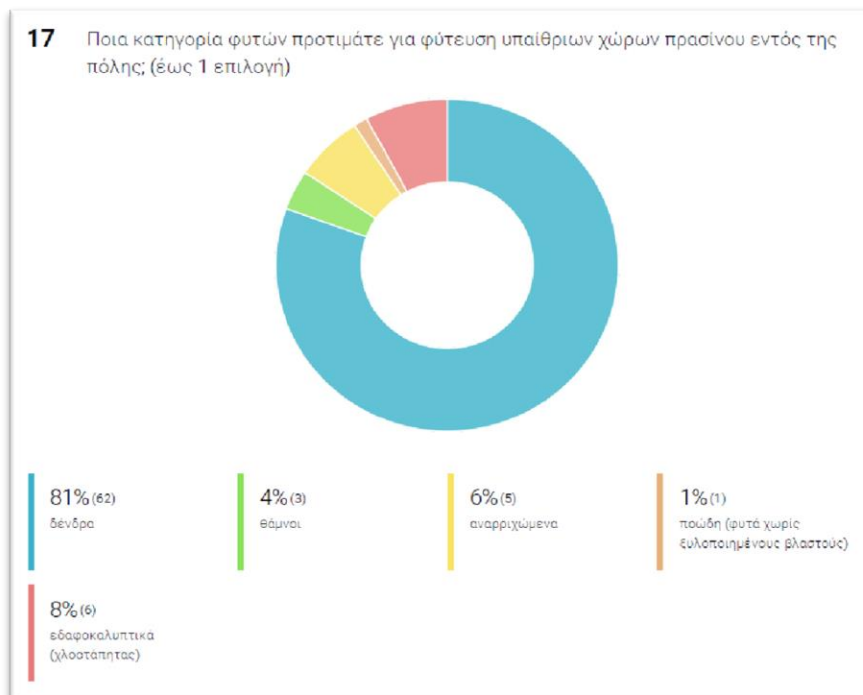


Figure 40. Material from the from the online survey in the City of Piraeus December 2020). The screen copy of the answers to the question 17



Some answers that were given include: lack of cleanliness, lack of green spaces and recreation areas (parks, meeting places, etc.), unsustainable urban mobility, ruined sidewalks, lack of pedestrian and bike paths, lack of parking spaces, non-utilization of inactive public spaces and buildings, traffic, and noise pollution.

After that, city of Piraeus hosted a separate online meeting for Akti Dilaveri Demo Site, on 14th of January 2021, where the stakeholders' issues and concerns were discussed, and the next steps about the co-design process were agreed.

In conclusion, the euPOLIS team of Piraeus established contacts with the stakeholders of the demo sites area. The stakeholder's issues and concerns had never been discussed, before the euPOLIS approach. After these meetings, new networking between the stakeholders and the Municipality of Piraeus was established, as well. The stakeholders' representatives were willing to contribute to the co-process and the implementation of the project, engaging the members of their communities, according to its requirements. The stakeholders' issues and concerns have been clearly heard and will be taken into account in the co-design process. The co-design process has been successfully started, and the next steps were agreed.

5.2 FL Cities CSs – preliminary stakeholders' issues

5.2.1 City of Bogotá – preliminary stakeholders' issues

Based on the ERU's (Empresa de Renovación y Desarrollo Urbano de Bogotá³²) experience 20 relevant stakeholders have been defined. All of them are relevant in the case study zone, a few of them are mentioned here: euPOLIS partners, Universities, Patrimonial and Cultural authorities, citizen's representatives, and specifically vulnerable population representatives. In Bogotá, a local team is planning to obtain the information about issues, concerns, and resources through the euPOLIS Questionnaires (Q1, Q2) classifying and splitting them into three questionnaires to be answered by each group of stakeholders: ERU as planning authority, UNIANDES as a technical advisor and the group of institutional Stakeholders (Subway Authorities). Finally, Q3 will be distributed to the citizens. More information about the specific issues and concerns will be obtained during the first meeting with stakeholders (date to be defined).

5.2.2 City of Limassol – preliminary stakeholders' issues

Limassol Municipality is currently working on the definition of stakeholders' concerns, but some general information related to the Public Garden can be defined at this stage through the Municipal Engineer and public. As Cyprus is located further east of Europe, we have some climate issues that can raise some difficulties on maintaining the plants and the greenery that will be integrated in the public garden in general. This environmental issue may cause the lack of diversity regarding the plants. In Limassol Municipality's action plan, we have included the planting of various trees and Mediterranean plants that do not require a lot of water (and can additionally provide shading in order to give protection from the heavy sun during the summer), as in Limassol rainfall is not that frequent, but this selection limits us in terms of variety. In order to overcome the diversity of plants issue we have also included in our action plan the creation of a new botanical garden which will include Cypriot shrubs and herbs. Despite that the public garden is located in the city centre, due to the fact that Limassol residential area is considered scattered, some citizens may be located in a non-walking distance from the garden area and unfortunately even though there is an existing infrastructure for public transport, there is a lack of its use. Apart from the busses as transportation mean (there are bus stops in walking distance from the Public Garden), citizens may also use their private cars/transport means for visiting the garden, which will consequently lead to the lack of free parking spaces. This means that part of the public garden must be used just for the parking.

³² <http://www.eru.gov.co>



5.2.3 City of Palermo – preliminary CS's stakeholders' issues

Historical complex³³ was gradually eroded by unauthorized and incompatible activities which have changed the quality of soil, landscape and biodiversity.

The implementation of the Villa Turrisi Park is therefore based on four specific strengths: presence of identity characters, clear historic evidence, valuable historic green, lots of stakeholders and an active local community.

Municipality experts are focusing on four interconnected areas:

- Environmental requalification and prevention / control of environmental risks.
- Public guided use of the site.
- Private guided use of the site (pacts and green contracts).
- Public and private areas for leisure time and experimentation (urban gardens, shared green spaces, sport areas, ...)

Since 2011, numerous associations united in the "Parco Villa Turrisi" Association have asked the Municipality of Palermo to protect this important testimony of agricultural biodiversity and to create a park with different levels of protection and accessibility. The Municipality of Palermo requested the Superintendence of Cultural Heritage to protect the area with an unchangeable obligation, before approving the Landscape Plan for the Palermo Area. In this Plan the area has been included with a significant level of protection.

5.2.4 City of Trebinje – preliminary CS's stakeholders' issues

This area has high potential and good natural resources for tourism development, for constructions of sports and recreation centre and, in general, it is a good residential area. The location is easily accessible in relation to the city centre. In recent years, the expansion of construction has played a significant role in changing the urban matrix of the city of Trebinje. It is noticeable that in the near future green spaces that are part of the cultural heritage will fall into the background. Therefore, it is necessary to create new green spaces in order to maintain a balance between the built space and the natural environment. Existing city park has become small in relation to the city scale, and it cannot offer facilities for all generations. Citizens need a place that is easily accessible and where they can stay longer and be in contact with nature. Creating a green space with recreational facilities based on sustainable development can contribute to a better quality of life for citizens.

5.2.5 Fengxi New City – preliminary CS's stakeholders' issues

Fengxi New City faces many problems, such as how to avoid the impact of urban integration, inefficient use of land resources, low-quality urban construction, low-level industry similarity, and continuous deterioration of ecological environment. Among them, the urban "water" problem is particularly prominent, including a series of water security, water ecology, water environment problems, such as drought and less rain, concentrated seasonal rainfall, ecological sensitivity, coexistence of water shortage of resource type and water quality types, the low level of urban development of collapsible loess and new areas, urban waterlogging, groundwater over-extraction, river system pollution and so on.

Despite this, Fengxi New City has a superior geographical location. Historically, the first city "Feng and Hao", was an important transportation hub in northern China with convenient transportation. It is the only central hub node with "meter" shaped distribution of aviation, railway, high-speed railway and expressway in China. There are many historical and cultural relics, good natural endowment, numerous universities, talents,

³³ Marino, G., Termotto, R. (a cura di), (2013) Conoscere il territorio Arte e Storia delle Madonie. Studi in memoria di Nico Marino, Vol. I, Associazione culturale "Nico Marino", Cefalù (Pa)



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scientific and educational resources, and abundant groundwater and geothermal resources, which can be developed and utilized. Concerns and issues of the FL cities, although not based on the new NBS implementation, will be re-examined at the end of T2.2 period (August 2021), so that any new findings can be incorporated into the final recommendations of the document D2.3.

6 Implementation of participatory planning methodology

6.1 The general methodology/the principles

Based on the above-described features of BGS/NBS related issues, needs and planning methodologies, all 4 FRs and 5 FLs are currently developing their customized approach on addressing the gaps in knowledge and planning methodology as well as obtaining systemic stakeholder engagement in the early phase of planning. A key component in reaching high competence in participatory planning is target-orientated raising awareness/training/education of all groups of stakeholders. This will be done in two phases:

- Phase 1, which will be done in this WP and presented in detail in D2.3, will be primarily done by “training of trainers”, who will then train all local stakeholders in the native language.
- Phase 2, which will be practice in the WP6 by “learning by doing” methodology.

In the euPOLIS project there are 2 major principles/breakthroughs in planning as follows:

Principle 1: Seamless merging/synergy of the Innovative BGS/NBS based GDPM planning system with the existing one in a step-by-step method so that all planning professionals may identify the added value that it brings to the existing planning paradigm. Gradual Introduction of the Innovative planning system in practice at the 4 FR and 5 FL cities and its mastering by all 13 groups of stakeholders (every group in its own capacity, shown in figure 41).

Stakeholders Groups	Curriculum
1. euPOLIS Partners	Introduction to BGS/NBS
2. City Planners	
3. Consultants and designers	Co-design participatory planning with GDPM
4. Contractors for NBSs in FR Cities	
5. NGOs to coordinate and support volunteers	DS and CS for learning by doing
6. Citizens from DS neighborhood	
7. Community organizations	Socio-economic-gender based planning
8. Local businesses	
9. Any other stakeholder not included above	GDPM's business development
10. Group 1 Volunteers	
11. Group 2 Volunteers	Scaling-up methodology
12. S'hokders for the global dissemination of results	
13. Citizens	

Figure 41. Participatory Planning Education Guideline. Merging the innovative BGS based GDPM planning system with the existing methods

This will be achieved through the “training of trainers” method which will create a “healthy core” of the euPOLIS CoP (Community of Practices) for both training all local stakeholders groups and spreading/disseminating/scaling-up this unique “Communicable Practice” (CP).

The above activities will result in consistent curricula for running target orientated training/education/capacity building for the successful participatory planning in each of these cities. Although they will be customized to local conditions, the curricula for each of the FR and FL cities will be based on the following building blocks of the training programs:

- **Unit 1** Introduction to BGS/NBS customized to local conditions (local status) and their impacts on shaping co-design process logistics.
- **Unit 2** Co-design process implemented in the city for the euPOLIS design based on the euPOLIS concept of site interventions.
- **Unit 3** Practical implementation of participatory planning methodology based on local DS and CS (learning by doing) which will be put in practice in the WP6, with emphasis on role of stakeholders participatory planning in the pre-planning process compliant with GDPM methodology.
- **Unit 4** Socio-economic-gender based collaborative planning process.
- **Unit 5** GDPM's business development
- **Unit 6** Development of the scaling-up methodology, identification of districts/cities for practicing euPOLIS scaling-up principles.

In order to make the above merging and development of the innovative paradigm happen, it is of crucial importance that the mastering of that innovative planning technology is based on sound/simple educational platform and tools for its implementation. The partners of the euPOLIS project will have a complete set of methodology, educational framework, and implementation mechanisms. With the relevant inputs from the FR's DEs and with the appropriate involvement of all stakeholders, a complete "package" of educational systems will be created, implemented in DS and CS, and be ready for the replication in other cities, countries, continents. The extrapolation/scaling-up method is presented in figure 42. Using the lessons learned in the eco-edu hubs and the capacity level developed with the local (trainers), three major levels of scaling-up are foreseen:

- In more districts/sites of the euPOLIS FR and FL cities.
- In the other cities of the same country.
- Cities in the other countries/continents.

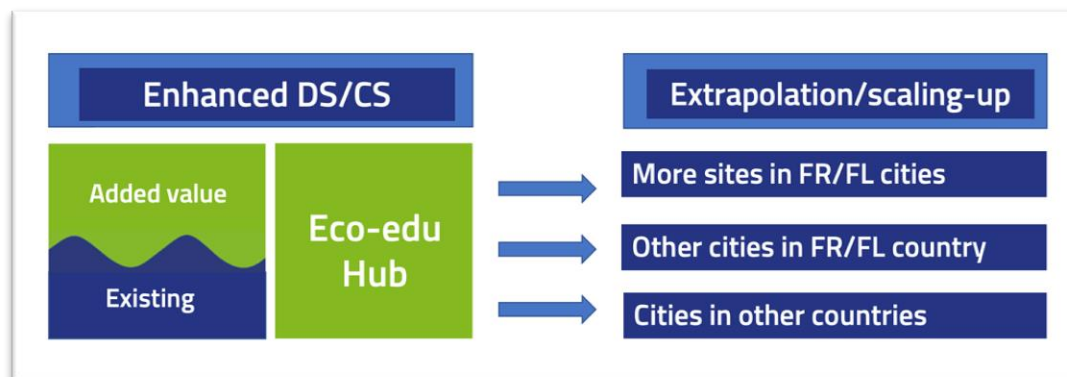


Figure 42. euPOLIS BGS/NBS planning methodology at work. Extrapolation/scaling-up of the planning system

The above curricula customized with 4 FR and 5 FL cities will be further defined and implemented in the period March-August 2021. The results together with the evaluation of the activities carried out will be presented in the final report D.2.3.



6.2 Application of the collaboration methodology in participatory planning in FR Cities

6.2.1 *Belgrade*

Participatory activities in Belgrade are usually organized by nongovernmental organisations in the form of seminars, workshops with citizens etc. Participatory methodology is not yet fully developed by the city's regulations.

Available tools for engagement of local stakeholders and citizens are:

- Media posts, on regular bases, information about project activities and NBS principles and values at social networks and local media.
- Invite mapped stakeholders into permanent participation and co-creation part of the project as citizens and professionals.
- Ask mapped stakeholders to post or re-share information about the project and invitations for participatory activities on their social media profiles.
- face-to-face work on the demo location.
- Future development of participatory activities from online questionnaire forms to co-creation workshops and unformal meetings with citizens to inform them about NBS values and all phases of development of the project.
- Organising activities (community work, festivals, recreational activities) in demo park to create a sense of belonging.

Although some of the above were available for some time, their use is yet to be seen. In that respect, as a part of educational process, euPOLIS project will analyse the existing methods and tools and suggest a systemic approach in creating an updated/enhanced system.

6.2.2 *Gladsaxe*

To strengthen social cohesion and environmental sustainability, the city will cooperate and facilitate increased civic participation with citizens, local community stakeholders and enterprises. The city wishes to be an active partner and its ambition is to reach the goals of the strategy to be activated and further developed in interaction with other actors.

The strategy of the danish approach is planned to be made as a collaboration between the supporting partners and Gladsaxe Municipality with an approach embedded in the Gladsaxe strategy and fellow citizenship strategy. These strategies will enable the identification of possible synergies with the euPOLIS approach. There are some good examples of this type of resident-involving cooperation, e.g., between the municipality and social housing initiatives in Gladsaxe Municipality³⁴.

We will also have access to those experiences via our team and the social housing network when we reach this point.

Ideas on how the project can establish a dialogue with the residents in Pileparken are arranged:

- Make arrangements targeting groups of people. Perhaps we will not address everyone, but it will make it possible to establish a dialogue with someone who usually would have never come.
- Make a grand opening at the end of construction of DAMP phase 1.
- Make vegetable garden in the DAMP phase 1 project where people can meet around the activity of planting their own crops. Events with fire and barbecue usually attract a lot of people.

³⁴ Gladsaxe Strategy. Sustainable growth and welfare 2018-2022. Available form: www.gladsaxe.dk



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- Resident information meetings.
- Because of the manageable size of Pileparken, it is possible to walk from door to door to greet and introduce the project and identify a few enthusiastic souls who can be ambassadors for the project.

Existing channels of communication with citizens and their involvement are:

- Via the board and local technicians of the housing area;
- Action-based - communication through physical presence and involvement processes – e.g. urban spaces and city gardens below the apartments in the housing area, or social activities that get people out of their apartments;
- Via key persons from the municipality and key persons/ambassadors among the residents in and around the respective residential area;
- Via posters and notices in the stairwells;
- Home page and/or facebook and;
- Possibly via other relevant - but not yet clarified - written or virtual channels.

The upcoming resident involvement project in Pileparken is being planned together with the local resident board on building a common vegetable garden and will be further enhanced with introduction of euPOOLIS approach.

There is a potential in communicating the relation between NBS, urban evaporation and the positive impact on the climate. This relation will be made into a local story telling being displayed on the site, as well on digital platforms. We expect that it will have a positive effect to communicate how the residents will get a part in improving the local, regional and global climate by creating a new approach on local rainwater management in an urban context.

We see the action-based approach in both the euPOLIS and the DAMP projects as having a strong potential in communicating new participatory planning NBS approaches at a broader scale.

6.2.3 Łódź

A participatory design manual was created for officials and other consultation organizers, which explains “step by step” what actions should be taken to make participatory design of public spaces a success. The outcomes of the project are the basis for planning the upscaling of the participatory planning process on more redevelopment projects throughout the city.

As part of the project "We are changing streets", the city of Lodz developed a participatory process design guideline for the reconstruction of five street sections in Old Polesie District in Łódź. The aim of this pilot project was, among other things, to develop methods and techniques that could be used in other Polish cities.

City of Lodz has experience in collaborating with the non-government organizations and informal initiatives in the participatory planning processes. In previous years, several NGOs were commissioned to organise debates, workshops and other activities connected to city's public spaces. In 2012 there was a consultation process called “Idea for Tuwima Street” during which the citizens took part in workshops where they could express their expectations towards the street's development. In 2015 during the European Mobility Week³⁵ there was a workshop organized under the slogan "Our Sienkiewicza Street, Our choice". Workshop participants in three project groups created the dream look of Sienkiewicza Street and its immediate vicinity on a model with the use of special blocks showing, among others, sidewalks, trees, playgrounds, bicycle lanes

³⁵ www.mobilityweek.eu

and car lanes. The NGOs even organized debates or consultations regarding the future of the most important public spaces in the city – i.e., the Liberty Square, the Dąbrowski Square. Some participatory processes were even aimed at including children in discussions about their expectations of their school's surroundings.

The creation of a linear park will be done using methods related to participatory planning and assuming not only the social functionality of the park but also co-responsibility for the newly created space. Therefore, while creating the park, a number of diagnostic tools will be used, aimed, first of all at: recognizing the current functions of the area, checking among residents what functions of the new space would be most desirable, and conducting potential negotiation and educational processes aimed at creating a consensus between the existing and desirable functions. The activities will be both meetings or workshops aimed at stakeholders and more interactive forms, such as diagnostic or prototyping walks. This is the first stage - important because it creates social capital around the initiative, the residents together create a concept of the park area, it is not an imposed, counter-installation or an investment that does not take into account real needs. In the second stage, on the basis of preliminary plans prepared after the first stage, consultation meetings will be held - the residents will be presented with variants of the park, including recreational or sports infrastructure, corresponding to the demographic structure of the area and another, corresponding to the demand. The residents will be able to choose from the catalogue of solutions such elements that will allow them to get involved and take care of the green space, which will realize the postulate of co-responsibility (for example, bottom-up planted flower beds, social herb garden, etc.).

6.2.4 Piraeus

Piraeus intends to identify relevant stakeholders for the further involvement in participatory planning through the organisation of separate workshops or community meetings per each demo site. It will also explore additional ways of acquiring the information about stakeholders' issues and concerns. One of the methods is through online Questionnaire Q3. Alternative ways will be studied to approach the citizens without access to internet or mobile devices.

During the next months, the separate Workshop or Community Meeting for Ralleion is planned with the participation of teachers, parents, and neighbourhood residents. Proposed Framework (presentations and interactive session) for the Workshop consists of the presentation of the demo site conditions and proposed interventions; discussion on the stakeholders issues, concerns, resources, and ways of participation in the co-design process; participation in the identification and engagement process of the key volunteers (relevant citizens and stakeholders) for the success of the social survey; participation in the social survey (questionnaires, personal & group interviews, wearable sensors for monitoring health and well-being, etc.) in order to measure the impact of the NBS on well-being and health; participation of stakeholders in the dissemination process of the project (for example, newsletters).

6.3 Application of the Collaboration methodology in participatory planning in FL Cities

6.3.1 City of Bogotá

Bogotá is working on the participatory strategy called "Building Together"³⁶ (Juntos Construimos) as a co-creation strategy for planning the public spaces in the case-study's area. The main principles that the strategy is relying on, are inclusion, collaboration, transparency, innovation and generation of collective knowledge. It contains also a specific strategy for citizens' participation through the communication and dissemination, training, transparency, co-working, appropriation, sustainability and results measuring. Currently, ERU is in the process of drafting the strategy to include the euPOLIS philosophy and to present the project methodology during the main activities with the citizens of the case study.

³⁶ Juntos construimos website: <http://www.eru.gov.co/index.php/es/juntos-construimos>



6.3.2 City of Limassol

Limassol Municipality participated in several European projects concerning the sustainable development, the improvement of the mobility system, energy efficiency in buildings and environmental awareness campaigns. The past 15 years the Municipality executed projects of more than 50 million Euros, which makes it an experienced partner dedicated to all assignments.

Limassol Municipality has all necessary infrastructure and arrangements for various design activities and planning. It has quantitative and qualitative adequacy of executives and collaborators as well as the appropriate logistical infrastructure for the management and implementation of works, and infrastructure and halls for inviting, engaging and educating stakeholders and citizens. It has facilities in the centre of Limassol where services like financial department, technical services, citizens' service office, neighbourhood council office and cleaning service are housed. It carried out many consultations and public hearings in order to fulfil public works (like the town's square) and has experience in participatory planning like the Limassol Local Plan and the "Joint Council".

Limassol Municipality has also taken the initiative of developing the Green/Environmental Neighbourhoods, which aims to substantially upgrade and improve the quality of life of the area's residents. With the green neighbourhood initiative, Limassol Municipality planned (it has already designed and is ready to procure the construction works for the creation of the first three neighbourhoods) the redevelopment of selected roads that are connected to green spaces and schools, including the creation of bicycle paths, organised parking spaces and areas rich in green. Special road signs will be installed and measures to reduce traffic congestion will be taken to make these neighbourhoods more human, safer for children and more attractive. The design of this strategic objective of neighbourhood development has also been implemented through public consultation. The Municipality informed citizens and asked for the public's opinion on how to improve its quality of life, from whom increasing the green areas in the urban area and reducing the traffic congestion were the most common thoughts.

Limassol Municipality intends to adapt the Questionnaire 3 and publish it in its social media site for gathering information from citizens regarding their concerns and opinions referring to the selected case-study (the Limassol's Public Garden).

6.3.3 City of Palermo

On the basis of the requests made by associations, citizens and various knowledge bearers, numerous technical round tables have been activated. The City Council has approved Resolution n. 59 of 2015 which identified the actions for the launch of the Park and the responsible offices of the Municipality of Palermo. Since that date, bilateral meetings and tables have been held between the Municipality of Palermo and the Associations and some portions of the Park have returned to the possession of the Municipality. Recently, after the 5 February 2021 meeting, the working group for the Villa Turrisi Park project was set up and coordinated by the Palermo Monreale Greenway Project Manager, which crosses the future Park. This experience represents a solid starting point for the euPOLIS experimentation and to involve stakeholders on the potential of applying NBS in the principles and practices of urban regeneration and environmental governance. The Municipality website hosts platforms and tools for communication and participation to aid in the decision, but it will be necessary to foresee their strengthening for the euPOLIS project and experience.

The Q3 questionnaire will be sent to stakeholders, creating a mailing list, and to citizens via the institutional website and social channels. The associations involved will also be asked to advertise the questionnaire through their respective channels.



6.3.4 City of Trebinje

During the development of the plan for the area of Otok CS, the competent institutions actively participate in the process by giving suggestions related to their competence. Citizens who own the land covered by the plan are informed at the outset and have the opportunity to submit their suggestions and opinions. There is a practice of participatory planning by making the plans available to the public. The holder of the plan preparation determines the draft plan and puts it on public view for the duration of at least 30 days to make a statement and submit written comments on the draft plan in deadline. All comments are entered in the notebook of remarks and opinions during the presentation or submitted in written form later. Simultaneously with the presentation of the draft plan for public inspection, an expert discussion is held. The public shall be informed about the place, duration and manner of public presentation of the draft plan at least eight days earlier. The holder of the plan and the plan council, if appointed, consider the arrivals written comments on the draft plan and submit to the holder of the plan preparation a reasoned statement opinion on objections that could not be accepted.

One novelty in the planning methodology are brochures that present ideas regarding the development of the city. Brochures are a type of survey that contains illustrations followed by questions that make citizens think. This is important in order to give their answers and influence the view in the planning and expansion of the city. A way to improve participatory planning is to organize early insights into planning solutions in the initial stages in order to involve the competent institutions and listen to the experiences and needs of citizens to obtain a quality solution. In the urban sense it is desirable to develop 3d models from the very beginning in order to monitor the relationship between the different elements. Such models can Improve participatory activities and offer quick spotting of imperfections to maintain harmony in space. Observations can relate to irrational use of space, altitude rhythm, orientation of buildings, green elements, sunshine of the space, traffic connections etc. Modern trends impose some new approaches in spatial planning and design, therefore quality participatory activities are necessary in order to preserve the character of the space that makes the City of Trebinje recognizable.

6.3.5 Fengxi New City

Top planning teams from all over the world were invited to participate in the systematic analysis of the current situation of the region and possible water-related problems in the future, together with the government and the public. The goal was to establish the sponge city planning system and define the planning objectives and index. Based on the actual planning objectives of the project, we should systematically revise relevant professional plans for green space, roads, river and lake systems, drainage and water-logging prevention, sewage treatment, etc, and to establish "Intelligent management platform for S.C. Assessment and Monitoring" so that we can conduct performance evaluation and feedback optimization on the reachability and rationality of the sponge planning and design objectives.

China Sponge City Construction (LID) Technology Innovation Alliance was established, and experts and scholars from all over the worlds were invited to participate in the international seminar on sponge city construction to discuss the sponge city construction plan. In order to support the construction of sponge city scientifically, Fengxi New Town integrated local scientific and technological resources and talents advantages, established a collaborative innovation platform for government, industry, academia and research based on sponge city construction. So far more than 20 special research projects have been carried out jointly with the research institutes of local universities, to form a resource pool and provide technical support for the scientific promotion of sponge city construction.

Finally, of particular importance is to mention that euPOLIS's innovative NBS BGS planning procedures brings the planning to new heights in which it becomes strengthened/enhanced by results of numerical modeling



of NBS BGS improvement of environmental conditions and indirectly of PH & WB. This modelling will be calibrated, validated and extrapolated with the results of monitoring at demo-sites. Some examples³⁷ of how this can be done are presented in the appendix 8.2 for the case of Akti Dilaveri DS in Pireaus.

The core team of the euPOLIS project will create a special task force-advisory group to work together and assist both FR and FL cities in bringing together the relevant professionals and International experts and create a joint concept for systemic implementation of the participatory planning guidelines. It will be based on the combination of existing methodologies practiced In FR and FL cities and the relevant components of the GDPM planning system. It will Include combination of top-down elements, dominating in the existing methodologies and the bottom-up one pursued by the euPOLIS project paradigm.

³⁷ Wang, Qi, (2020) Blue Green Solutions and Green Harbour Concept: Rehabilitate coastal area and underwater, MSc Thesis defended at ICL, supervised by C. Maksimovic and S. Boskovic



7 Conclusions/Lessons learned

An important part of the euPOLIS project is demonstrating that the training and the education of stakeholders will result in their improved capacity in both participatory planning and advanced planning in general, which can result in a permanent legacy of adopting this methodology by other planners who are not partners of the euPOLIS consortium. The key result is the upscaling methodology developed in euPOLIS/ tested and 'perfected' in the DS/CSs that can be further customized for not only similar cases /districts in FR/FL cities, but also in other cities in relevant euPOLIS countries as well as other European and countries in other continents.

euPOLIS's upscaling methodology will be applicable at several levels:

- a) **Upscaling on personal level.** euPOLIS training guidelines will enable this to be done by both professional planners and other stakeholders, through the self-learning methodology.
- b) **Upscaling on district level.** This can be done by the euPOLIS partners, trained top level professional planners who will use their mastering of euPOLIS NBS/BGS/GDPM planning methodology for dealing with the similar problems in their cities by engaging other local stakeholders in the same fashion applied in the early phase of planning for FR/FL cities.
- c) **Upscaling on city level.** Similar to the methodology applied in the item b), upscaling to the city level can be implemented by combining two different approaches: bottom-up participatory planning upscaled to the city level and (c2) top-down planning methodology similar to what is currently practiced, but enriched by euPOLIS analytical tools and participatory planning principles. The application of this methodology is particularly important in preparing strategic development plans for cities (urban areas) and their interactions with sub-urban, rural neighbourhoods. This will be a particularly valuable paradigm for prudent implementation in the forthcoming EU's Green-Deal Program in which euPOLIS's innovative/analytic/NBS BGS based/ climate resilient/sustainable/cost-efficient methodology can serve as a unique/bespoke lighthouse/beacon for systemic advanced planning philosophy. This would be euPOLIS project's permanent legacy.
- d) **Upscaling on global level.** The above euPOLIS's innovative planning methodology is probably one of the most suitable European products, a candidate for broader application at a global level of Green Deal advanced planning methodology, combined with the other similar ambitious programs, such as, for example, Chinese eco-civilization concept.

The deliverable D2.2 sets up the stage/developed the framework for successful implementation of the most crucial activities in the euPOLIS project. Although the final version of the Task 2.2 products will be presented in the D2.3 (deadline 31st August 2021) the current version (ver.1) contains sufficient initial concepts and framework for the activities to be performed immediately in tasks T3.1 and T3.2 and in planning for other relevant WPs and their tasks.

This report presents three major stumbling blocks of the euPOLIS' program for 3 major parts: (i). Stakeholder Education Guide Principles, (ii) Report on Demo Sites' Specific Conditions and (iii) Report on Stakeholders issues, Concerns and Resources.

The background material needed for the main body of this report is obtained through the questionnaire Q2 and the Workshops performed in all 4 FR cities and through direct contributions of the cities and supporting partners. The additional, more detailed material will be obtained through the Questionnaire 3 (Q3), which is presented in the (Appendix 8.4) and the final results will be presented in the D2.3.

8 Appendixes

8.1 Appendix - An example of possible areas of training

Table 4. An example of possible areas of training of specific group of stakeholders to increase motivation and support to euPOLIS, Piraeus

Unions	Location:	Posble area of training to increase motivation and support to euPOLIS
Residents of Mikrolimano - Descendants of Refugees of Asia Minor 1922	Refugee Settlement of Asia Minor Lane A, number 5, 185 33, Mikrolimano	Residents potential interests if they participate in planning based on their answers to Q3
Panhellenic Open Sea Sailing Club	Akti Dilaveri 3, Piraeus 185 33	Potential Business drivers analysis, development and implementation
Noe - Navy Group of Greece	Karagiorgi Serbias 18, Piraeus - Mikrolimano, 18533, ATTICA	Potential Business drivers analysis, development and implementation
Iop - Sailing Club Piraeus Sport Club	Akti Koumoundourou & Mantzarou, Piraeus - Mikrolimano 18533, ATTICA,	Potential Business drivers analysis, development and implementation
Hellenic Rowing Federation of Navy Club Fans	Akti Koumoundourou 22, Piraeus - Mikrolimano, 18533, ATTICA	Potential Business drivers analysis, development and implementation
3rd Municipal Community of Piraeus	Dim. Falireos 5, Piraeus 185 47	General GDPM Blend in Matrix Climate Change Gender Matrix
Parents & Teachers Association of Ralleion Primary Schools of Piraeus	Alexandrou 3 & Tzavela 18533 Piraeus	Planning co-design Blend in Matrix General GDPM, Indoor Env. Qual. Climate Change Gender Matrix
Educational and Local Improvement Society of Neo Faliro		Planning co-design General GDPM, Water Energy Greenery, Vertical Farming, Grey Water recycling Climate Change Blend in Matrix
Navy Club of Delfinario	Akti Dilaveri 2, Piraeus 185 33	Potential Business drivers analysis, development and implementation
Navy & Sport Club Irisin- Filias (Noef)	Akti Dilaveri 2, Piraeus 185 33	Potential Business drivers analysis, development and implementation
Association of Professional Fishers of Mikrolimano, Piraeus "The Saint. Nectarius »		Climate Change General GDPM – Water quality
1st System of Naval Scouts of Neo Faliro	Dim. Falireos 38, Neo Faliro, Piraeus 185 47	Climate Change Matrix General GDPM – Water quality
Local Improvement Society of Neo Faliro, "THE RENAISSANCE"		General GDPM Capital Saving Matrix Blend in Matrix
Neo Faliro Association		General GDPM Capital Saving Matrix
<ul style="list-style-type: none"> ○ Piraeus Municipal Radio - KANALI 1 ○ Public Benefit Municipal Enterprise of Piraeus (KODEP) ○ Volunteering Office of Municipality of Piraeus 		General GDPM Blend-in Matrix



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○ Culture, Sport and Youth Organisation (OPAN PIRAEUS) SEF Stadium		
Association of Restaurants and Related Professions of Piraeus	80 Kolokotroni Str., Piraeus 185 35	Potential Business drivers analysis, development and implementation
Restaurants, bars and related business entities		Potential Business drivers analysis, development and implementation

The other FR Cities have created similar initial drafts of this document, which will be further updated with the results of Q3 Questionnaire and will be presented D2.3.

8.2 Appendix - An Example of Implementation of Modelling the BGS/NBS on the local environmental conditions affecting PH & WB

This example is given to illustrate the procedure applied in high-level training in which all relevant stakeholders' groups reach competence to make informed planning proposals and decisions, supported by evidence-based modelling.

In this appendix the results of initial modelling of the impacts of selected NBSs on local environmental conditions at the Akti Dilaveri demo-site in Pireaus are presented. This is just an example of what will be done in the relevant parts of all 4 FR cities DS's. The purpose is to be used in both: a) training of planners and designers of BGS/NBSs and b) demonstrating the means of assessing potential impacts and benefits of implementing BGS/NBS for PH&WB to all relevant stakeholders in the concrete DSs.

Mikrolimano and Akti Dilaveri street are famous for their seaside restaurant. However, storm water runoff generated by watersheds discharge into Akti Dilaveri canal and cause eutrophication, as shown in figure 43. This study model is showing the possible improvement of water quality by integrating BGS and Green port concept³⁸.

A Stormwater Management Model (SWMM) was applied in the drainage area and a Delft 3D model was developed and applied in the Akti Dilaveri canal by Wang 2020³⁹ to simulate the influence of runoff to estuarine water quality and the effectiveness' of BGS. It is showing only the impact of biofilter as a representative of the measures for improvement of runoff water quality (which affects quality in the Akti Dilaveri canal and PH&WB). The effect of a more complete set of Interventions will be analysed in due course and presented in the relevant reports to follow.



Figure 43. Drainage area analysed by SWMM Model of the Akti Dilaveri's left bank and biofilter columns

1. Biofilter systems applied in right bank of AktiDilaveri, 2. Rain Gardens applied in left bank of AktiDilaveri,
3. Concrete tiles attached to vertical walls. 4.Posidonia oceanicaisrestoration. 5. Seaside green space and stepped revetments 6. Ostrea edulis reef balls and gardening cages

The examples of detailed modelling applications and synergy of euPOLIS intervention in coastal zones and improvement of maritime biotope along with results obtained will be presented in the report D2.3.

³⁸ Pavlic, B., Cepak, F., Sucic, B., Peckaj, M. & Kandus, B. (2014) Sustainable port infrastructure, practical implementation of the green port concept. Thermal Science. 18 935-948. Available from: doi: 10.2298/TSCI1403935P.

³⁹ Qi Wang, (2020), "Blue Green Solutions and Green Harbour Concept: Rehabilitate coastal area and underwater", MSc Thesis completed at ICL, supervised by C. Maksimovic and S. Boskovic



8.3 Appendix - Questionnaire Q2 (Questions template)

The relevant parts of the material obtained from this questionnaire are processed in the main body of this report, the other parts pertinent to the tasks T3.1 and T3.2 will be presented in their correspondent reports.

QUESTIONNAIRE part 2

ADDITIONAL QUESTIONS FOR COMPLETION OF T2.2 AND T3.1

Questionnaire to be answered by FR cities representatives: Marko Stojicic, Darko Sutanovac (Belgrade), Anne, Stalk, Kathrine Stephansen (Gladsaxe), Marta Chomczyńska, Patriciya Wojtaszczyk (Lodz) ,Betty Charalampopoulou, Tassos Karatasakis (Piraeus)

Introductory note

This document presents comprehensive list of information and data which are to be obtained from 4 euPOLIS Front Runner (FR) cities (Belgrade, Gladsaxe, Łodz and Piraeus) for the selected Demo Sites (DS). The data are needed initially to complete WP2 (Stakeholders and communities' engagement and benchmarking).

Thank you for your cooperation. If any further information/clarification is needed, please contact us by email at: c.maksimovic@imperial.ac.uk cc: s.boskovic@imperial.ac.uk

Please complete the questionnaire by the 12th of February, 2021. Please upload the completed questionnaires to the euPOLIS SharePoint <https://mailntuagr.sharepoint.com/sites/Eupolis> or send by E-mail to above E-mail addresses.

Your individual responses are anonymous, and data will be reported for the whole group only. Information submitted to the questionnaire will be explicitly used only for the purposes of euPOLIS and the information will not be re-used for any incompatible purpose.

We are aware of the importance of protecting personal data, so we use your information in accordance with General Data Protection Regulation - GDPR. If you agree to the processing of your personal information (e.g., name, surname ...) we need your explicit consent. Please indicate by ticking the appropriate box below:

"I AGREE"

Consent shall be valid until cancellation.

You can cancel your consent on processing of personal information at any time by sending an e-mail c.maksimovic@imperial.ac.uk

Contact details Please provide the contact details of the person completing the questionnaire

0.1 Name
0.2 Organisation
0.3 Country
0.3 Address
0.4 Telephone
0.5 Email
0.6. Your institution is: "city authority", "urban planner", "technical partner", other (please specify)
0.7. The sector you work in: "urban planning department", "health", "environmental", "IT sector", "designer/consultant", "training and research institution", other (please specify)

1. Required Cities' SPATIAL data at the selected demo sites of FR cities (FR-DS)



D2.2 Report on the local site analysis and list of relevant issues/problems and resource

- a. Demo sites' drawings with perimeter / sketches with the existing NBS/greenery types (please use the same letters/numbers as in the Fig 1 of the proposal), including surrounding traffic routes / streets.
- b. Any planning documents (for the demo site) already under development or under production; (for example: essential drawings and short technical description of demonstration site planned developments - related and not related to euPOLIS). *E.g., Detailed Master Plan*
- c. Detailed photographs of demonstration sites – from all five sides (four horizontal: E, S, W and N) and one vertical – preferably Orto photo) if possible (visits to the sites by foreign experts for direct assessment not possible due to Covid-19 restrictions). To enable our experts to analyse types and quality of trees please submit following:
 - 1) Photography of each typical tree canopy and trunk,
 - 2) Photography of typical tree leaf (zoomed),
 - 3) Photography of smallest tree branch with the leaf at the end (zoomed),
 - 4) Photography of tree fruit (zoomed),
 - 5) Photography of trees location.

2. Short technical description of sites:

- a. Total size (m2) and land use data: areas covered by permeable surfaces (m2), area covered by impermeable surfaces (m2). (Please present % of roofs, streets, sidewalks, parking places with trees or without trees) *; *
Note: If impermeable surfaces (such as sidewalks and parking spaces), contain planted trees or shrubs, present it as a separate %, indicating the total area of canopy)

Please specify: _____

- a.1 approximate area covered by trees planted on permeable surfaces, shrubs and grass (m2)
- a.2 approximate area covered by surface water bodies (standing, running, falling) (m2)

- b. Any existing permanent assets (functional structures such as buildings, open air cafes, restaurants, playgrounds, kiosks and street furniture, water amenities) on the site;

Please specify: _____

- c. Types and quality of terrain/soil (soil quality, nutrition recovery)

Please specify: _____

- d. Specification of tree types (species), quality of trees, shrubs, grass and other NBS (greenery health conditions)

Please specify: _____

- e. Any urban elements obstructing pedestrian mobility and security (curb height distribution, other barriers, walls)

Please specify: _____

- f. Multi-functionality; functional diversity in public space (playground, commercial, hospitality (open air food and drinks serving area), recreation...);

Please specify: _____

- f.1 Public socializing area - meeting places for the community members (yes/no, m2);

Please specify: _____

- f.2 Any bicycle and jogging, walking lanes (km);

Please specify: _____

- g. Maintenance activities per type of land use (cleaning/watering-irrigation/grass-cutting, tree pruning for green spaces and or sweeping/brushing of impermeable surfaces)

- g.1 Quality (high /medium /low)

Please specify: _____

- g.2 Frequency (daily/weekly)



Please specify: _____

- h.** Presence of public sanitation facilities
 - h.1. Public toilets (conventional with water flushing) or dry/chemical

Please specify: _____

- i.** Quality of maintenance of public sanitation facilities
 - i.1 Quality (high /medium /low)

Please specify: _____

- i.2 Frequency of cleaning (daily/weekly)

Please specify: _____

- j.** Animal (pets) waste (dog faeces)
 - j.1 Regulation (regulated /owners' responsibility/not regulated)

Please specify: _____

- j.2 enforcement (existing – communal wardens/ non-existent)

Please specify: _____

3. Environmental & Functional issues and the existing assets on the site

- a.** Presence of Heat Island effect
 - a.1 Ambient temperature significantly higher than in the surrounding area (due to surface cover material's negative Albedo effect)

Please specify: _____

- a.2 Prolonged high ambient temperature after sunset

Please specify: _____

- b.** Open public space percentage of shading during critical summer months

Please specify: _____

- c.** Shading considered sufficient or insufficient for user's wellbeing

Please specify: _____

- d.** Natural or engineered facilities for protection from winter winds

Please specify: _____

- e.** Any known positive and / or negative demo site's interactions (functional influences*:) with the immediate neighbourhood within the context PH & WB of users (** for example, location attractiveness/comfort, air pollution, noise, degrading environmental conditions, shading of adjacent buildings etc.*)

Please specify: _____

- f.** Long-term predictions of the local weather extremes and / or other phenomena caused by the climate change

Please specify: _____

- g.** Presence of biodiversity in the context of ecosystem services (specify different flora and fauna at site);

Please specify: _____

4. City's comments on gaps in NBS applications

- a.** Cities to submit their view on gaps* in NBS applications in their selected demo site
(* for example: none of NBS applied, design and maintenance issues, traditional vs integrated/multifunctional design, lack of positive impact, no functional criteria used in the NBS design, lack of technical guidelines and lack of planning experience)

Please specify: _____

5. Potential demonstration site resources relating to PH & WB, for resource categories as follows:

- a.** Local community (residents and visitors) potential knowledge, local resources and readiness for engagement

Please specify: _____



b. Locally available recyclable materials

Please specify: _____

Additional cultural potential

Please specify: _____

c. Social and local community structures

Please specify: _____

d. Geographical (location advantages for economy and tourism)

Please specify: _____

e. Additional functional potential (recreational, tourists, cultural, environmental education, business activity)

Please specify: _____

6. Demo site additional potential resources

a. Renewable energy from multiply sources

Please specify: _____

b. Solid waste management & recycling potential

Please specify: _____

c. Urban agriculture: local production of food and other goods (flowers, herbs,..)

Please specify: _____

d. Demo site water & wastewater (resources availability, management, potentials for improvement)

Please specify: _____

e. neighbourhood housing & construction potential (for example: potential impacts of demo site's upgrade)

Please specify: _____

f. market potential of the demo site location

Please specify: _____

g. information & communication technology potentials

Please specify: _____

h. retail potential

Please specify: _____

i. Enhancement of governmental management at local level

Please specify: _____

j. Please add any categories missing

Please specify: _____

FR Cities answers to Q2 are collected (here in appendix 8.5) and will be further updated by cities and added to the correspondent deliverables.



8.4 Appendix - Questionnaire Q3 (template)

The versions customized for local conditions in FR and FL cities and the results of the processing will be presented in the final report D2.3.

Q3 - Questionnaire for Citizens in 4 FR Cities and 5 FL cities
(residing, working or visiting Demo Sites (DS in FRs) and Case Study (CS) areas in FL cities and their vicinities)

Call for Citizens of (FR & FL cities) / Demo /Case location):
Join euPOLIS' efforts to bring nature in (Demo/Case location / your neighborhood)

SECTION 1: ABOUT THE PROJECT

Hello,

We are scientists and practitioners from [name of the University or other research facility dependent on the country.]. Together with partners from all around Europe, we work on an international project euPOLIS funded by European Union. We would like to invite you to take part in the attempt to bring more (healthy and wealthy) nature to your neighborhood to improve the health and wellbeing of you who live there and friendly people who visit the site. You can read more about the project below.

The euPOLIS project is an innovative philosophy of urban planning based on nature-based solutions and participation of citizens, with the goal of improving existing and creating new healthy and regenerative public spaces in 4 demonstration cities: Gladsaxe in Denmark, Lodz in Poland, Belgrade in Serbia, and Piraeus in Greece within the period between 2020 and 2024.

Nature-based solutions (NBS) apply natural elements (greenery, water, soil, wind, sun, etc.) that recreate natural processes and functions in urban environments, to provide benefits for both human well-being and biodiversity. Nature-based solutions help society to answer environmental, social and economic challenges in a sustainable and responsible way. By bringing nature to protect us, at the same time we protect the environment.

euPOLIS project is supported through the European Union's Horizon 2020 program H2020-EU.3.5.2., under grant agreement No 869448. To learn more about the euPOLIS projects and participating partners, visit the project's official website: www.eupolis-project.eu.

To learn more about positive impacts of nature-based solutions (NBS), innovative urban planning based on them, please watch a short video.

[A paragraph about NBS approach in each FR city' demo site and CS in each FL site:

"Belgrade is one of the four front runner cities which will demonstrate the benefits of the euPOLIS approach in two demo locations, Park Ušće / Zemun Quay and Linear Park at Dorcol. Linear Park zones 7 and 8 will witness.... Within the existing green area at Ušće Park / along the Zemun Quay, the euPOLIS project will create a pilot park featuring / testing / demonstrating....]

WHY PARTICIPATE? YOUR OPINION MATTERS!

The prevailing top-down planning approach does not always include opinions and optimal interests of citizens, leaving them often unsatisfied with the implemented solutions. In the euPOLIS project, we aim to improve the planning practice by enabling citizens to take an active role in the analysis and improvement of their living environment, and thus enhance their health, wellbeing, and thus their life quality. Our participatory planning process in (demo and case location) starts with this survey, followed by additional forms of citizens' engagement throughout the entire co-creation process (co-design workshops, focus groups, interviews, site visits, etc.). Our goal is to reliably collect information about the project locations and to encourage residents and visitors to express their opinion so that they can help us to create the best possible place. The ultimate goal is that citizens' proposals are accepted, materialised and that they feel they are the co-creators of those solutions.

If you frequently visit, live and work close to or study in the Demo/Case project area), please, take a moment to share your opinions and help us to understand better the current status and potentials of (euPOLIS demo/case site XY in your area). Your answers are ANONYMOUS, but you can leave your email address if you wish to be contacted for project updates and participate in its further steps. The data collected in this survey will be analyzed by the euPOLIS expert team and included in the proposal of interventions and solutions in (demo/case location).

The survey is divided into 7 sections, starting with a general section collecting basic information about you, continuing with sections in which we map your relationship to the Demo/Case site (Sections 2, 3) your opinions on different aspects of the current status of the demo site (Sections 4, 5), as well as your interest and availability to take an active role in the euPOLIS project (Section 6,7).

Completing the survey will take you approximately 5-7 minutes.



D2.2 Report on the local site analysis and list of relevant issues/problems and resource

THANK YOU FOR HELPING euPOLIS TEAM TO CREATE A BETTER, HEALTHIER, MORE INCLUSIVE, REGENERATIVE PUBLIC SPACE ENHANCED TO MEET YOUR NEEDS AND EXPECTATIONS!

SECTION 2

GENERAL INFORMATION / PERSONAL CHARACTERISTICS

Tell us about yourself so our experts can understand better the diversity of users of the (demo location) and their needs.

Age *

Option 1 - Age groups (years)

- 0 - 18
- 18-24
- 25-39
- 40-65
- 65 plus

Option 2 - Exact Age

Gender / Sex *

- Female
- Male
- Other

Education *

- Unschooling
- Elementary school
- High school
- Trade/technical/vocational training
- Bachelor's degree
- Master's degree
- PhD
- Other

Employment Status *

- Full-time employee
- Part-time employee
- Self-employed
- Unemployed
- A student
- Retired
- Unable to work
- Other

Marital Status *

- Single
- Married
- Domestic partnership
- Divorced
- Separated
- Widowed
- Other

Ethnicity _____

Legal Status *

- National citizen
- Foreign citizen
- Resident
- ID Holder
- Other



D2.2 Report on the local site analysis and list of relevant issues/problems and resource

Which group of religions do you belong to?

Option 1 - offer answers

- Christian catholic
- Christian orthodox
- Christian protestant, protestant
- Other Christian denomination
- Jewish
- Muslim
- None / Atheist
- Other

Option 2 - leave blank space (higher risk of not getting the answer)

Do you encounter difficulties in walking, climbing the stairs, and using facilities in public spaces (parks, squares, public gardens, etc.)?*

- Yes
- No

What is your monthly household income? *

(Cities can adjust the ranges to the average income by country, or leave descriptive)

- No income
- Range 1 (low income)
- Range 2 (medium)
- Range 3 (high)
- Other:

How many people live in your household? *

- 1
- 2
- 3 - 4
- 5 and more

How many children live in your household? *

- None
- 1
- 2
- 3
- 4
- 5 and more

SECTION 3

YOUR RELATION TO PROJECT AREA (Demo Site of FR and CS for FL cities)

How and when do you experience the project area?

In what capacity do you use the demo site? *

I am a resident in the area / flat or house owner

I am a resident / I rent my living space

I work in the area

Education-related (attending local university, school, training centre, my children go to kindergarten/school/training) in the area

Living elsewhere, but visiting the area for recreational purposes (sports centre, outdoor sports, park cycling, walking, dog walking, children play)

Living elsewhere, but visiting the area for cultural purposes (museum, concert hall, exhibition, theatre, festivals...)

Visiting the area for entertaining purposes (cafe, club, restaurant / social gatherings)

What is the distance between your residency and the demo site?

- Less than 200m
- Between 200 m and 500m
- Between 500 m and 1km
- More than 1km



D2.2 Report on the local site analysis and list of relevant issues/problems and resource

Other:

What kind of transport do you use to reach the site?

- Walking
- Bicycle
- Bus
- Car
- Subway
- Tram
- Other:

How often do you visit the demo site? *

- Everyday
- A few times a week
- Once a week
- Once a month
- Several times a year
- Other:

When do you visit the site during the week? *

- Workdays
- Weekend

What time during the day do you visit the site? *

- Morning
- Afternoon
- Night

What part of the year do you visit the site *?

- Spring
- Summer
- Autumn
- Winter
- All seasons

How long on average do you spend in the site? * _____

SECTION 4

YOUR KNOWLEDGE OF THE SITE

Please rate the following characteristics of the site on the scales below

GREEN AREA vs. CONCRETE? *

- Concrete pavements
- 1
- 2
- 3
- 4
- 5
- Green area

QUALITY OF AIR *

- Polluted air
- 1
- 2
- 3
- 4
- 5
- Clean air

STREET HYGIENE * (CLEANLINESS OF THE AREA)



D2.2 Report on the local site analysis and list of relevant issues/problems and resource

Dirty

1

2

3

4

5

Clean

PERSONAL SAFETY DURING DAY IN THE AREA *

Insecure

1

2

3

4

5

Safe

PERSONAL SAFETY DURING NIGHT IN THE AREA *

Insecure

1

2

3

4

5

Safe

NOISE IN THE AREA DURING DAYTIME *

Loud

1

2

3

4

5

Quiet

NOISE IN THE AREA DURING NIGHTTIME *

Loud

1

2

3

4

5

Quiet

LIGHTING IN THE AREA DURING NIGHTTIME *

Dark

1

2

3

4

5

Light

ACCESSIBILITY *

Not accessible for people with disabilities and specific needs

1

2

3



D2.2 Report on the local site analysis and list of relevant issues/problems and resource

4

5

Accessible for people with disabilities and specific needs

KIDS FRIENDLY? *

Not appropriate for kids

1

2

3

4

5

Good for kids (Kids friendly)

SENIORS FRIENDLY? *

Unfriendly for seniors

1

2

3

4

5

Friendly for seniors

MAINTENANCE *

No or poor maintenance

1

2

3

4

5

Optimal maintenance

EQUIPMENT/ FACILITIES *

Under Equipped

1

2

3

4

5

Well equipped with the street furniture (benches, food/drink kiosks, trash bins, mobile phone charging, WIFI/open internet access, lighting (clean sanitation), baby changing facilities etc.)

Select functions/ facilities / equipment you use currently in the place in question.

(select up to 5)

Simple seating

Seating protected from direct sun and wind

Water feature (aesthetics, pleasant water view/water sound)

Water feature with cooling effect

Drinking fountain

Interesting lighting

Canopy for shade

Solar canopy

Trees with defined known functions benefits

Selected types of trees with reduced allergy potential

Flower garden

Community garden (urban farming)

Playground for kids with equipment (swing, climber, etc)

Educational playground for kids and grown-ups

Biodiversity spots (birds, water ponds with aquatic plants, fishponds, amphibians)

Bird/wildlife watching platforms



D2.2 Report on the local site analysis and list of relevant issues/problems and resource

- Training / running track
- Skating track
- Sport playground
- Bicycle routes
- Ice skating rink
- Sport playground
- Water recreation support spots (paddling, rowing,..)
- Dog park

What type of activities do you enjoy in the existing space? * _____

Please, rate on the scale from 1 to 7 the following sentences, where 1 - strongly disagree and 7 - strongly agree.

- I like spending time in this existing space
- I feel attached to this existing space
- I feel at home in this existing space

In addition to the existing functions at this site (sport recreation) what additional functions would you like to propose:

- Cultural
- Eco-edu
- Urban farming
- Community activities

Select functions/ facilities / equipment which would make you spend more (enjoyable/creative) time in the park or public place?
(select up to 5)

- Simple seating
- Seating protected from direct sun and wind
- Water feature (aesthetics, pleasant water view/water sound)
- Water feature with cooling effect
- Drinking fountain
- Interesting lighting
- Canopy for shade
- Solar canopy
- Trees with defined known functions benefits
- Selected types of trees with reduced allergy potential
- Flower garden
- Playground for kids with equipment (swing, climber, etc)
- Educational playground for kids and grown-ups
- Biodiversity spots (birds, water ponds with aquatic plants, fishponds, amphibians)
- Bird/wildlife watching platforms
- Training / running track
- Skating track
- Sport playground
- Bicycle routes
- Ice skating rink
- Sport playground
- Water recreation support spots (paddling, rowing)
- Dog park

Select commercial and cultural amenities/programs would attract you / make you spend more (enjoyable/creative) time in the park or public place?
(select up to 5)

- Pavilion in the park for coffee, snack, pastry shop, etc
- Mobile carts for coffee, ice cream or snacks
- Parking lot
- Shopping mall
- Open Market
- Open Market below canopy
- Small shops and rentals for sports equipment



D2.2 Report on the local site analysis and list of relevant issues/problems and resource

Amusement park
Open swimming pools (active during night, winter)
Bicycle renting facilities
Performing place (open space)
Community garden (urban farming)
Community (gathering) point
Community point below canopy
Music pavilion
Art creating (painting, sculpturing, etc.)/open-air training/demo spots
Outdoor gallery place
Eco educational "hubs"
Eco business "nurseries" /development support spots
Guided tours/info point/centres

Help us connect to good local initiatives

If you are aware of any local environmental or cultural organization, citizen movement or socially responsible business operating on or in the vicinity of the demo site, please, specify.

Help us to learn more about your neighbourhood.

If you are aware of any local holders of knowledge about the project area (old residents, historical institutions, etc.), please specify.

SECTION 5

PARTICIPATION EXPERIENCE

The euPOLIS' mission is to include consultation with citizens as a regular urban planning process in order to create better quality spaces and citizens' satisfaction. Share with us if you have any previous experience and are you open to participate in shaping your neighbourhood.

Did you take part in participatory processes related to your city as a citizen and contributed to planning changes in your area?

- Yes
- No
- I am not sure
- Other

Have you ever been consulted as a resident about the investments/interventions in your neighbourhood?

- never
- once
- between 2 and 5 times
- more than 5 times
- Other

Are you interested to take part in the euPOLIS consultation process in (Demo Location)?

- Not interested at all
- 1
- 2
- 3
- 4
- 5
- Very interested

Are you interested in taking part in community activities in your neighbourhood (improvement of the contents and maintenance of the park space, producing herbs, fruits, or vegetables in the communal garden, or get involved in other ways in improving public space in your area)?

- Not interested at all
- 1
- 2
- 3
- 4
- 5



Very interested

SECTION 6

STAY IN TOUCH WITH euPOLIS

If you are interested to join the euPOLIS co-creation process and participate in future consultation sessions and workshops, please, leave your email address for future interactions and follow up on the project development.

E-mail address: _____

What source of information/media do you use the most?

- TV
- Radio
- Daily newspaper / Print
- Daily news / Web portals / apps
- Social Networks
- Word of mouth
- Other

What are your preferred means of contact for future consultations?

- none
- email
- regular mail
- phone
- in person
- tenants meetings
- municipality meetings
- Other:

SECTION 7

BRIDGING THE DIGITAL DIVIDE

Help us to include the opinions and needs of people without access to technologies.

Would you consider filling in this questionnaire on behalf of your neighbour/older or disabled family member/co-worker who does not have no access to the digital means of communication?

- Yes, I would love to
- No, I don't have time
- Maybe

How did you fill in this questionnaire?

- On my own/online
- With the help of my neighbour, family member, colleague
- With the help of a professional mediator/organization
- Other: _____

Thank you for your time and valuable answers!

If you wish to remain in contact for future actions of the euPOLIS project, please write to us: (local euPOLIS info address) or follow us on Facebook: <https://www.facebook.com/eupolis2020/>



8.5 Appendix Questionnaire Q2 preliminary answers

The answers collected from the cities together with the processing results in the reports D2.3 and the other relevant D3.1.

8.5.1 Appendix – Q2 Preliminary Answers Belgrade

ADDITIONAL QUESTIONS FOR COMPLETION OF T2.2 AND T3.1

Contact details Please provide the contact details of the person completing the questionnaire

0.1 Name - Milena Zindovic / Anja Randelovic / Filip Stanic / Ranko Bozovic, for City of Belgrade
0.2 Organisation – ENPL / FCEBG, for BELGR
0.3 Country - SERBIA
0.3 Address – Zupana Vlastimira 10
0.4 Telephone - +381113096100
0.5 Email - ranko@enplustech.com / mzindovic@gmail.com
0.6. Your institution is: "city authority", "urban planner", "technical partner", other (please specify)
0.7. The sector you work in: "urban planning department", "health", "environmental", "IT sector", "designer/consultant", "training and research institution", other (please specify)

There are two demo sites in the city of Belgrade: DS1. Linear Park and DS2. Park Usce
DS1.Linear park

1. Required Cities' SPATIAL data at the selected demo sites of FR cities (FR-DS)

- a. Demo sites' drawings with perimeter / sketches with the existing NBS/greenery types (please use the same letters/numbers as in the Fig 1 of the proposal), including surrounding traffic routes / streets.

Detailed plan with suggested NBSs in the two zones of the Linear Park.⁴⁰

- b. Any planning documents (for the demo site) already under development or under production; (for example: essential drawings and short technical description of demonstration site planned developments - related and not related to euPOLIS). *E.g., Detailed Master Plan*

The planning documents for the area are under development (Detailed Master Plan) and it should be ready by the end of 2021. The entire area of the Linear park is divided into 10 zones, with euPOLIS demo-locations provisionally being Zones 7 and 8. The old railway route will be developed into the exclusive linear park. The euPOLIS main NBS principles are already included into planning process as a part of the Planning Brief.

- c. Detailed photographs⁴¹ of demonstration sites – from all five sides (four horizontal: E, S, W and N) and one vertical – preferably Orto photo) if possible (visits to the sites by foreign experts for direct assessment not possible due to Covid-19 restrictions). To enable our experts to analyse types and quality of trees please submit following:
 - Orto-photos of the zones
 - *Devastated areas around the location*
 - *Urban art*

⁴⁰ Detailed plan with suggested NBSs and their description will be added to the D3.1 report on the local demo-case analysis

⁴¹ Selected photos of studied zones will be added to the local conditions and features report D3.1



D2.2 Report on the local site analysis and list of relevant issues/problems and resource

- *Garbage management on site*
- *Local existing business (carwash)*
- *Existing railroad tracks – out of use*
- *Vast impermeable area (industrial complex) part of Zone 8*
- *Abandoned industrial building*
- *Local vegetation (trees and shrubs)*
- *Tree with vines*

DS2. Park Usce

1) Required Cities' SPATIAL data at the selected demo sites of FR cities (FR-DS)

a. Potential Usce Demo site comprises two sections: developed section (S1) and semi-developed section (S2). These two sections are connected via Sava river promenade. The data concerning Usce park are divided as follows: The data related to the recreational activities as walking, jogging, cycling and gymnastics are related to the section S1⁴². All other data specified in the Q2 are related to the section S2. The micro locations with particular euPOLIS interventions will be selected during the WP6, design phase.

b. Any planning documents (for the demo site) already under development or under production; (for example: essential drawings and short technical description of demonstration site planned developments - related and not related to euPOLIS). *E.g. Detailed Master Plan*⁴³

The detailed Master Plan exists for the park Usce. The euPOLIS team is presently negotiating with the City management the master plan updating to suit the euPOLIS project requirements.

The plan designates the whole area as a public park, with provisions for landscaping, paths and equipment. A public toilet location is also planned, within or adjacent to the possible euPOLIS micro location. Some of the planned paths and children's playgrounds have already been realized on site.

This plan consists of both public areas (mostly parks) and housing and commercial areas and other public facilities, designated by the plan. euPOLIS micro location is planned within the park area of the plan. The existing park areas are kept in their entire existing surface by the plan, which provides provisions and conditions for its reconstruction. The plan gives provisions for landscaping, introducing new pedestrian and cycling paths and introducing new cultural and commercial areas within the park, such as an art gallery, cafes, skating rink etc. It also plans for a new public toilet facility.

c. Detailed photographs⁴⁴ of demonstration sites – from all five sides (four horizontal: E, S, W and N) and one vertical – preferably Orto photo) if possible (visits to the sites by foreign experts for direct assessment not possible due to Covid-19 restrictions). To enable our experts to analyse types and quality of trees please submit following:

- 1) Photography of each typical tree canopy and trunk,
- 2) Photography of typical tree leaf (zoomed),
- 3) Photography of smallest tree branch with the leaf at the end (zoomed),
- 4) Photography of tree fruit (zoomed),
- 5) Photography of trees location.

2. Short technical description of sites:

- a. Total size (m²) and land use data: areas covered by permeable surfaces (m²), area covered by impermeable surfaces (m²). (Please present % of roofs, streets, sidewalks, parking places with trees or without trees)*; *

⁴² Section S1 and Section S2 orthophoto will be attached to the D3.1 report on the local demo-case analysis

⁴³ Detailed master plan for location S1 and S2 will be attached to the D3.1

⁴⁴ Selected photo will be attached to the D3.1 report on the local demo-case analysis



D2.2 Report on the local site analysis and list of relevant issues/problems and resource

Note: If impermeable surfaces (such as sidewalks and parking spaces), contain planted trees or shrubs, present it as a separate %, indicating the total area of canopy)

a.1 approximate area covered by trees planted on permeable surfaces, shrubs and grass (m2)

Table 5. Permeable and impermeable surfaces in Usce Park, Belgrade DS

	S1	S2
Total area (m2)	60,000 m2	29,300 m2
Permeable area (m2)	43,500 m2	24,300 m2
Impermeable area (m2)	6,500 m2	5000 m2
Roofs (%)	0	3,5%
Streets (%)	0	0
Sidewalks (%)	0	0
Parking places with trees (%)	0	0
Parking places without trees (%)	0	4%

a.2 approximate area covered by surface water bodies (standing, running, falling) (m2)

DS1. There is no area covered by surface water bodies.

DS2. There is no area covered by surface water bodies

b. Any existing permanent assets (functional structures such as buildings, open air cafes, restaurants, playgrounds, kiosks and street furniture, water amenities) on the site;

DS1. There are no permanent structures at the site except for access bridges to the floating structures, mainly bars and restaurants.

DS2. There are residential buildings adjacent to the S2 location. There is only a small number of ground-level shops, closer to the surrounding traffic boulevards. This part of the river embankment is equally used for floating bars and restaurants.

c. Types and quality of terrain/soil (soil quality, nutrition recovery)

DS1 and DS2 - The area contains non polluted, healthy soil. The nutrition quality will be established during the euPOLIS monitoring process. There are some areas where permeability quality might be influenced by euPOLIS project.

d. Specification of tree types (species), quality of trees, shrubs, grass and other NBS (greenery health conditions)

Please specify:

DS1 and DS2 - There is a number of different types of trees at both park sections. The micro-location for project NBS interventions will be selected to best blend into the existing landscape design.

e. Any urban elements obstructing pedestrian mobility and security (curb height distribution, other barriers, walls)

DS1. The quality of pedestrian walkways as well as recreational routes is generally good but with potential for certain improvements.

DS2. This park section does not have satisfactory quality of pedestrian walkways. The main pedestrian walkway is the waterfront quay, while there are no developed paths within the park.

f. Multi-functionality; functional diversity in public space (playground, commercial, hospitality (open air food and drinks serving area), recreation...);

DS1. This park section does provide multifunctional facilities for visitor's recreation. There is significant length of recreational walking, running and cycling routes. The hospitality offers are covered by the adjacent floating restaurants positioned against the Sava river promenade.



D2.2 Report on the local site analysis and list of relevant issues/problems and resource

DS2. This park section is less developed in terms of park equipment but does offer some interesting kids playing and sports facilities. There is an artificial free-climbing facility, and two basketball courts. The hospitality offers are covered by the adjacent floating restaurants positioned against the Sava river promenade.

f.1 Public socializing area - meeting places for the community members (yes/no, m2);

DS1 and DS2. The river promenade as significant community socializing area. There is no other community usage defined areas.

f.2 Any bicycle and jogging, walking lanes (km);

DS1 contains significant length of recreational walking, running and cycling routes.

DS2 contains limited walking and recreational areas. All activities (walking, running and cycling) are currently happening on the waterfront quay, which creates a lot of user conflicts.

g. Maintenance activities per type of land use (cleaning/watering-irrigation/grass-cutting, tree pruning for green spaces and or sweeping/brushing of impermeable surfaces)

g.1 Quality (high /medium /low)

DS1 and DS2 - The regular City maintenance is applied throughout the Usce park area. Quality medium.

g.2 Frequency (daily/weekly)

DS1 and DS2 - Maintenance is regular, seasonal.

h. Presence of public sanitation facilities

h.1. Public toilets (conventional with water flushing) or dry/chemical

DS1 and DS2 - There are no public toilets.

i. Quality of maintenance of public sanitation facilities

i.1 Quality (high /medium /low)

DS1 and DS2 - N/A

i.2 Frequency of cleaning (daily/weekly)

DS1 and DS2 - N/A

j. Animal (pets) waste (dog faeces)

j.1 Regulation (regulated /owners' responsibility/not regulated)

DS1 and DS2 - Owner's responsibility, however, most ignore this regulation as it is not enforced.

j.2 enforcement (existing – communal wardens/ non-existent)

DS1 and DS2 – Not apparently efficient.

3.Environmental & Functional issues and the existing assets on the site

a. Presence of Heat Island effect

a.1 Ambient temperature significantly higher than in the surrounding area (due to surface cover material's negative Albedo effect)

DS1 and DS2 - Generally there is presence of heat island effect due to the wrong Albedo effect and materialization of streets and some walkways. The Subjective feeling in the area indicates that there is a presence of the Heat Island effect. Additionally, buildings around the zone are made of high thermal inertia materials exposed to the outdoors which has negative heat island effect.

a.2 Prolonged high ambient temperature after sunset

DS1. Summertime temperatures are higher in the area up to 1 to 2 h after sunset.

DS1. Summertime temperatures are higher in the area up to 3 h after sunset.



D2.2 Report on the local site analysis and list of relevant issues/problems and resource

- b. Open public space percentage of shading during critical summer months

DS1 and DS2 – apart from few zones, the shading is not adequate during the summer months.

- c. Shading considered sufficient or insufficient for user's wellbeing

DS1 and DS2 – Shading is considered insufficient for the users well-being.

- d. Natural or engineered facilities for protection from winter winds

DS1 and DS2 - Not present.

- e. Any known positive and / or negative demo site's interactions (functional influences*:) with the immediate neighbourhood within the context PH & WB of users (**for example, location attractiveness/comfort, air pollution, noise, degrading environmental conditions, shading of adjacent buildings etc.*)

DS1 and DS2 – Both park sections are offering facilities conducive to the overall public well-being enhancement. This all shows vast potential for improvements. The negative effects could be defined as coming from two sources: one is pollution from the surrounding traffic and the other would be not always responsible behaviour of park visitors.

- f. Long-term predictions of the local weather extremes and / or other phenomena caused by the climate change

DS1 and DS2 – Expected impacts of climate change in the area are decrease in the number of rainy days, prolonged dry periods and increased daily mean temperature. The actual City data will have to be analysed for the more adequate estimate of these risks.

- g. Presence of biodiversity in the context of ecosystem services (specify different flora and fauna at site);

DS1 and DS2 – There is no study on the extent of biodiversity in the area.

4. City's comments on gaps in NBS applications

- a. Cities to submit their view on gaps* in NBS applications in their selected demo site

(for example: none of NBS applied, design and maintenance issues, traditional vs integrated/multifunctional design, lack of positive impact, no functional criteria used in the NBS design, lack of technical guidelines and lack of planning experience)*

Please specify:

DS1 and DS2 – Planning is presently in progress. NBS criteria are being included into the planning brief.

5. Potential demonstration site resources relating to PH & WB, for resource categories as follows

- a. Local community (residents and visitors) potential knowledge, local resources and readiness for engagement

DS1 and DS2 – Visitors of this park sections are mostly younger and middle-aged people orientated towards active recreation, as well as senior citizens interested in daily walking. We expect that number of these visitors might be interested in taking part in euPOLIS project.

- b. Locally available recyclable materials

DS1 and DS2 – due to the significant number of restaurants and residential buildings it is expected that there is significant quantity of organic waste, paper, cardboards, plastics, metal and glass, all that can be used for recycling.

- c. Additional cultural potential

DS1 and DS2 – This park has already been used for massive outdoor musical concerts and cultural gatherings. One of the most significant cultural buildings, the Museum of Contemporary Art is in the park. This building is a large potential for diverse cultural events.

- d. Social and local community structures

DS1 and DS2 – N/A

- e. Geographical (location advantages for economy and tourism)



D2.2 Report on the local site analysis and list of relevant issues/problems and resource

DS1 and DS2 – The Usce park is already one of the most important Belgrade tourist and recreational destinations. The adjacent rivers contribute to the large extent to this demo site potential.

f. Additional functional potential (recreational, tourists, cultural, environmental education, business activity)

DS1 and DS2 – The park is very well connected to the rest of the city with numerous transport facilities. It still represents the area for potential improvements in tourism, economy, social and environmental categories. The project task is to enhance these categories and introduce additional functionalities, such as public education in the advantages of euPOLIS approach.

6. Demo site additional potential resources

a. Renewable energy from multiply sources

DS1 and DS2 – There is ground water energy potential that was not exploited to date. There is also interesting wind energy potential due to the Kosava wind from Danube. The average intensity of solar radiation in Belgrade is about 1400 kWh/m²/year, which is high energy potential.

b. Solid waste management & recycling potential

DS1 and DS2 – The city of Belgrade is currently making efforts to introduce at least basic waste management principles at the city level. Hence, there is serious potential for waste management and recycling from demo sites as well.

c. Urban agriculture: local production of food and other goods (flowers, herbs,..)

DS1 and DS2 – Presently, urban agriculture is not developed on this location and in Belgrade in general.

d. Demo site water & wastewater (resources availability, management, potentials for improvement)

DS1 and DS2 – There are no wastewater and site water management advanced solutions applied at this demo site. The wastewater is connected to the city sewerage system and surface water management does not exist at the required level.

e. neighbourhood housing & construction potential (for example: potential impacts of demo site's upgrade)

DS1 – There are number of plans for the new buildings around this location.

DS2 – The land capacity around this park section is almost fully used.

f. Market potential of the demo site location

DS1 and DS2 – For both location master plans allow for introductions of commercial activities, located within removable or semi-permanent glass pavilions, designed in a way to not disrupt the landscaping and park facilities. These could house cafes, shops, local recreation hiring equipment facilities, or other commercial and public functions that are complementary to the park use and could increase the attractiveness of the location and the number of visitors. These pavilions can be places where surrounding craftsmanship restaurants and stores can display their products to passers-by, and where urban gardens can supply fresh seasonal produce. The proximity of the river (and local marinas) allow for nautical tourism to flourish in the area.

g. Information & communication technology potentials

DS1 and DS2 – There are significant potential for the promotion of new communication technologies at the site.

h. retail potential

DS1 and DS2 – There is potential for multiple temporary retail facilities.

i. Enhancement of governmental management at local level

Please specify: _

DS1 and DS2 – The euPOLIS project should significantly influence number of city governmental and management segments. The Interaction between city management and citizens is seen as serious potential.

j. Please add any categories missing

Please specify:



D2.2 Report on the local site analysis and list of relevant issues/problems and resource

N/A



8.5.2 Appendix – Q2 Preliminary Answers Gladsaxe

QUESTIONNAIRE part 2

ADDITIONAL QUESTIONS FOR COMPLETION OF T2.2 AND T3.1

Contact details Please provide the contact details of the person completing the questionnaire

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0.6. Your institution is: "city authority", "urban planner", "technical partner", other (please specify) 0.7.1 Architect 0.7.2. Biologist 0.7.3. city environmental authority 0.7.4. Urban innovator at Gladsaxe Municipality
0.7. The sector you work in: "urban planning department", "health", "environmental", "IT sector", "designer/consultant", "training and research institution", other (please specify) 0.7.1 City planning, landscape architecture and building architecture. 0.7.2 Consultative biologist

1) Required Cities' SPATIAL data at the selected demo sites of FR cities (FR-DS)

- a. Demo sites' drawings with perimeter / sketches with the existing NBS/greenery types (please use the same letters/numbers as in the Fig 1 of the proposal), including surrounding traffic routes / streets.
- b. Any planning documents (for the demo site) already under development or under production; (for example: essential drawings and short technical description of demonstration site planned developments - related and not related to euPOLIS). *E.g. Detailed Master Plan*

Concept master plan will be attached in the report on the local demo-site analysis D3.1

- c. Detailed photographs of demonstration sites – from all five sides (four horizontal: E, S, W and N) and one vertical – preferably Orto photo) if possible (visits to the sites by foreign experts for direct assessment not possible due to Covid-19 restrictions). To enable our experts to analyse types and quality of trees please submit following:
 - 2) Photography of each typical tree canopy and trunk,
 - 3) Photography of typical tree leaf (zoomed),
 - 4) Photography of smallest tree branch with the leaf at the end (zoomed),



- 5) Photography of tree fruit (zoomed),
- 6) Photography of tees location.

The following photos⁴⁵ will be selected to:

Project site:

- Part of the surroundings of Pileparken, Gyngemose South (Gyngemose Syd) which is nearby the project site but separated by a road
- From TV-byen area where ponds, Amphibian tunnel and fences have been implemented together with AMPHI and GLM to preserve the populations of the species *Rana arvalis*.

Trees present at the area:

- Oak (*Quercus*) Perhaps Hungarian Oak (*Quercus frainetto*) (1)
- Honeysuckles (*Lonicera caprifolium*) (1)
- *Dasiphora fruticosa* (1)
- *Rhododendron* sp. (1)
- *Syringa vulgaris* (1)
- *Viburnum bodnantense* Kejsersbusk or *Viburnum farreri* (1)
- *Deutzia gracilis* or *Deutzia scabra* (1)
- *Spiraea trilobata* (1)

Placement of Pileparken 6. Gyngemose syd was monitored in July 2020.

Throughout euPOLIS, a comprehensive monitoring will be performed on site but also in the close surroundings to assess the potential of colonisation of local species. This includes Amphibians, birds, bats, insects (e.g. butterflies, dragonflies), macroinvertebrates. The nature-based solutions with water bodies will attract most likely first the water insects. In the summertime, the dragonflies may come to the new created pond for foraging and rest in the surrounding vegetation.

2.Short technical description of sites:

- a. Total size (m²) and land use data: areas covered by permeable surfaces (m²), area covered by impermeable surfaces (m²). (Please present % of roofs, streets, sidewalks, parking places with trees or without trees)*; * Note: If impermeable surfaces (such as sidewalks and parking spaces), contain planted trees or shrubs, present it as a separate %, indicating the total area of canopy)

Total plot size: 15.400 m²

Impermeable surfaces:

Pathways: 1.200 m²

Asphalt paved road and parking area connected to sewer: 4.000 m²

Roofs: 3.100 m²

Permeable surfaces:

Playground, permeable surfaces: 300 m²

Grass and scrubs: 6800 m²

Trees:

area covered by trees planted on permeable surfaces, shrubs and grass: 1.900 m²

Water:

none

- a.1 approximate area covered by trees planted on permeable surfaces, shrubs, and grass (m²)

⁴⁵ Selected photos of the Pileparken demo-site, its surroundings and tree details will be added to the following report for the description of the local conditions and features (D3.1)



D2.2 Report on the local site analysis and list of relevant issues/problems and resource

a.2 approximate area covered by surface water bodies (standing, running, falling) (m2)

- b.** Any existing permanent assets (functional structures such as buildings, open air cafes, restaurants, playgrounds, kiosks and street furniture, water amenities) on the site;

At the east side of the plot there is a small grill/hot-dog stand.

200 m north of the site there is a small square with a small supermarket, baker, hair salon, hardware shop and a pizza restaurant.

Across the street to the west of the plot there is a kiosk and a kindergarten.

Across the street to the east of the plot there is a high School, Nørre Gymnasium

Small playgrounds is to be found in the area. These are private playgrounds serving residents in the social associations around the site.

The areas biggest attraction is the recreative potential of green corridors close to the site: Vestvolden, Gyngemose Park, Utterslev Mose and Kragmosen.

- c.** Types and quality of terrain/soil (soil quality, nutrition recovery)

In general, the soli in the area, consists of heavy clay-soil. This means, that rainwater cannot easily penetrate the upper soils, meaning that local seepage of water is not possible (or allowed), as this most likely will affect the secondary groundwater levels locally. Risking water in basements, run of to neighbours etc.

Challenges regarding raising secondary groundwater, is observed in more and more areas in Denmark.

Therefore, the project with the ambition of handling all rainwater through on the about local evaporation, is of great interest of Gladsae Municipality, as well as many other municipalities, utility companies, production companies and universities. This type of installation might have great potential in Denmark, as well as the rest of the world.

- d.** Specification of tree types (species), quality of trees, shrubs, grass and other NBS (greenery health conditions)

Pileparken 6 consists of a large lawn area in the Southern part of the residential area, with a "tree raw" which delimitates the area from the road. The tree species have not yet been identified but a comprehensive assessment of the quality of the existing trees will take place later in the project.

Besides the large parking lots, there are two other lawns rather small in the Northern part of Pileparken 6. Some plant species have been identified and presenter under question 1, but please note that this is not a comprehensive list.

Events with flooding of hallways and basements in the western block are occurring due to heavy rainfall.

- e.** Any urban elements obstructing pedestrian mobility and security (curb height distribution, other barriers, walls)

Mørkhøjvej (2 lanes) is the largest roads of the area. It has pedestrian path and bicycle lanes. At roadcrossings the traffic is regulated, and islands has been constructed to slow down and make pedestrian passage easier.

An obstruction being expressed among residents in the area is insecurity because of lack of lighting.

Mørkhøjvej separates the project site from Gyngemose South and Gyngemose Park. This creates fragmentation and increases the risks of animal collision if e.g. amphibians coming from Gyngemose area cross the road to colonise the new NBS in the project sites. There is a pedestrian path with bushes which may provide good hiding spots for Amphibians nearby Gyngemose south, on the way to Pileparken.

There is another road located south of the project site (Kildeager), which is more residential and therefore less traffic than Mørkhøjvej.

It is more unlikely that the species will colonize from north as Novembervej has a quite important traffic and there are only lawns around which do not allow the biodiversity to develop properly. The area is in general



D2.2 Report on the local site analysis and list of relevant issues/problems and resource

fragmented, but there is still a chance for the local fauna to colonize the new implemented NBS in Pileparken. Especially the insects like butterflies, dragonflies, which will most likely be the first ones to colonize.

- f. Multi-functionality; functional diversity in public space (playground, commercial, hospitality (open air food and drinks serving area), recreation...);

At the site, the only common outdoor space that invite the residents to stay is the playground between the two building blocks A and B. There is a small canopy with benches beside the playground.

As mentioned earlier the biggest recreative and multifunctional areas are the green areas at Utterslev Mose, Vestvolden and Gyngemose park. Cafes, pubs and restaurants are very few in the area, and there are no outdoor servings.

- f.1 Public socializing area - meeting places for the community members (yes/no, m2);

Within walking distance, a profile playground is under planning. The playground is to be situated between the library and Mørkhøj School.

But there are no public meeting places in the area. At the site the residents can borrow the common space in the basement of block B.

- f.2 Any bicycle and jogging, walking lanes (km);

Within the small area that the demo site represents, there are no walking lanes etc.

However, the area lays in the close vicinity of several green areas with great possibilities for walking, jogging etc. From the demo site, there are easy access to most areas. The demo site Pileparken 6, is located in between the nature areas "Kagsåstien", "Høje Gladsaxe Parken" and "Utterslev mose". Please see attached map.

- g. Maintenance activities per type of land use (cleaning/watering-irrigation/grass-cutting, tree pruning for green spaces and or sweeping/brushing of impermeable surfaces)

- g.1 Quality (high /medium /low)

A part time caretaker is employed by the housing association and has an office at the site. A new garage for storing the machinery for landscape caretaking – a tractor for lawn-mowing, deicing and snow clearing has been built at the site 5 years ago and offers room for a workshop and tools for handling small repairs on the buildings or the outdoor facilities. The budget for caretaking is reduced the past years, and to keep the high level of service the caretakers on other departments of the housing association in the area helps each other. The design of the outdoor facilities has been made to keep maintenance simple and fast. This makes it possible for one person to keep and service the 117 departments and outdoor space.

Level / quality of maintenance is high.

- g.2 Frequency (daily/weekly)

Daily service

- h. Presence of public sanitation facilities

- h.1. Public toilets (conventional with water flushing) or dry/chemical

The site is only residential, and all facilities are for the residents only. The facilities are in the basement of the buildings. They are worn but well kept. The facilities include toilets, communal laundry, meeting facilities for resident board meetings and a joint space for arrangements and shared use. The Basement contains storage for each apartment, storage for bicycles and baby carriages.



D2.2 Report on the local site analysis and list of relevant issues/problems and resource

i. Quality of maintenance of public sanitation facilities

i.1 Quality (high /medium /low)

Facilities are worn but maintenance are high.

i.2 Frequency of cleaning (daily/weekly)

Weekly

j. Animal (pets) waste (dog faeces)

j.1 Regulation (regulated /owners' responsibility/not regulated)

It is permitted but regulated to have peds in the apartments. Dog owners make up a minority that would like to have better facilities for the animals – like an enclosed yard for dog airing.

j.2 enforcement (existing – communal wardens/ non-existent)

Please see above.

3. Environmental & Functional issues and the existing assets on the site

a. Presence of Heat Island effect

a.1 Ambient temperature significantly higher than in the surrounding area (due to surface cover material's negative Albedo effect)

No UHI has been made in the municipality.

This has not been a focus in Gladsaxe municipality yet. The dominance of cool seasons in Denmark has not traditionally raised any concern.

But as the city grows, the focus on health and well-being becomes more and more a central topic, and the recent years the summers has been warmer and longer. Reducing the UHI effect has therefore begun to be conducted in Denmark.

The issue about UHI is expected to be a topic in the DAMP project, since the increasing of local evaporation will have an effect on the local climate and temperature.

a.2 Prolonged high ambient temperature after sunset.

This has been measured in the center of Copenhagen 8 km away but has not been measured in Gladsaxe.

b. Open public space percentage of shading during critical summer months

The canopy (33 m²) is the only outdoor shaded area at the site. All apartments have closed private balconies.

Shading considered sufficient or insufficient for users' wellbeing⁴⁶.

Natural or engineered facilities for protection from winter winds.

No such things in Gladsaxe. The winter climate in Denmark is not very cold (often around 0 degrees) and winter winds are not dominating.

Any known positive and / or negative demo site's interactions (functional influences*:) with the immediate neighbourhood within the context PH & WB of users (** for example, location attractiveness/comfort, air pollution, noise, degrading environmental conditions, shading of adjacent buildings etc.*)

⁴⁶ A map showing the exact location of the ponds and the plants in the surrounding of Pileparken and the plants in Pileparken will be a part of the report on the local demo-site D3.1



D2.2 Report on the local site analysis and list of relevant issues/problems and resource

The area is a dominating residential area and has no environmental interactions with the immediate neighbourhood.

- c. Long-term predictions of the local weather extremes and / or other phenomena caused by the climate change.

According to the Danish Metrological Institute Denmark In general can expect

- More precipitation mostly in the winter half-year.
- Longer periods with the same weather type. The traditional changing danish weather will likely be less changing.
- Periods with draft, especially in the spring and the summer.
- Higher temperatures all year round.

Measurements⁴⁷ show steadily increasing precipitation over the past 100 years with more marked increases over the past 30 years. Likewise, both the average annual temperatures and the total rainfall have risen and growth is accelerating, cf. the overview below.

Note that the first two columns cover 29-year periods, but the last only 9 years. Denmark is getting wetter and warmer.

Additional references:

Danish Metrological Institutes (DMI) climate atlas⁴⁸.

DMI's precipitation overview⁴⁹ in Denmark, present and historical.

Water in figures by DANVA⁵⁰ (an interest organization for everyone who works professionally with water and wastewater).

- d. Presence of biodiversity in the context of ecosystem services (specify different flora and fauna at site);

At this stage we have not done a comprehensive monitoring of biodiversity on the project site.

In June 2020, we monitored a part of the surroundings as mentioned above (Gyngemose South) and throughout another project we also monitored in TV-Byen, which is connected to Gyngemose park.

The plants present on site are mostly ornamental plants. Only few of them are local plant species. The overall biodiversity present in Pileparken is poor, and the area is well managed, thus not allowing wild plants to colonise and attract more insects. However, some of the plants like *Rhododenron sp.* may provide nectar for bumblebees or *Syringa vulgaris* for butterflies (observed last June 2020). The present bushes and trees provide lots of flowers in the summertime, which makes the area rather esthetic for the residents.

The placement of the trees does not really invite the people to use the area for leisure, besides the playground for children. The interactions between human and nature are not existing besides the esthetics.

4. City's comments on gaps in NBS applications

- a. Cities to submit their view on gaps* in NBS applications⁵¹ in their selected demo site.

(* for example: none of NBS applied, design and maintenance issues, traditional vs integrated/multifunction binal design, lack of positive impact, no functional criteria used in the NBS design, lack of technical guidelines and lack of planning experience)

Please specify:

⁴⁷ The translated table with measurements will be attached to the following report

⁴⁸ <https://www.dmi.dk/klima-atlas/data-i-klimateatlas/>

⁴⁹ <https://www.dmi.dk/da/nyheder/2010/mere-og-mere-intens-regn-over-danmark/>

⁵⁰ <http://www.e-pages.dk/danva/240/>

⁵¹ Gaps in existing NBSs will be a part of the following D3.1 report

5. Potential demonstration site resources relating to PH & WB, for resource categories as follows:**a. Local community (residents and visitors) potential knowledge, local resources, and readiness for engagement**

The board of Pileparken is very committed to the euPOLIS project and has already been a strong partner in relation to the DAMP project. However, the board itself experiences that they have difficulty engaging other residents in activities and resident democracy in general. They therefore see a potential in using EU-Polis (and DAMP) as an action-based approach with urban gardens and as a tool to engage more residents in the activities of the department. Gladsaxe Municipality also sees an obvious opportunity to use the EU-Polis project to connect to the other initiatives that are taking place in the Social Balance initiative in Mørkhøj.

b. Locally available recyclable materials

The municipality has a Green Guide⁵². It is a local environmental guide who can advise on green behavior in the way of living, living, using and consuming. This is done by providing practical help for self-help in the form of a local inspiration and guidance service. The local Green Guides write that they are in the process of collecting food waste locally. This can in the long term become a resource.

The municipality is trying to recycle as much soil as possible locally.

According recycling of garbage in the municipality please see 6.b.

c. Additional cultural potential

The cultural potential of the site is limited by fact, that it is a private residential area. A plan of integrating the surrounding building associations by making better access between the departments is being discussed. Historically there is a culture of excluding the neighborhood from the site, but children and young people from the neighborhood is occasionally using the football lane.

The local library, Mørkhøj Library, have a program⁵³ of cultural offers.

A new environment for culture and music will be developed in a closed teacher training college. The new culture and music house is expected to open in 2025.

d. Social and local community structures

The municipality offers a wide range of activities through local associations. The municipality have a webpage⁵⁴ giving an overview of possibilities.

e. Geographical (location advantages for economy and tourism)

The geographical potential for economy and tourism in a social housing area is limited and focus on visitors is more focused local by building up synergies in the neighbourhood rather than exploring tourism potential.

The football lane and the playground is today the biggest asset for the neighbourhood. Children and young people visit the football lane occasionally and the local kindergarten use the playground on their walks in the area. relation with local school, kindergarten ...

The developing of NBS solutions through euPOLIS and DAMP activities can have a potential of attracting visitors to the site. Now visitors are regarded more than a problem than a potential for the residents, but it is an important task in dialogue with the residents to see the opening of the site to the neighbourhood as a potential to build up a stronger social unity rather than being a threat.

f. Additional functional potential (recreational, tourists, cultural, environmental education, business activity)

The DAMP project introduces a new approach to handle rainwater local in urban context. The facility store and expose water at the terrain. The recreational potentiality of the water will be explored through the development of the project.

⁵² <https://ggglx.dk/groen-guide-i-gladsaxe-hvad-er-det/>

⁵³ <https://gladbib.dk/bibliotek/moebib>

⁵⁴ <https://prod.workforce-planner.dk/Booking/#!/associationList>

The evaporation technology will create a new biodiversity at the site. The new flora and fauna will have both a recreational and an educational potential. By combining the evaporation facility with kitchen gardens, it is a wish to create an ownership to the facility among the residents. There is a potential for integrating them in preserving the new nature-based solution.

The evaporation facility is expected to have an impact on both the local natural environment and the social behavior. The new urban space is expected to draw attention both educational by visits to the site by the local schools and by visits visitors having a technical interest in the plant or simply being curious.

- g. Additional functional potential (recreational, tourists, cultural, environmental education, business activity)
See 5 e.

6. Demo site additional potential resources

- a. Renewable energy from multiply sources

Sun energy will be a part of the energy source for the operation of the evaporation facility for operation of pumps and measuring equipment.

It is an aim to explore the potential of using rainwater to extract energy local using heat exchange technology.

- b. Solid waste management & recycling potential

At present time, new legislation on the waste management area in being introduced in Denmark. The focus in this legislation is to increase the percentage on solid waste that is recycled.

What the implementation of this legislation means locally in Gladsaxe Municipality specifically is not yet decided at a local political level. Moreover, Gladsaxe Municipality is at present working on a fully updated status on achieving the set recycling targets, within the different categories of solid waste, that is sorted and collected in the municipality. This status is expected to be available by the end of March 2021.

At present the following waste fractions should be sorted and are collected separately in Gladsaxe Municipality:

- Household waste
- Food waste (new fraction!)
- Electronics
- Garden waste
- Glass (volunteer for the housing association. Municipal have placed paper containers at public spaces)
- Metal
- Cardboard
- Paper (volunteer for the housing association. Municipal have placed paper containers at public spaces)
- Plastic
- Bulky waste

- c. Urban agriculture: local production of food and other goods (flowers, herbs,..)

There is no urban gardening with food production in Gladsaxe. But the Municipality has established five demonstration gardens in the Gedvad-Møllemark a residential district with villas and private gardens. Together with five garden owners and a landscape gardener. The idea of the gardens is not to create urban agriculture but to show how homeowners can handle rainwater on their own land and to pave the way for more voluntary solutions.

The gardens are located in a 21-hectare area with 300 households, where the municipality and the utility company has disconnected rainwater from the sewer and instead treated the water by local filtration and evaporate through green solutions in gardens and along roads.



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Citizens will be reimbursed 3.200 euro from the utility company if they take care of the rainwater themselves. The upcoming resident involvement project in Pileparken is being planned together with the local resident board building a common vegetable garden.

d. Demo site water & wastewater (resources availability, management, potentials for improvement)

At present time, a new wastewater plan for the municipality of Gladsaxe is in public hearing. If the plan is being adopted, there will be new demands that all rainwater must be separated from the grey wastewater. In some areas the rainwater will be led to existing recipients, in other areas more rainwater might be handled locally and on the surface. As the plan is still a draft, the plan is not part of the material sent with this questionnaire. At the demo site, infiltration is not possible. Here evaporation is the only option to handle rainwater locally.

In the area, the sewer is fully developed, meaning that all wastewater (gray and rainwater), is discharged to the sewer, and treated on wastewater treatment plant.

Water is supplied by the regional water utility company, and there is no water shortage in the Gladsaxe area.

e. neighbourhood housing & construction potential (for example: potential impacts of demo site's upgrade)

The area is fully developed.

f. market potential of the demo site location

The conventional market potential of the site is limited. The local potential will be the empowerment of the residents and to create positive social spiral.

The technical project of DAMP has a market potential, but the location potential is mainly connected to presentation of the project.

g. information & communication technology potentials

There is a potential in communicating the relation between NBS, urban evaporation and the positive impact on the climate. This relation can be made into a local story telling being displayed on the site but as well on digital platforms. We expect that it will have a positive effect to communicate how the residents will get a part in improving the climate local, regional and global by creating a new approach to local water management in urban context.

We see the action based approach in both the euPOLIS and the DAMP project as having a potential of communicating the new NBS approaches.

h. retail potential

Not relevant to the site.

i. Enhancement of governmental management at local level

The Gladsaxe strategy is the background of the local effort at the site. The strategy has been described in deliverable 2.1. The deliverable is also describing the citizenship strategy that builds upon empowerment and citizen involvement.

j. Please add any categories missing



8.5.3 Appendix – Q2 Preliminary Answers Lodz

QUESTIONNAIRE part 2

ADDITIONAL QUESTIONS FOR COMPLETION OF T2.2 AND T3.1 / DODATKOWE PYTANIA DO WYPEŁNIENIA T2.2 I T3.1

Questionnaire to be answered by FR cities representatives:

Marta Chomczyńska, (Łódź)

Contact details Please provide the contact details of the person completing the questionnaire

0.1 Name Marta Chomczyńska
0.2 Organisation City of Łódź (LODZ-MIASTO NA PRAWACH POWIATU)
0.3 Country POLAND
0.3 Address UL. PIOTRKOWSKA 151/153, ŁÓDŹ
0.4 Telephone
0.5 Email m.chomczynska@uml.lodz.pl
0.6. Your institution is: "city authority", "urban planner", "technical partner", other (please specify) City authority
0.7. The sector you work in: "urban planning department", "health", "environmental", "IT sector", "designer/consultant", "training and research institution", other (please specify) Revitalisation & Housing Bureau

1. Required Cities' SPATIAL data at the selected demo sites of FR cities (FR-DS)

- a. Demo sites' drawings with perimeter / sketches with the existing NBS/greenery types (please use the same letters/numbers as in the Fig 1 of the proposal), including surrounding traffic routes / streets.
A detailed ortho-map and base map of the project will be attached in the following report D3.1.
- b. Any planning documents (for the demo site) already under development or under production; (for example: essential drawings and short technical description of demonstration site planned developments - related and not related to euPOLIS). E.g. Detailed Master Plan⁵⁵
ADDITIONALLY - the whole area is under conservation protection through entry in the register of monuments.
§ For the areas marked on the drawing of the plan with the symbol ZP, the provisions contained in the following paragraphs of this paragraph shall apply. 2.
2. in terms of land use it is established
 - 1) basic use:
 - a) grounds for public greenery,
 - b) areas for roads, accesses and driveways.
 - 2) additional purpose:
 - a) sport and recreation areas,
 - b) cycle paths
 - c) surface car parks - only in the area 11.2.ZP,
 - d) technical infrastructure. 3.

As regards the development and land use conditions and the principles of protection and shaping of the spatial order

protection and shaping of the spatial order it is established:

- 1) land development indicators:
 - a) building surface ratio for temporary buildings - maximum 4%,

⁵⁵ Detailed master plan of Lodz will be included in the report D3.1



D2.2 Report on the local site analysis and list of relevant issues/problems and resource

- b) building intensity for temporary buildings - minimum 0.0, maximum 0.04,
- c) rate of biologically active surface - minimum 60%;

2) the principles of shaping of the building structures:

- a) allow the construction of temporary service and commercial buildings only with a footprint of up to 12 m², a height of up to 4 m and a flat roof,
- b) in the areas 11.2.ZP and 12.2.ZP it is permissible to construct temporary buildings in the form of toilets, with a construction area of up to 10 m², height 3.5 m and flat roof.

In terms of the detailed terms and conditions of merging and dividing the property it is established:

1) minimum plot size:

- a) in the area 12.2.ZP - 2200 m²,
 - b) for the area 11.2.ZP - 5200 m²;
- #### 2) width of the parcel frontage:
- a) in area 1.13.ZP - minimum 80 m,
 - b) for the area 4.3.ZP - minimum 30 m,
 - c) in the areas: 1.5.ZP, 3.1.ZP, 6.3.ZP and 6.4.ZP - minimum 10 m,
 - d) in the area of 8.4.ZP - minimum 45 m,
 - e) in the areas: 9.3.ZP, 10.2.ZP and 10.9.ZP - minimum 20 m,
 - f) in the areas 11.2.ZP and 12.2.ZP - minimum 18 m;
- #### 3) the angle of plot borders location in relation to the road lane - 90° with tolerance of 2°.

- c. Detailed photographs of demonstration sites – from all five sides (four horizontal: E, S, W and N) and one vertical – preferably Orto photo) if possible (visits to the sites by foreign experts for direct assessment not possible due to Covid-19 restrictions). To enable our experts to analyse types and quality of trees please submit following:
 - 1. Photography of each typical tree canopy and trunk
 - 2. Photography of typical tree leaf (zoomed)
 - 3. Photography of smallest tree branch with the leaf at the end (zoomed)
 - 4. Photography of tree fruit (zoomed)
 - 5. Photography of trees location⁵⁶.

*Detailed photos of the demo site can be found in the attachment and are not pasted into the questionnaire due to their large number and file size.

As agreed at the online meeting held on 19 January - the Environment Department will carry out a greenery inventory with all the data required in the questionnaire in the spring period, i.e. (April - May 2021).

Conducting the greenery inventory now is not possible due to weather conditions (snow cover).

2. Short technical description of sites: Krótki opis techniczny miejsca

- a. Total size (m²) and land use data: areas covered by permeable surfaces (m²), area covered by impermeable surfaces (m²). (Please present % of roofs, streets, sidewalks, parking places with trees or without trees)*; * Note: If impermeable surfaces (such as sidewalks and parking spaces), contain planted trees or shrubs, present it as a separate %, indicating the total area of canopy)

Please specify:

PERMEABLE & IMPERMEABLE SURFACES:

- 1) permeable surfaces - lawn with greenery: 5352m²
- 2) permeable surfaces - sand (playground): 293m²
- 3) impermeable surfaces – sidewalks: 1763m²
- 4) impermeable surfaces – parking: 106m²
- 5) impermeable surfaces - concrete (playing field): 247m²

⁵⁶ Detailed photos of the demo site will be attached to the following version 2 (report D.2.3)



D2.2 Report on the local site analysis and list of relevant issues/problems and resource

- 6) impermeable surfaces - concrete (infrastructure): 17m²
- 7) impermeable surfaces - building (tenement house): 448m²

SUM⁵⁷ (all plots):8226m²

a.1 approximate area covered by trees planted on permeable surfaces, shrubs and grass (m²)/ przybliżona powierzchnia zajmowana przez drzewa posadzone na powierzchniach przepuszczalnych, krzewy i trawa (m²)

APPROXIMATE AREA COVERED BY DIFFERENT TYPES OF GREENERY:

- 1) grass: 5352m² – 65% of the whole area
- 2) trees: 1990m² – 24% of the whole area
- 3) shrubs: 135m² – 2% of the whole area

SUM⁵⁸ (all plots):8226m²

Approximate area covered by different types of greenery per plot will be attached in the following report.

a.2 approximate area covered by surface water bodies (standing, running, falling) (m²)/ przybliżona powierzchnia zajmowana przez jednolite części wód powierzchniowych (stojące, biegnące, opadające) (m²)

There is no area covered by surface water bodies on the demo site.

- b.** Any existing permanent assets (functional structures such as buildings, open air cafes, restaurants, playgrounds, kiosks and street furniture, water amenities) on the site;

Please specify:

The existing state - the neighborhood:

In the vicinity of the area under development there are mostly dense tenement buildings and more extensively developed post-factory areas. In the immediate vicinity of the area there are residential areas (often in poor condition), an extensively developed fire station area and a municipal kindergarten.

The binding local law act - the neighbourhood:

In the current local zoning plan the neighbouring properties are envisaged as areas with the symbol MW/U, i.e. residential, service or residential-service, except for the area at Kościuszki Street with the symbol UO, where the function of educational services is envisaged.

In the neighbouring areas of MW/U:

- building area ratio - maximum 65%,
- building intensity - minimum 1.0, maximum 3.2,
- indicator of biologically active surface - minimum 20%.

In the neighboring grounds UO:

- built-in area indicator - maximum 40%,
- building development intensity - minimum 0.3, maximum 0.9,
- indicator of biologically active surface - minimum 30%.

On the site there are⁵⁹:

- A playground for children
- An outdoor gym

- Stairs with a ramp for the disabled
- Walkways with concrete paving slabs - approx. 630 m² - to be rebuilt
- Tubular benches - 9 pieces. (including 3 on the playground)

⁵⁷ Detailed description of permeable and impermeable surfaces will be attached to the following report D2.3

⁵⁸ Approximate area covered by different types of greenery per plot will be attached in the following report.

⁵⁹ Selected pictures with detailed equipment description will be attached to the following report on the local features and conditions D3.1



D2.2 Report on the local site analysis and list of relevant issues/problems and resource

- Trash bins on 2 legs - 8 pieces. (including 3 in the playground)
- Clinker brick retaining walls (2 units, approx. 76 mb) - to be repaired
- A square with bituminous surface (approx. 236 m²)
- Frame with a board with gym regulations
- Frame with a plaque with playground regulations
- Metal pole with a pictogram (no smoking, no dogs allowed)
- Bike stand

Al. Rynkowska Street - between Wólczańska Street and Al. Kościuszki Street

Data for the euPOLIS project

- Park baskets - 4 items
- park benches - 9 items
- lanterns (owned by PGE S.A) - 4 items.
- metal posts - 8 items.

The area is cleaned 7 times a week. Baskets picked up 7 times a week.

c. Types and quality of terrain/soil (soil quality, nutrition recovery)

Please specify:

Eight geological boreholes in the immediate vicinity of the plots included in the euPOLIS project, i.e. plots 335/6; 335/5 and 336/1 as well as 172/5 and 172/7 precinct S-6 in Łódź, were analyzed on the basis of data available on the portal of the Polish Geological Institute.

The locations of the boreholes and their cross-sections are shown on the attached map and on eight documentation point cards.

All boreholes were drilled to the depth of about 10 m.

The largest number of boreholes in the immediate vicinity of the project plots is located in the south-western direction (boreholes no. 3,4,5,6,7), two boreholes on the southern side (no. 1 and 2) and one borehole (no. 8) on the eastern side. All of the analyzed points have in their top layer non-construction mound, sometimes with a layer of sand - in total up to 2 m depth. Above 2 m depth there are numerous Quaternary sandy or silty clay layers with an average thickness of 8 m.

The project area certainly has a soil character similar, if not the same, as the analyzed areas. However, in order to make an unambiguous assessment of the soils for the purposes of the project, it would be necessary to commission boreholes to be drilled within the indicated plots.

Data from the nationwide Geoptoal indicates that these are non-agricultural, compactly built-up areas.

The relief of the terrain was also analyzed. The slope of the terrain on plot no. 335/5 and 335/1 runs towards the west. The lowest areas on these plots are located in the western parts. The slope on plot no. 335/5 is 0.8 %. The slope on parcel 335/1 is the steepest at 2.1 %.

On parcel 335/6 the slope of the land is visible in the central part of the parcel and is less than 1%.

Therefore, analyzing the terrain profiles and its relief, the western edges of the plots are the most favorable from the natural and economic point of view to be used for the construction of green and blue architecture. In the natural depressions of the land, taking advantage of surface runoff, rain gardens and other facilities not requiring permeable ground may be established.

Infiltration conditions will allow the establishment of such a garden, structurally a typical garden requires, a depression of 20-40 cm. They are established on land having slopes not exceeding 12%. In the area covered by the application on the basis of data from the geoportal can be seen "underground" remains of former objects, during earthworks can be found building remains.⁶⁰

d. Specification of tree types (species), quality of trees, shrubs, grass and other NBS (greenery health conditions)

Please specify:

⁶⁰ Detailed pictures and description of the types of terrain will be attached in the next report on local conditions D3.1



D2.2 Report on the local site analysis and list of relevant issues/problems and resource

As agreed at the online meeting held on 19 January - the Environment Department will carry out a greenery inventory with all the data required in the questionnaire in the spring period, i.e. (April - May 2021).
Conducting the greenery inventory now is not possible due to weather conditions (snow cover).

- e.** Any urban elements obstructing pedestrian mobility and security (curb height distribution, other barriers, walls)

Please specify⁶¹:

- Lack of pedestrian crossing on Tadeusza Kościuszki Avenue – it would enable getting to Piotrkowska Street through Henryka Jana Józewskiego Avenue. In addition, a pedestrian crossing on Gdańska Street would enable getting to Stefana Żeromskiego street.
- Lack of pedestrian crossing with lowered kerbs on each side that would enable crossing for strollers or wheelchairs.
- An uneven kerb/pavement
- A wall covered with graffiti placed along the passage
- Lack of monitoring system/cameras

- f.** Multi-functionality; functional diversity in public space (playground, commercial, hospitality (open air food and drinks serving area), recreation...);

Please specify multifunctional facilities⁶²:

- The restaurant with take-away meals „Majne Sz wajne Vegan Deli”, 96 Wólcz ańska Street.
- Pychotka Bar, 83 Tadeusza Kościuszki Avenue
- Sushi Smaki, 93 Tadeusza Kościuszki Avenue
- A playground for children
- An outdoor gym
- Światowit Hotel, 68 Tadeusza Kościuszki Avenue
- Hampton Hotel by Hilton Łódź City Center, 155 Piotrkowska Street

⁶¹ Selected photos of this issues will be attached to the next report

⁶² Selected pictures, illustrating multifunctional facilities will be attached in the following reports



D2.2 Report on the local site analysis and list of relevant issues/problems and resources

f.1 Public socializing area - meeting places for the community members (yes/no, m2);

Please specify:

Main users of the spaces of the space are local inhabitants who take their dogs for a walk or passengers who want to take a short cut through passage. The users of outdoor gym are also common visitors.

f.2 Any bicycle and jogging, walking lanes (km)

Please specify:

Lack of cycle paths near Anna Rynkowska Passage. There is only one pavement for pedestrians in this area.

- g. Maintenance activities per type of land use (cleaning/watering-irrigation/grass-cutting, tree pruning for green spaces and or sweeping/brushing of impermeable surfaces)

- g.1 Quality (high /medium /low)

Please specify:

mowing the grass (2-4 times a year),

trimming trees and bushes - as needed,

sweeping - maintenance of paved surfaces 1 x per week (during the period of leaf fall - 2 x per week);

- g.2 Frequency (daily/weekly)

Please specify:

mowing the grass (2-4 times a year),

trimming trees and bushes - as needed,

sweeping - maintenance of paved surfaces 1 x per week (during the period of leaf fall - 2 x per week);

- h. Presence of public sanitation facilities

- h.1. Public toilets (conventional with water flushing) or dry/chemical

Please specify: There are no toilets in the area of the designated demo site.

- i. Quality of maintenance of public sanitation facilities

- i.1 Quality (high /medium /low)

Please specify: Not applicable

- i.2 Frequency of cleaning (daily/weekly)

Please specify:

responsibility of owners - throwing waste into available waste bins,

emptying the bins 5 x per week,

collecting dirt from the green area - 5 x per week.

- j. Animal (pets) waste (dog faeces)

- j.1 Regulation (regulated /owners responsibility/not regulated)

Please specify:

responsibility of owners - throwing waste into available waste bins,

- j.2 enforcement (existing – communal wardens/ non-existent)



Please specify: non-existent

3. Environmental & Functional issues and the existing assets on the site

a. Presence of Heat Island effect

a.1 Ambient temperature significantly higher than in the surrounding area (due to surface cover material's negative Albedo effect)

Please specify:

The demo site is located in the very core of Łódź UHI.

The general information about temperatures and UHI is of low resolution. There are two stations which can possibly be used for UHI estimates – meteo station of the Lublinek airport (city outskirts) and the Lipowa monitoring site (close to the demo site). There are also maps of UHI for the whole city scale.

Current data indicate that the highest values of UHI are observed during cloudless calm nights (Fortuniak et al. 2014). The typical UHI intensity in Łódź under such conditions reach 4–7°C in summer and 2–3°C in winter (Kłysik and Fortuniak 1999, Fortuniak et al. 2006), however, the highest values of urban-rural temperature differences (8–9°C) do appear from time-to-time in the winter season (Fortuniak et al. 2014). During heat wave episodes, the city temperature at night remains a few degrees higher than the rural one. An analysis of the July 2006 heat waves in Łódź (Szcześniewska and Wibig 2008) showed that temperature in the city can remain above the acceptable threshold for a few consecutive days and the city population has no night-time rest from hot temperature. The measurements made on two EC towers at Lipowa show that surface albedo for the central part of Łódź can be estimated to be at a level of 8–10% (Pawlak 2009). Detailed information about temperature in the demo site will be provided based on in-situ thermal camera monitoring and local meteo station installed as part of NBS construction. The implementation place itself is a green area located between tenement houses and other buildings in the city centre, with a sidewalk running along it and two rectangular areas of paving stones and asphalt. The continuous thermal monitoring will enable to track spatial, seasonal, and daily patterns in temperature changes, as well as monitoring of impact of NBS implementation.

a.2 Prolonged high ambient temperature after sunset

Please specify:

In the evenings, at 19.00h CET, the town is almost always warmer; the UHI is at the first stage of forming, and its intensity usually reaches 1-2°C. The fast growth of thermal contrast, which starts late in the late afternoon and continues approximately until midnight (Fortuniak 2006). Over 80% of nights are characterized by surplus heat in towns, amounting to 2-4°C, and sporadically to 8°C and more (Kłysik and Fortuniak 1999).

b. Open public space percentage of shading during critical summer months

Please specify:

First part - Passage of Anny Rynkowskiej- 50% of the area, ca 30% of pavement, the second part – between streets Gdańska and Wólczajska – 30% of the area shaded by trees, while half of the pavement. The rest of area is at open space additionally shaded by adjacent buildings (depending on the time of day) – especially the first passage, because buildings are located at south and north, and for the second part mainly at the north.

c. Shading considered sufficient or insufficient for users wellbeing

Please specify:

Considering that sufficiency of shading is subjective, such data can be collected during interviews with local residents and users

d. Natural or engineered facilities for protection from winter winds

Please specify:



not present

The part of the area is protected from winter by other buildings and by trees, the passage Gdańska-Wółczańska provides no protection. Additionally, the whole demo site is located in West-East direction – the most frequent wind direction.

- e. Any known positive and / or negative demo site's interactions (functional influences*:) with the immediate neighbourhood within the context PH & WB of users (* for example, location attractiveness/comfort, air pollution, noise, degrading environmental conditions, shading of adjacent buildings etc)

Please specify:

The demo site is a pedestrian/bicycle connector (not passable for cars) between three main streets of the city center. There is an outdoor gym (established in the place exposed to the Sun in the sunny place so it can be uncomfortable during the summer months), playground and a few benches. There is also an unattractive, asphalted space in the square (probably the old playground) currently unused. Shading is provided in several places by surrounding buildings and existing trees.

- f. Long-term predictions of the local weather extremes and / or other phenomena caused by the climate change

Please specify:

No predictions of the weather extremes were made for the area neither the city itself. Climate change adaptation plans were completed based on stakeholder knowledge as a participatory visioning and scenario building, not as data-based modelling.

- g. Presence of biodiversity in the context of ecosystem services (specify different flora and fauna at site);

Please specify:

To be investigated during the field visit.

No biodiversity research was conducted in the demo area, neither in the center of the city as a whole, mostly because it was not considered as a place suitable for biodiversity.

4. City's comments on gaps in NBS applications

a. Cities to submit their view on gaps* in NBS applications in their selected demo site

(* for example: none of NBS applied, design and maintenance issues, traditional vs integrated/multifunctional design, lack of positive impact, no functional criteria used in the NBS design, lack of technical guidelines and lack of planning experience)

Please specify:

None of NBS focused on rainwater retention was applied at the demo site. The nearest NBS: rainwater gardens, façade gardens, green roofs and green walls are located within the private investment "Synergia", and in the open spaces at the Piotrkowska 217 – the cultural and restaurant centre. There are also NBS applied to improve water quality in the city rivers.

There is also no multifunctional areas, meeting the targets of healthy population and healthy nature. Planning of green infrastructure, currently focuses on woonerfs, is driven by a single-target approach: creating an aesthetic space suitable for recreation. No real role is given to nature, neither not much attention is given to management sustaining regulatory services and self-regulatory potential of nature.

No blue-green hot-spots have been identified with clear protection / management targets towards climate adaptation, sustaining of ecosystem services and biodiversity protection.

There is a clear gap in local regulatory / administrative framework to impose strong obligations on all city investors towards sustaining natural capital at site and set secure low impact development.

There is an urgent need to implement standards not only to NBS design and implementation, but generally to integrated urban water management, what amplifies risks emerging from climate change, and deprives the city of natural capital thus its insurance against future challenges.



D2.2 Report on the local site analysis and list of relevant issues/problems and resources

There is no established PPP models to involve private sector in NBS implementation across the city, neither good local business models facilitating use of NBS.

Some gaps are being addressed by current actions. Those include development of hydrological-hydraulic model to estimate and model river and storm water flows in integrated river-storm water system across the city, establishing the standards for maintenance of city greenery including its protection in the land development processes, testing the program of façade gardens, releasing a program of small grants for rainwater gardens, facilitation of the project on habitats for pollinators. The City progressed also on development of NBS related participatory programmes, tools, promotion, some of them supporting not only communication among stakeholders but also their engagement in the city-nature stewardship. These engagement practices consist of organization of Citizens' Panel on City Greenery, co-designing workshops on streets revitalization, e.g. "Streets of Old Polesie. There is also ongoing participatory development of the City Green Deal that is to stimulate filling the NBS gaps through multi-stakeholder and multi-sectoral collaboration.

5. Potential demonstration site resources relating to PH & WB, for resource categories as follows:

- a. Local community (residents and visitors) potential knowledge, local resources and readiness for engagement

Please specify:

There are people interested and practically daily involved in taking care of the demo sites nature. They place water drinkers in the area in summer and keep bird feeders in winter. Around some of the tenement houses there are small gardens also sustained by the members of local communities.

- b. Locally available recyclable materials

Please specify:

The Łódź city center undergoes complex revitalization of buildings and roads. Potentially there is a recovered construction material available for re-use. Additionally, also trees could be recycled, namely moved from new construction areas to the demo site.

- c. Additional cultural potential ⁶³

Please specify:

- d. Social and local community structures

Please specify:

NGO "Społecznie Zaangażowani" is a group of citizens from Łódź who have been jointly implementing social activities for several years. They see many needs around them and try to respond to them. They undertake tasks in the field of development, education, culture, neighbourhood help, building civil society, ecology, intersectoral cooperation; they implement them through workshops and trainings, meetings and discussions, cultural and social events, individual and group activities. They run Stare Polesie Community Centre⁶⁴ / Meeting Place in Łódź.

They were also present during November Workshops for Lodz.

- e. Geographical (location advantages for economy and tourism)/ Geograficzne (walory lokalizacyjne dla gospodarki i turystyki)

Please specify:

A very good location of the demo site⁶⁵ e.g.:

- About 5 minutes on foot to get to Piotrkowska Centrum train stop (350m).

⁶³ Selected pictures from these answers, illustrating cultural and historic elements will be attached in the following rapports

⁶⁴ <https://spolecniezaangazowani.pl/>

⁶⁵ Selected pictures, illustrating walking and bus paths with distances will be attached in the following rapports



D2.2 Report on the local site analysis and list of relevant issues/problems and resources

- About 8 minutes on foot to get to Piotrkowska promenade (650m)
- About 11 minutes on foot to get to Galeria Łódzka (850m)
- About 3 minutes on foot to get to Manufaktura (2,7km)

f. Additional functional potential (recreational, tourists, cultural, environmental education, business activity)

Please specify:

Hi Piotrkowska office block (157A Piotrkowska Street) as a dominant and Światowit Hotel (68 Tadeusza Kościuszki Avenue) as a subdominant.

6. Demo site additional potential resources

A huge variety of public transport connections and directions:

(Buses): 80, 83

(Night buses): N1A, N1B, N5B, N6, N7A, N7B, N3A, N3B

(Trams): 2, 3A, 3B, 6, 7, 8, 9, 10A, 10B, 11A, 11B, 13, 14, 18

In the area there are amenities⁶⁶, such as:

- Żabka" grocery store, 129A Gdańska Street
- „Lotos" petrol station, 131 Gdańska Street
- Stara drukarnia" business center, 130 Gdańska Street
- Dekorian Home" company, 130 Gdańska Street
- Hair&Style by Marcin Szmajda" hair saloon, 130 Gdańska Street
- Kuźnia Centrum Atletyki" gym, 126/128 Gdańska Street
- Gwardia Łódź" sports club, 73/75 Tadeusza Kościuszki Avenue
- 2find, 77 Tadeusza Kościuszki Avenue

a. Renewable energy from multiply sources/ Energia odnawialna z multiplikowanych źródeł

Please specify:

There is a plan (reflecting site potential) to use solar energy to run all the monitoring devices in site. Solar energy can be also used by solar lamps – small and near ground located lamps securing safety of the area while significantly reducing light pollution.

b. Solid waste management & recycling potential

Please specify:

There is no particular solid waste management on the site, however – if accepted by the users of the area – there is a potential to set up a composter for recycling of biomass coming from the maintenance of the passage (leaves, grass, herbs, fruits). Potentially such composter could be also placed in the kindergarten as an educational element about the decomposition processes, importance of proper segregation of biowastes and role of micro and macro biota in recycling.

c. Urban agriculture: local production of food and other goods (flowers, herbs,..)

Please specify:

Due to its location (in the busy city center) the demo site is not suitable for agricultural use – threat of contamination of products with heavy metals and other toxic substances. However, for non-consumption purposes – mostly educational, and sensual recreation of handicapped people, there is a plan to transform patches of the passage into stands of flowers and herbs of various textures and fragrances. Also, introduction of flowering trees and shrubs or even fruit trees can be discussed with users of the area, with clear goal of supporting local biodiversity.

⁶⁶ Selected pictures, illustrating amenities and plots will be attached in the D3.1 report dedicated to local conditions and features



d. Demo site water & wastewater (resources availability, management, potentials for improvement)

Please specify:

Plots number 335/5; 335/6 and 336/1 bounded from the west by Wólczajska Street, and Kosciuszki Street to the east. Plots No. 127/5 and 127/7 are bounded on the west by Gdańska Street.

All three streets are lined with combined sewage and water supply systems.

On the plot of land No. 336/1 there is a kindergarten building, which has a connection to the combined sewage system and the water supply system. In the courtyard of the kindergarten there is a sewage grate, an underground chamber and a hatchway connected to the combined sewage system.

On plot 335/5 and 172/7 there is drainage from the heating facilities to the stormwater drainage to the heating facilities. As a potential, rainwater drained from the kindergarten area can be used for the rain garden facility.

e. neighbourhood housing & construction potential (for example: potential impacts of demo site's upgrade)

Please specify:

A modern apartment building is being constructed in the area by an external, private developer. Some of the flats have already been bought out. The developer was present at the November 2020 workshop for Lodz. Revitalization of the demo site will increase the attractiveness of the area and raise its aesthetic value, which is currently at a very low level.

f. market potential of the demo site location

Please specify:

please go to point *h

g. information & communication technology potentials

Please specify:

We do not see any information & communication technology potentials here.

h. retail potential / Please specify:

In the area (neighborhood) there are small local businesses that have been listed above. The retail potential is quite high due to the localization of the demo site.

i. Enhancement of governmental management at local level

Please specify:

g. Please add any categories missing



8.5.4 Appendix – Q2 Preliminary Answers Piraeus

QUESTIONNAIRE part 2

ADDITIONAL QUESTIONS FOR COMPLETION OF T2.2 AND T3.1

Questionnaire to be answered by FR cities representatives: Tassos Karatasakis, Angeliki Paraskevopoulou, Efthimis Chardavellas (Piraeus)

Contact details Please provide the contact details of the person completing the questionnaire

0.1 Name	Tassos Karatasakis / Angeliki Paraskevopoulou / Efthimis Chardavellas		
0.2 Organisation	Municipality of Piraeus		
0.3 Country	Greece		
0.3 Address	12 Dragatsi Str., Piraeus, 18535		
0.4 Telephone	+30 697 242 9559		
0.5 Email	tassos@doingbusiness.gr		
0.6. Your institution is:	<input checked="" type="checkbox"/> city authority <input type="checkbox"/> urban planner <input type="checkbox"/> technical partner <input type="checkbox"/> other (please specify)		
0.7. The sector you work in:	<input type="checkbox"/> urban planning department <input type="checkbox"/> health <input type="checkbox"/> environmental <input type="checkbox"/> IT field <input checked="" type="checkbox"/> designer/consultant <input type="checkbox"/> training and research institution <input checked="" type="checkbox"/> other (please specify) :management consultant		

1. Required Cities' SPATIAL data at the selected demo sites of FR cities (FR-DS)

- a. Demo sites' drawings⁶⁷ with perimeter / sketches with the existing NBS/greenery types (please use the same letters/numbers as in the Fig 1 of the proposal), including surrounding traffic routes / streets;

Currently the demo sites only constitute of on-street planting with opportunities for socializing (NBS 5 & 7). There is a waterway / riverine inland in Akti Dilaveri (NBS 2).

- b. Any planning documents (for the demo site) already under development or under production; (for example: essential drawings and short technical description of demonstration site planned developments - related and not related to euPOLIS). *E.g. Detailed Master Plan*

Mikrolimano is a demo site area. For the renovation of Mikrolimano, there is a signed programming agreement with the region of Attica with a budget of € 5 million. Mikrolimano area, will be used as a site for the training of local city planners for pre-planning purpose. The “merge” / “consolidation” of Mikrolimano and Akti Dilaveri⁶⁸ areas, will create a continuous coastal front.

There are also plans for the renovation of the east part of the Dilaveri Channel (the area is under the Peace and Friendship / SEF Stadium's control) that have not been announced to us yet due to the phase of the development.

- c. Detailed photographs of demonstration sites – from all five sides (four horizontal: E, S, W and N) and one vertical – preferably Orto photo) if possible (visits to the sites by foreign experts for direct assessment not possible due to Covid-19 restrictions). To enable our experts to analyse types and quality of trees please submit following:
 - Photography of each typical tree canopy and trunk,
 - Photography of typical tree leaf (zoomed),
 - Photography of smallest tree branch with the leaf at the end (zoomed),
 - Photography of tree fruit (zoomed)

⁶⁷ Selected pictures, illustrating the area will be attached in the report D3.1

⁶⁸ Akti Dilaveri (Area 2) Renovation Master Plan will be included in the report D3.1. The renovation of the west part of Akti Dilaveri Channel is in the final phase of design. With green colour are shown the green open spaces that are going to be formed.

Akti Dilaveri Planting⁶⁹:

- Washingtonia sp.
- Phoenix canariensis
- Nerium oleander

Rellion School Complex Planting:

- Ficus sp.
- Nerium oleander
- Populus nigra
- Ailanthus altissima
- Ligustrum ovalifolium 'Aureum'
- Citrus aurantium
- Viburnum tinus
- Myrtus communis
- Yucca sp.
- Pittosporum tobira 'nanum'
- Pittosporum tobira
- Duranta plumierii
- Ligustrum japonicum
- Justicia adhatoda
- Elaeagnus angustifolia
- Morus sp.

2. Short technical description of sites:

- a. Total size (m2) and land use data: areas covered by permeable surfaces (m2), area covered by impermeable surfaces (m2). (Please present % of roofs, streets, sidewalks, parking places with trees or without trees)*; * Note: If impermeable surfaces (such as sidewalks and parking spaces), contain planted trees or shrubs, present it as a separate %, indicating the total area of canopy) .Please specify:

a.1 approximate area covered by trees planted on permeable surfaces, shrubs and grass (m2)

a.2 approximate area covered by surface water bodies (standing, running, falling) (m2)

Table 6. Permeable and impermeable surfaces. Piraeus demo-site

Area	1*	2*	3
Total size [m2]	15,125	81,926	19,988
Permeable Surface [m2]	1,000	20,164	2,021
Permeable Surface - Planted [%]	10%	25%	50%
Impermeable Surface [m2]	14,125	45,511	17,967
Impermeable surface - Roofs [%]	72%	8%	-
Impermeable surface - Streets [%]	17%	9%	48%
Impermeable surface - Sidewalks [%]	3%	8%	19%
Impermeable surface - Parking Spaces [%]	8%	2%	2%
Impermeable surface - Courts [%]	-	-	31%
Impermeable surface - Unused [%]	-	73%	-
Surface water bodies [m2]	-	16,251	-

- b. Any existing permanent assets (functional structures such as buildings, open air cafes, restaurants, playgrounds, kiosks and street furniture, water amenities) on the site;

Please specify:

One of the demo sites constitutes a school complex from which a building will be used to develop a green roof and a green wall. Furthermore, an NBS will be developed at the school entrance. The street furniture currently surrounding the school complex is in poor condition. A recycling unit is located on one of the school boundaries.

⁶⁹ Pictures, illustrating diversity of trees in Akti Dilaveri and Rellion School Complex will be attached in the following reports



Permanent assets⁷⁰:

- Seating outdoors of Ralleion School Complex entrance
- Poor condition of street furniture /graffiti
- Lamp posts used as notice boards
- Recycling unit

c. Types and quality of terrain/soil (soil quality, nutrition recovery)

Please specify: There is no data on the soil quality of the planting beds. Some shrubs show signs of chlorosis on leaves.

d. Specification of tree types (species), quality of trees, shrubs, grass and other NBS (greenery health conditions)

Please specify: Despite maintenance, many trees are in poor condition due to diseases. Small tree pits have contributed in the poor health condition of the trees. One tree is dead. Shrub planting is inconsistent and, in some areas, missing. Some shrubs show signs of chlorosis on leaves and other shrubs are defoliated and in poor condition. Identified problems:

- Small sized tree pits
- Empty tree pits

e. Any urban elements obstructing pedestrian mobility and security (curb height distribution, other barriers, walls)

Please specify: Several paving slabs are broken. Trees' roots have broken paving slabs⁷¹.

f. Multi-functionality; functional diversity in public space (playground, commercial, hospitality (open air food and drinks serving area), recreation...);

Please specify: Local restaurants and cafeterias are located along Akti Dilaveri and is used mainly for promenading. A seating area is located at the entrance of the Ralleion School complex used mainly by parents during pick up times. The remaining green spaces surrounding the Ralleion School complex are used for walking dogs, seating and to traverse between destinations.

f.1 Public socializing area - meeting places for the community members (yes/no, m2);

Please specify: Yes, the school entrance is a socializing area for pupils' parents and teachers and Akti Dilaveri is a socialising area for a variety of social groups.

f.2 Any bicycle and jogging, walking lanes (km);

Please specify: There are no pedestrian, jogging and bicycle paths. Although, there are sidewalks, some of those are not accessible to people with mobility problems.

g. Maintenance activities per type of land use (cleaning/watering-irrigation/grass-cutting, tree pruning for green spaces and or sweeping/brushing of impermeable surfaces)

g.1 Quality (high /medium /low)

g.2 Frequency (daily/weekly)

Please specify:

Along Akti Dilaveri the quality of the palms is medium, while the quality of the shrub planting is poor. Pruning of shrubs along Akti Dilaveri takes place 3-4 times per year and pruning of palms once per year. There is no irrigation system along Akti Dilaveri and no watering takes place.

The quality of the shrub planting surrounding Ralleion School complex is medium, while the quality of some trees is poor due to diseases. Pruning of shrubs surrounding Ralleion School complex takes places 3-4 times per year and

⁷⁰ Selected pictures, illustrating this answer will be attached in the following rapport D3.1

⁷¹ Pictures, illustrating this answer will be attached in the following rapports



pruning of trees once per year. A drip irrigation system is used to water the shrubs surrounding Ralleion School complex while trees are not irrigated.

Sweeping/brushing of impermeable surfaces takes place daily at all demo sites.

h. Presence of public sanitation facilities

h.1. Public toilets (conventional with water flushing) or dry/chemical

Please specify: The school complex has toilets only for its users. There are no other public toilets. All toilets are conventional with water flushing.

i. Quality of maintenance of public sanitation facilities

i.1 Quality (high /medium /low)

Please specify: None present at our demo sites. Quality maintenance of sanitation facilities of Releios School Complex is medium.

i.2 Frequency of cleaning (daily/weekly)

Please specify: Daily

j. Animal (pets) waste (dog faeces)

j.1 Regulation (regulated /owners responsibility/not regulated)

Please specify: It is illegal not to pick up dog faeces however dog owners are not responsible. Dog faeces are located on the paving and within the planting. Furthermore, there are trays for pet feed and drinking water within the planting beds.

Identified problems⁷² (Pictures from this answer will be attached in the following reports):

- Dog faeces in planting and on paving
- Food for stray animals
- Water fountain for dogs

j.2 enforcement (existing – communal wardens/ non-existent)

Please specify: Non-existent

3. Environmental & Functional issues and the existing assets on the site

a. Presence of Heat Island effect

a.1 Ambient temperature significantly higher than in the surrounding area (due to surface cover material's negative Albedo effect)

Please specify: N/A

a.2 Prolonged high ambient temperature after sunset

Please specify: N/A

b. Open public space percentage of shading during critical summer months

Please specify: There is no shading provided long Akti Dilaveri. Shading is limited in the morning hours near the entrance at the Ralleion School complex. In the remaining surrounding green spaces no shading is provided.

c. Shading considered sufficient or insufficient for users wellbeing

Please specify: Present shading is considered insufficient for users.

d. Natural or engineered facilities for protection from winter winds

Please specify:

⁷²Pictures, illustrating this answer will be attached in the following reports



There are no facilities for protection from winter.

- e. Any known positive and / or negative demo site's interactions (functional influences*:) with the immediate neighbourhood within the context PH & WB of users (* for example, location attractiveness/comfort, air pollution, noise, degrading environmental conditions, shading of adjacent buildings etc.)

Please specify:

Area1: For the Mikrolimano Coastal area, a lot of illegal structures had closed the promenade (Thus the renovation plans of the promenade). Those structures were used as restaurants, cafes and clubs so for the local population there have been noise issues. Furthermore, due to the position of those structures there have been a lot of pollution phenomena of the sea.

Area2: The open channel of Akti Dilaveri cannot recycle its water from the sea (as it was designed to) because of an offshore structure built to protect the coastal area from erosion.

Area3: Ralleion School Complex is built near a major avenue so there is lots of traffic, noise and air pollution due to the dense built environment. There are not any major shading issues.

Also, according to the local community (based on collected answers via online survey), as major problems of the area are referred the following:

- Lack of cleanliness
- Air pollution
- Lack of green spaces and recreation areas (parks, meeting places, etc.)
- Unsustainable urban mobility (disabled, pedestrians, children, the elderly, etc.)
- Ruined sidewalks
- Lack of pedestrian and bike paths
- Lack of parking spaces
- Non-utilization of inactive public spaces and buildings
- Traffic
- Noise pollution
- Lack of lighting of public areas

On the other hand, in general, they believe that NBS could help enough the area.

- f. Long-term predictions of the local weather extremes and / or other phenomena caused by the climate change

Please specify:

There are no predictions of weather extremes and / or other phenomena caused by the climate change.

Greece (and Piraeus) is blessed with the Mediterranean climate (or dry summer climate) which is characterized by dry summers and mild, wet winters. The main cause of Mediterranean, or dry summer climate, is the subtropical ridge which extends northwards during the summer and migrates south during the winter due to increasing north–south temperature differences. Taking also into consideration of the coastal character of the areas and the fact that the heat capacity of water is higher than that of air, water provides more stable temperature conditions. As a result no local weather extremes are to be expected.

- g. Presence of biodiversity in the context of ecosystem services (specify different flora and fauna at site);

Please specify:

Biodiversity is limited throughout the demo sites.

- Near the Ralleion School Complex the following species have been identified: *Nerium oleander*, *Ficus* sp., *Populus nigra*, *Ailanthus altissima*, *Ligustrum ovalifolium 'Aureum'*, *Citrus aurantium*, *Viburnum tinus*, *Myrtus communis*, *Yucca* sp., *Pittosporum tobira 'nanum'*, *Pittosporum tobira*, *Duranta plumierii*, *Ligustrum japonicum*, *Justicia adhatoda*, *Elaeagnus angustifolia*, *Morus* sp.
- Along Akti Dilaveri the following species have been identified: *Washingtonia* sp., *Phoenix canariensis* and *Nerium oleander*.



4. City's comments on gaps in NBS applications

- a. Cities to submit their view on gaps* in NBS applications in their selected demo site

(* for example: none of NBS applied, design and maintenance issues, traditional vs integrated/multifunctional design, lack of positive impact, no functional criteria used in the NBS design, lack of technical guidelines and lack of planning experience)

Please specify: In all sites the existing planting was not designed as a nature-based solution. The main purpose of the planting is ornamental. There is limited human-plant interaction. Tree pits are small and the surrounding impervious paving creates problems for tree longevity. Though the selection of plants is appropriate for urban conditions the planting design varies increasing the need maintenance under conditions of limited available resources. Furthermore, human interventions of planting without consultation contributes to planting maintenance problems. Irrigation system tampering and theft in some locations also contribute to planting maintenance problems.

5. Potential demonstration site resources relating to PH & WB, for resource categories as follows:

- a. Local community (residents and visitors) potential knowledge, local resources and readiness for engagement

Please specify:

Many unions are located and are taking actions in the demo site area.

Specifically, the most sport/ athletic clubs and unions are located in Akti Dilaveri and the Parents & Teachers association of Ralleion Primary schools of Piraeus will be the representative for the Ralleion demo site.

Also, the Municipality of Piraeus, operates the Volunteer Office, aiming at the improvement of the quality of life in Piraeus, and in parallel contributing to the cultivation of solidarity among its residents.

The President of the 3rd Municipal Community of Piraeus and the President of the Ralleion educational community and NOEF Sailing Club were willing to contribute to the co-process and the implementation of the project, engaging the members of their communities, according to its requirements.

Local community may not know about NBS solutions in a technical level but when engaged they will definitely understand and accept the potential positive impact of the NBS solutions.

- b. Locally available recyclable materials

Please specify:

A recycling unit located on one of the Ralleion School boundaries.

- c. Additional cultural potential

Please specify:

The area has a lot of archaeological sites in the mainland and underwater, that have not being excavated.

Also, there are old buildings created before the 50s called "Mikrasiatika" and most of them being categorised as Cultural Heritage by the Greek Ministry of Culture.

The Delfinario Theater and the Peace and Friendship Stadium are facilities of hyper-local interest, too.

- d. Social and local community structures

Please specify:

- The Public Benefit Municipal Enterprise of Piraeus (KODEP) implements a series of new social services to support vulnerable groups in the city, in the context of strengthening the municipal social solidarity structures of the Municipality of Piraeus.
- Volunteering Office. The Municipality of Piraeus, since 2012, has commenced the implementation of a number of voluntary programs, through the Volunteer Office, aiming at the improvement of the quality of life in Piraeus, and in parallel contributing to the cultivation of solidarity among its residents.
- The Culture, Sport and Youth Organisation (OPAN PIRAEUS) is charged with the responsibility of promoting sport and awareness of social and cultural issues among all citizens, and youth in particular.
- e. Geographical (location advantages for economy and tourism)



Please specify:

Mikrolimano Promenade and Akti Dilaveri (Areas 1 and 2) are coastal Areas that welcome every year thousands of visitors (both natives as well as tourists) due the large collection of (fine dining) restaurants and cafes.

The vision of the Municipality of Piraeus is to “merge” / “consolidate” the Mikrolimano and Akti Dilaveri areas, in order to create a continuous coastal front.

Akti Dilaveri Area is used by residents and athletes on a regular basis, and visitors of the area, especially the weekends for leisure activities.

The increase of visitors / users will enhance the hyper local character of the area and will leverage its economic development.

- f. Additional functional potential (recreational, tourists, cultural, environmental education, business activity)

Please specify:

Area1: With the renewed promenade area, the Mikrolimano wants to have a more accessible character as visitors will now be able to walk along Koumoundourou Str. and view the sea in the South where now they could see restaurants and cafés.

Area2: In Akti Dilaveri Area, there are facilities and activities of hyper-local interest, such as theatres, stadiums, the marina and the sailing clubs and of course coffee shops, bars and seafood restaurants.

With the renovation plans for Akti Dilaveri, an extensive pathway will also be created, at both sides of the channel, and two wooden bridges connecting those. Moreover, an extension of the metropolitan cycling road is said to be created in the eastern side of the channel that will also bring more visitors at the area. Given the fact that there is also a summer theatre on the eastern side of the channel a lot of cultural potential seem to be present.

Area 3: The area is a school complex so there doesn't seem to be any major cultural development with the implementation of NBS, maybe student's will grow a better nature conscience.

Ralleion School has an environmental union for educational purposes, where pupils / students are learning about the environment protection, plant cultivation methods, etc.

6. Demo site additional potential resources

- a. Renewable energy from multiply sources

Please specify: No

Piraeus electricity source is from the PPC network which has certain capacity of implementing renewable sources due to the uncertainty of them. So the only mean that may seem to exist is net metering solutions, where the installed capacity won't massively affect the networks stability.

- b. Solid waste management & recycling potential

Please specify:

Piraeus municipality has a centralised system of collecting and depositing solid waste as well as for collecting and processing recyclable materials.

- c. Urban agriculture: local production of food and other goods (flowers, herbs,..)

Please specify:

There is no nursery for the production of plants.

Areas 1 and 2 are both coastal areas that are used as parking space for small amateur fishing boats.

- d. Demo site water & wastewater (resources availability, management, potentials for improvement)

Please specify: No

Piraeus City, as part of Attica, has a centralized water treatment system that provides quality drinking tap water. As for the wastewater treatment, Attica has a centralized wastewater treatment facility located in Psytalleia island.



e. neighbourhood housing & construction potential (for example: potential impacts of demo site's upgrade)

Please specify:

All sites are very densely built so the site's upgrade due to NBS won't give opportunities for new constructions. However, the whole renovation of the area could motivate the upgrade of the existing properties and the potential relocation of some new citizens in these neighborhoods could be possible too.

f. market potential of the demo site location

Please specify:

In all 3 sites there isn't any organized market as Mikrolimano and Akti Dilaveri are mostly accommodating restaurants and cafés and the school complex won't change its orientation. The interventions expected to cultivate a new "atmosphere", enhancing the recognizability of the area. The increase of visitors / users is possible to motivate any kind of entrepreneurship in the area, too.

g. information & communication technology potentials

Please specify:

There is nothing remarkable in the area.

h. retail potential

Please specify:

The interventions expected to cultivate a new "atmosphere", enhancing the recognizability of the area. The increase of visitors / users is possible to motivate any kind of entrepreneurship in the area, too. The retail prices of the areas 1 and 2 will rise due to the recreation of both areas, especially the rental prices of the shops. The NBS implementations won't have any effect on that.

i. Enhancement of governmental management at local level

Please specify:

This period, in the Akti Dilaveri Area, are running euPOLIS and another 2 projects for the whole renovation of the area. The stakeholder's issues and concerns had never been discussed, before the euPOLIS approach. In the framework of euPOLIS, citizens and unions participate in the project. This bottom-up approach could be adopted as a good practise of enhancement of governmental management at local level.

j. Please add any categories missing

Please specify: N/A



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