



## BASELINE STUDY

# HEALTH&GREENSPACE

Health-responsive planning and management of urban green infrastructure





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# I. INTRODUCTION

Urban green spaces are becoming increasingly valuable, as artificial urban environment is rapidly expanding, and more and more people are forced to live in cities. The Health&Greenspace partnership will demonstrate to cities across Europe how the urban fabric can be transformed into a healthier environment for the benefit of its residents.

Well planned and properly managed urban green spaces can contribute to healthy urban living, climate change adaptation and improved urban air quality. Yet despite their significant potential, the use of urban green spaces remains marginal, fragmented, and highly uneven within cities.

The URBACT Health&Greenspace Network was developed in response to the various health risks related to rapid urbanization and the densification of cities. The project promotes health-responsive planning and management of urban green spaces with an overall aim to deliver health and well-being benefits for citizens across Europe.

Local authorities can significantly influence how people use green spaces, as well as how to improve

their potential to deliver health benefits. Actions covered by the network will be linked to both physical changes to the urban environment and the promotion of social activities, such as facilitated activities in parks, community participation in the design, and maintenance of urban green spaces.

Under the Health&Greenspace URBACT Action Planning Network, Budapest 12th District will be teaming up with 8 other city partners – Breda (NL), Espoo (FI), Limerick (IE), Messina (IT), Poznan (PL), Santa Pola (ES), Suceava (RO), Tartu (EE), to support each other in developing Integrated Health Responsive Green Infrastructure Action Plans.

The common goal of the nine partner cities is to enhance the ability of urban greens spaces to deliver health and well-being benefits.

This study aims to establish an initial common knowledge base on which the Health&Greenspace network can build an effective exchange and learning process.

## II. STATE OF THE ART

### *Trends in urbanisation*

In the last 200 years, the world has been urbanizing rapidly. While in 1800 only about 2% of the world's population lived in urban areas<sup>1</sup>, the proportion of global urban population grew to 55% by 2018<sup>2</sup>.

By 2030, it is expected that nearly 5 billion (61%) of the world's 8.1 billion people will live in cities<sup>3</sup>. According to the United Nations, approximately two thirds of the world's population will be living in an urban area by 2050.<sup>4</sup> Between now and 2050, 90% of the expected increase in the world's urban

population will take place in the urban areas of Africa and Asia<sup>5</sup>.

During the 20th century Europe transformed itself from a largely rural to a primarily urban continent. By the beginning of the 1950s, Europe has already become predominantly urban. Despite the slowing speed of transformation, the share of the urban population continues to grow.<sup>6</sup> In 2018, 74 % of the total EU population-live in cities, towns and suburbs.<sup>7</sup>

### *Environmental effects of urbanisation*

Urbanisation, through the high concentration of consumers, residents, workers and businesses, brings about a number of benefits, such as better access to education, the labour market, the health care system and cultural activities; higher productivity and efficiency; more convenient lifestyles. At the same time urbanisation also leads to negative externalities.

Urbanisation in Europe leads to land take and soil sealing at the expense of arable land, grasslands, forests and other open areas.

Each year soils covering an area larger than the city of Berlin are lost in Europe as a result of urban development and infrastructure construction. This effectively means that every ten years an area the size of Cyprus is paved over.<sup>8</sup> Moreover, in a number of EU member states (mostly new member

states) artificial surfaces grow significantly faster than population due to a combined effects of land take and population losses.<sup>9</sup> Soil sealing (with impermeable layers of buildings, asphalt roads, parking lots, etc.) causes an irreversible loss of the ecological functions of soil. As result of soil sealing water can neither infiltrate (reducing the water retention capacity of the area) nor evaporate, increasing water runoff, and in some cases leading to catastrophic floods. Because of the lack of evaporation in summer, cities are increasingly affected by heat waves.<sup>10</sup> Additional negative effects of soil sealing include an increase in traffic and air emissions due to the spread buildings and unsustainable living patterns; altered micro-climate as sealed surfaces have higher surface temperatures than green surfaces; and soils ceasing to function as sink and diluter for pollutants.<sup>11</sup>

### *Health and well-being effects of urbanisation*

Urban environment directly affects the health and quality of life of the urban population. According to the estimates of the World Health Organization (WHO) 63% of global mortality, about 36 million deaths per year, is due to chronic diseases. A large

proportion of these deaths are associated with risks related to the urban built environment, such as physical inactivity and obesity, cardiovascular and respiratory diseases due to transport-generated urban air pollution, and heat-related strokes and

illnesses.<sup>12</sup> Globally, household and outdoor air pollution is responsible for 7 million premature deaths each year, out of which outdoor air pollution is causing 2.8 million deaths attributed to chronic diseases<sup>13</sup>. The urban heat island effect aggravates heat stress during heat waves that can lead to fatal heat stroke. As the effects of climate-

change accelerate, and related heat waves become more frequent, the heat island effect will become even more pronounced. Physical inactivity, that is likely to be more common among urban populations (due to poor walkability and lack of access to recreational areas) is responsible globally for 3.2 million deaths annually<sup>14</sup>.

## *Urban green spaces and their health and well-being benefits*

According to the European Environment Agency every 10% increase in green space is associated with a reduction in diseases equivalent to an increase of five years of life expectancy<sup>15</sup>. Well planned and designed green infrastructure, can contribute to healthy urban living and climate change adaptation through offering a wide range of ecosystem services. The findings of numerous studies indicate that green space have positive impacts on health and well-being. Evidence shows that access to natural environments can also improve overall mental health (e.g. reducing stress levels, improving general mood, reducing depressive symptoms, and enhancing cognitive functioning). Apart from beneficial effects on mental health, green infrastructure also affects

positively physical health (e.g. reducing blood pressure, improving pulmonary and immune function, reducing the risk of cardiovascular diseases and asthma). Parks have notable cooling effects in the vegetated areas and also in the surrounding built environment; and can function as cooling islands during heat waves. Vegetation has an important role also in improving urban air quality by controlling the distribution of pollutants and by removing them through filtration. Green urban areas can form a refuge from noise and can also facilitate physical activity and relaxation. Furthermore, parks and green spaces improve social well-being through providing places for community activities.

## *Key definitions*

Currently, there is no consensus around a single definition of urban green space. In line with the World Health Organisation (WHO), **urban green spaces** „may include places with ‘natural surfaces’ or ‘natural settings’, but may also include specific types of urban greenery, such as street trees, and may also include ‘blue space’ which represents water elements ranging from ponds to coastal zones”<sup>16</sup>. The Health&Greenspace network will work with a definition of urban green spaces that includes also blue infrastructure (i.e. water edge along a river or lake, a sea beach, ponds, canals, wetlands, etc).

The definition of WHO describes **health** as ‘a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity’.<sup>17</sup> The

Health&Greenspace network applies a broader interpretation of health, in line with the WHO definition, that considers physiological, psychological and social factors and also their interactions. This broader definition is explicitly linked to wellbeing, and goes beyond the traditional medical model, which defines health as the absence of illness or disease.<sup>18</sup> **Wellbeing** also covered by the scope of the project includes the presence of positive emotions and moods, the absence of negative emotions and satisfaction with life<sup>19</sup>. The fact that according to WHO the main determinants of health include among others the physical and social environment<sup>20</sup> is essential from the perspective of Health&Greenspace.

## Heat stress and urban greenery

Average inner-city temperatures can be raised by 3-5°C above those in the surrounding rural areas as a result of urban heat island effect that occurs in metropolitan areas. The urban heat island effect that is caused by the absorption of sunlight by stony materials, the lack of evaporation, and the emission of heat brought about by human activities,

increases heat stress during heat wave.<sup>21</sup>

Population groups that are particularly vulnerable to an increased exposure to excess heat include the elderly, infants and children, pregnant women<sup>22</sup>, and those who already have chronic health conditions.

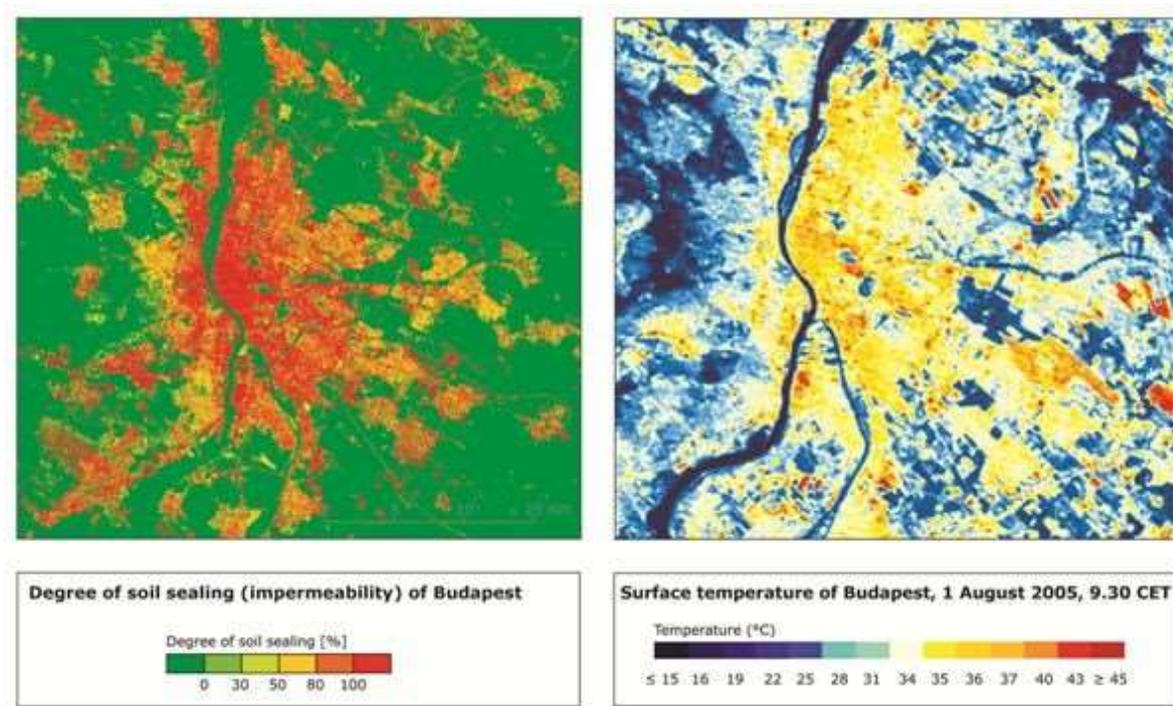


Figure 1: Comparing the degree of soil sealing and the surface temperatures in Budapest (source: EEA)<sup>23</sup>

Urban green spaces can substantially contribute to temperature regulation provided through evapo-transpiration, shading from vegetation, and enabling air flow through open spaces.

Within parks, also relatively small ones, air temperature can be up to approximately 3 °C lower in comparison with the surrounding areas. In addition, green elements have a substantial positive influence on thermal comfort (the human perception of temperature). The physiological equivalent temperature (PET) that quantifies thermal comfort of humans, for some green elements can be locally reduced by up to 15 °C, primarily because of the shading of tree canopies.<sup>24</sup> Vegetation has a key role in evapo-transpiration, and it has a significant cooling effect on the micro-climate.

Evapo-transpiration is a combination of two separate processes (evaporation and transpiration), in which water is lost on the one hand from an evaporating surface such as water, pavement, soil, and wet vegetation; and on the other hand, from plant tissues by transpiration. Only a tiny fraction of the water taken up is used within the plant, the rest is lost by transpiration<sup>25</sup>, cooling the plants and the surrounding environment.

Green infrastructure influences the circulation of air in urban areas, that as a result can have an additional cooling effect on the micro-climate. Larger parks can also contribute to ventilation, generating an outflow of cool air from urban green spaces towards the surrounding built-up areas (park breeze).<sup>26</sup>

Adaptation to the impacts of climate change requires re-thinking urban design, in particular the design of green urban spaces and green elements. Key principles of climate-responsive green space design include the following:

- to develop and upgrade a network of interconnected green spaces in cities,
- to provide better accessibility of public green spaces in neighbourhoods,
- to increase the amount of urban green spaces in cities on the wind-ward side of the prevailing summer wind direction and create cold air corridors,

- to consider the effects of county breeze and park breeze, when developing urban green spaces, or connecting urban and rural green areas,
- to create a diversity of microclimates through mixing open lawn with solitary trees, groups of trees, and dense canopies,
- to plant trees with large canopy covers in streets with increased solar radiation,
- to plan with deciduous trees as they provide shade during summer and let through radiation during winter,
- to use species resistant against heat and drought.<sup>27</sup>

## Air quality and urban greenery

Vegetation plays an important part in controlling the flow and distribution of pollutants by controlling their *dispersion*; as well as in removing air pollutants by the process of *deposition* to leaf surfaces.<sup>28</sup>

With the rapid rate of urbanisation and as the number of motor vehicles and the distances driven increase world-wide, authorities struggle to provide adequate air quality improvements through emission control strategies alone and are increasingly turning to complementary methods to improve urban air quality. The use of green infrastructure can be a complementary option for mitigating air pollution, after reducing emissions and physically extending the distance between polluting sources and receptors.<sup>29</sup>

The main value of green infrastructure for urban air quality lie in its ability to control the distribution of pollutants. Urban vegetation can greatly reduce the amount of emissions people are exposed through *dispersion*: increasing dilution pollutants with cleaner surrounding air by changing the distance pollutants must travel from the source to reach people, and by introducing turbulence.<sup>30, 31</sup> In an open-road environment a vegetation barrier (i.e. a hedge) can halve the concentrations of pollutants in its immediate vicinity.<sup>32</sup>

In addition, urban vegetation can remove a smaller fraction of pollution by *deposition*, when pollution sticks to the surface of a leaf and is removed from the air.<sup>33</sup> Due to its relatively large surface area, plant canopy functions as a sink for particulate matter. Growing evidence indicates that plant leaves can capture particulates and act as biofilters.<sup>34</sup>

Moreover, parks are also protecting people from air pollution indirectly by drawing them away from polluted areas into cleaner ones.<sup>35</sup>

Key principles for using green infrastructure to improve air quality include the following:

- vegetation with higher surface area (deciduous broad-leaved trees), greater rates of transpiration, and longer in-leaf periods result in the greatest enhancements in deposition
- designing heterogeneity in the urban canopy to exploit edge effects and maximize deposition,
- the introduction of large areas of green walls in street canyons may be particularly effective at improving ground-level air quality,
- 'green oases', i.e. slowly ventilated areas containing or surrounded by green infrastructure but with no internal pollutant sources, will always lead to improved air quality.<sup>36</sup>

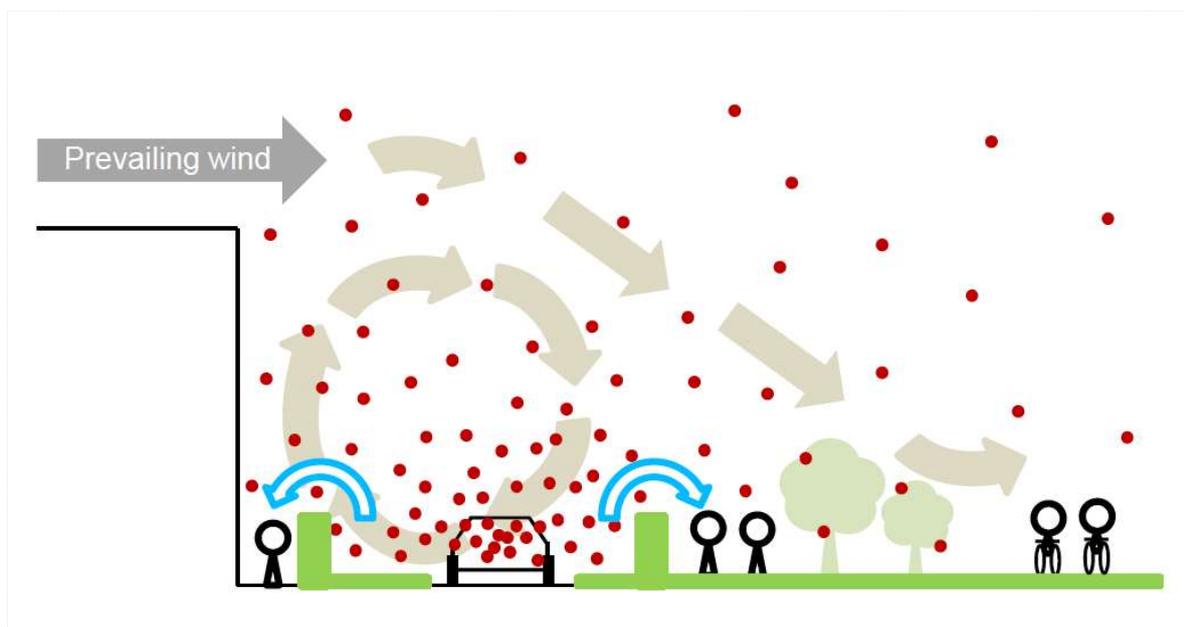


Figure 2: Protecting people with hedges at the side of an open road (source: Greater London Authority)<sup>37</sup>

## Noise and urban greenery

Vegetation reduces noise pollution by accelerating the dissipation of the energy of sound through absorption, deflection, refraction, and masking.<sup>38</sup> Hedgerows, green roofs and green walls can function as sound barriers.

Compared to bare soil or pavement, low vegetation in open areas has a muffling effect on sound, similarly to the carpeting in a room.<sup>39</sup> There is evidence that a dense belt of trees and shrubs can reduce sound levels by as much as 6 to 8 decibels.<sup>40</sup>

Apart from blocking noise, trees and shrubs also have a masking effect, as they produce natural sounds (the rustling of leaves, the movement of branches in the wind, the sounds of birds associated with trees, etc.).<sup>41</sup>

Vegetation apart from physically dampening noise, can also contribute to the perception of quietness. Noise bother people less, when they do not see its source. The use of green infrastructure between people and the source of noise impacts the human perception regardless of the thickness of the vegetation.<sup>42</sup>

Key principles for using green infrastructure to reduce the effects of noise include the following:

- development of extensive and dense vegetation structures, green roofs, green walls functioning as sound barriers,
- establishment of buffer zones to increase the perception of silence,
- creation of quiet amenity spaces,
- access to quiet, natural places in urban areas can be enhanced by improving the ecological quality of urban green spaces.

## General impacts of urban green spaces on physical and mental health

There is evidence that the provision of open and green spaces is associated with improved general physical health outcomes.

A systematic review of five online databases and over 100 studies undertaken by the University of East Anglia found that people who spend more time in green spaces have significantly reduced risks for

a number of chronic illnesses. According to the research, exposure to green spaces was linked to lower heart rate, lower blood pressure, lower cholesterol, and reduced incidence of stroke, asthma, diabetes and coronary heart disease.<sup>43</sup>

Some studies<sup>44, 45</sup> have indicated that there is a positive correlation between higher levels of green space and lower levels of obesity.

In the 1980s, the study of Roger Ulrich showed that merely having a view of nature can provide physical benefits. Patients with a view of trees from their hospital bed recovered more quickly, required less pain medication, and had fewer post-surgical complications than patients in rooms with urban views.<sup>46</sup>

Access to natural environments can also improve overall mental health. There is an indication that

### *Urban green spaces and social health*

Urban green spaces, through providing a platform for community activities, encourage positive social interactions that improve social cohesion. Positive social interactions were observed to be associated with enhanced health and wellbeing.<sup>51</sup>

Evidence indicates that people who connect with nature feel less isolated, form connections with others.<sup>52</sup> Increased access to green space is also associated with reductions in crime, violence, aggression and anti-social behaviour.<sup>53</sup>

Community gardens are an important example of green infrastructure by providing opportunities for enhancing social capital, facilitating social networks, and as a result, improving the overall social health of a community.<sup>54</sup>

### *Physical and recreational activities in urban green spaces*

Availability of green space and greater levels of physical activity are strongly linked, as well as the associated health benefits. Evidence showed that the direct proximity and quality of urban green space were associated with increased frequency of PA.<sup>56</sup> This clearly indicates that even distribution of green infrastructure is as much relevant as greater amount of green space, when increased accessibility of urban green spaces is targeted.

A study undertaken in China suggests that residents' physical activity in a given park can be effectively promoted by the following: increasing the accessibility, quality and size of the urban green

space; improving basic infrastructure, recreation facilities in the area; and by the organization of facilitated sport activities, such as "square dancing" and Tai Chi.<sup>57</sup>

Green infrastructure interventions undertaken in an urban environment with an aim to improve physical and mental health include:

- therapeutic gardens,
- health-walk routes,
- areas for relaxation and reflection.

Community gardens as specific examples of urban green space were found to produce numerous benefits for local residents, such as enhanced social cohesion, increased social support and stronger social connections.<sup>55</sup>

Potential actions that support social health in urban green spaces include:

- development of outdoor community centres
- development of outdoor classrooms
- cooperation with schools (competitions in parks)
- organization of family days
- development of recreational spaces
- development of community gardens.

Potential actions that support physical activities in urban green spaces include:

- organized physical activities (e.g. coordinated programs of amateur sports in parks, orienteering)
- 'Active parks' (physical activity sessions offered for free in parks),
- guided walks.

## The scope of the project

A holistic approach is applied by Health&Greenspace that addresses the main functions provided by urban green infrastructure that deliver health and social benefits. In line with the pathways mentioned above that link urban green space to improved health and well-being, the scope of the project covers the four key thematic areas:

- **Theme 1: Heat stress** (climate-responsive design of green spaces to increase their cooling capacity and the use of green space to combat the impacts of heat stress),
- **Theme 2: Air quality and noise** (use of urban green spaces to improve air quality and mitigate noise),
- **Theme 3: General impacts on physical and mental health** (green spaces explicitly developed or used for therapeutic purposes),
- **Theme 4: Lifestyles, social functions, physical activities** (green spaces developed or used as outdoor community centres;

supporting recreation and physical activities in urban green spaces).

The project will focus on three main types of green infrastructure: 1) parks and urban green areas; 2) street green; and 3) external building greens, such as green roofs, green façade walls.

In terms of types of measures, Health&Greenspace supports:

- the health-responsive design of urban green spaces (the development of new green infrastructure, or the rehabilitation of underutilized green spaces),
- the animation of existing green areas through the initiation of small-scale, outdoor community, cultural, education and physical activity programs,
- the management of green spaces (e.g. involving residents in the maintenance of public green spaces, community gardening schemes);
- education and awareness raising about the health and wellbeing benefits of urban green spaces.

## Link to EU policy context

The envisaged activities of the Health&Greenspace network are directly associated with two Sustainable Development Goals (SDGs)<sup>58</sup> of the United Nations: Goal 3 on 'Good Health and Well-being' and Goal 11 on 'Sustainable Cities and Communities'. More specifically the Health&Greenspace network will directly contribute to two targets linked to SDGs:

- 3.4 „By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being”, and
- 11.7 „By 2030, provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities”.

One of the most fundamental EU level policy documents from the perspective of the project context is the EU-wide strategy on Green Infrastructure<sup>59</sup>. It is indicated in the strategy that green infrastructure solutions are particularly important in urban environments as they:

- contribute to health-related benefits such as clean air and better water quality;

- create a greater sense of community;
- help combating social isolation;
- provide physical, psychological, and socio-economic benefits;
- create opportunities to connect urban and rural areas and
- provide appealing places to live and work.

The strategy encourages the improvement of evidence base and innovation related to green infrastructure. The cities being part of the Health&Greenspace network by functioning as urban learning labs, and by engaging in transnational exchange and learning activities will contribute to the improvement of the knowledge base related to the social, health and resilience benefits of nature-based solutions.

The strategy promotes working with nature and using green infrastructure in an urban environment to help mitigate the urban heat island effect (e.g. incorporating biodiversity-rich parks, green spaces and fresh air corridors). Under Health&Greenspace a specific theme is dedicated to reducing heat stress with the use of nature-based solutions.

Health&Greenspace directly addresses two out of the three priorities of the Europe 2020 strategy:

- Sustainable growth (through promoting the establishment of green infrastructure in urban built environment), and
- and Inclusive growth (through promoting healthy and sustainable lifestyles and social interactions).

The project is also linked to three priority themes of the Urban Agenda for the EU:

- Sustainable Use of Land and Nature-Based Solutions,
- Climate Adaptation, and
- Air Quality.

Health&Greenspace contributes to the Cohesion Policy Thematic Objectives in each of the partner cities:

- **TO6: Preserving and protecting the environment**, through promoting ecosystem services and the use of multifunctional green infrastructure,
- **TO5: Promoting climate change adaptation and risk prevention and management**, through supporting adaptation to climate change with ecosystem-based approaches,
- **TO9: Promoting social inclusion and combating poverty**, through contributing to the reduction of negative effects of environmental pollution, and through promoting sustainable lifestyles and social interactions.

It is highlighted in the 'Green infrastructure and territorial cohesion' report of the European Environment Agency<sup>60</sup> that green infrastructure provides multiple benefits. Among these the ones that are covered by the scope of

Health&Greenspace are the following:

- mitigation of urban heat island effect through evapotranspiration, shading and keeping free corridors for cold air movement,
- strengthened ecosystems' resilience to climate change,
- provision of opportunities for recreation,
- provision of a sense of space and nature,
- reduced air pollution,
- provision of opportunities for education, training and social interactions.

The paper of the WHO Regional Office for Europe titled, 'Urban green spaces: a brief for action'<sup>61</sup> also emphasizes the ability of urban green spaces to provide multiple benefits, together with the fact they are necessary features of healthy settlements. The key messages of the brief line up with the

scope and goals of Health&Greenspace. These include among others:

- the benefits of urban green spaces can be maximized through adequate planning, design and evaluation,
- the provision of green spaces in urban settings can be considered public health and social investments,
- urban green spaces are valuable settings for community organizations to host cultural or recreational events or provide space for gardening.

**WHO Healthy Cities** is a global movement, bringing together approximately 100 cities and 30 national networks working to put health high on the social, economic and political agenda of city governments. Cooperation with the Healthy Cities Network can bring significant added value to the transnational learning and exchange process.

ICLEI, a global network of local governments that have made a commitment to sustainable development, advocates the importance of urban biodiversity and green spaces. ICLEI's REGREEN project improves the evidence and tools for supporting co-creation of nature-based solutions (NBS) in urban settings.

Health&Greenspace will be able to build on the results of a number of previous URBACT projects:

- The **Vital Cities** project promoted a healthy and physically active lifestyle and social cohesion in the urban environment. The network covered a range of useful approaches for redesigning public space, and organization of innovative events that targeted the promotion of healthy lifestyles, most of them highly relevant for the partnership of Health&Greenspace.
- The **Resilient Europe** addressed climate adaptation by promoting learning and sharing of experiences on resilience and sustainability. The Health&Greenspace network primarily will be able to put to use the thematic report of the project on nature-based solutions for urban resilience.
- The **Building Healthy Communities** project promoted capacity building in the field of urban health. The network's indicator set on healthy sustainable development can support partner cities of Health&Greenspace in planning of actions, and also in the development of frameworks for the monitoring of their implementation.

In addition, Health&Greenspace will build on the outcomes of a number of projects and initiatives, which include among others:

- **GRETA**, one of the Applied Research projects of ESPON (the European Spatial Planning Observation Network (ESPON)) looked into how can green infrastructure be further integrated in spatial planning and territorial development; how can it contribute to improve welfare in urban regions; and what are the effects of ecosystem services on the development of cities.
- The **Connecting Nature** Horizon 2020 project focuses on innovative applications of nature-based solutions for urban sustainability issues.
- The **GrowGreen** Horizon 2020 project aims to create climate and water resilient, healthy and liveable cities by investing in nature-based solutions.
- The **OASIS** Urban Innovative Actions project is transforming schoolyards in Paris

into cool islands through the use of nature-based solutions.

- The **CLAIRO** Urban Innovative Actions project of Ostrava is aiming to reduce air pollution through comprehensive planning and greenery planting.
- The **RU:RBAN** URBACT project addresses the use of an urban garden as part of patients' clinical therapy, and as instruments of social inclusion of socially challenged people.
- The **LIFE URBANGREEN** project develops an innovative technological platform supporting the monitoring ecosystem services of urban green areas, the improved management of green areas for better climate adaptation, and decreased concentration of air pollutants.
- Under the **PERFECT** Interreg Europe project that aims at maximising the benefits of green infrastructure, an expert paper titled, 'Health, wealth and happiness – the multiple benefits of green infrastructure' was published.

## *Cases from Europe and beyond*

Under this section a couple of relevant initiatives (including small and large-scale urban projects) are presented, which are in line with the scope of the Health&Greenspace network, and on which partner cities can build, when formulating actions.

### **Protecting Playgrounds, Manchester**

A pilot project currently running in Manchester, Protecting Playgrounds, seeks to diminish the effect of air pollution on school pupils. More specifically, because school playgrounds are often adjacent to major, busy roads, with railings or mesh fencing oftentimes serving as the only barrier, pupils are directly affected by the considerable amounts of pollution generated by the passing vehicles.<sup>62</sup> In order to address this issue, the project tests several green screen barrier formulas in the form of "tredges" (trees managed as hedges). The team is currently assessing the effectiveness of various species mix, densities, heights, and leaf shapes in dispersing pollutants and trapping particulate pollution<sup>63</sup>. In terms of monitoring, besides the installation of air quality monitoring equipment in the participating schools, the project includes a citizen science dimension, wherein pupils themselves are trained to take samples and input

data, as well as wear mobile monitoring devices to assess air quality on the pathways to school.<sup>64</sup>

### **OASIS, Paris**

School playgrounds are targeted by the OASIS initiative in Paris. As the densest capital of Europe, Paris is particularly susceptible to the urban heat island effect caused by the large proportion of asphalted and impervious surfaces. Over the past years, Paris has experienced a trend of increasing heat waves, flooding, declining social cohesion, and limited green space, which it sought to tackle through its Resilience Strategy.<sup>65</sup> OASIS, an Urban Innovative Actions (UIA) project will transform several pilot schoolyards into green islands through a series of measures that including increasing the proportion of green spaces and creating natural and artificial shade structures. The solution is expected to result in a 10% decrease in surface temperatures and a 1 to 3 °C decrease in daytime air temperatures.<sup>66, 67</sup> Furthermore, the project (and its planned replication in a total of 761 schools) is expected to have a widespread social impact, especially taking into consideration the fact that most residents of Paris live less than 200 meters away from a schoolyard. It is expected that the schoolyards will be open to the larger public

outside of school hours, with an approach that takes into account safety and upkeep issues. Combined with an innovative and democratic governance approach, it is expected that the project will also contribute to the social ties in targeted areas.

#### **Cheonggyecheon stream recreation space, Seoul**

The potential large-scale impact of a green infrastructure urban intervention is well exemplified by the Cheonggyecheon river project in Seoul. Previously covered by a major highway, the river was restored in 2003 and opened to the public. The restoration resulted in an ecological park and recreational area with walkways, open-air gyms, stepping-stone pathways and separate picnic areas available to its users.<sup>68</sup> The removal of the highway and the subsequent decrease in auto trips, along with the cooling effect of the river and the increase in vegetation jointly contributed to significant impacts in the area. Ever since, the urban heat island effect has been reduced, with the temperatures along the stream between 3.3° to 5.9°C lower than on a parallel road. The stream restoration also contributed to air quality improvement, with a reduction in small-particle air pollution from 74 to 48 micrograms per cubic meter.<sup>69</sup> Finally, the restoration of the river has

contributed to social life in the area, by offering various cultural experiences (such as the annual lantern festival) and regular activities that attract a large number of residents and tourists alike.<sup>70</sup>

#### **Active Parks, Birmingham**

The Active Parks initiative in Birmingham offers individuals a range of free activities suitable for various ages and experience levels, including walks, running, cycling, aerobics, basketball, rowing, gardening or conservation and bushcraft.<sup>71</sup> The project aims to directly address the traditional barriers that often prevent individuals from engaging in physical activity such as price or a lack of accessibility, and it does so by providing regular, free of charge activities under the guidance of 'social group leaders', who play a community-building role besides the traditional gym instructor one. Active Parks has successfully engaged groups (e.g. residents from deprived areas, ethnic minorities, women, older people) that are typically underrepresented in sports and physical activity. Overall, the project proved to be highly successful: after its first pilot in 2013, where the free classes were offered by local volunteers in six parks, Active Parks has grown to cover over 60 parks, and almost 90,000 participants attendance in its third year<sup>72</sup>.

### III. PARTNER PROFILES

The partnership of the Health&Greenspace consists of the Lead Partner, Budapest 12th District and eight other city partners – Breda (NL), Espoo (FI), Limerick (IE), Messina (IT), Poznan (PL), Santa Pola (ES), Suceava (RO), Tartu (EE).

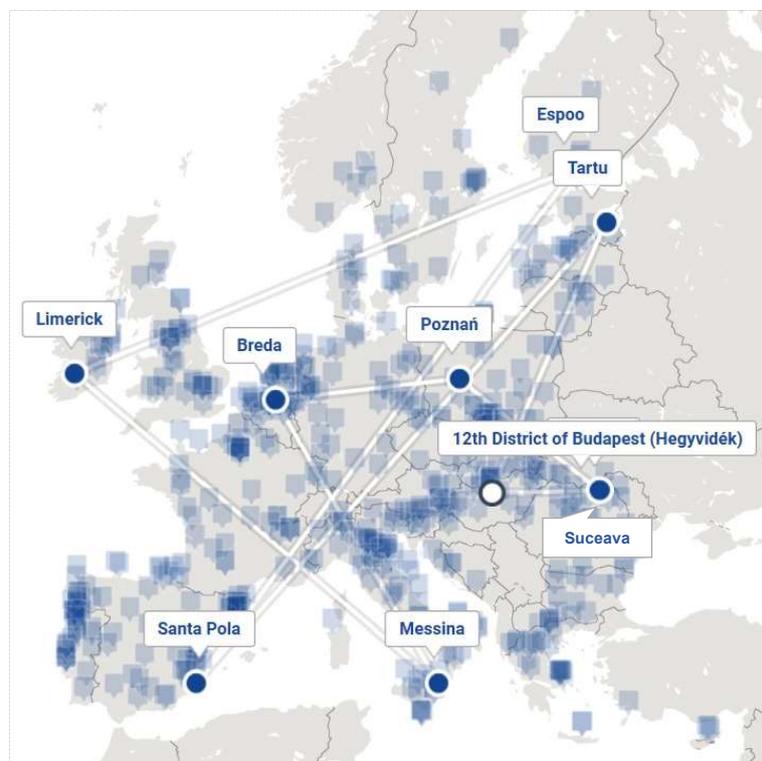
The partner profiles under this chapter present the point of departure for each of the nine Health&Greenspace cities. Each profile includes the following sections:

- Key facts
- Basic information about the city
- city and urban green spaces
- The city and health
- Local policy context and ongoing initiatives
- Key challenges
- Ambition and initial focus of the Integrated Action Plan
- Introduction to the ULG
- Learning opportunities, good practices and potential contributions.

The information included in the profiles has been gathered through questionnaires filled in by the local project coordinators, consultations and site visits undertaken as part of the city visits, and desk-based research. The city visits were particularly useful to gain a deeper understanding of the local contexts. They comprised the following elements:

- discussions over maps of urban green spaces,
- consultations with initial ULG members that included interactive sessions targeting at the mapping of relevant ongoing activities, and the identification of potential actions to be included in the IAPs;
- meetings with legal representatives;
- site visits; and
- in-depth consultations with the core team.

During the city visits the majority of the partners cities have already mobilized a large number of relevant stakeholders.



# Budapest 12<sup>th</sup> District, Hungary

## Key facts

Partner institution	12 <sup>th</sup> District of Budapest
Region	Central Hungary
Population	58,322
Surface within city limits	26,67 km <sup>2</sup>
Life expectancy at birth	78.67 years for men, 82.1 years for women (2016-2018)
Urban green space per capita	170 m <sup>2</sup>

## About the city

The 12th District of Budapest (Hegyvidék) is located in the central, mostly hilly part of the Buda side of the Hungarian capital. Hegyvidék has a population of 58,322 inhabitants and a total area of 26.67 km<sup>2</sup>. In comparison with other districts, it has one of the lowest population densities in Budapest due to its hilly topography.

On account of its extensive, contagious forests and richness in green surfaces, the district serves as the 'lung of the city'. Due to the diversity landscapes and natural features Hegyvidék is one of the most popular destinations for hiking and recreation within the capital.

The administrative area of Hegyvidék can be divided into three easily distinguishable zones: a densely built-up inner-city zone, a less dense, sparsely built-up suburban zone, and a forest area. In the zone system of Budapest, almost the total area of the district is located in the 'hillside zone', only the most eastern part of it is categorized as 'inner zone'.

In the 19th century viticulture was typical in the area of the municipality. As by the second half of

the century a growing number of villas were built on the hillside, the arable fields and vineyards here began to be built in.



The 12<sup>th</sup> District of Budapest has one of the highest proportion of residents having a university degree in the country, and the employment rate is also high in the district.

Hegyvidék today is a national-level health centre, with the high number of public and private health institutions operating in the district.

## The city and urban green spaces

Hegyvidék is the greenest district of Budapest. Green space per capita in the municipality with 170 m<sup>2</sup> is by far above the European average (18,2 m<sup>2</sup>)<sup>73</sup>.

In terms of urban zones, the 12<sup>th</sup> District of Budapest can be divided into three areas:

- a densely built-up inner-city zone, with narrow streets and multi-storey apartment buildings at the foot of the Buda Hills,
- a less dense, sparsely built-up suburban garden area with a small town look on the slopes of the hills, and
- an extensive forest area on the ridge of the mountain.

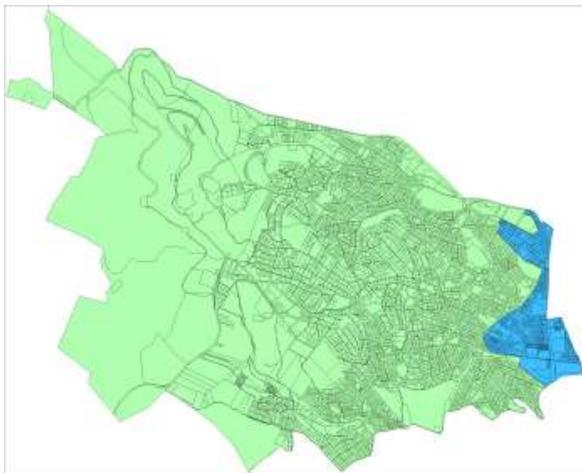


Figure 3: Urban zones in Hegyvidék

A relatively large number of public parks, public gardens and memorial parks are in Hegyvidék. Although the municipality is rich in green areas, the

## The city and health

Average life expectancy at birth in Hegyvidék is one of the highest in Hungary and also in Budapest. In the period between 2016 and 2018 it was at 82,1 years for women and 78,67 years for men, while the national average in 2017 was only 78,99 years for women and 72,40 year for men.

District XII. had the largest proportions of people aged over 65 in the Hungarian capital with 26,1% (the Budapest average is only 19,3%). At the same time, the proportion of young families and small children has also been on the rise in recent years. As a consequence, senior citizens and young

distribution of green infrastructure is uneven. Key elements of green infrastructure include Normafa, Városmajor, Kis-Sváb-hegy, Városmajor and Gesztenyés Kert.

Normafa, is the most popular hiking destination of the capital, located in Hegyvidék, on the eastern edge of the Buda Hills mountain range. It is part of the Buda Landscape Protection Area. Normafa itself is a small park-like clearing surrounded by extensive forest areas, located on a long but relatively narrow plateau of Buda Hills. In winter it is also a skiing destination.

Városmajor is large public park with an area of 100,000 m<sup>2</sup>, that was established in the 18th century on the floodplain of seasonal stream, Ördög-árok.

Kis-Sváb-hegy is an elevation in the Buda Hills. On a one-hectare area around the summit, which is a nature reserve, the original wildlife has been more or less preserved.

Gesztenyés-kert is a public park of approximately 35,000 m<sup>2</sup> in Budapest XII. district. It is a popular recreational park of the inhabitants of the Hungarian capital, and often serves as a venue for events.

The urban forests in District XII. are the most important touristic-recreation spaces of the capital. Most of them are protected natural areas of national importance. An extensive network of tree alleys and street trees is also an important part of the green infrastructure of the municipality.

families are the main target groups of local health policies.

Due to its excellent environmental status and characteristics, the high level of educational attainment and relative wealth of its population, Hegyvidék is among the best positioned districts in Budapest in terms of health status.

A high proportion of health facilities of Budapest (public and private hospitals, and clinics) is located in District XII.

## Local policy context and ongoing initiatives

Due to the abundance of green spaces in the district, governance of urban green infrastructure is one of the priority policy areas for Hegyvidék. The Environment Protection Program of District XII. for the period 2017-2022 has a section dedicated to green space development that addresses environmental conditions affecting quality of life and human health, preservation of natural resources, promotion of healthy lifestyles, social cohesion, and participatory approaches supporting green space governance (co-design, co-development). It also includes measures linked among others to management of street trees, installation of facilities supporting physical activity in green spaces, moderation of urban heat island effect in the inner-city zone, and the rehabilitation of neglected forested areas.

The Healthy Hegyvidék Program, launched in 2013 by the Municipality promotes preventative healthcare and health-conscious lifestyles through providing a framework for cooperation healthcare, social, cultural and sports institutions, as well as offering measures targeting prevention and medical treatments. Key focus areas of the program are disease prevention and rehabilitation. The program supports health screening for children and adults, school and kindergarten awareness campaigns, educational programs, cardiovascular disease prevention campaigns, health days, hiking and sports programs of various difficulty, and summer camps for children.

As a member of the Covenant of Mayors initiative, Hegyvidék has prepared a Sustainable Energy and Climate Action Plan (SECAP). One of the main pillars of the SECAP is a climate adaptational strategy and action plan, which has a specific focus on heat stress.

The municipality has launched a Green Space Stewardship Program that provides a framework for involving residents in the maintenance of public green spaces. Currently 26 areas are included in the Stewardship programme.

Currently, a large-scale rehabilitation program of Normafa is underway. As part of the program, car traffic will be reduced, public transport connections will be improved, a visitor centre, a canopy walkway, walking trails, running tracks, and

playgrounds will be developed, and a previously built-in area will be converted into a park.



In 2009 the municipality has adopted a green roof policy. It is prescribed in the Urban Development and Building Regulation of District XII. that in case of installation of a new flat roof or reconstruction of an existing one, a green roof needs to be set up on a certain part of the roof surface.

A Cardio Trail was developed as a result of the cooperation of Szent Ferenc Hospital and the municipality. The trail is primarily targeted at patients of the hospital suffering from cardiovascular diseases, hypertension, or diabetes, but it can also be used for disease prevention purposes. The program introduces hikers to some basic health indicators and measurement methods and provides a personalized assessment of the health condition during the hike.

Hegyvidék is involved in the BeePathNet URBACT Transfer Network project, which aims to increase sustainability of EU cities through urban beekeeping. BeePathNet has a relevance for Health&Greenspace as bees live in healthy environment, and if natural environment is preserved with an aim to allow wild pollinators to thrive, that in exchange also increase the quality of urban green spaces.

The municipality through its cultural centre launched in 2016 Class Staircase, a series of outdoor classical concerts that are organized in a large public park, Gesztenyés Kert.

In addition, Hegyvidék supports a great variety of cultural, educational, and sports initiatives that are directly linked to green spaces, such as outdoor film screenings, an environmental education program

for local kindergartens (Madárovi), walking and running clubs, organized urban walks.

## Key challenges

One of the major challenges the municipality is struggling with is to effectively embed green space governance into local health policy. The municipality actively cooperates with the district-level health authorities, but the opportunities offered by urban green spaces have not been included yet in the cooperation palette. At the same time, for many years, planning and management of urban green spaces has been a key policy area for Hegyvidék. Yet, the interconnection of these two fields and separate efforts has been missing.

Due to the abundance of green spaces (public parks and street green) in the district, and the lack of resources available, maintenance and replacement of trees is a particularly challenging task for the municipality.

Normafa and the surrounding urban forests are exposed to substantial environmental pressures on account of intensive and concentrated touristic and recreational activity. As a consequence, restoration cannot keep pace with the rapid rate of

degradation of green infrastructure and urban furniture in the area.

In the lower, busiest and densely populated inner-city zone of the district at certain locations there are undesirably high levels of noise and concentration of air pollutants (mostly particulate matter), primarily caused by traffic. The urban heat island effect is also more pronounced in the inner city zone.

In some of the streets in the inner-city zone the specific location of utilities, streetlights, and other street furniture hinders tree planting and requires the use of other, less common type of nature-based solutions to reduce environmental pressures and to increase amenity qualities locally.

The municipality lacks experience in the application of community involvement techniques and participatory planning. This is partly attributable to the fact that because of socio-cultural factors in Central and Eastern Europe, it is relatively difficult to effectively engage residents of the district in community planning.

## Ambition and initial focus of the Integrated Action Plan

The 12<sup>th</sup> District of Budapest has an ambition to create a Green Hegyvidék through developing healthier green spaces, meeting the needs of residents, that include recreational areas, community spaces for social interactions, and climate-resilient green infrastructure. With the development of the action plan, the municipality aims to draw the attention of the public to the significant role of urban green spaces in delivering health and wellbeing benefits.

The Integrated Health Responsive Green Infrastructure Action Plan of Hegyvidék will aim:

- to provide support to healthcare services in exploiting the opportunities provided by urban green spaces and the natural environment,
- to contribute to the development of green community spaces and recreation areas,

as well as to the organization of cultural, education and sports programs in green spaces,

- to support the design and use of green spaces for therapeutic purposes (Cardio Trail, healing hospital garden),
- to promote the use of greenery for mitigating heat stress, reduce noise, and improve air quality,
- to contribute to the reduction of environmental pressures associated with a relatively intense tourism in the district, and
- to strengthen participatory approaches in local governance, through engaging local citizens in the co-design and maintenance of green spaces.

The IAP is also foreseen to help the design of the Normafa rehabilitation program, through providing support to the development of climate and health responsive green spaces.

Potential actions to be supported by the IAP could also include:

- '2 Hours Outdoors' Campaign
- organizing nordic walking for patients with pacemakers (cooperation with Városmajor Clinic)
- hiking trails developed for people with impaired vision
- publishing a Shared Calendar for outdoor community programs at Normafa
- developing forest bathing and mindfulness points
- providing support to the healing garden in Szent János Hospital
- organizing health screening programs
- using protective hedge in kindergartens to improve air quality
- baby-mom outdoor gymnastics and running club

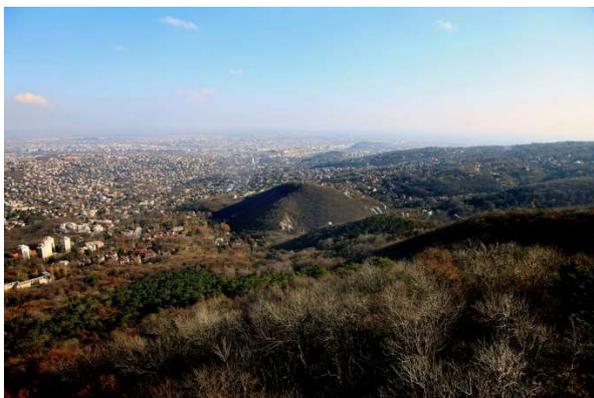
- organizing stress relieving walks, and walks for the elderly,
- organizing walks for the elderly with volunteers
- Friendship Bench Program – problem-solving therapy by trained lay-counsellor grandmothers
- outdoor exhibition organized in cooperation with the Art and Design University
- chamber music concerts in parks
- organizing physical activity programs in parks for people with disabilities
- organizing plogging (a combination of jogging with picking up litter).

Options for The Small Scale Actions include:

- a hiking trails developed for people with impaired vision;
- a participatory workshop supporting the rehabilitation of Eötvös Park, with a focus on functions and programs;
- therapeutic programs in a healing hospital garden.

## Introduction to ULG

The work in the ULG will be mainly driven by the municipal Green Office and the Office of Public Welfare. In the 12th District of Budapest there is a high number of health care institutions and hospitals, which will be at the heart of the ULG. Linked to the ULG related activities, cooperation is already being formed on a higher level with hospital directors and the leader of the Hegyvidék Health Care Centre. Municipal sports and cultural institutions will also have a key role in the work of the URBACT Local Group.



The ULG will be coordinated by Zoltán Rózsa, the Head of the Green Office of Hegyvidék.

The ULG is foreseen to include the following stakeholders:

- Green Office
- Office of Public Welfare (responsible for health care)
- Urban Development Office of the Municipality
- Educational Office of the Municipality
- Communication Office
- Normafa Park (belongs to the Municipality)
- Hegyvidék Health Care Centre
- Szent Ferenc Hospital
- Szent János Hospital – Psychiatric Department (healing garden for patients)
- private health care providers
- MoM Cultural Centre, Cultural Saloon (cultural institutes of the municipality)
- MoM Sport Centre
- FŐKERT (park maintenance company of Budapest)
- walking, running and yoga clubs
- Local History Collection

- Psychology Department of Károli Gáspár University, Moholy-Nagy Art and Design University, University of Physical Education
- Budai Art School
- Duna-Ipoly National Park Directorate
- local community groups
- schools and kindergartens
- landscape designers
- BirdLife Hungary (MME)
- urban walking agencies (Hosszúlépés, BudaStep, Imagine Budapest)
- Local media (Hegyvidék TV, Hegyvidék Magazin)
- Neighbouring municipalities (District XI.)

## Learning opportunities, good practices and potential contributions

The learning needs of Hegyvidék are related to the following aspects:

- effective ways of using nature-based solutions for cooling urban environment and improving air quality
- effective methods supporting participatory planning,
- community involvement techniques,
- cooperation across different departments and authorities

- how to engage entrepreneurs as supporters

Hegyvidék can offer contributions, good practices associated with the following:

- the Green Space Stewardship Program
- the Healthy Hegyvidék Program
- Cardio Trail
- green roof policy
- Class Staircase

# Breda, the Netherlands

## Key facts

Partner institution	Gemeente Breda
Region	South Netherlands
Population	183,659 (August 2019)
Surface within city limits	128.68 km <sup>2</sup>
Life expectancy at birth	81.5 years
Urban green space per capita	72.2 m <sup>2</sup>

## About the city

Breda is a city and municipality located in the southern part of the Netherlands in the province of North Brabants. Breda has a total area of 12,868 hectares, of which 12,574 land and 294 water. Breda has a population of 183,659 in 2019. The metropolitan area has a population of over 320,000 inhabitants.

The name of the city comes from ‘brede Aa’ referring the confluence of the Mark and Aa rivers. These two rivers still play an important role in the urban structure. They are part of the urban water system. Both rivers flow together in the canal structure that surrounds the city centre of Breda. the banks of the rivers vary depending on the function of the area along which they flow: rural area, urban green areas, residential areas, business parks.

As a fortified city, Breda was of strategic military and political significance. The military heritage is still evident in the contemporary city. Former

military areas have been transformed into parks or redeveloped to host new urban functions.



Historically, economic activities were mainly industrial in Breda. The city was a centre of the food and drink industry. With the decline of industrial activity in the city, Breda has transformed into a service-oriented economy that is mainly based on business, trade and logistics. A growing number of international companies choose to establish their head office for Benelux operations in Breda. The city also attracts logistics companies, as Breda has a central location between the seaports of Rotterdam and Antwerp.

## The city and urban green spaces

Breda has an elaborate structure of green spaces that is composed of forests and nature reserves in the surrounding rural area, including Mastbosch, Liesbosch, and Ulvenhoutsebos; former military areas, that were transformed into public city parks; as well as green infrastructure along the rivers.

Park Valkenberg was originally part of the military Castle of Breda. In the eighties the place had become an area plagued with issues of prostitution and drug dealing. Twenty years ago, the park has been completely restored. The original character of the densely grown park was made transparent

again by drastic cleaning and simplification. The designers supplemented the characteristic system of wandering routes with two broad asphalt paths, that enabled walking, cycling and rollerblading and improved the connection between the railway station and the city centre.

Chassé Park is a new residential area with approximately 600 owner-occupied properties and 100 rental housing units located in a nearly 13-hectare former barracks site at the edge of the Breda city center, next to the Chassé Theater and the town hall of Breda. During the development of the area the 'campus model' was applied as an urban design concept. Residential buildings are apparently randomly scattered over a larger green area. The green character is reinforced by underground parking and the absence of private gardens.

## The city and health

The population of the Netherlands is ageing rapidly as a result of the decline in fertility rates and rising life expectancy. The aging population has a major impact on public health and care. Dementia is becoming an increasingly important condition and cause of death in the Netherlands.

The residents of Breda have a positive perception of health status and well-being in general. Most of the people among 19-64 years olds (77%) consider their own health as very good, and 62% among 65-year-olds. In addition, 82% of the people aged 19-64, and 74% of the people aged over 65 feel happy. On the other hand, almost a quarter (24%) of the adults (aged 19-64) have one or more long-term illnesses or conditions.

Park Overbos provides a unique example for innovative landscape design. Parts of the park was built across a highway, connect this way two urban areas, which are divided by highway A16.

Green banks alongside the rivers Mark and Aa are important elements of the city greenery. The canal structure with green banks and rows of trees surrounds the city centre. This blue-green infrastructure forms the longest park in Breda.

In addition, the green infrastructure network in Breda includes several larger parks in the residential areas, such as Zaartpark, Van Sonsbeeckpark, and Wilhelminapark; and also green sports parks, green playing grounds in various neighbourhoods, and tree alleys.

25% of adults are concerned about exposure to particulate matter in Breda, and 26% of adults are severely disturbed by noise pollution (mostly associated with traffic).

A substantial proportion of the population is suffering from loneliness: 9% of people aged 19-65, and 13 % of those over 65 feel lonely.

As regards healthy lifestyles in Breda only 59% of the population meets the Dutch standard for exercise and 42% of the adults are overweight.



## Local policy context and ongoing initiatives

The strategy for Breda entitled 'The story of Breda' comprises three key elements. Two of these are related to the objectives of Health&Greenspace:

- Quality: preservation of the historical elements and extension and upgrading of green spaces in Breda in line with the 'City inside a Park' vision by 2030.
- Together: Breda, a city that excels in connecting people, thoughts and knowledge.

The 'City inside a Park' vision that is based on the potential that Breda is bordered by several larger parks, sets out a flagship strategy for Breda for the upcoming years, that aims at strengthening the role and increasing the area of green spaces in the city. Health-related aspects are important elements of this strategy. In line with the vision, Breda intends to develop further green-blue structures that surround the urban area. Development of new green spaces within the urban area, and strengthening the relationships between green areas inside and outside the city are also aimed at.

A large-scale initiative, the New Mark Project aims to uncover, restore, and make navigable a previously culverted section of river Mark in the city centre. This rehabilitation project will include the establishment of an inter-connected network of green spaces along the riverbanks. A specific climate-responsive design strategy will be applied for the establishment of green infrastructure elements in the project. The rehabilitation of Seelig Park is part of the New Mark Project.

## Key challenges

Large parts of the green infrastructure within Breda are traffic and residential green, which are underutilized, dysfunctional and sometimes not even accessible. The potential of blue infrastructure is not utilized effectively in Breda. Most water banks in the city are not accessible or usable. In most of the cases water is just a visual element and mainly a barrier.

Breda is focusing on a number of general challenges associated with green space design. These include the following:

The future city park, Seelig Park is part of a broader redevelopment area which is called Gasthuisvelden. This 16-hectare area is part of the city centre of Breda. In 2016 the city council of Breda has established a spatial structure plan for the redevelopment of this area. The redeveloped Seelig Park will form a system of three parks together with Park Valkenberg and Chassé Park. Each of the three parks are flanking the old town and are also linked to the canal structure.

Several climate goals are specified in the sustainability vision of Breda 2030. It defines concrete climate adaptation goals and related activities to achieve these goals. Green spaces and a focus on healthcare of its citizens are key elements in this policy document.

A combination of international projects supports the redevelopment of Seelig Park. Cool Towns (Interreg 2-Seas) aims to counteract the negative effects of climate change and find attractive solutions that make cities climate-proof and robust so that heat stress is prevented or limited. GreenQuays (Urban Innovative Actions) as part of the New mark project, tests innovative solutions for renaturing urban rivers in dense downtown areas, where there is insufficient space for developing natural riverbanks. WaVE (Interreg Europe) seeks to utilize and revalue heritage on and around water and supports water-linked heritage valorisation by developing an ecosystem-based approach.

- How to augment the functionality of green areas so that these can provide shelter to residents to tackle heat stress?
- How to develop urban green spaces so that they improve the mental and physical health of residents?
- How to make better use of existing green areas? How to ensure that people spend more time in nature?

There are a number of specific challenges associated with target area of the IAP: the wider development area, Gasthuisvelden and Seelig Park located in it. Seelig Park is currently a military area

that is closed to the public. Gasthuisvelden, where the park is located is part of a socially disadvantaged urban neighbourhood, Fellenoord that lacks accessible green spaces. As a result of the dense urban structure in the neighbourhood, the area is exposed more to the adverse impacts of heat waves. Research indicates that on account of climate change the situation will aggravate further in the coming years.

## Ambition and initial focus of the Integrated Action Plan

Although the scope of the Integrated Health Responsive Green Infrastructure Action Plan of Breda will cover through horizontal actions the entire area of the municipality, the strategic document will have a specific target area, 'Gasthuisvelden' with the Seelig Park in it. The IAP will support the design and development of a new city park in the Gasthuisvelden area that contributes to the improvement of health and well-being of the citizens of Breda. The new park is meant to provide green space for residents in which they can recreate and meet other people. Accordingly, actions will support healthy lifestyles and social cohesion.



Climate-responsive design and the use of nature-based solutions to combat heat stress will also be a specific focus area of the IAP. Breda will make use of its extensive experience on climate adaptation gained through its cooperation with Wageningen

Besides the heat stress, Breda and the target area are also exposed to the negative effects of fine particulate matter that decrease the quality of living and have a negative effect on health. Fine particulate matter is a topic that is currently heavily debated by the public and especially citizen groups.

University. The action plan will support climate-responsive design and the use of nature-based solutions to mitigate the impacts of heat stress in densely built Gasthuisvelden area, and also elsewhere in the city.

Actions to be covered by the IAP could also include the following:

- creating demo gardens in Gasthuisvelden (providing ideas for residents how they can make their own gardens greener)
- supporting the development of 'dementia gardens' in parks with small trails and large signs
- organizing social events in parks for people suffering from loneliness
- support provided to strategic urban planning: maintaining a combination of high- and low-intensity areas across the city, profiling/branding parks
- promoting facilitated physical activities ('military bootcamps') and social activities (public barbeques) in parks
- promoting photo exhibitions in Chassé Park
- bringing education to parks
- public theatres in parks
- supporting the development of pocket parks.

A video on the participatory process was identified as a potential Small Scale Action to be undertaken in Breda.

## Introduction to ULG

Local activities will be focusing on a specific target area, Gasthuisvelden, where a new park will be developed. Accordingly, actors relevant for the process of co-design, such as various municipal departments, neighbourhood councils, a local environmental NGO (Natuurplein Breda), and universities will have a key role in the operation of the ULG. The URBACT Local Group will not build on an existing structure, although Breda has strong experience in the application of participatory approaches. The expertise of Wageningen University in urban climate responsive research and design will be particularly relevant for the development of the IAP. The regional health institute, GGD Midden-West Brabant will also have an important role, because of the specific focus of the IAP on older people. Already a high number of key stakeholders were mobilized during Phase 1. The ULG will be coordinated by Inge van den Broek, who works as an adviser of environment and health policy with the Municipal Health Department of Brabant. The ULG is foreseen to include the following stakeholders:

- Department of Landscape architecture, urban design and heritage

- Department of Ecology, water management and environment
- Department of Social inclusion, health and education
- Department of Economic and cultural development
- Department of Sports, recreation and playgrounds
- Natuurplein Breda (NGO, nature and environment)
- GGD Midden-West Brabant (regional health institute)
- Neighbourhood Council Fellenoord, Boeimeer (social)
- Waterboard Brabantse delta (water management)
- Gouden Cirkel, Stadsherstel (built heritage)
- BLAST Foundation (architecture)
- Wageningen University (climate-responsive design), MBO De RooiPannen, MBO Curio, Breda University of Applied Sciences
- Province of Noord-Brabant

## Learning opportunities, good practices and potential contributions

Breda expects to learn from other cities' experiences and good practices, particularly related to the following aspects:

- most effective options for improving wellbeing of residents and for supporting recreation and social exchange in the green urban spaces
- how to enhance the potential of urban green spaces through design so that they effectively improve the mental and physical health of residents?
- how to make better use of existing green areas? how to ensure that people spend more time in nature?

Breda can offer contributions, good practices associated with the following:

- climate-responsive urban design based on the use of vegetation to combat heat stress
- Breda being the winner of the "European Smart Tourism Award in Accessibility 2020! has extensive experience in using innovative and inclusive solutions to encourage sustainable and accessible tourism
- organization of sporting events, such as the annual Singelloop running event and the City swim.

# Espoo, Finland

## Key facts

Partner institution	City of Espoo
Region	Finnish Capital Region
Population	283,632 (January 2019)
Surface within city limits	528 km <sup>2</sup> (of which 312 km <sup>2</sup> is land)
Life expectancy at birth	78.9 years for men, 84.3 years for women (2018, Finland)
Urban green space per capita	567 m <sup>2</sup>

## About the city

Espoo is the second largest city and the fastest growing city in Finland. The city having a population of 283,632 inhabitants, is located in the Finnish Capital Region, bordering Helsinki from the west. Espoo does not have a traditional city centre, instead it is a network city comprising five local city centres: Espoon keskus, Espoonlahti, Leppävaara, Matinkylä and Tapiola. The city is located along the shore of the Gulf of Finland. The special feature of the city is that it is a combination of dense urban hubs, vast detached housing areas and an extensive green area network. The Nuuksio National Park is situated in north-western part of Espoo.

Espoo is an innovation hub of Northern Europe, a centre of international company headquarters and high-tech businesses, at the heart of which stands the Aalto University campus.

## The city and urban green spaces

Espoo has exceptional amounts of natural wilderness, particularly in the city's western and northern parts. Forests occupy nearly 60 % of Espoo's land mass. Of these 2 300 ha is protected, including the Nuuksio National Park. Wooded green areas and street-side parks form the backbone of the green infrastructure network. Espoo has large number of nature reserves, protected habitats, and natural monuments. The city has 58 kilometres of seashore, 165 islands and 71 lakes. There are 26 nature trails in the city.

Espoo experienced rapid urbanisation in the 1940s and the 50s, quickly developing from a rural municipality into an industrial city. Due to its proximity to the capital city Helsinki, Espoo became popular among people working in the capital. The number of residents has increased tenfold within fifty years. In comparison to other Finnish cities, Espoo has a very young population. Population growth has been extraordinarily high in the city, foremost due to a constantly high birth surplus. Espoo has the highest proportion of residents having a university degree in Finland, and the city also has a high employment rate.

In the city urban green space per capita with 567 m<sup>2</sup> is exceeding by far the European average (18,2 m<sup>2</sup>).

Green areas in Espoo can be roughly divided into four main categories:

- hemiboreal forest in North-Espoo formed by Nuuksio National park and privately owned forestry land
- agricultural land and village-styled detached housing areas in the middle part of Espoo
- the Espoo river valley running across the city

- urban green spaces and the seashore in Southern-Espoo.

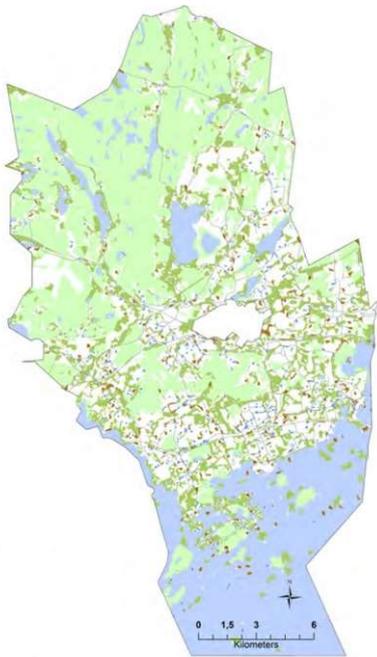


Figure 4: Green areas in Espoo

All around Espoo urban green spaces are more urban forests than formal parks. These urban forests vary in size and shape but are rather evenly dotted all around city and are deliberately kept in semi-wild state. There are only few intensively maintained landscape parks in Espoo.

## The city and health

Espoo has been known for long of having healthier and more educated inhabitants, as compared to the average population in Finland. For instance, morbidity and mortality rates are lower in Espoo compared to Finland overall.

Within the working-age population, the proportion of people with working ability is higher in Espoo than it is on average in other big municipalities, and respectively the number of people on disability pension is lower. The level of income is higher than on average in Finland, and four people out of five are satisfied with their financial situation. Only 23 % of working-age population consider their health as moderate or worse in Espoo.

The three key elements of green network are Nuuksio National Park, the Espoo Central Park and a waterfront walkway.

Nuuksio National Park spreads over an area of forests and lakes, covering partly the northern portion of Espoo. The rocky lake highlands are home to many species, conifer and birch forests, meadows, valleys, ponds and small swamps. Within the park there are extensive networks of hiking, biking and horse-riding trails and designated spots for grilling, camping and skiing.

Espoo Central Park, located in the middle of the Espoo city, is an 880 hectares recreation area, that is home to natural forests, meadows, cliffs and wetlands. It is part of an important ecological corridor stretching from the seashore to the lake highlands of Nuuksio. The Central Park features several outdoor routes, a health-nature trail, three fitness tracks, bike routes and control points for orienteering. In winter, the fitness tracks and many outdoor routes are turned into ski tracks, some of them with lights.

Espoo's Waterfront Walkway is a unique 30 km long recreational outdoor footpath (and cycle path) along the coastline of the city. It meanders through a diverse environment ranging from nature conservation areas to rocky forests, beaches and modern, urban environments.

Most elderly people live independently and actively, and thus only a small proportion needs specific elderly care. In 2019, every third of inhabitants of 65 of age or older considered their health as moderate or worse.

Residential areas in Espoo are mostly perceived as comfortable and safe by residents. The air quality is good, compared to the other European cities, but occasionally the air pollution concentrations reach harmful levels.

In the last few years, the major challenges for well-being have been related to urbanisation, rapid population growth, loneliness and social exclusion.

## Local policy context and ongoing initiatives

In line with Espoo Story, the strategy of the city adopted for the 2017-2021 period, the city will be developed as a pioneering, responsible, sustainable city that is and close to nature, and a good place to live, learn, work and enterprise in. The Espoo Story is implemented both through the daily work of the city and through cross-administrative development programmes. Out of the four cross-administrative development programmes, two are directly relevant for Health&Greenspace: Sustainable Espoo, and Healthy Espoo. One objective of Espoo Story is to preserve nature values as the city grows. Linked to this objective nature conservation measures are prepared for Espoo under the LUONTO project. As part of this work, links between nature reserves and the ecological network will be updated and compared to existing green area network.

During the city council period 2018-2021 green network maps of the city will be updated and a position paper will be prepared on how green spaces are treated in urban planning and nature management. Health issues are expected to come up as an important theme when the project

implements its participatory year in 2020, involving citizens and civil society organizations in workshops and other events.

The City of Espoo has undertaken a number of studies that are directly associated with green spaces and well-being. In 2016 and 2017 the City Planning Department has performed an extensive ecosystem services spatial mapping that also targeted at health and well-being services. The Environment department in 2014 had surveyed the ecological corridors in the city. In the same year kindergartens and schools next-door to urban forest were also surveyed. Areas where citizens experience silence outdoors were also surveyed in 2016.

A health-nature trail was developed by the cross-administrative development programme Healthy Espoo together with Environment and Technical Services in Espoo Central Park. The Olari health nature trail includes eight checkpoints with three separate exercises each. The design of the trail was co-developed in a participatory approach by the representatives of nearly 20 organisations.

## Key challenges

As Espoo goes through rapid urbanisation, urban green network narrows down, its ecological connectivity is breaking up, and loses its capacity to produce high quality ecosystem services. The population of the city is expected to exceed 300,000 inhabitants in 2022. The goal of the City of Espoo is to steer this growth into the existing centres and locations that are in walking distance from train or metro stations. Achieving this goal entails developing new residential areas and densifying existing ones, that will bring the need to develop urban green spaces. Dense urban structures can lead to the overuse of existing green areas. Challenges in this context are the following:

- how to secure a sufficient amount of green areas in urban structure that are easily accessible as city goes through rapid urbanisation?

- how to active different social groups to have best use of urban green areas?
- how to promote recreational use of green areas in growing city in a way that the natural values of these areas are preserved at the same time?
- how to inform the new residents of Espoo, where and how they can enjoy nature close to their homes?

A couple of busier motorway ring roads and a rail track run across Espoo towards Helsinki and the resulting traffic cause undesirably high noise levels in some residential areas in the vicinity. In 2018 there were 54,969 residents who were exposed to over 55 dB traffic noise levels and 1,204 residents exposed to over 55 dB train traffic noise.

## Ambition and initial focus of the Integrated Action Plan

The Integrated Health Responsive Green Infrastructure Action Plan of Espoo will be a basic tool for justifying better why it is important to safeguard green areas in a time when urbanisation is intensifying in the city. The IAP will contribute to the development of a robust, evidence-based decision-making system for the development and management of urban green spaces. It will provide support for the health-responsive design and development of new urban green spaces in the rapidly densifying urban cores; as well as management of existing green areas.

The action plan will build the solid knowledge base of the City of Espoo that it has accumulated on the analysis and evaluation of green infrastructure and the collaborative planning of green infrastructure with the active involvement of different city departments.

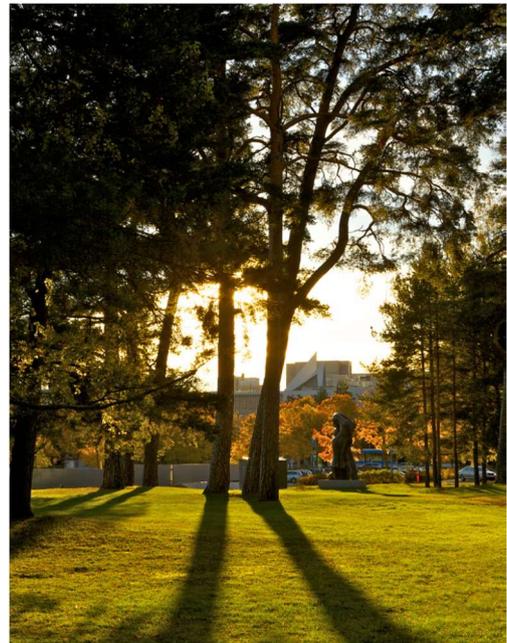
Due to climate change, heat waves in summer are becoming more common in Espoo, but residents are lacking experience of protecting themselves from heat. Actions could aim at the use of vegetation to increase the heat resilience of certain hot spots in the city.

Noise will also be addressed by the actions: based on the results of the survey on silent outdoor areas, quiet spots could be promoted for residents across the city. The use of greenery to increase the perception of silence could also be targeted by the IAP.

Other potential actions can include:

- supporting the use of green areas in mitigating depression and anxiety
- cooperation with the public sport services of the city aiming more outdoors activities: 'from mall walks to park walks'
- cooperation with youth organizations: supporting the organization of summer camps, club activities in urban green spaces, youth social work in nature
- supporting the national 'Finnish Schools on the move' action planning programme in

- Espoo: organizing sport activities in the nature for school children
- cooperation with the 'KULPS! culture and sport path' initiative that introduces new learning environments to school children: potentially launching a linked 'nature path' initiative
- providing direct support to the cross-administrative development programme, Healthy Espoo: supporting the 'The best moment of day' campaign
- promoting wildlife education: cooperation with Villa Elfvik Nature School
- supporting volunteer work as part of nature management: grass-cutting in meadows, cleaning up streams
- promoting berry picking, mushroom picking activities.



*Photo: Marko Oikarinen*

Options for Small Scale Actions include:

- signs posted from one of the urban hubs of Espoo to the waterfront walkway;
- the elaboration of a booklet explaining how the Olari health-nature trail was made.

## Introduction to ULG

The integrated approach undertaken by City of Espoo linked to the development of the IAP will be based on the traditionally good cooperation across different municipal departments. The ULG can be partially built on the cross-departmental working groups on 'Air quality and city planning' and 'Traffic noise and city planning'. With a specific focus on natural learning environments, wildlife education and sport activities in the nature for school children, the Department of Schools and Kindergartens, the Villa Elfvik Nature School and the 'Schools on the move' project team will be heavily involved in the activities of the ULG.

The ULG coordinator will be Tarja Söderman, the Head of Environment Department of the City of Espoo. The ULG to be set up in Espoo is foreseen to include among others the following stakeholders:

- Espoo City Planning Department (masterplans, town plans, traffic planning)
- Espoo City Public Works Department (planning of common areas, green area maintenance)

- Espoo City Services for Social Health
- Espoo City Department of The Environmental Health Care
- Espoo City Department of Schools and Kindergartens
- Uusimaa Centre for Economic Development, Transport and Environment
- The Finnish Association of Landscape Industries
- AALTO University's Department of Architecture and Department of Built Environment
- University of Helsinki (urban ecology)
- National Institute of health and welfare (THL)
- Mental Health Finland (MIELI)
- 'Schools on the move' project team
- residents' associations
- Cooperation between Espoo Youth Organizations (ENNU)
- Friends of Villa Elfvik organization
- Espoo Recreational Sports Association (Espoon latu)

## Learning opportunities, good practices and potential contributions

The learning needs of Espoo are related to the following aspects:

- use of green infrastructure to reduce heat stress
- better use of existing data among different city departments
- the most effective ways to communicate the health benefits of urban green spaces
- indicators that are suitable for city planners to visualize green area health benefits

Espoo can offer contributions, good practices associated with the following:

- cross-departmental working groups for 'Air quality and city planning' and for 'Traffic noise and city planning'
- Olari health-nature trail
- survey on areas where residents experience silence
- GIS-based survey on which forests are visited by schools and kindergartens as part of their lessons
- free tours organized by Villa Elfvik Nature School
- volunteer work for residents organized by the City targeting the maintenance of nature sites.



Photo: Joni Viitanen

# Limerick, Ireland

## Key facts

Partner institution	Limerick City and County Council
Region	Southern Region
Population	94,192
Surface within city limits	59.2 km <sup>2</sup>
Life expectancy at birth	77.6 years for men, 81.9 years for women (2011, Mid-West Region)
Urban green space per capita	73 m <sup>2</sup>

## About the city

Limerick is third largest city in Ireland, located 200 km from Dublin at the head of the Shannon Estuary, where the river widens before it flows into the Atlantic Ocean. The historic core of the city is located on King’s Island, which is bordered by the Shannon and Abbey Rivers.



The three largest economic sectors in Limerick are wholesale and retail trade, construction, and

professional, scientific and technical activities. In terms of employment, the key sectors are human health and social work, accounting for 23 % of the employees employed in 2015 in Limerick County. While Limerick does not enjoy the same degree of sectoral foreign direct investment clustering as can be seen in Cork and Galway, it does have the advantage of a wide range of sectors.

From record levels of unemployment and emigration a decade ago, Limerick is now an exemplar in recovery and is one of the most dynamic emerging cities of Europe. However, while some of the most disadvantaged areas of the city have shown a reduction in unemployment with the economic upturn, they all remain categorised as unemployment blackspots (based on Census 2016).

## The city and urban green spaces

Limerick City’s main areas of natural habitats containing significant biodiversity, are based around the large network of rivers, including the River Shannon, the Abbey River and the Ballynaclough River with associated wetlands, grasslands and established woodlands.

In Limerick urban green space per capita with 73 m<sup>2</sup> is above the ideal WHO value (50 m<sup>2</sup>) and exceeds by far the European average (18,2 m<sup>2</sup>).

While Limerick City has extensive areas of green spaces, many of the existing green areas

particularly in residential developments are small, fragmented, poorly located, poorly linked and poorly maintained, being a legacy of poor past development. In many cases the amenity, health and environmental potential of these green spaces is underdeveloped.

Limerick City and County Council has recently completed a review of all green infrastructure in the City and Suburbs, which will inform the review of the City and County Development Plan. The review of the development plan will form the basis for an integrated green infrastructure network

linking parks and creating a comprehensive network of walking and cycling routes in the City and suburbs to supplement the existing facilities. As part of the Southside Masterplan the concept a green-blue ring is developed by Limerick City and County Council with the overall goal to connect different neighbourhoods. In line with the plan, the

combination of the green and open spaces wrapping around the south and east of the urban core of Limerick, together with the river enclosing its north and western flanks completes a circle around the continuous urban area and acts as a linking element to the surrounding suburban areas.

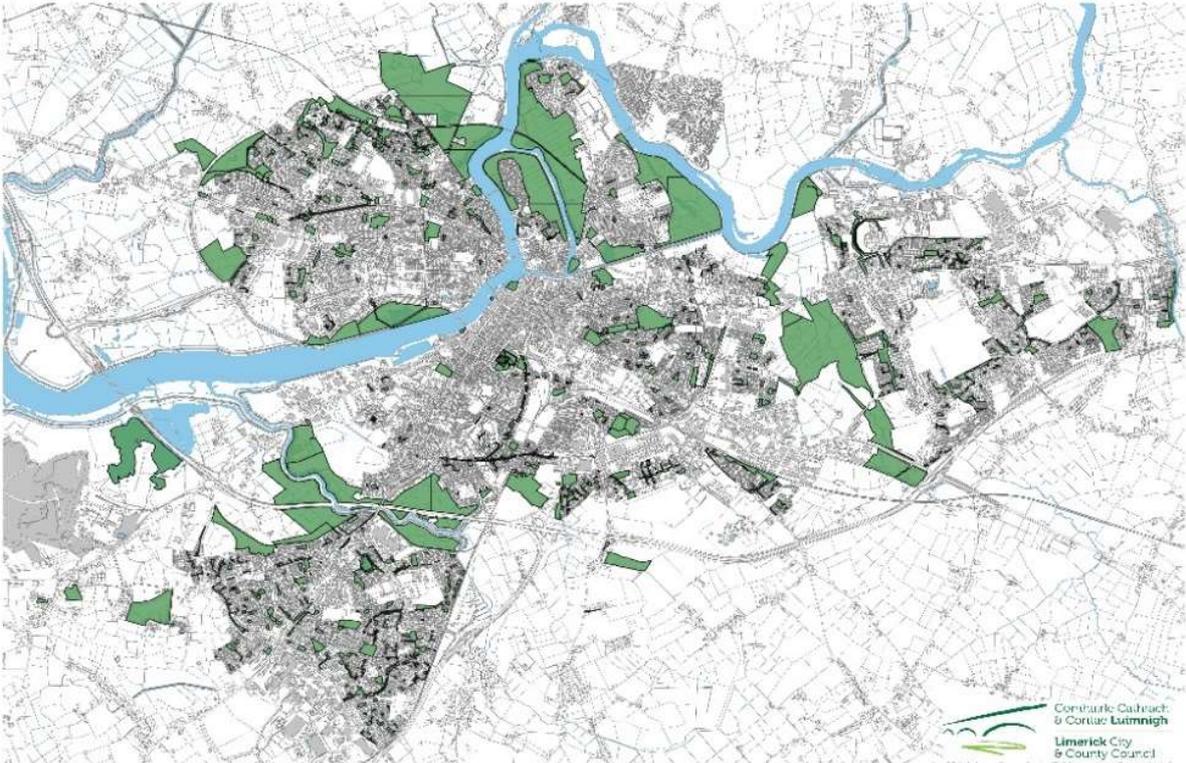


Figure 5: Green Space in Limerick City and Suburbs

### The city and health

In the case of several health-related statistics, Limerick fares worse than the rest of Ireland. A greater proportion of people in Limerick City rated their health as bad or very bad (2.7%) in comparison to national figures (1.6%). Trends in death rates per 100,000 over the period 2008-2012 (for all ages, and for those aged under 75 years) show that Limerick city and county has above average mortality rates for all causes of death. In 2016, 13.5% of the population stated that they have a disability in Ireland, while this figure was higher in Limerick City (18.8%).

In Limerick city, 23,335 people (40.1% of the population) were classified as living in a disadvantaged, very disadvantaged or extremely

disadvantaged area in 2016. Nationally 1.7% of the population are classified as living in an extremely disadvantaged area, however a greater proportion of the population in Limerick city (7.6%) fall into this category.

Although the suicide rate has reduced considerably in the past ten years, Limerick city still has an above average suicide rate. In 2013-2015, the suicide rate per 100,000 population in Limerick city was 21.8, considerably higher than the national suicide rate of 10.1. Provisional figures from 2016-2018 indicate that the suicide rate in Limerick city is now lower at 9.3, but still greater than the national average of 8.2.

## Local policy context and ongoing initiatives

The Limerick City Development Plan 2010 -2016 (as Extended) contains among others the following policy directly associated with the goals of the Health&Greenspace network:

- to protect existing green areas and public open spaces, which provide for the passive and active recreational needs of the population,
- to improve the quality and range of uses provided within parks and public open spaces including sports facilities and encourage their greater use and enjoyment,
- to provide new parks and green spaces with proper facilities, which are designed to a high standard,
- to develop and improve linkages between parks and public open spaces such as public walkways/cycleways.

Limerick's Local Economic and Community Plan (LECP) also has a number of objectives that are relevant from the perspective of the Health&Greenspace network aims. In particular, the LECP aims to enhance local environmental conditions (recreational facilities, walkways, cycle paths) that impact on health, and promotes the development of strategic recreation / leisure facilities building on the natural heritage resources.

The Limerick Regeneration Framework Implementation Plan (2014), a ten-year programme targeting physical social and economic regeneration of specific neighbourhoods of disadvantage (Southill, Moyross, St. Mary's Park and Ballinacurra

Weston) sets out a vision for "safe and sustainable communities of opportunity where people of all ages enjoy a good quality-of life, a decent home and a sense of pride about their place."

Limerick City and County Council formally joined the Healthy Cities and Counties Network of Ireland, which is affiliated to the WHO'S Healthy Cities initiative, in 2017. It was the first local authority in Ireland to sign up, having established a Healthy Limerick steering group.

The city took part in "The Big Hello!" initiative of the central government. This was a National Community Weekend supporting communities to host events in their local area in order to strengthen community ties and help tackle the problem of social isolation. In Limerick community picnics were organized as part of the initiative together with the Team Limerick Clean Up (TLC) programme. The latter is an annual event.

Limerick is very active in noise action planning and developing policies around noise. Currently the city is crowdsourcing information using the Hush Cities mobile app, which empowers people to identify and assess quiet areas.

In the city centre a 'path to health' (Slí na Sláinte) is developed as part of the initiative of the Irish Heart Foundation. The route is marked by bright and colourful signposts situated at 1 km intervals. Similarly, along the banks of the River Shannon another path to health was developed, the Three Bridges Walking Route that includes green space elements and boardwalks.

## Key challenges

People living in the urban area of Limerick City have a poorer health profile than those living in the less urbanised area. A greater proportion of people in Limerick City rated their health as bad or very bad in comparison to national figures. In addition, according to 2014-2016 national figures, Limerick City has the highest rate of suicide in the country at 23.7 per 100,000 population.

Limerick struggles with a number of green infrastructure related challenges. The city has a network of parks and green spaces, which, apart from a few notable exceptions, are relatively small

and fragmented. In many cases the amenity, health and environmental potential of these green spaces is underdeveloped. Green infrastructure in the streetscapes is also, on the whole, underdeveloped. Green walls/roofs are virtually unknown in the city and there are relatively few street trees.

Cycling and walking infrastructure has progressed in recent years, however, there needs to be greater linkages between these routes throughout the city.

Many residential areas, and in particular areas of disadvantage within the city, some of which are

currently undergoing regeneration, contain large expanses of passive, underdeveloped and underutilised open space, and also open space that is not readily distinguishable as either public or private. These open areas of disadvantage are characterised by poor accessibility with adjacent neighbourhoods resulting in physical, economic and

social isolation, over-dominance of hard surfaces with limited soft landscaping, and low-quality green areas as a result of tethering of horses.

Limerick’s Noise Action Plan shows that a number of areas of the city have undesirably high noise levels.

## Ambition and initial focus of the Integrated Action Plan

The Integrated Health Responsive Green Infrastructure Action Plan of Limerick will promote the development healthier green spaces, including recreational areas, as well as the animation of existing green spaces, with the overall aim to contribute to the general improvement of quality of life of residents. The actions in general will aim at increasing the time spent outdoors by residents of the city.



Potential actions to be supported by the IAP could include:

- providing of natural recreational opportunities for all age groups
- the creation of linkages between green spaces to improve their environmental, mobility and recreational value
- supporting healthcare services in exploiting the opportunities provided by urban green spaces and the natural environment
- developing areas of social interaction, the promotion of social interaction in green areas
- supporting specific green space design targeting improvement of mental health – establishing therapeutic gardens,

- development of ‘health-walk routes’, establishing areas for relaxation and reflection
- providing support to the 'path to health' initiative (Slí na Sláinte), rebranding the paths and updating the signage
- developing outdoor places for education and learning
- developing nature trails for schools, supporting the work of wildlife educators
- preparing map-based surveys on how residents experience urban greenspace and how it affects their health
- supporting awareness raising among residents and professionals regarding the relationship between health prevention and environmental protection, and promoting more active lifestyles
- the promotion of walking, cycling, leisure and play in green areas
- providing opportunities for gardening
- supporting facilitated activities within urban green space, such as family days, a woodland festival (at Baggot Estate), markets, guided walks
- supporting the initiatives of the Limerick Sports Partnership (health walking in woodlands, Activator Pole Walking programmes, Adventure Walk App in 12 Parks)
- encourage physical and mental activity in an ageing population (through cooperating with older people’s groups, Men’s Sheds and Women’s Sheds)
- developing facilities supporting physical activities in green spaces (running tracks, bike paths, outdoor gyms), developing “Park Runs” in the city with the active involvement of running clubs.

A potential target area of the IAP could be Ballynanty, a disadvantaged neighbourhood of the city, where the value of two small green areas could

be enhanced from a health and amenity point of view, as a result of a collaboration with the local school, residents and other community groups. Another potential target area could be the Baggot Estate, a currently underutilized, neglected green area, the accessibility, amenity, recreation and health potential of which would be improved. Building on the Hush Cities initiative the IAP could support the identification and protection of tranquil areas in the city.

## Introduction to ULG

As the Limerick City and County Council intends to address community building at deprived neighbourhoods of the city, and the animation of underutilized and neglected urban green spaces through Health&Greenspace, the social dimension of the activities will be especially strong. Limerick City and County Council will build on its strong experience in the field of social care. Accordingly, apart from the Physical Directorate, key actors associated with social inclusion and community building, such as the Community Development Directorate, the Housing Development Directorate, the Limerick Local Sports Partnership, schools and community groups will have a prominent role in the operation of the ULG. The Limerick City and County Council has already managed to mobilize a high number of key stakeholders to support project activities.

The ULG will be coordinated by Sarah Newell, a housing official at Limerick City and County Council. The ULG is foreseen to include the following stakeholders:

- The Physical Directorate (responsible for policy and strategy related to the environment, parks, greenspaces and green infrastructure)

## Learning opportunities, good practices and potential contributions

Limerick expects to learn from other cities' experiences and good practices, particularly in the following aspects:

- use of green infrastructure to reduce heat stress
- qualitative or quantitative criteria used in designating quiet areas

The IAP will also support the development of policies around features which can help reduce heat stress in the urban environment, such as street trees, green walls, green roofs.

Options for Small Scale Actions include:

- facilitated play in green areas;
- organization of hackathons.

- Community Development Directorate (responsible for policy related to Healthy Limerick, sports and recreation, community development and social inclusion)
- Economic Development Directorate (responsible for development policy in the city and county)
- Housing Development Directorate (responsible for creating safe and sustainable neighbourhoods)
- The Design and Delivery Unit (responsible for design and construction of projects).
- the Parks and Greenspace management staff
- Councillors from the Metropolitan District
- University of Limerick
- Limerick Local Sports Partnership
- schools
- community groups, residents' associations
- Limerick Civic Trust
- Paul Partnership
- Children and Young Person Services Committee
- Older People's Executive
- Mental Health Services

- designation and maintenance of small green areas (particularly ones that serve individual housing estates)
- how can social functions be enhanced in a country where good weather is not guaranteed?
- factors that make communal garden initiatives effective

- linking green spaces and providing walking and cycling infrastructure in these areas
- best ways to engage citizens in co-developing solutions.

Limerick can offer contributions, good practices associated with the following:

- the Healthy Limerick programme, a locally driven initiative, making national strategies relevant to local context

- noise action planning, noise modelling, and the Hush Cities initiative
- cooperation with the Limerick Sports Partnership, that supports increased participation in sport and active recreation throughout Limerick, and provides assistance in the areas of sports development, education and training.

# Messina, Italy

## Key facts

Partner institution	Municipality of Messina
Region	Sicily
Population	237,000
Surface within city limits	213.23 km <sup>2</sup>
Life expectancy at birth	79,6 years for men, 83,7 years for women
Urban green space per capita	13 m <sup>2</sup>

## About the city

The city of Messina is the third largest city in Sicily, and the 13th largest city in Italy with a population of around 237,000 in the area contained within the city limits, and about 650,000 inhabitants in the metropolitan area. It is located near the northeast corner of Sicily, at about 90 km from Catania and 220 km from Palermo, at the Strait of Messina, opposite to Villa San Giovanni on the mainland and close to Reggio Calabria. The city is squeezed between the Ionian and Tyrrhenian coasts and the Peloritani Mountains.



The economy of Messina is based on its seaports, and also on services, trade, tourism (including cruise tourism), a significant industrial activity in the shipbuilding craft, and agriculture (cultivation of citrus fruits and olives and wine production). Its port is the first in Italy for the number of transit passengers. The port area contains both civil and military shipyards.

The city was almost entirely destroyed by an earthquake and a tsunami that had followed in 1908, which caused 80,000 deaths out of 140,000 inhabitants at the time.

The urban territory is particularly long (57 km) and narrow because it is wedged in between the seacoast and the Peloritani Mountains.

## The city and urban green spaces

The earthquake of 1908 has conditioned the urban and architectural structure of the resurgent city, and indirectly also the quantity and arrangement of urban greenery. A large number of green areas existing before the earthquake were sacrificed, in whole or in part, behind the imperative need to provide accommodation rapidly to the large number of homeless people in Messina.

As a consequence, the share of green space in the urban fabric is particularly low. In 2013 urban greenery equalled 0.8 m<sup>2</sup> per 100 m<sup>2</sup> of surface area, a value significantly lower than the national average (3.9 m<sup>2</sup>). The urban green space per capita in Messina with 13 m<sup>2</sup> is far below the ideal WHO value (50 m<sup>2</sup>) as well as the national (32.2 m<sup>2</sup>) and the European average (18,2 m<sup>2</sup>). The total amount

of green areas, including the surrounding hills, (protected natural areas and urban green areas) represents however 72% of the municipal surface.

The largest green spaces in the urban area include Villa Dante and Villa Mazzini. Villa Dante, located in the southern part of the city, facing the cemetery of Messina, is the largest urban park with an area of 48,000 m<sup>2</sup>. Villa Mazzini with an area over 13.000 m<sup>2</sup> is home to more than 60 tree species.

Camaro pinewood located on the slopes of the Peloritani Mountains is one of the few large green areas close to the city. Its network of paths, with

## The city and health

In Sicily in 2017 a slightly smaller percentage of citizens consider themselves in good health (67.6 %) compared to the national average (69.6%). On the other hand, the percentage of people with a chronic illness is 38.8%, which is slightly lower than the national average (39.9%). In Sicily 151.29 people per 1,000 had at least one serious chronic illness in 2013. This figure was 0.3 points lower than the Italian average, which equals to 151.59, and

## Local policy context and ongoing initiatives

The Messina City Council is increasingly investing in green urban infrastructure with a view to improve the mental and physical well-being of its citizens. Messina city council is increasingly aware of the multiple functions of city green areas. The Messina City Council Strategy aims to reshape the green infrastructure starting from the waterfront by creating extensive green spaces in the former industrial area named 'Zona Falcata' located near the marine port of the city centre. The revitalization of this area is expected within Messina-Tremestieri Port Development Plan backed by the Pact for the Scythe signed in 2016 by the Sicilian Regional Government, the Port Authority, the Municipality and the University of Messina that defines the principles of intervention. A substantial investment is foreseen in order to undertake a large-scale decontamination action of the polluted land. The Falcata Area of the port of Messina is an area with a great potential. The Messina city council aims to start from Zona Falcata, to fill in the chronic lack of space for free time and recreation for the citizens. This area is meant to be the green hub of the city with a Multipurpose Centre (including green

significant botanical and zoological values are connected to the city centre. For this reason, it is also termed as the green lung of Messina. In this green area that includes a mosaic of pine, chestnut and cork oak groves a network of trekking routes can be found together with sites for barbecues.

Ganzirri Lake located at the northern part of the city is a main resting site for a number of migratory bird species in Spring and Autumn. The vicinity of the lake is a bottleneck for European migratory birds, especially falcons. Some 34,000 individual birds and 32 different species pass through this area in the course of just two months.

was up by 21.0 points compared to the previous observation for 2005 that equalled to 130.3 points. Life expectancy in Sicily has reached 83,7 years for women and 79,6 years for men.

The infant mortality rate in Messina (48.6 of 10,000 children born alive) is higher than the national average (30,9) and the one of the metropolitan areas in Italy (31,7).

buildings with different functions, e.g. the Museum of the Sea) together with an adjoining urban park between the Real Cittadella and the historic port of Messina. Key institutional actors such as the Port Authority, the University of Messina, the Sicilian Regional Government, professionals and citizens' associations will be involved in the redevelopment of this area. The restoration of some historical monuments such as the Spanish fortress or the historical lighthouse realized by Montorsoli in 1554 is needed in order to create a huge public area of both historical and natural interest.

The Camaro pinewood will be upgraded to become a node of the municipal ecological network with an environmental education centre; a 'map of paths'; panoramic viewpoints; huts for nature observation; a venue for educational meetings; and a 'didactic botanical garden'.

The project "Verde Bene Comune" (Green Common Good) promotes the temporary free use of green areas and the adoption of green spaces.

## Key challenges

The city of Messina suffers from the chronic lack of green areas. The need to provide a shelter to thousands of homeless people after the earthquake of 1908, was the main cause of the deletion of huge green spaces from the urban map of the town. Nowadays, the urban green space per capita is far below the national average. Green infrastructure in Messina is fragmented, poorly linked, inadequately equipped with recreational facilities, underutilized and are often in a state of semi-abandonment. Furthermore, public green spaces are becoming increasingly subject to vandalism and antisocial behaviour. At the same time the City of Messina is struggling with proper maintenance of existing green areas.

In line with the above, the perception of the quality of urban green spaces is relatively negative. In 2014

a research undertaken by the Municipality of Messina showed that 59.7% of the young people involved reported the presence of neglected green areas in their neighbourhoods.

The high concentration of air pollutants, predominantly particulate matter, caused mainly by traffic is another challenge for the city. Pollution is due to the geographical location of Messina, the city through its seaports being the main point of connection of Sicily with the mainland. Air pollution is further exacerbated by the low availability of pedestrian areas with only 18.1 m<sup>2</sup> per 100 inhabitants (national average is 33.4 m<sup>2</sup>), as well as the low the density of cycle paths, with 1.8 km per 100 km<sup>2</sup> of the municipal area, which is far below national average (18.9 km).



## Ambition and initial focus of the Integrated Action Plan

Messina intends to co-develop with key stakeholders an action plan that will help the city to develop an urban green ecosystem enmeshing the city, and at the same time contribute to improving the well-being of its citizens.

'Zona Falcata' will be a key target area of the IAP. It is envisaged that the integrated Action Plan will support the health-responsive design of greenery linked to the rehabilitation of the Falcata area.

Similarly, the IAP will provide strategic design-related support to the upgrading of Villa Dante and the Camaro pinewood, increasing their potential for recreation, physical activity and social cohesion. Actions linked to the Camarro pinewood can be related to renewing the network of trekking paths and picnic areas, and also the organization of trekking programs and community picnics or barbecues.

The excessive transit of heavy-duty vehicles on urban roads and the city's vehicular traffic make it necessary to control air quality protecting the health of citizens, especially at schools located near motorway junctions. Through the development of its IAP Messina aims to support the design and installation of greenery (trees, hedges, green walls) to reduce air pollution.

## Introduction to ULG

In the ULG the role of both technical stakeholders dealing with design of Zona Falcata (Department of Territorial and Urban Planning Services) and air pollution (Environment Services Department); and actors dealing with the health and social dimensions (e.g. the relevant departments, the Environmental Education Centre, and schools) will be equally important. The ULG does not build on an existing structure.

The ULG will be coordinated by Dino Alessi, a member of the European Project Team of the Municipality of Messina. The ULG is foreseen to include the following stakeholders:

- Environmental Services Department (responsible also for the maintenance of parks and street trees)
- Social Policies Department (responsible for social issues, health and welfare services)

Other potential actions of IAP could target the following:

- the development of areas for social interaction
- providing support to environmental education in nature (summer camps in Peloritani Mountains)
- endorsing birdwatching activity at Ganzirri lake, and courses on nature photography
- developing outdoor places for education and learning
- facilitated activities (including sport activities) within urban green space
- establishment of therapeutic gardens, health-walk routes
- supporting outdoor film screenings organized by local NGOs
- upgrading the green walking area along the coast
- installation of a network of webcams at Villa Dante to enhance safety and avoid antisocial behaviour.

Options for Small Scale Actions include:

- courses on nature photography;
- organization of birdwatching activities at Ganzirri Nature Reserve.

- Department of Services (responsible for education, sport and cultural activities)
- Department of Territorial and Urban Planning Services (responsible for urban design and development and environmental impact assessments)
- City Council
- Messina Port Authority
- Forest Authority (Peloritani Mountains)
- University of Messina
- Environmental Education Centre (CEA)
- Mediterranean Association for Nature (MAN)
- Parco Horcynus Orca
- local community groups
- schools.

## Learning opportunities, good practices and potential contributions

The learning needs of Messina are related to the following aspects:

- unconventional measures linked to using greenery to improve air quality
- design of urban green infrastructure that motivate physical activity, design of facilities for physical activities in urban green spaces
- the best ways to enhance social interactions in urban green spaces
- effective ways to avoid antisocial behaviour in parks.

Messina can offer contributions, good practices associated with the following:

- cooperation with civil society organizations on supporting trekking activity in natural areas
- initiative targeting the temporary free use of green areas and the adoption of green spaces
- promoting environmental education in nature for students of primary and secondary schools.

# Poznan, Poland

## Key facts

Partner institution	City of Poznań
Region	Greater Poland Voivodeship
Population	536,400
Surface within city limits	261.85 km <sup>2</sup>
Life expectancy at birth	75.5 years for men, 82.1 years for women (2016)
Urban green space per capita	131,88 m <sup>2</sup>

## About the city

Poznań, the fifth largest city in Poland, is a major business and academic centre as well as a place rich in historical heritage and varied cultural life and leisure opportunities.

The city is located in central-western Poland on the Warta River, in the central part of the Wielkopolska province. Poznań is a central part of the Poznań agglomeration. Since 1999, Poznań has been the seat of the authorities of the Greater Poland Voivodeship and the Poznań powiat.



Lying halfway between Warsaw and Berlin, Poznań heavily benefits of its specific location, that has made the city an important trading centre from the

Middle Ages. Today, Poznań is a center of industry, trade, technology, logistics and tourism. The Poznań International Fair is the largest and oldest exhibition center in Poland. The city is also an important academic centre with 25 higher education institutions (8 public Universities and 17 private school). Apart from the universities, there are nearly 50 other institutions dedicated to scientific research.

Many non-governmental organizations operate, and large number of bottom-up initiatives are undertaken in Poznań. The Poznań Participatory Budget was a pioneer solution in Poland several years ago. It is one of the instruments for implementation of residents’ projects associated with urban greenery.

Nowadays Poznań is one of the major trade centres in Poland and it is the second most prosperous city in Poland after Warsaw. Relevant sectors in the city include food processing, furniture, automotive and transport and logistics industries. The city has the lowest unemployment rate (1.2%, in 2018) in the country.

## The city and urban green spaces

In 2018, green areas accounted for 27% of the city area, including 47 public parks and 116 smaller green areas covering in total 429 ha.

The most characteristic feature of the city’s green network is the unique wedge-and-ring greenery system (also termed “green wedges”). It was designed and implemented in 1930s with the idea

behind to create a coherent and consistent network of green spaces across the city, running from outside the city into the city centre in the shape of wedges, and also around the city centre in the shape of rings. The north-south green wedge was based on the natural river valley of Warta river (the major watercourse of the city). The north-south wedge is also connected to large green areas outside the city: Zielonka Forest to the north and Wielkopolska National Park to the south. The west-east green wedge was established along a series of natural and artificial lakes and smaller streams within the city (in the west along natural lakes Kierskie, Strzeszyńskie and Rusałka that are connected by the Bogdanka stream, in the east along the artificial Malta lake and the valley of the Cybina stream). The system consists of two rings of greenery: an inner one running around the former city wall, and the outer one established along former fortifications, which historically surrounded the city centre.

This green wedge-and-ring system was established with an aim to provide good ventilation for the city, letting in fresh air from outside the city into central districts. The majority of this system has been preserved till the present day in spite of significant pressure from urban development and currently intensive revitalization procedures are undertaken to keep the scope of the system.

Despite the abundance of urban green spaces due to the wedge-and-ring greenery system, green infrastructure is unevenly distributed in the city.

## The city and health

The average life expectancy in Poznań was 75.5 years for men, 82.1 years for women in 2016.

Most adult inhabitants of Poznań suffer from cardiovascular diseases, but the incidence in this group of diseases is gradually decreasing. Over 10% of Poznań residents suffer from cardiovascular diseases. Together with cancer, this is the main cause of death. The percentage of deaths due to cardiovascular diseases in Greater Poland region

## Local policy context and ongoing initiatives

The City Development Strategy for the City of Poznań 2020+ presented a vision according to which “Poznań in 2030 is a multi-generational community of people living in a green, friendly, and

Densely build-up districts lying in between the wedges and rings, especially in the historical areas, are not sufficiently green.



Access to green areas is therefore not equally distributed among inhabitants of Poznań, and the main challenge for the city is to improve the quality of life in those areas.

Apart from the green spaces mentioned above, in Poznań following green elements can be identified:

- public parks, pocket parks, green squares, forest areas,
- green roofs, green walls, green backyards, street side greenery, estate greenery,
- zoological gardens, Poznań Palm House,
- allotment gardens, community gardens,
- cemeteries,
- city beaches, sport and recreation areas
- gardens belonging to public institutions (educational, cultural, health care etc.)

(43.7%) was lower in 2012 than the country average (46.1%)<sup>74</sup>

On the other hand, for a number of other diseases, such as cancer, respiratory system diseases, thyroid disease, chronic digestive system diseases the incidence has been on the rise for several years in Poznań. Cancer is currently the cause of every third death. Among childhood diseases, allergies, including food allergies and, to a lesser extent, lung diseases predominate.

well-connected residential estates”. The priority of the strategy linked to a ‘Green, mobile city’ is a base for projects and activities aiming at making

Poznań a green and eco-mobile city with easily accessible green areas.

Poznań has adopted a Municipal Plan for Adaptation to Climate Change that describes the characteristics of the City of Poznań, taking into account natural, functional and spatial, demographic conditions and the assessment of economic potential.

The Development Strategy of the Warta River in Poznań aims at restoring the river to the city, facilitation of walking and cycling on the Warta zone, revitalizing neglected built-up areas, and attracting people to the river zone.

The Environmental Protection Program for the City of Poznań sets objectives linked to air quality, climate protection, noise pollution, ecological education and pro-environmental activities.

The Municipal Revitalization Program for the City of Poznań focuses among others on improving the acoustic climate and air quality, green space and recreation, social and cultural activity, and public services.

To support green space governance and green infrastructure interventions, currently the Department of Environmental Management and Protection coordinates works on developing common standards for protection of existing and development of new greenery. The exact scope of the standards will be specified in 2020.

An initiative of the city is promoting the development of 'natural playgrounds' in kindergartens. The idea is to transform typical playgrounds into nature oriented green spaces and gardens and encourage the kids to play outdoors. Features of natural playground includes: replacing artificial surfaces with natural ones (sand, grass, etc.), playing facilities created from plants (willow tipis) or earth (mounds created using leftover earth after groundworks), facilities for playing with water and sand (mud kitchen), elevated garden beds, and benches and tables to encourage outdoor activities.

Since 2018 fifteen natural playgrounds have been created in the city.



*Poznań, natural playground in a kindergarten*

As a solution for cases, when in densely built districts there are limited possibilities to create new green areas, the city has launched an 'open gardens' initiative that aims at optimal use of existing green spaces, by making gardens of public institutions accessible for city dwellers. As a pilot project in 2018 a part of the garden of a kindergarten was opened for the local community. It is planned to extend the scope of the initiative also to educational, cultural, health care institutions.

A number of public beaches were created in the city along the riverbanks of Warta River. Municipal beaches are part of the re-naturalisation process of the river and serve multiple functions: recreation, sport, workshops, concerts, gastronomy, allowing close contact with nature.

Poznań is involved in the Horizon 2020 project CONNECTING Nature that aims at disseminating nature-based solutions in cities, thanks to which cities will develop in a sustainable way, and the quality of life of residents, despite the negative effects of climate change, will increase. The development of the first 3 natural playgrounds in Poznań was initiated as a municipal project and afterwards evaluated and scaled-up under the CONNECTING Nature project.

## Key challenges

One of the key challenges linked to green space governance in Poznań is associated with the maintenance of the wedge-and-ring greenery system. Due to the enormous dimensions of the system, there are difficulties linked to the need to ensure its effective functioning (i.e. provision of fresh air to the city centre), and to protect existing elements of the network. There is the need to restore the continuity and coherence of the network at certain parts, especially within the green rings, which have been partially fragmented due to urban developments.

Due to uneven distribution of green areas within the city, there is a need to improve access to green spaces in neighbourhoods that are located in between green wedges and rings and other large green areas, and especially in the historical centre. At these densely built-up areas the opportunities for creating new green spaces are often limited.

## Ambition and initial focus of the Integrated Action Plan

In line with the vision of the City Development Strategy, Poznań aspires to be a green and friendly city with well-connected residential estates. Tackling unclear roles and responsibilities linked to governance of green and blue infrastructure is essential to bring this vision to life. The URBACT Local Group to be set up under Health and Greenspace in Poznań will provide a platform for cooperation and exchange of information among various municipal department and units in the field of green and blue infrastructure and nature-based solutions. The Integrated Health Responsive Green Infrastructure Action Plan of Poznań is foreseen to set and formalize the rules of cooperation in this field contributing to the establishment of a more effective decision-making process.

It is also an ambition of the city to develop a framework that safeguards funding from multiple sources for scaling up and sustaining successful projects linked to nature-based solutions. The IAP is foreseen to function as a key tool to support this objective.

The key focus areas of the IAP will be the following:

- Improving the quality of life in neighbourhoods with limited access to

Therefore, in the affected neighbourhoods there is a need for optimal use of existing green areas.

The high concentration of air pollutants, predominantly particulate matter as well as benzo (a) pyran, caused mainly by traffic and household heating with solid fuel predominantly in the winter months is another challenge for the city. The restoration of the wedge-and-ring greenery system could contribute to the mitigation of air pollution.

The high degree of urbanisation and the use of impermeable surfaces in Poznań leads to the formation of urban heat islands.

Responsibilities linked governance of green and blue infrastructure are shared with a large number of departments and units, rendering the planning process and the management of green spaces particularly difficult and inefficient.

green areas (central, historical districts and other districts further away from large green areas), through the following actions:

- o improving the quality and optimal use of existing green areas, by giving them more functions targeting at various user groups (e.g. young people, seniors, families, etc.);
  - o transforming abandoned, unused areas into green spaces; adding more natural elements to existing public spaces; creating green micro-spaces (e.g. pocket parks, social gardens, natural playgrounds); and
  - o opening green gardens of public institutions for city dwellers.
- Improving air quality and reducing heat stress in the city through the restoration of the green wedge-and-ring system and introduction of blue-green infrastructure (The IAP will support strategic urban planning with an aim to fill in gaps in the green network.)

- Promoting the application of nature-based solutions in the urban space.
- Increasing the efficiency of greenery planning and management in the city, through improving cooperation between institutions, encouraging the participation of residents, identification of funding sources supporting green solutions, and developing green standards for public institutions.

Potential actions to be supported by the IAP could also include:

- developing natural playgrounds that also function as cooling islands
- developing Pocket parks, green walls, street greenery with an aim to reduce heat stress

- creation of floating islands
- greening bus stops
- unsealing surfaces in the city
- developing winter gardens and green classrooms
- opening gardens of educational, cultural, health care institutions.

Options for Small Scale Actions include:

- the design and development of a green classroom, or a green hall in a public institution, which would be used during winter;
- participative design of urban furniture targeting teenagers and young people.

## Introduction to ULG

The team of the Project Coordination and Urban Regeneration Office is particularly strong in project implementation; therefore, they will drive the activities of the ULG. To be able to address the broad scope of the IAP, the various relevant city departments were already actively engaged during Phase 1. Key external actors are planned to be mobilized at the beginning of Phase 2. Linked to the 'open gardens' initiative, intensive cooperation is foreseen with schools, kindergartens and other public institutions.

The ULG Coordinator will be Katarzyna Bogdańska-Głuchowska, a Chief Specialist at the Project Coordination and Urban Regeneration Office. The ULG is foreseen to include the following stakeholders:

- Project Coordination and Urban Regeneration Office
- Department of Health and Social Affairs
- Department of Environmental Management and Protection
- Department of Urbanism and Architecture

- Department of Education; Department of Culture
- Department of Economic Activity and Agriculture
- Department of Municipal Economy
- Municipal Planning Office
- Municipal Greenery Management Board
- Road Management Board
- Municipal Forest Board in Poznan
- Poznan Sports and Recreation Centres (POSIR)
- Poznan Municipal Investments
- Kolektyw Kąpielisko (NGO engaged in green spaces initiatives e.g. social gardens)
- local community groups
- kindergartens and schools
- Poznan University of Technology, Poznan University of Life Sciences
- Marshal's Office: managing Operational Programs, potential funding
- Regional Environmental Protection Fund: potential funding

## Learning opportunities, good practices and potential contributions

The learning needs of Poznań are related to the following aspects:

- the use of small-scale interventions (such as green walls and green roofs, pocket parks, green corridors, green bus stops etc.) aimed at reducing urban heat island effect in public spaces
- how to effectively motivate young people to spend more time and to undertake physical activities in urban green spaces.

Poznań can offer contributions, good practices associated with the following:

- extensive network of greenery ensuring ventilation of the city (green wedge-and-ring system)
- natural playgrounds: turning classical playgrounds into 'play gardens'
- introducing green areas along transport corridors (roads, streets, tram lines etc.)
- winter gardens: a conventional class room in the kindergarten converted into a winter garden with multiple functions: general education, eco-education, recreation, programs for local community
- city beaches.

# Santa Pola, Spain

## Key facts

Partner institution	Municipality of Santa Pola
Region	Province of Alicante, Valencian Community
Population	31,137 (2018)
Surface within city limits	11 km <sup>2</sup>
Life expectancy at birth	80.34 years for men, 85.29 years for women
Urban green space per capita	54.12 m <sup>2</sup>

## About the city

Santa Pola is a coastal town located in the area of Baix Vinalopó in the Valencian Community. It is a tourist town and one of the most significant fishing ports in the Spanish Mediterranean. The town has an important system salt evaporation ponds known as the 'Salinas', where salt currently continues to be extracted.

Santa Pola has two urban poles, the traditional town, and the new town of Gran Alacant. Gran Alacant is 5 km north of the main urban core along the Alicante bay and it accounts for about one third of the population of the municipality. Gran Alacant

lies only a few kilometres from Alicante Airport and a few hundred metres from the town of Los Arenales which is located in the Elche district.

Because of the high the number of second homes population more than triples during the summer, with people coming mostly from the rest of the Spain (including Alicante province, the Basque autonomous community, Madrid), as well as France and the UK. Santa Pola has a relatively high share of foreign population (14.92%). In the core of Gran Alacant the majority of residents are foreigners.



The main economic activity is linked to the service sector, associated with seasonal tourism. These companies have great seasonality depending on the flow of tourists. Other relevant sectors include fishing, industry and construction. Unemployment is at 14.39% in Santa Pola, mainly affecting women, as around 60% of the unemployed are women. The strong seasonality of the tourism activity is

## The city and urban green spaces

With respect to the availability and quality of green spaces, there is a lack of parks or city squares in Santa Pola. These types of green infrastructure represent only 7.04% of the total urban area. Though urban green space per capita in Santa Pola with 54.12 m<sup>2</sup> is above the European average (18,2 m<sup>2</sup>), in the densely built-up city centre it is down to 15.80 m<sup>2</sup>.



Apart from the above deficiencies of the urban areas, the municipality has significant natural resources. A large part of the territory of the Municipality of Santa Pola is covered by natural areas, the Las Salinas De Santa Pola Nature Reserve (43% of the municipality), and the Sierra de Santa Pola. In addition, the beaches and the sea at Santa Pola have outstanding quality.

Most of the system of salt evaporation ponds is recognized as the Las Salinas De Santa Pola Nature Reserve. The area is listed as a wetland of international importance under the Ramsar

## The city and health

In Santa Pola, life expectancy at birth (80.34 years for men, and 85.29 years for women) is around the national average (80.3 years for men and 85.7 years for women).

reflected in the number of people employed, which varies greatly depending on the time period.

Santa Pola is one of eight municipalities that form the Alicante coastline 'Costa Blanca'. Santa Pola received the Silver Broom, as well as Blue Flag awards for its beaches.

Convention and it is also declared an Important Bird Area. The production of salt since the late nineteenth century has allowed the survival of Las Salinas, where the presence of flamenco and storks is constant. The nature reserve has an area of 2,470 hectares, located in the coastal area of the Santa Pola Bay. The Salinas is home to large breeding colonies of a variety of bird species, including those of greater flamingos, pied avocets and little terns. At the edge of the salt ponds the Tamarit Beach Route, a nature trail was developed. It runs along in between the salt marsh and the beach and features a bird watching pavilion.

The Sierra de Santa Pola, that is separating the main urban core of the town from Gran Alacant is a cliff formation that rises to 144 meters above sea level. In its foothills is the cape that marks the end point of the bay of Alicante. The Sierra is immense atoll in which, millions of years ago, hosted an extensive coral reef. This space is of great environmental relevance, since it is one of the few examples of the fossil reefs of the Mediterranean coast, and it houses valuable vegetation and fauna. At several points on the cliffs of the cape coral formations and other fossils of the seabed can be easily distinguished. A network of hiking and cycling routes is accessible in the Sierra interweaving the area, linking points of natural or historic interest, panoramic viewpoints and recreational areas. In close proximity to each other in the Sierra there are an old lighthouse, skywalk that functions as a viewpoint, and a Civil War memorial point.

The average age of Santa Pola was 43.83 years old in 2017, which indicates a slightly aged population. Santa Pola with 22.54% has a higher proportion of population over 60 years old than the national average (18.96%).

Cardiorespiratory arrests and heat stroke are one of the main causes of rescue interventions on the beaches in Santa Pola, and their number is increasing.

Lack of physical activity, excessive car use and sedentary lifestyle are becoming a significant public health issues in the city.

## Local policy context and ongoing initiatives

The City Plan of Santa Pola (Pla de Ciutat Santa Pola Avant) is committed to:

- safeguard the protected coastal front of the city,
- protect natural resources,
- use anthropogenic resources coherently so that the natural environment is preserved,
- develop a bicycle lane on the entire coastal front of the municipality of Santa Pola,
- strengthen environmental awareness in general among citizens, and
- manage responsibly the parks and gardens in the city.



The Pla de Ciutat Santa Pola Avant is a strategic planning document proposing actions to improve the future of the city. The document was prepared in cooperation with local citizens and various

entities of the city. Once the Pla de Ciutat Santa Pola Avant was completed, a second phase of the plan was developed to apply the Sustainable Development Goals of the UN Agenda 2030 in the city of Santa Pola. Through Pla Ciutat, a forum was established to strengthen cooperation among citizens, companies and associations with a view to implement the Agenda 2030 in Santa Pola. The second phase of the plan aims to extend the tourist season through the promotion of sport activities as a key element of tourism. As such, it promotes the development, maintenance and promotion of hiking and cycle routes in the Sierra de Santa Pola, as well as physical activities linked to the sea. It also promotes natural resources, endorses a 'Youth leisure programme'.

In 2015 a supra-municipal strategy, the PATIVEL was adopted with the overall objective of preserving and protecting the coast of the Valencian Community. The PATIVEL among others aims to coordinate urban and sector planning, define the green infrastructure of its areas of action, promotes the development of ecological corridors and ensure participatory territorial governance.

The municipality is an eager supporter of outdoor sport activities, an organizer of the Santa Pola Half Marathon, as well as triathlon, cycling and swimming competitions, with an overall aim to ease the dependence on Sun and Beach tourism.

## Key challenges

In relation to spatial structure and availability of urban green spaces, the key challenges in Santa Pola include:

- the lack of connection between the natural areas (the Salinas and the Sierra),
- the poor connection of urban areas with natural areas, and
- in the urban zone the particularly low share green spaces, which are small,

fragmented, and poorly linked to each other.

The quality of urban green spaces is typically poor. They are mostly underutilized, and many of them are neglected or degraded. In addition, there is a lack of urban green space available for leisure and recreation. Street trees or other smaller elements of green infrastructure are rare in the city.

Gran Alacant is cut away from the main urban core by the Sierra de Santa Pola. The city center can be accessed from Gran Alacant only by the busy N-332

coast road that connects Valencia with Cartagena (apart from a lower capacity road with a speed limit that is running along the coast, and walking paths and cycle routes crossing the Sierra). Road N-332 is frequently beset by traffic congestions during the summer season. Although it is possible, cycling is currently not a favoured mode of transport between the main urban core and Gran Alacant because of the difficult terrain and the topographical features, and because of typical car-dependency in the region.

## Ambition and initial focus of the Integrated Action Plan

The Integrated Health Responsive Green Infrastructure Action Plan of Santa Pola will directly build on the Pla de Ciutat Santa Pola Avant, reinforcing the specific objectives of the strategic planning document linked to the promotion of sport activities, the development of the network of hiking and cycle routes, and the safeguarding of natural resources of the municipality.



Through the development of the IAP, Santa Pola aims to promote physical and social activities in green areas. Potential actions to be supported could include:

Santa Pola as a densely built-up summer city in the Spanish Mediterranean is highly exposed to the impacts of climate change, and in particular heat waves due to the local climatic conditions and the urban heat island effect.

Air quality caused by road traffic is an acute problem along road N-332 in the city, where several schools are located.

- animating the green areas of the Sierra de Santa Pola with organized physical and social activities
- continuing the development of the hiking and cycle route network in the Sierra
- supporting green space design that encourages individual physical activities (e.g. running, cycling, paragliding) in the Sierra
- providing support to the organization of triathlon events in the Sierra
- connecting the existing cycle lane sections running at the coastline, with new green sections
- initiating a campaign to encourage residents to 'make the Mile' (an old habit of local residents of taking a leisurely walk along the coast of Santa Pola)
- promoting socialization in green spaces
- building on the historical and geological heritage of the area, supporting the organization of educational activities in the Sierra
- launching a healthy lifestyles awareness campaign

The IAP is also meant to support the strategic design and development of the network of green spaces in Santa Pola. On the one hand, the aim is to develop the network of green areas, uniting green areas, creating relevant linkages. On the other hand, it is also a strategic goal to improve the quality of existing green areas, e.g. by increasing the quantity of trees in parks, or by redesigning green areas with careful selection of plant species. The Integrated Action Plan will promote improving access to natural areas of high interest. The IAP

could support the planned extension of the Tamarit Beach Route, that would result in a direct link along the coastline between the urban area and the Las Salinas De Santa Pola Nature Reserve.

The IAP is intended to prepare the municipality for the impacts of climate change and in particular, heat stress. The focus will be on providing more shade in streets and parks.

## Introduction to ULG

Through the Agenda 2030 Forum established under Pla Ciutat, Santa Pola has achieved positive engagement with key local stakeholders. The UBRACT Local Group will build upon the Forum. The ULG will be coordinated by Mari Carmen González, a Technician of the Local Development Agency. Initially, the ULG will include the following actors:

- Mayor and government team formed by the councils responsible for infrastructure, environment; sports, health, urban planning and sustainable mobility, tourism and beaches, culture and archaeology
- Municipal technicians at local departments of infrastructure, environment, urban

## Learning opportunities, good practices and potential contributions

Santa Pola expects to learn from other cities' experiences and good practices, particularly in the following aspects:

- using nature-based solutions in densely built urban areas to reduce heat stress
- options for introducing pedestrian areas in the city centre, in which most automobile traffic is prohibited
- identification of streets appropriate for conversion into green corridors
- ways to motivate people to switch from driving to cycling (using routes in natural areas)

Santa Pola can offer contributions, good practices associated with the following:

Options for Small Scale Actions include:

- barrier removal from the Salinas Park route with signposting;
- organization of a participative workshop for gathering ideas for the greening of streets and squares.

- planning and sustainable mobility; tourism and beaches, health, culture and sports
- Local Development Agency (ADL)
- the Directorate of the Las Salinas De Santa Pola Nature Reserve
- indoor and outdoor Sport municipal schools (e.g. Polanens, Gran Alacant-Santa Pola Taekwondo Club, S.P. Diving Club, S.P. Cycling Club, Wind Surf Club Ass., South-Est Paragliding Club
- Miguel Hernández University and University of Alicante
- Residential associations
- Environmental associations dealing with ornithology (Virgen del Carmen, Nasimba)
- Health associations (Colibrí, Amfisa, Everly association).

- A campaign to encourage residents to 'make the Mile' (an old habit of local residents of taking a leisurely walk along the coast of Santa Pola).
- The Civic Centre of the municipality promotes outdoor activities, such as beach summer excursions for kids and gymnastics for seniors on the beach.
- Paragliding: Santa Pola has a unique internationally known point for paragliding lovers from the top of the Sierra Mountain till the Sea Front Natural Area (specially protected area).

# Suceava, Romania

## Key facts

Partner institution	Suceava Municipality
Region	Suceava County, North-East Region
Population	115,918 (2015)
Surface within city limits	35.61 km <sup>2</sup>
Life expectancy at birth	73.27 years for men, 79.18 years for women (Suceava County)
Urban green space per capita	27.73 m <sup>2</sup>

## About the city

Suceava Municipality is part of Suceava County, situated in north-eastern Romania, in the historical region of Moldavia. During the late Middle Ages Suceava was the capital of Moldavia. Suceava was an important commercial hub where old trading routes intersected: 'Siret road', 'Suceava road' or 'Upper road' that connected with the Transylvanian cities Rodna and Bistrita and 'the big road of Suceava'. During the years 1774 - 1918 the city of Suceava was part of the Bukovina region under the rule of the Habsburg Monarchy. In 1786, due to the fact, that it was a well-developed political, craft and administrative centre, Suceava was elevated to the rank of 'commercial city with own administration by the municipality'. After 1918, along with the rest of Bukovina, Suceava became part of Romania.

Suceava Municipality is located approximately in the center of Suceava Plateau, on two relief steps: a plateau, whose maximum altitude reaches 385 m on Zamca Hill, and the meadow with the terraces of Suceava river, with an altitude below 330 m. Suceava County is part of the North-East

## The city and urban green spaces

Suceava had 322 ha green areas in 2015. In the city urban green space per capita with 27.73 m<sup>2</sup> is below the ideal WHO value (50 m<sup>2</sup>) and is somewhat above the European average (18,2 m<sup>2</sup>).

The city has mostly only small parks. According to the updated General Urban Plan (GUP) there is no real park or public garden in Suceava, all the green

Development Region, along with Iasi, Bacau, Neamt, Botoşani and Vaslui counties.



In terms of local labour force absorption, the three most relevant sectors in Suceava are services, industry and trade. The services are diversified and provide jobs for approx. 41% of employees in the city. The industry, dominated by the manufacturing, has a share of 35.8% in the total number of employees, while trade provides 21.9% of the paid jobs.

spaces are classified as squares. There are several green areas with limited access (private property or green spaces of public institutions).

Two notable green areas are located in the city, the Şipote-Cetate Dendrological Park and the Tatarasi recreation area.



The Şipote-Cetate Park, the most significant green area of the city, is an urban forest surrounding the medieval Seat Fortress of Suceava. The park is benefiting from significant topographical variations, large natural grassy areas, as well as wooded areas with a variety of tree species.

The Tatarasi park is a recently rehabilitated site that was converted into a recreation area. The park that can be easily accessed from the centre of the city includes facilities for recreation, and for practicing sport. Already 1 year and a half after inauguration this leisure facility is very popular among local residents.

## The city and health

In Suceava county, life expectancy at birth (73.27 years for men, and 79.18 years for women) is slightly above national average recorded in 2015 (71.94 years for men, and 78.90 years for women).

The health system in the city is not adapted to meet the challenges linked to demographical changes- the growth of the elderly population which brings

about the increase of the prevalence of chronic diseases.

In general, there is a poor access for lower income populations to medical services, there is a lack of high-performance medical equipment within the healthcare units, and there is a lack of a system for monitoring and control of the quality of the health services offered in Suceava.

## Local policy context

The overarching aim of the Integrated Strategy for Urban Development of Suceava Municipality 2016-2023 is to improve the quality of life in the city. One of the key specific objectives of this strategic document is the development of recreational and leisure infrastructure.

The main measures linked to this objective are related to the development and modernization of leisure and recreation facilities, but also to the development and modernization of playgrounds. In this context the municipality aims at the extension and redesign of existing green areas, increasing their attractiveness; upgrading parks by developing facilities that encourage citizens to spend their free time and to undertake physical activities there; developing new playgrounds for children; creating leisure and recreation areas.

The Municipality of Suceava plans to undertake the complex revitalization of the Şipote-Cetate Dendrological Park, with the help of the European Regional Development Fund. As a result of the

project residents will be able to approach the Seat Fortress of Suceava directly from the inner city, walking through a large green area that functions as a park and a recreation area. The large-scale project envisages the redesign of leisure areas, the rehabilitation of the pedestrian infrastructure, the installation and modernization of public lighting system, the installation of route signs and information boards.

The municipality has initiated yet another large-scale rehabilitation project: the Suceava River-bank Rehabilitation. The Suceava River separates the old town of Suceava from the newer integrated neighbourhoods of the city, Burdujeni and Iţcani. The aim is to regenerate the abandoned green areas at banks of the Suceava River that are in an advanced state of degradation, and to create a park with a surface area of 15.000 m<sup>2</sup> that functions as a complex recreation area and leisure centre, supporting communities at both sides of the Suceava River. In line with the plans the site would not include parking areas, it would only be accessible by public transport from both sides of the river.



Figure 6: Plan for the revitalization of Şipote Park

In relation to green infrastructure the Municipality of Suceava also aims to:

### Key challenges

Challenges to overcome in Suceava include the lack of larger parks, the relatively low quality of green areas and the lack of coherence among the elements of green infrastructure in the city. In residential neighbourhoods, green areas are mostly represented by hedges and grassy areas. Development of new residential areas, construction of new housing, expansion of parking areas led to the reduction of free spaces, including green areas in the immediate vicinity of residential neighbourhood.

Suceava has experienced an extremely rapid population growth in the previous decades; the number of inhabitants rose from 10,123 in 1948 to 115,918 in 2015. As a consequence, the majority of the residents of the city were born in the countryside. Elderly or middle-aged citizens who were used to rural lifestyles, typically do not use parks. With their children growing up a new need has emerged; they want to spend time and recreate

### Ambition and initial focus of the Integrated Action Plan

The overall goal of the Integrated Action Plan of Suceava will be to contribute to building a city for citizens. The ambition is to change the behaviour of the citizens, to encourage them to spend more time in natural urban areas, and thus to change the way they live in the city.

It is envisaged that the Integrated Action Plan to be developed under Health&Greenspace will help the development of the two large-scale, integrated

- adopt a regulation on uniform urban furniture;
- update the Green Areas Register; and
- undertake regular greening and maintenance of green areas to increase their quality and create links among them.

Air quality in relation to quality of life is a priority for Suceava Municipality. In line with the Integrated Strategy for Urban Development of Suceava Municipality 2016-2023 and the Sustainable Urban Mobility Plan, the intention is to create protection curtains along major traffic arteries in order to reduce air pollution.

in quality green areas and use outdoor sport facilities.

Although the Şipote-Cetate Park has great potential to become a place of leisure and activity, currently it is mostly neglected. In the park anti-social behaviour and vandalism, and lack of proper public lighting has led to a feeling insecurity among visitors. Although the Park is located on the administrative territory of Suceava Municipality, it is currently the property of the Suceava Forestry Directorate, and is managed as a forest, being subject to the provisions of the Forest Code. The present legal status of the territory hinders the reclassification of the area as a park, as well as necessary investments.

Although the Tatarasi recreation area has been recently rehabilitated, measures still need to be implemented to diversify the facilities for recreation and outdoor sport activities, and to increase their attractiveness.

rehabilitation projects (the Suceava River-bank Rehabilitation, and the revitalization of the Şipote-Cetate Park). The action plan would contribute to the development of the detailed design of the sites, and also to the initiation of organized social activities in these green areas.

The IAP will provide substantial input to the design of a complex recreation area at Suceava River-bank that includes green walking and cycling routes, areas

for horse riding, facilities for kayaking, and playgrounds set in green areas.

The IAP will also contribute to the redesign of leisure areas and walking routes in Șipote-Cetate Park and the development of facilitated activities (e.g. cooperation with nature schools).

Other potential actions can include:

- the creation and modernization of recreational infrastructure and playgrounds in green areas
- the revitalization of urban public space

- development of surfaces with tree and shrub curtains that act as buffer zones between streets and residential areas decreasing pollutant concentration and noise
- development of a sound zoning plan
- raising awareness among Suceava's citizens on the interconnectedness of health, physical activities, and urban green areas.

An awareness raising campaign in partnership of nature schools was identified as a potential Small Scale Action to be undertaken in Suceava.

## Introduction to ULG

The ULG will be partly based on the collaborations already established under other URBACT projects. It will also include organizations involved in the Suceava River-bank Rehabilitation, and the Șipote-Cetate Park Revitalization projects. The Social Care Department will have a central role in addressing issues linked to health, physical activities and recreation.

The ULG Coordinator will be Gabriel Petruc, a councillor within the European Projects and Development Strategies Department of Suceava Municipality.

The ULG in Suceava is envisaged to include the following stakeholders:

- Environment Department
- Social Care Department

- European Projects and Development Strategies Department
- Environmental Protection Agency
- Owner Associations Department
- Public Domain Directorate
- Suceava County Public Health Department
- 'Sfantul Ioan cel Nou' Suceava County Emergency Hospital
- Intermedia SRL (local media)
- GEC Bucovina Association (NGO dealing with environment)
- Suceava Local Council (local decision makers)
- local community groups
- 'Stephen the Great' University, Technical College 'Petru Musat', "Dimitrie Cantemir" College

## Learning opportunities and potential contributions

Suceava intends to learn from other cities' experiences and good practices, particularly related to the following aspects:

- revitalizing abandoned green areas
- stopping anti-social behaviour in parks
- improving air quality at pedestrian areas by using vegetation
- designation of quiet areas, using vegetation as sound barriers
- organizing physical activities in parks,
- creating the infrastructure for physical activities in open spaces

- effective ways of communication and awareness raising.

Suceava can offer contributions, good practices linked to the following:

- organizing sustainable urban markets located on the public space
- developing project roadmaps covering all the stages from project idea to the completion of the investment.

# Tartu, Estonia

## Key facts

Partner institution	Tartu City Government
Region	Southern Estonia
Population	99,600
Surface within city limits	38.80 km <sup>2</sup>
Life expectancy at birth	77,8 years
Urban green space per capita	37,17 m <sup>2</sup>

## About the city

Tartu with a population of approximately 100,000, is the second largest city in Estonia. Located 190 kilometres southeast of Tallinn, Tartu lies on the Emajõgi which flows from Lake Võrtsjärv into Lake Peipsi.

Tartu is a university town and the academic centre of Estonia, known as the cultural centre of Estonia. The town is home to the University of Tartu, the oldest and most renowned university of the country. The university is one of the largest employers in the city, and because of its presence, one fifth of the inhabitants of Tartu are students.

Along with commerce, Tartu is also an administrative centre. Its industry is mostly based on the food sector. Tartu is also known as a city of

business and innovation, where a strong start-up community has developed during the last ten years. The high-tech sector, with many ICT companies, have a strong presence in Tartu.

Tartu is front-runner in sustainable mobility. The public transportation network was transformed in summer 2019. More than 23 data sets were used to develop the new bus network, and the data-based plan was finalised in cooperation with Tartu citizens. In summer 2019, Tartu has launched an electric bike share system. The first 20 weeks of the system have been very successful, with more than 20,000 registered users, over 447,000 rides and a total mileage of over 1.3m km. Furthermore, more than 100 km of new bike lanes have been built over the past five years.



## The city and urban green spaces

Tartu has about 370 ha of green areas and parks. In the town urban green space per capita with 37,17 m<sup>2</sup> is above the European average (18,2 m<sup>2</sup>).

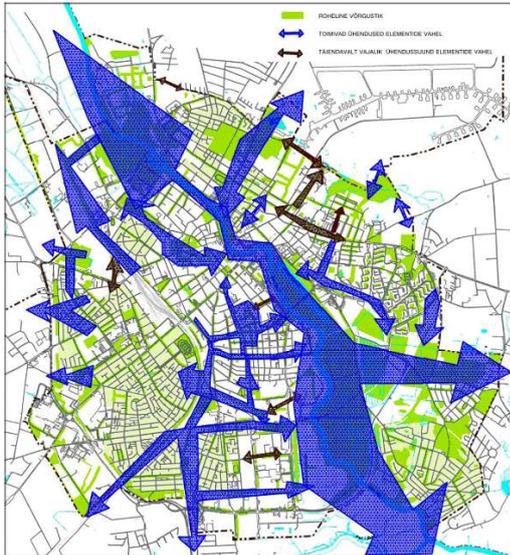


Figure 7: Green network scheme of Tartu

The backbone of the green network of Tartu is the river Emajõgi, flowing through the urban centre.

## The city and health

According to the National Institute for Health Development (TAI) the number of healthy life years in Tartu County has increased for women from 51.7 in 2006 to 60.0 in 2015, and respectively from 47.3 to 52.8 for men. Similarly, life expectancy in Tartu County has increased over a decade in case of women from 79.2 years in 2006 to 83.0 years, and in case of men for the same period from 69.5 to 74.9 years).

In Tartu, in 2016 a larger percentage of citizens considered themselves in good health (63.6 %) compared to the national average (55.7%). The perceived health status has increased considerably in the past couple of years in Tartu.

## Local policy context and ongoing initiatives

In 2016 the city of Tartu has validated the Masterplan for the central area of the city. A main goal of the masterplan is to tackle the negative

The banks of Emajõgi are the connecting points for the main parks and recreational areas in the city. These areas include a dendropark and two beaches in the northern part of the city, green areas next to the old town (which used to be densely populated before WWII) and a protected natural park in the southern part of the city. Smaller parks and green areas and garden city areas are connected with the river side via green corridors along the streets.

Toome Hill (Toomemägi), where the Tartu Cathedral is located, was landscaped as a park in the 19th century. The park now contains numerous monuments, alleys of trees, roads, and bridged gullies, several playgrounds and a cafe.

The Botanical Garden, of the University of Tartu is founded in 1803, and is the oldest permanently working botanical garden in the Baltic countries. It is home to four green houses, an arboretum containing species of woody plants from different temperate regions of the world, as well as a rose garden located near the river-side edge of the area.

Population-based morbidity studies in Tartu show that the incidence of stroke in young adults is higher than in many other European countries.

The percentage of men affected by depression in Tartu County (6%) is slightly above national average (5.8%), but in case of women the rate (5.5%) is much better than the national average (10.3%).

The improvement linked to health perceptions might be partly associated with to the steadily growing number of sport facilities in the town, increasing from 130 in 2014 to 154 by 2016.

Tartu can be considered as a safe living environment. The crime rate has gradually declined over the past couple of years.

effects of suburbanisation, including the excessive usage of private vehicles. The masterplan aims to maintain the importance of the historical university



Photo: Tiit Sild

campus in the city centre and to increase the relevance of River Emajõgi. Along with the aforementioned goals the city aspires to develop a cohesive structure for cycle lanes and to create more working places and living areas in the city centre.

Currently, a new Masterplan is prepared for the city of Tartu and the aim is to reflect in this document the principles of construction of urban green infrastructure for the next decades. The most important thematic focal points are the ever-increasing intensity of rainfall (excess water) and the increase in the number of days with extreme temperatures (heat). The aim is to find solutions for improving the cooling capacity of the urban environment, and for draining excess water, as well

## Key challenges

Due to climate change the number of days with higher than average temperatures (especially during the summer period) is increasing in Tartu, as well as the one-time amount of precipitation.

With increasing urbanisation, the area of urban green space is decreasing over time in the city, and therefore the planned solutions need to be more efficient.

Although there are a number of green areas in the city, the overall network of greenery is partly discontinuous. One of the main reasons for this is that the historical streets have a fixed width and due to increased car ownership not much space is left for greenery. As a consequence, the urban heat island effect intensified in the city and the level of

as for reducing noise and the concentration of air pollutants.

The last few years Tartu has managed to create a number of good examples in the urban setting that have helped to create a more versatile public space. This includes a lot of new bicycle paths all over the city, a new green plaza in front of the railway station, modern and diverse public space in the middle of the soviet housing area (with about 30,000 residents), a number of new public playgrounds and outdoor gyms. These actions have granted the city state-wide recognition and many of the projects have been awarded in the national architecture awards event.

The Strategic Bicycle Mobility plan for 2019-2040 sets the goal to increase by 2040 the share of walking of cycling in the modal split respectively to 21% and 26%.

A key ambition of the city is to create a cohesive structure for the green network to contribute to improved microclimate, protection from health impacts of air pollutants, and enhanced capacity for drainage and retention of water in the affected areas. Tartu Energy 2030+, the new Tartu energy and climate action plan supports the development of an extensive green infrastructure network including green landscapes with an aim to combat climate risks.

noise and air pollution has increased dramatically in certain neighbourhoods. Furthermore, there is a general lack of awareness about the health impacts of these negative trends.

Another technical challenge affecting urban development projects in Tartu, is associated with state-wide street design standards. Although these are not mandatory to implement, still these specifications are mostly strictly followed during street redevelopment projects. As a result, due to impractical and stringent standards, which are not in line with real condition in the urban fabric, in case of narrower streets the necessary space is granted for vehicles, but no space is left for greenery.

## Ambition and initial focus of the Integrated Action Plan

One key focus areas of the Integrated Health Responsive Green Infrastructure Action Plan of Tartu will be associated with the design and installation of street greenery. The IAP will provide direct support to the preparation of a guideline for design of street greenery that could help the city to be more effective and systematic in improving its green infrastructure network and granting more versatile and healthier public space for its citizens. The action plan will support both short-term and long-term interventions that are suitable to be used in the historical streets.

The target area of the IAP will be part of Vabaduse street, which is located between the historical old-town and the river. Due to the width of the street and in the absence of opportunities for crossing it, the park next to the old town is disconnected from the riverside. A potential small-scale action could be implemented to test the applicability of temporary improvements and activities during summer.

The action plan will also provide support to the design of green areas linked to the large-scale redevelopment of the banks of Emajõgi, that aim at the creation of an active riverfront.

Additionally, potential actions to be supported by the IAP could also include:

- supporting the installation of street greenery building on its cooling effect (climate-responsive landscaping and

- development of urban greenery; selection of plant species adapted to heat stress)
- supporting the use of street greenery for locally improving air quality and reducing noise
- promoting the development greener and welcoming streets that are motivating outdoor activities and social interaction
- providing design-related support to an ongoing school yards rehabilitation program
- promoting education programs for children at existing community gardens
- promoting sports activities in urban green spaces (cross-country skiing, disc golf)
- identifying new functions to existing parks
- mainstreaming the practice undertaken at the Estonian National Museum in Tartu that aims at keeping parts of the urban green spaces more natural
- supporting the development of a community greenhouse
- supporting the initiation of a seed library project (seeds to be collected from the plant and returned to the library)

A Small Scale Action to be undertaken in Tartu could be an 'Umbrella Street' project demonstrating the potential of trees to provide shade by umbrellas hanged in a section of Vabaduse street temporarily closed off from traffic.

## Introduction to ULG

Street greenery being one of the key focus areas of the future IAP of Tartu, the departments of Architecture and Building; Urban Planning, Land Survey and Use; Communal Services; as well as representatives of local communities; landscape planning, road and street design consultancies will be essential stakeholders of the ULG. The City of Tartu will be able to build its particularly strong experience in architecture, public space design and urban development.

The ULG Coordinator will be Anna-Liisa Unt, an urban design specialist at the Department of Building and Architecture The ULG is foreseen to include the following stakeholders:

- Department of Architecture and Building
- City servants responsible for:
  - o Health care – Department of Social Welfare and Health Care
  - o City greenery – Department of Communal Services
  - o Social work – Department of Social Welfare and Health Care
  - o Transport and roads – Department of Communal Services
  - o Planning - Department of Architecture and Building,

Department of Urban Planning,  
Land Survey and Use

- Politicians
- Representatives of local communities (city districts)
- Tartu University, Estonian University of Life Sciences
- NGO's:
  - o Transition Towns movement (<https://transitionnetwork.org/>)
- Active representatives of public:
  - o Tartu Liiklejate Koda (Tartu Association of Mobility Activists)

- local community groups
- Artes Terrae (landscape planning)
- Roadplan (road and street design consultancy)
- Elektrilevi (electric utility, owner of technical infrastructure)
- Telia (supplier of telecom services, owner of technical infrastructure)
- MTÜ KINO (urban design, trainings, curation)
- Mobility Lab of Tartu University (Research Group of Physical Activity for Health).

## Learning opportunities, good practices and potential contributions

The learning needs of Tartu are related to the following aspects:

- solutions for applying vegetation for combating heat stress, which are suitable to be used in an existing urban setting where there is not much space
- effective ways of using nature-based solutions for reducing noise level and improving air quality
- effective ways of raising awareness of residents on healthy lifestyles and physical well-being.

Tartu can offer contributions, good practices associated with the following:

- a number of public space projects that have helped to rethink existing streets and create green areas and safeguard biological diversity
- Tartu is home for different sports- and cultural events/festivals (the city acting as initiator and/or partner of these events/festivals)
- long-term experience in engaging of the elderly people in healthy activities
- school yard rehabilitation initiative.



Photo: Lauri Laan

## IV. SYNTHESIS AND METHODOLOGY

### Analysis and synthesis

#### Entry points

##### Green infrastructure

The status of green infrastructure in a city fundamentally determines the room for manoeuvre for a policy that promotes health-responsive governance of urban green spaces. There are enormous differences across the partnership in terms of urban green space per capita (see *Diagram 1*). Espoo stands out with a staggering 567 m<sup>2</sup> per capita due to its unique structure: it is a network city that comprise five urban hubs, rural areas and

large forests. In Hegyvidék, Poznan, Limerick and Breda that have extensive systems of green infrastructure, urban green space per individual is by far above European average. As a result of densely built-up urban areas, Santa Pola and Messina are badly in need of greenery, with urban green space per capita far below European average in both cases.

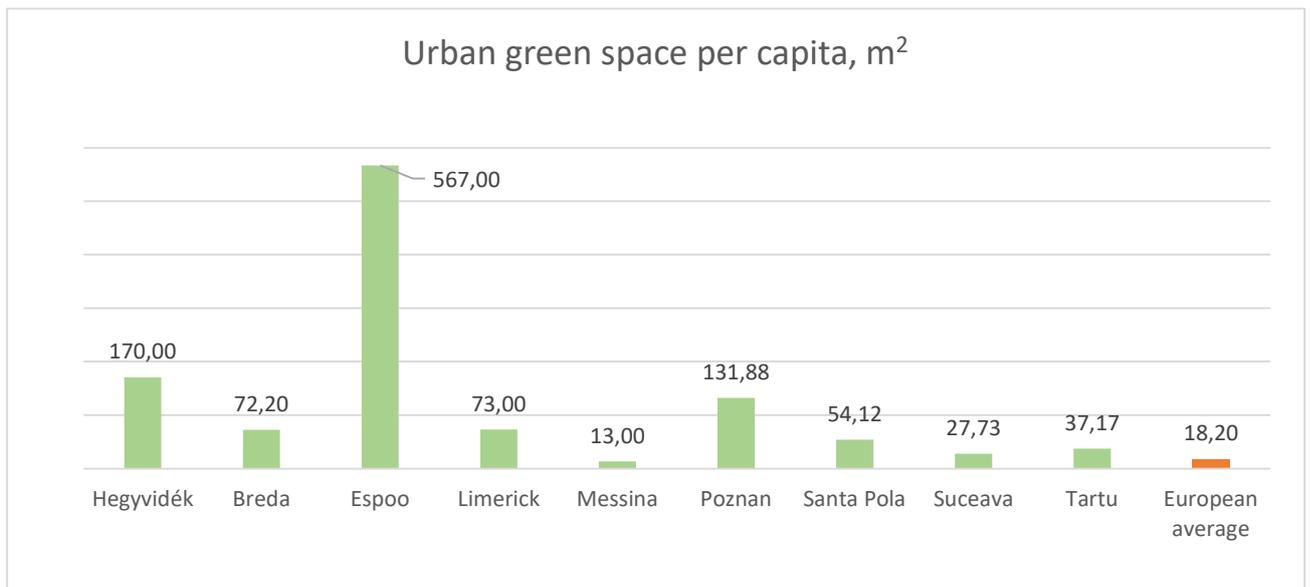


Diagram 1: Urban green space per capita in partner cities

Even those cities that have high share of green space in the urban fabric are also struggling with a number of challenges associated with urban green infrastructure. As a consequence of the pressure from urban development, the loss of green space is an issue in Espoo, Poznan and Suceava. Cities with a high share of green space like Limerick, Breda and Hegyvidék still suffer from uneven distribution of green areas across the urban fabric that directly affects their accessibility. In Hegyvidék and Santa

Pola existing popular and accessible green spaces are exposed to overuse, that lead to their degradation. Abundance of green space can also bring about problems with maintenance, on account of the high costs associated, as is the case with Hegyvidék and Limerick.

Apart from quantity, the quality of green spaces also significantly contributes to health and well-being benefits. In Suceava, Santa Pola, Messina and

Limerick many of the existing green areas are poorly located, poorly maintained or has low amenity and health potential. These dysfunctional, low quality green spaces are often underutilized or completely abandoned. Many partner cities

highlighted that anti-social behaviour keep residents away from certain green areas that otherwise could have great potential in terms of providing health benefits.

*Health*

Some of the partner cities, such as Breda, Hegyvidék and Suceava has an aging population that increase the prevalence of chronic diseases. In these cities senior citizens are the key target group of the local health policies and in the IAPs actions are envisaged that are specifically directed at older people (such as ‘dementia gardens’ in Breda, or healing hospital gardens and cardio trails in

Hegyvidék). Lack of physical activity, sedentary lifestyles and excessive car use were highlighted as significant public health issues by a number of partner cities. Undesirably high level of air pollutants, primarily particulate caused by traffic was indicated as an issue by the majority of the partner cities.

**Thematic focus**

Partners, in accordance with their local contexts, strategies, and priorities, were required to select at least two of the four Key Themes of the project (Heat stress; Air quality and noise; General impacts on physical and mental health; and Lifestyles, social function, physical activities) that they will address in their Health Responsive Green Infrastructure Action Plans. *Table 1* indicates the thematic preferences of the partner cities. There is a more or less even

distribution with a bias towards Theme 4 on Lifestyles, social function, physical activities. The fact that all partner cities selected Theme 4, indicates that broadening the scope of Health&Greenspace from physical and mental health to overall well-being and social health is corresponding to the needs and focus areas of the local authorities.

	Theme 1 <i>Heat stress</i>	Theme 2 <i>Air quality and noise</i>	Theme 3 <i>General impacts on physical and mental health</i>	Theme 4 <i>Lifestyles, social functions, physical activities</i>
Hegyvidék	•	•	•	•
Breda	•		•	•
Espoo	•	•	•	•
Limerick	•	•	•	•
Messina		•	•	•
Poznan	•	•		•
Santa Pola	•			•
Suceava		•		•
Tartu	•	•		•

*Table 1: Thematic preferences of partner cities*

## Ambition

Overall, the ambition in each city in the partnership boils down to the fundamental goal to build a city that meets the needs of residents and that allows and encourages them to spend time in high-quality green spaces, which in turn contributes to improvement of their health and well-being.

In case of the majority of the partner cities (Hegyvidék, Breda, Messina, Poznan, Suceava, Tartu) the Integrated Health Responsive Green Infrastructure Action Plans will support the design of large-scale green infrastructure interventions, linked either to the development of new green spaces or to the rehabilitation of existing ones.

Ensuring better use of existing areas, animation of existing green spaces are also priority issues for partners. As various types of facilitated social events can effectively animate underutilized green areas in a city, Health&Greenspace promotes the organization of small-scale community, cultural, education and physical activity programs in urban green spaces. These low-cost, soft actions can be easily implemented by cities and at the same time can have robust impacts, bringing immediate benefits as options for health maintenance and disease prevention.

In most of the cities in the partnership already numerous valuable initiatives are being implemented that fall under the scope of Health&Greenspace. Apart from catalysing new actions, the IAPs will also have an important role in orchestrating relevant schemes that are already in progress. The integration of isolated ongoing actions under a large, coherent policy framework will help to sustain them and to scale them up, as these so far separate efforts being part of a complex policy objective will mutually strengthen each other.

Some partners (e.g. Breda and Messina) will focus their activities mostly on a specific target area or several target areas, while the others will cover through horizontal actions the entire territory of their municipality.

In case of all partner cities, except from Hegyvidék, the green spaces that are in the focus of the

activities are closely connected to 'blue space' that serve as a backbone of the green network. These are either rivers (River Mark in Breda; River Shannon in Limerick; the Suceava River; the Warta River in Poznan; and Emajõgi in Tartu) or coasts (the waterfront walkway in Espoo; Zona Falcata and the walking area along the coast in Messina; the beaches in Santa Pola). As water is often part of urban green space and as it is in most instances an important and attractive feature for people to use and enjoy and supports healthy urban living, blue infrastructure will be covered by the scope of Health&Greenspace.

Due to the complex, holistic approach taken by Health&Greenspace, a large number of sub-topics will be addressed by the Integrated Action Plans of the partner cities, and a huge variety of types of actions are foreseen to be set under them. Examples for potential actions include the following:

- *heat stress*: natural gardens functioning as cooling islands, vegetated cooling corridors,
- *air quality*: design of greenery to support ventilation, use of protective hedge in kindergartens to improve air quality, street greenery used to protect from air pollution,
- *noise*: identification of tranquil areas, developing vegetated sound barriers,
- *general impacts on health*: 2 hours outdoor campaign, healing hospital gardens, dementia gardens, cardio trail, health-walk routes, organized stress relieving walks,
- *social cohesion*: open gardens, Men's Sheds and Women's Sheds, education in parks, development of picnic areas, public barbeques, seed library, community green house, nature photography, birdwatching, chamber music in parks,
- *physical activities*: offering free physical activity sessions in parks, green running and cycling paths, cross-country skiing, disc golf, triathlon.

## Learning needs and potential contributions

Table 2 below summarizes the key learning needs of the cities as well as specific areas linked to which they can contribute to the network regarding knowledge, know-how and experience. The contents are organised around the four key themes of Health&Greenspace. Under learning needs cities usually indicate a broad thematic area of knowledge, while under 'contributing' cities highlight more specific examples of good practices. Learning needs will be addressed by the organization of Health&Greenspace Academy sessions on transnational level, and Health&Greenspace Symposiums on local level, as well as by the staff exchange program (see Section on Network methodology).

Knowledge gaps are mostly linked to using vegetation to reduce heat stress, and to using greenery to improve air quality. In addition, there is expertise on noise modelling, monitoring of noise, and noise action planning in the partnership, but still a certain lack of knowledge can be detected regarding the role of vegetation in reducing noise. Education in urban green space and environmental education comes across as a topic relevant for cities, and an area where local authorities have accumulated substantial experience.

Partners also indicated learning needs associated with a number of horizontal themes. These include, among others the following:

- practices to ensure better use of existing green areas,

- maintenance of small green areas,
- identification of streets to be converted into green corridors,
- communication and awareness raising (communicating health benefits of urban green spaces, awareness raising on healthy lifestyles),
- participatory approaches (participatory planning, engaging citizens in co-development, engaging entrepreneurs),
- effective practices supporting cross-departmental cooperation (e.g. data sharing across departments).

In conclusion, vegetation used to reduce heat stress, and using greenery to improve air quality are key topics that should be addressed with preferably more than one Health&Greenspace Academy session.

Although a couple of partners have experience in the development of trails dedicated to health, only few of them seem to have a deeper understanding of the general impacts of the urban green spaces to physical and mental health (Theme 3). Thus, it could be considered to select an ad-hoc expert who has experience in the health topic, to address this specific gap in knowledge. Intensive cooperation with the Healthy Cities URBACT Network can also effectively reinforce the health dimension of the project activities.

LEARNING		CONTRIBUTING	
<b>Theme 1: Heat stress</b>			
Using vegetation to reduce heat stress	Hegyvidék Espoo Limerick Poznan Santa Pola Tartu	Breda	Climate-responsive urban design based on the use of vegetation to combat heat stress
<b>Theme 2: Air quality and noise</b>			
Using greenery to improve air quality	Messina Suceava Tartu	Poznan Espoo	Extensive network of greenery ensuring ventilation Cross-departmental working group for 'Air Quality and City Planning'
Designating quiet areas	Limerick Suceava	Espoo	Survey on areas where residents experience silence Cross-departmental working group for 'Noise and City Planning'
Nature-based solutions to reduce noise	Suceava Tartu	Espoo Limerick	Cross-departmental working group for 'Noise and City Planning' Noise action planning, noise modelling, Hush Cities: crowdsourcing information on quiet areas
<b>Theme 3: General impacts on physical and mental health</b>			
Using urban green space to improve physical and mental health	Breda	Hegyvidék Breda Espoo Limerick Tartu	Healthy Hegyvidék Programme / Cardio Trail Smart Tourism Award on Accessibility Olari health-nature trail Healthy Limerick / Path to health Engaging elderly people in healthy activities
<b>Theme 4: Lifestyles, social functions, physical activities</b>			
Enhancing social functions of urban green spaces	Limerick Messina Santa Pola Suceava	Hegyvidék Limerick Suceava Tartu	Class.Staircase Regeneration of disadvantaged neighbourhoods Sustainable urban markets Cultural events
Supporting recreation in urban green spaces	Breda	Poznan	City beaches
Designing urban green spaces to motivate physical activities Motivating people to do physical activities in parks	Messina Poznan Santa Pola Suceava	Breda Limerick Messina Santa Pola Tartu	Organization of sporting events: Singelloop running event and the City swim Cooperation with Limerick Sports Partnership Cooperation with NGOs supporting trekking Encouraging outdoor physical activity ('the mile', paragliding, triathlon) Organization of sport events
Education in urban green spaces		Espoo Espoo Messina Hegyvidék Poznan Poznan Tartu	Free tours organized by Villa Elfvik Nature School Survey on forests visited by schools and kindergartens Environmental education in nature Environmental education in nature (Madárovi) Classrooms converted into winter gardens with multiple functions Natural playgrounds Schoolyards rehabilitation initiative

Table 2: Learning need and potential contributions

# Network methodology

## Transnational events

The transnational work program of Health&Greenspace was developed based on the four key themes, and the challenges and learning needs identified in the development phase. The programme is designed in a way that each event adds a new thematic dimension and building block to the creation of the Health Responsive Green Infrastructure Action Plans.

Altogether six large-scale transnational events will be organized (see *Table 3*). Each of the first four transnational meetings (including the Activation Meeting, two Thematic Workshops and the Mid-term Meeting) will focus on one of the key themes of Health&Greenspace. Following the Mid-term Meeting another Thematic Workshop will be held addressing a horizontal thematic area (design and maintenance of street green), as well as issues relevant for ensuring the effective implementation of the IAPs.

The Mid-term Meeting will also have a significant role in the peer review process. During the event the draft IAPs of three partner cities will be reviewed. Additionally, two smaller-scale transnational Peer Exchange Workshops will be held (see the relevant section below). On each of these two events three draft IAPs will be assessed by peers, respectively.

In the time intervals between the physical transnational events the organization of at least seven online thematic meetings are foreseen, that will cover a range of content-related issues. Online meetings will be essential for bridging physical events, maintaining thematic discussions, supporting the preparations for joint meetings, and for keeping the momentum of the project activities.

## Health&Greenspace Academy

To close recognized knowledge gaps, Health&Greenspace Academy sessions will be organized at transnational events. These sessions will function as learning seminars held by invited experts from within and outside the network. These recurring seminars will focus each time on some particular subject or successful initiative linked to the central theme addressed by the given

transnational event. If time allows, more than one session can be held on an event so as to cover several relevant subtopics. Subjects to be covered might include nature-based solutions used to improve air quality, climate-responsive design, social interactions in urban green spaces, mental health and green space, healthy streets, etc.

## Urban Study Walks

Urban Study Walks will be key elements of each large-scale transnational event and Peer Exchange Workshop. These study walks organized by host cities of transnational events will support peer learning, give inspiration to visiting partners and trigger joint thinking about potential actions. Participants will be guided through various urban

green spaces that are relevant as target areas or sites covered by the IAPs, or as problematic areas illustrating key challenges. They are foreseen to include interactive elements and discussions to supporting transfer of knowledge. The study walks are supposed to provide learning opportunities both for participants and hosts.

Event type	Date	Host city	Themes and subtopics	Key sessions
Activation Meeting	June 2020	Budapest	<b>General impacts on physical and mental health</b> <ul style="list-style-type: none"> <li>- health-walk routes</li> <li>- healing gardens, therapeutic gardens</li> <li>- therapy in parks</li> </ul> <b>Peer review of IAPs</b>	<ul style="list-style-type: none"> <li>• Health&amp;Greenspace Academy,</li> <li>• Urban Study Walk,</li> <li>• Thematic Working Group Session</li> </ul>
Thematic Workshop	September 2020	Breda	<b>Heat stress</b> <ul style="list-style-type: none"> <li>- climate-responsive design</li> <li>- cooling islands</li> <li>- open gardens</li> <li>- street green combating heat stress</li> </ul>	<ul style="list-style-type: none"> <li>• Health&amp;Greenspace Academy,</li> <li>• Urban Study Walk,</li> <li>• Thematic Working Group Session</li> </ul>
Thematic Workshop	March 2021	Santa Pola	<b>Lifestyles, social functions, physical activities</b> <ul style="list-style-type: none"> <li>- social cohesion, community programs</li> <li>- education in urban green space</li> <li>- physical activity in urban green space</li> </ul>	<ul style="list-style-type: none"> <li>• Health&amp;Greenspace Academy,</li> <li>• Urban Study Walk,</li> <li>• Thematic Working Group Session</li> </ul>
Mid-term Meeting	June 2021	Poznan	<b>Air quality and noise</b> <ul style="list-style-type: none"> <li>- vegetation barriers protecting from air pollutants</li> <li>- greenery enabling ventilation</li> <li>- using vegetation as sound barriers</li> <li>- designation of quiet areas</li> </ul> <b>Open gardens, natural playgrounds</b>	<ul style="list-style-type: none"> <li>• Peer Review Sessions,</li> <li>• Health&amp;Greenspace Academy,</li> <li>• Urban Study Walk</li> </ul>
Peer Exchange Workshop	July 2021	Messina	<b>Peer review of IAPs</b>	<ul style="list-style-type: none"> <li>• Peer Review Sessions</li> <li>• Urban Study Walk</li> </ul>
Peer Exchange Workshop	July 2021	Suceava	<b>Peer review of IAPs</b>	<ul style="list-style-type: none"> <li>• Peer Review Sessions</li> <li>• Urban Study Walk</li> </ul>
Thematic Workshop	September 2021	Tartu	<b>Street green</b> <ul style="list-style-type: none"> <li>- designing green streets</li> <li>- maintenance of greenery</li> <li>- walking in green spaces</li> </ul> <b>Planning implementation</b>	<ul style="list-style-type: none"> <li>• Health&amp;Greenspace Academy,</li> <li>• Urban Study Walk,</li> <li>• Thematic Working Group Session</li> </ul>
Final Meeting	March 2022	Limerick	<b>Final dissemination event</b> <ul style="list-style-type: none"> <li>- showcasing results</li> <li>- key policy messages</li> <li>- Urban Study Walk</li> </ul>	

Table 3: Transnational events

## Thematic Working Groups

In order to ensure continuous knowledge-sharing linked to each of the four Key Themes, the majority of the large-scale transnational events will include thematic working group sessions. Although the joint partner meetings will be dedicated to a specific theme, the program of these events will also include thematic working group sessions that will allow partner cities to focus on those themes and subthemes that are of strategic relevance for them for the development of their IAPs. These are foreseen to be parallel, interactive break-out sessions.

To support these interactive discussions, Thematic Working Groups (TWGs) are foreseen to be set up around the four key themes of the network at the beginning of Phase 2. The participation in TWGs will

allow partners to learn from other cities, to share know-how, and to support each other in the development of the IAPs. A flexible system is foreseen, in which partner cities will be required to join at least two thematic working groups.

Partner cities will be asked to provide inputs to the Final Network Product associated with the key themes that have been selected by them.

Some of the cities might be interested in a specific aspect which is not relevant for the rest. To support knowledge-sharing related to these specific topics, it is recommended (should the budget allow) to apply a flexible approach for transnational exchange that includes scope for ad-hoc bilateral or trilateral exchanges.

## Exchange visits

In order to support cities in deepening their knowledge in specific areas related to their identified learning needs, exchange visits will be organized under the Health&Greenspace network. Each partner city will be able to appoint an ULG member and a staff member, who will spend 2 working days at another partner city that is selected by matchmaking (based on specific expectations, common challenges and interests and knowledge gaps).

Exchange visits are recommended to be organized during the beginning of the Planning Actions stage, to effectively support the identification of potential approaches and actions. During the visit the guests will get a better picture about the host organisation's working environment, learn about its

daily operations and the main aspects of its activities, gain new experience, and capture new ideas. In exchange the host will gain deeper understanding about the activities undertaken by the city the guest is coming from and can generate new ideas. At the visit the guests are also foreseen to provide advice to the hosting city as peers. The visit will also strengthen cooperation among the two cities. The host organisation will assign mentors to work closely with the visiting guests. When the situation allows, the guest might be involved in the daily activities of their host, such as: meetings, visits to external partners, etc. Following the visit, the guest will be asked to prepare and publish an article or a blogpost showcasing the activities of the host city.

## Peer Review

Peer assessment of the draft IAPs will be undertaken at Peer Exchange Workshops and at dedicated sessions of the Mid-term reflection meeting. On each of the above three events the draft IAPs of the hosting city and two visiting cities will be reviewed.

The exercise will follow some of the key elements of the S3 Platform Peer Review Methodology<sup>75</sup>. At the workshops all peers will have the role of critical friends. The cities to be peer-reviewed prior to the

workshop will circulate their draft IAP together with a short note listing questions they would like to discuss. On each review session a presentation is delivered by the peer-reviewed city. Subsequently, each individual question identified by the reviewed city will be distributed among separate break-out groups to be discussed. During break-out discussions first the context will be clarified, then participants will discuss suggestions for potential actions or modification of actions, finally peers will talk over the lessons they take home. During each

review session peers will be asked to fill in an evaluation form, while at the same time representatives of the peer-reviewed city will be required to fill in a form on lessons learnt and list in it at least three specific actions that could be carried out. The hosting cities will also organize during the event an Urban Study Walk to support the peer review exercise.

## Local activities and their links with transnational activities

The organization of minimum seven ULG meetings is recommended during Phase 2. Analogous to the Health&Greenspace Academy sessions, local-level learning seminars, Health&Greenspace Symposiums are envisaged to be organized with an overall aim to fill the knowledge gaps identified at partner cities. At least four symposiums are foreseen to be organized by each partner city. At least one local study visit is also envisaged for each partner city, that will enable ULG members to visit other cities in their home country that undertake interesting initiatives.

The seven ULG meetings at each partner city are foreseen to be organized following the transnational events, to allow that lessons learnt at transnational level are easily transferred to local

## Cooperation with other projects

Active interaction is foreseen during Phase 2 with several relevant URBACT Action Planning networks to further support transnational exchange and learning.

The Healthy Cities URBACT Action Planning network, because of its relevance to Health&Greenspace, stands out from other projects. The project proposes to create a network of cities to deepen the relationship between health and the urban environment. Healthy Cities is looking at almost the same issues as Health&Greenspace (such as the importance of green space to public health, unhealthy lifestyles, noise pollution, heat and social cohesion) from a slightly different angle.

To take advantage of the similarities between the two projects, intense cooperation is foreseen between the two partnerships on several levels:

The organization of two Peer Exchange Workshops is recommended, one taking place in Messina and the other one in Suceava. Based on matchmaking, half of the partnership will visit Messina, while the other half Suceava. The two hosting cities will also visit each other.

level. ULG Coordinators will have an instrumental role in reporting back the key messages of the joint partner meetings to the members of their ULGs. The key components of the transnational exchange learning and exchange methodology, the Health&Greenspace Academy, TWG sessions, Urban Study Walks, Exchange Visits and the peer review exercises will all provide important inputs for ULG members, directly supporting the development of the IAPs.

Lessons drawn from local level is also foreseen to be fed to the transnational level, through minutes of ULG meetings, online preparatory discussions with ULG Coordinators prior to transnational events, and the active engagement of ULG members in joint partner meetings.

- The Lead Partner team and the Lead Expert of Healthy Cities will be invited to one of the transnational events of Health&Greenspace and will be asked to present their activities and findings under a Health&Greenspace Academy session. The Healthy Cities team will also be encouraged to participate in the interactive sessions and the Urban Study Walk during the transnational event. Similarly, Lead Partner team and the Lead Expert of Health&Greenspace will also visit one of the transnational events of Healthy Cities, preferably during the first year of Phase 2, to support the action planning process.
- Local level cooperation is also planned between cities of the two partnerships that are located in the same country

(Alphen aan der Rijn and Breda teams, Pärnu and Tartu teams, and Falerna and Messina teams visiting each other).

Other relevant URBACT Action Planning networks in terms of potential knowledge transfer include Space4People that aims to improve the quantity and quality of attractive public spaces in urban areas; Thriving Streets focusing on the design and

use of streets, and on the economic and social benefits of sustainable mobility; and Riconnect focusing on active mobility. In case of these three projects cooperation is envisaged between ULGs on local level as part of study visits. The National URBACT Point will be engaged in the activities to enhance the dialogue between network partners on national level.

## Small Scale Actions

Partners have already come up with potential options for Small Scale Actions to be undertaken in their cities. Decision about these will be made at the beginning of Phase 2.

A broad spectrum of potential activities was identified by partner cities, that included among

others various programs organized in green spaces, such as birdwatching activities, facilitated play, therapeutic programs in a hospital gardens; temporary testing of alternative uses for streets; participatory workshops supporting green space design; signposting along paths; and hiking trails developed for people with impaired vision.

## Communication and the Final Network Product

The communication activities of the Health&Greenspace network will primarily target urban practitioners, municipal healthcare professionals and local decision-makers. With an aim to reach out to these key target groups, a series of communication outputs, five Thematic Reports will be elaborated linked to each of the five thematic areas covered by the large-scale transnational events (Urban green spaces and physical and mental health; Heat stress; Social health and physical activities; Air Quality and Noise; and Street Green).

As the final network product, the development of a step-by-step guide is foreseen on the health-responsive development and management of urban green spaces. The guide that would include a matrix of policy interventions would synthesize the lessons learnt along the action planning journey for other European cities. The document is envisaged to cover various pathways to health in line with the key themes of the Health&Greenspace network (e.g. climate change adaptation, improvement of air quality, noise reduction; therapeutic use of green

spaces; social cohesion and interactions; healthy lifestyles). The guide will offer a range of possible interventions linked to specific green infrastructure-related challenges (such as the lack of green spaces, uneven distribution of green areas, underutilized or dysfunctional, low quality green spaces), or to health-related challenges (such as a population with relatively high proportion of people with chronic diseases, lack of physical activity, sedentary lifestyles, excessive car use, low air quality, high noise levels and neighbourhoods exposed to heat stress). The description of different types of potential actions will be complemented by a collection of showcases. Thematic reports linked to the Key Themes of Health&Greenspace, will provide valuable inputs for the preparation of the guide and the matrix of policy interventions. Plans for the final network product will be finalized during the Activation stage of the project.

The partnership should assess various user-friendly options for displaying the content of the guide on the network page on the URBACT main website.



## V. CONCLUSIONS

The Health&Greenspace Baseline study provides an overview of the health and wellbeing effects of urbanization, as well as of the various pathways through which urban green spaces may contribute to health, such as the regulation of urban heat island effect, regulation of air quality, noise reduction, stimulation of social cohesion and physical activity. It also outlines the current local context of the nine Health@Greenspace partner cities summarizing their focus areas, learning needs and ambitions.

To capture the main pathways provided by urban green infrastructure, an integrated, holistic, cross-sectoral approach is applied by Health&Greenspace. The network will have an important catalysing role, as it will support the design of new green spaces, ensure that new developments deliver maximum health and wellbeing benefits, and contribute to the initiation of new social programs in urban green.

A mapping of ongoing activities has unveiled a vast array of valuable initiatives that are undertaken at the nine cities. However relevant they are, still these initiatives are in most cases isolated, as they are linked to different functions through which nature contributes to health, and thus are handled separately. Apart from catalysing new actions, Health&Greenspaces through addressing physical, mental and social health, air quality and heat stress

at the same time, will also have an important role in linking relevant ongoing schemes in a coordinated way. The integration of isolated ongoing actions under a large, coherent policy framework can help to sustain these actions and scale them up.

A broad range of experiences that are relevant for other network partners has been revealed during the profiling of the cities. Some cities have important background in making gardens of public institutions accessible for city dwellers; some can provide knowledge on climate-responsive urban design; others are strong in the regeneration of disadvantaged neighbourhoods; others are experienced in schoolyard rehabilitation. This wealth of experience offers the opportunity for mutual learning.

The baseline assessment has identified some knowledge gaps that will need to be closed by the drawing upon external expertise. Such areas include the use of vegetation for cooling or improving air quality.

The application of the URBACT method will provide robust support for sharing knowledge, encourage collaboration, dialogues, as well as real-world, experiential learning. Several dedicated capacity building tools, such as Health&Greenspace Academy sessions, Thematic Working Group sessions, and Urban Study Walks will aid the joint planning process.

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<sup>68</sup> <https://thewire.in/environment/lessons-from-seoul-how-to-revive-a-river-and-manage-a-landfill>

<sup>69</sup> <https://www.landscapeperformance.org/case-study-briefs/cheonggyecheon-stream-restoration>

<sup>70</sup> [https://english.visitkorea.or.kr/enu/ATR/Sl\\_EN\\_3\\_1\\_1\\_1.jsp?cid=897540](https://english.visitkorea.or.kr/enu/ATR/Sl_EN_3_1_1_1.jsp?cid=897540)

<sup>71</sup> <https://theaws.co.uk/activities/active-parks/>

<sup>72</sup> <https://www.sportengland.org/media/11651/active-design-active-parks-case-study-march-2017.pdf>

<sup>73</sup> <https://urban.jrc.ec.europa.eu/thefutureofcities/space-and-the-city#the-chapter>

<sup>74</sup> [http://www.zit.metropoliapoznan.pl/media/pozostale/Zdrowie\\_i\\_ochrona\\_zdrowia\\_w\\_województwie\\_wielkopolskim.pdf\\_p.26](http://www.zit.metropoliapoznan.pl/media/pozostale/Zdrowie_i_ochrona_zdrowia_w_województwie_wielkopolskim.pdf_p.26)

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