THE URBAN BURDEN OF DISEASE ESTIMATION FOR POLICY MAKING

POLICY

GREENING CITIES FOR BETTER HEALTH: Good practice from across the EU

Currently, 75% of the EU population lives in cities,[1] a number which is expected to grow in the next decades. Most European cities were built to be compact, with small surface areas, a high population density, often with a focus on car infrastructure.[2] As evidence of the health benefits of green spaces grows, city authorities are now increasing the number and size of these areas. Green spaces also play an important role in mitigating and adapting to climate change in urban areas.

GREEN SPACES IN CITIES: State of play

Climate change has a major impact on cities and their residents. More frequent and more severe extreme weather events, air pollution, and the urban heat island effect (UHI), impact residents' health and city infrastructure. Rising sea levels are also a problem for cities close to the sea.

People in cities are particularly dependent on access to food and water, which can be disrupted by climate change. At the same time, urban activities, such as transportation, industrial production, energy consumption, and waste management, are a major source of CO_2 emissions.[3]

The World Health Organisation (WHO) recommends that residents have access to green spaces of at least 0.5 hectares within a 300m distance to their homes.[4] In Europe, over 60% of the population currently lacks sufficient access to green spaces. Up to 43,000 deaths in European cities could be prevented if the WHO recommendation was met.[5]

3-30-300 GREEN SPACE RULE

This rule, created by the Nature-Based Solutions Institute (NBSI), states that individuals should be able to see at least three trees from every home, have 30% tree canopy cover in every neighbourhood, and not live more than 300m away from the nearest park or other green space.[6] This last part is also what WHO recommends.

Studies show that implementing this rule in cities has health benefits for its residents. Being surrounded by trees is beneficial for mental health, while visiting nature is important for better health and wellbeing.[7]

HEALTH BENEFITS OF GREEN SPACES IN CITIES

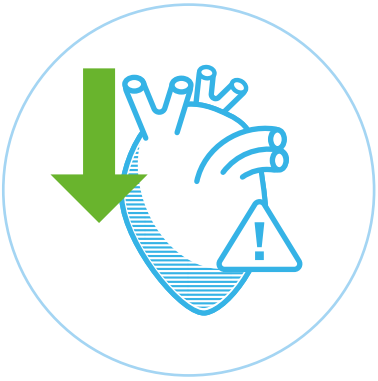
IMPROVED MENTAL HEALTH

LONGER LIFE EXPECTANCY

REDUCED HEALTH COSTS

IMPROVED COGNITIVE FUNCTIONING IN CHILDREN AND THE ELDERLY

A HEALTHIER POPULATION THROUGH PHYSICAL ACTIVITY



REDUCED NUMBER OF CARDIOVASCULAR DISEASES

As city decision-makers are looking to adapt to climate change and reduce the urban footprint, green spaces offer a very good solution, by reducing the urban heat island effect and contributing to improving air quality.

According to a WHO assessment report, green spaces help to mitigate air pollution, heat, and noise.[8] Green spaces thus contribute to lower premature mortality, longer life expectancy, a reduced number of cardiovascular diseases, improved cognitive functioning in children and the elderly, and a healthier population overall, also by increasing physical activity.[9]

According to a recent estimate, the greening of residential areas could prevent five percent of all deaths in Italy.[10] Research also shows that spending at least 120 minutes per week in natural environments improves overall health and wellbeing.[11]

REDUCED IMPACT OF HEATWAVES

As heatwaves are increasing in Europe, urban green spaces play a vital role in reducing the negative health effects from high temperatures. Studies underline that mortality and heat-related morbidity rates are lower in urban areas with more green spaces, compared to cities with less green spaces. A study from Australia found that green infrastructure in the Sydney region could reduce mortality from heat by up to 11.7% per day.[12]

IMPROVED MENTAL HEALTH

A recent study on Barcelona shows that implementing green corridors throughout the city would significantly contribute to improved mental health.[13] By reducing stress, encouraging social interaction and physical activity, and facilitating restorative process in the body, it is estimated that the increase in green spaces could reduce 14% of cases of self-perceived mental ill health, 13% of visits to mental health professionals, 13% of antidepressant use, 8% of the use of tranquilizers or anxiolytics. The resulting savings in direct and indirect mental health costs are estimated to be 45 million euros per year.

SPACES THAT PROTECT THE VULNERABLE

In addition to health benefits for the entire population, green spaces are especially valuable for **children**, the **elderly** and **people facing socio-economic inequality**. Green spaces offer opportunities for social interaction, reducing social isolation. Regular time spent on exercise or physical activity in green spaces can also help to reduce or prevent non-communicable disease in the elderly population.[14] Spending time in green spaces may also slow cognitive decline in adults, contribute to restoring attention, and help to reduce stress.[15]

Children also need green spaces for healthy development. Green spaces are beneficial for children's cognitive development, including working memory and cognitive performance (e.g. attention span, reaction time, problem-solving ability). Being around nature can help to reduce depression, anxiety, and psychological distress, improving psychological wellbeing. Green spaces also provide opportunities for children to be more physically active, which also prevent and reduce childhood obesity.[16]

Urban residents facing socio-economic inequalities also benefit from urban green spaces, as they help reduce stress levels and improve mental health. Parks and other green areas provide opportunities for social integration as well as access to healthy food and recreation.[17]

AN INTEGRATED APPROACH TO URBAN PLANNING, TRANSPORT POLLUTION, AND HEALTH

To better protect public health in urban environments, decision-makers should consider health, environmental sustainability, and social equity concerns in city planning. This is the result of a review of over sixty large-scale studies (covering at least 90 cities) which considered urban planning, transport systems, environmental planning and health, and that underpins this policy brief.[18] City residents' health is significantly shaped by the environment where people live, however, there is often a siloed approach in urban design. The science review also underlines that cities designed around car use have considerable environmental and health impacts.

POLICIES TO INCREASE URBAN GREEN IN SELECTED CITIES

In recent years, many city authorities initiated policies to increase the size and share of green spaces. The EU-funded research project The Urban Burden of Disease estimation for Policy making - UBDPolicy aims to assess the burden of disease of urban life in 1,000 European cities.

The overview on the next page presents selected policies from the 10 UBDPolicy case study cities as well as other cities from across the European Union.

RECREATION

BUDAPEST

Pocket Parks

Pocket Parks have been implemented in Budapest since 2010, taking their name from their small size. These spaces, mostly citizen-led and supported by the local government, cover an area of 1400m2 and provide a space for small-scale food production, recreation, and community sharing. [22, 23]

COPENHAGEN

Urban Nature in Copenhagen

The strategy **Urban Nature in Copenhagen** (2015-2025) aims to create more urban nature in the city and improve the quality of existing green spaces. Goals included planting 100,000 new trees and achieving tree coverage across 20% of the area.[24] The aim is that 90% of inhabitants live within less than a 15-minute walk from a park or a green space.

MANCHESTER

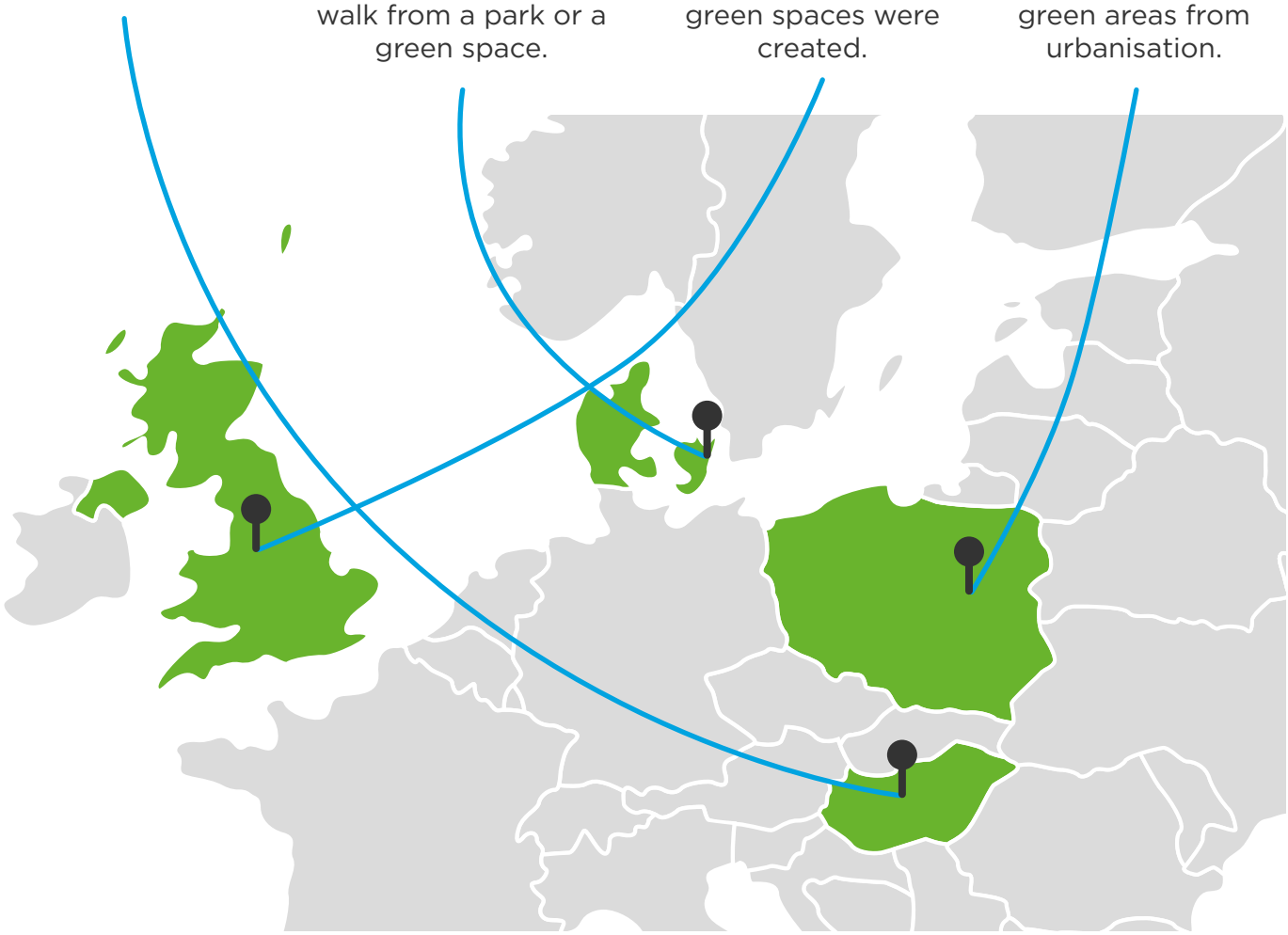
Five Year Environmental Plan

One of the objectives of Greater Manchester's **Five-Year Environment Plan** (2019) is to build a clean, climate-neutral, climate-resilient city region with a thriving natural environment.[25] Since the implementation of the plan, which has been renewed for five more years, more than 900,000 trees have been planted, and more than 100 new local green spaces were created.

WARSAW

Warsaw's Green Vision

Warsaw's Green Vision (2023-2030) includes several actions to increase share of green spaces.[32] These include planting trees and rain gardens, increasing and preserving biodiversity, increasing public access to green areas, and protecting key green areas from urbanisation.



INFRASTRUCTURE

BASEL

Green Roof Strategy

The **Green Roof Strategy** (2005-2007) in Basel aimed to increase the coverage of green roofs through a mix of financial incentives and building regulations. All new constructions and flat roof renovations had to be greened, to help reduce energy consumption and improve air quality.[19]

MUNICH

2018 Biodiversity Strategy

As part of its 2018 **Biodiversity Strategy**, Munich wants to secure adequate green spaces, which is particularly necessary to address the urban heat challenges it was facing. Different projects have been tried to improve green spaces:[27] die Wanderbaumallee ("walking tree alleys") temporary added trees, as well as parklets, which are maintained by residents.

SOFIA

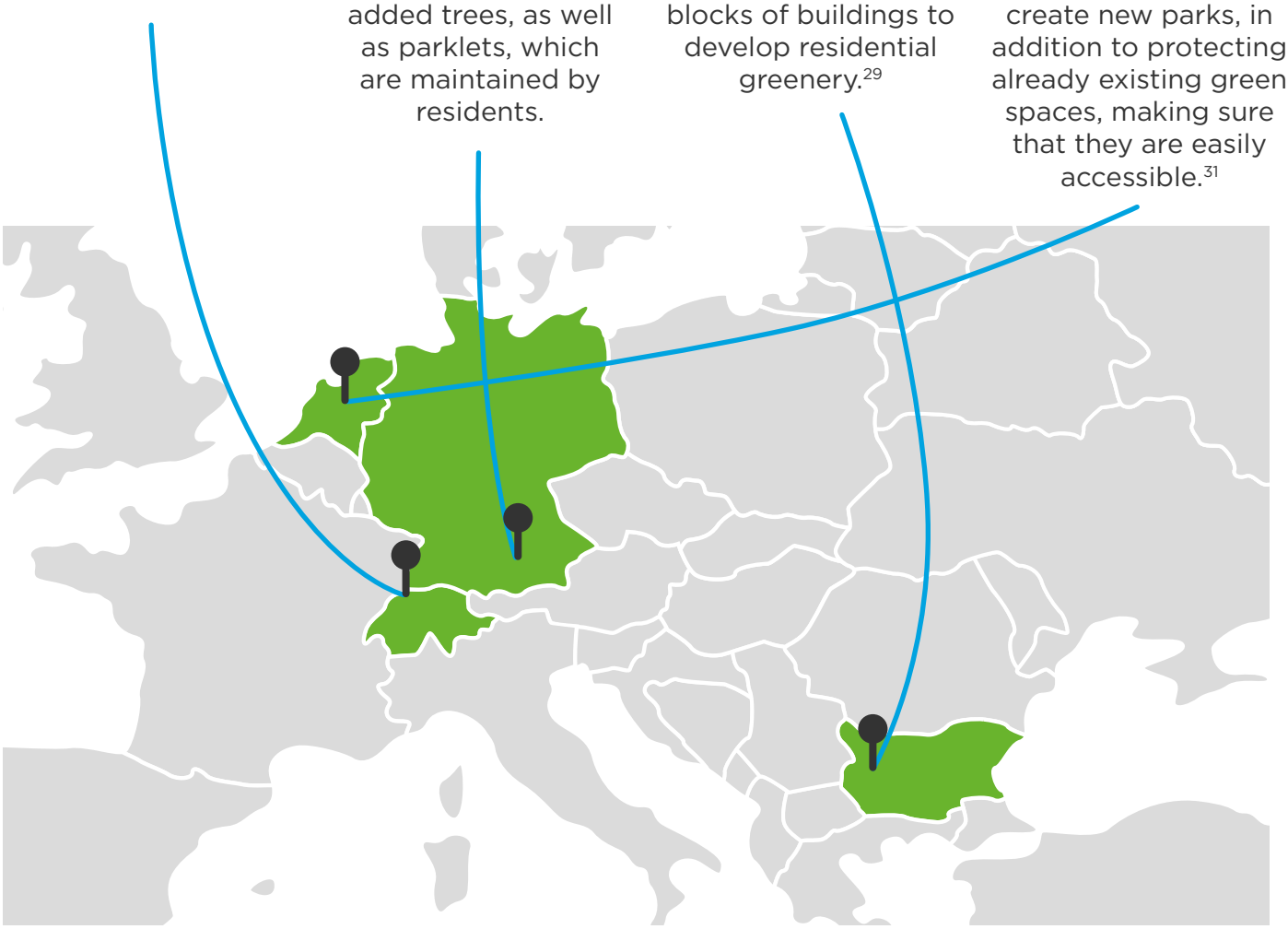
Green City Action Plan 2020

Through its **Green City Action Plan** (2020), the city of Sofia wants to improve existing green spaces throughout the city and increase their share.[28] The long-term goal is to have green spaces represent more than 50% of the city. To achieve this, green spaces will be restored around blocks of buildings to develop residential greenery.[29]

UTRECHT

Green Structure Plan

Through its **Green Structure plan** (2017-2030), Utrecht aims to make better use of green and blue infrastructure and restore ecosystems. Trees are central to that approach as they can improve air quality, reduce UHI effect, and capture CO_2.[30] The city decided to make streets greener and create new parks, in addition to protecting already existing green spaces, making sure that they are easily accessible.[31]



CONNECTIVITY

BARCELONA

Eixos Verds Plan

The **Eixos Verds (Green Axis) Plan** (2013) aims to increase street greening. One out of three streets will be turned into green corridors. Many of these Eixos Verds will be pedestrianised, which will also improve active mobility levels. This could increase the pedestrian network to 67% (16% at the start of the project in 2021).

BILBAO

Greenbelt Project

The Bilbao **Greenbelt project** (2020) aims to expand and connect the city's green areas from the periphery to the centre. In the last ten years, it has already led to 1 million m^2 of green areas, and the city has planted 18,500 trees. At the end of the project, there will be 24m^2 of green areas per person, compared to the initial 6m^2 in 1999.[20]

BRUSSELS

Le Plan Nature

Le Plan Nature (2016) aims to improve access to nature for all residents, as well as the management of green spaces.[21] All individuals should have access to a green space of at least 1 hectare within 400m of their homes and a green space of less than 1 hectare within 200m.

LISBON

Green Corridors

Green Corridors (2012) have been a priority of the municipality to connect green spaces, as part of a strategy to regenerate the city.[26] The objectives of the green corridors are to enhance city attractiveness while regulating air quality, offer spaces for recreation and a healthy lifestyle, create and improve ecosystems and connections.

POLICY RECOMMENDATIONS

CITY-LEVEL DECISION-MAKERS

- Take an integrative approach to urban planning, health protection, and sustainability. This includes fostering inter-departmental cooperation in the development and implementation of these policies
- Set a clear goal and establish a timeline to implement the 3-30-300 rule
- Strengthen data monitoring and evaluation to improve tracking of climate and environmental stressors in cities, including pollution, UHIs, and urban green spaces, to strengthen evidence-based policy-making
- Take a collaborative and inclusive approach in the development and implementation of environmental, climate, and health policies by consulting and involving city residents in decision making
- Strengthen exchanges and seek expertise input from researchers to design science-based policies

EU-LEVEL DECISION-MAKERS

- Integrate the increase of urban green spaces into the Mission for Climate Neutral and Smart Cities framework
- Include the urban dimension and nature-based solutions in upcoming climate risk assessments and in updates to the EU Climate Adaptation Strategy
- Support nature protection and nature restoration efforts in cities, by adopting goals such planting at least 3 billion trees by 2030 as part of the EU Biodiversity Strategy
- Include financing for increasing, protecting and restoring green spaces in cities in the next EU budget 2028-2024 (for example as part of climate resilience efforts)

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The data presented in this infographic was gathered as part of the UBDPolicy project: UBD Policy stands for Urban Burden of Disease Policy. This EU-funded project is aimed at estimating the health and socioeconomic costs and benefits of air quality, noise, lack of urban green spaces, heat and temperature, physical activity, and inequity for nearly 1,000 European cities in the EU and monitors three-year trends and impacts of urban planning, transport planning, and environmental policies.

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