PERFECT Planning for Environment and Resource eFficiency in European Cities and Town

The importance of green infrastructure for health in the post-pandemic era

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The importance of green infrastructure for health in the post-pandemic era PERFECT Policy paper

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About PERFECT

PERFECT (Planning for Environment and Resource eFficiency in European Cities and Towns) is a project, running from January 2017 to September 2022, co-funded by Interreg Europe. It aims to demonstrate how the multiple uses of green infrastructure can provide social, economic and environmental benefits. It will raise awareness of this potential, influence the policy-making process, and encourage greater investment in green infrastructure.

To find out more about PERFECT, visit interregeurope.eu/perfect/

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Introduction

Visiting green spaces was a lifeline for many people during the COVID-19 pandemic lockdowns. The sense of routine and relief provided by going on a daily walk, getting out of the same four walls, breathing fresh air, and doing some exercise was really valued. It confirmed something that people have always known but, perhaps, had not really acknowledged: that spending time in green spaces, close to nature, is good for both our mental and physical health.

However, the pandemic also brought to light the inequalities that exist in access to green space. The warm weather in the first lockdown in 2020 meant that people who had gardens – often wealthier people - could spend hours outside enjoying the sunshine, whereas those living in more cramped conditions in more deprived areas were often stuck inside and may not have been within walking distance of a public park. This paper discusses the challenges during the pandemic and other issues associated with health and green infrastructure, and highlights opportunities for policymakers to use the lessons learnt during the pandemic to maximise the health benefits that green spaces can provide.

2 The influence of green infrastructure on people's health

Countless studies have shown that being exposed to, or in contact with, natural environments is associated with better health and wellbeing, especially for those living in urban areas. Evidence shows that living in greener urban areas is associated with lower probabilities of cardiovascular disease, obesity, diabetes, asthma hospitalisation and mental distress.¹ It even has an impact on life expectancy: a Europe-wide study looked at the effects of unequal residential exposure to green spaces in cities and estimated that population life expectancy could be increased if those cities achieved universal residential access to green space.² In England, some primary healthcare is currently being delivered through green social prescribing (see case study below).

The PERFECT expert paper Health, Wealth and Happiness,³ sets out the evidence that green infrastructure provides long-term mental health benefits. This is achieved as a result of people visiting green spaces, but also through living in places where they can see 'greenness'. The paper highlights the benefits to physical health, as having access to natural green spaces can be a powerful motivating factor to exercise. The paper also highlights the positive impacts of green infrastructure on wider environmental factors, such as its role in reducing air and noise pollution and cooling cities, which in turn reduces poor health and premature deaths.

¹ Spending at least 120 minutes a week in nature is associated with good health and wellbeing. June 2019. https://www.nature.com/articles/s41598-019-44097-3

² Green space and mortality in European cities: a health impact assessment study. Oct. 2021. https://www.thelancet.com/journals/lanplh/article/PIIS2542-5196(21)00229-1/fulltext

³ Available here: https://projects2014-

^{2020.}interregeurope.eu/fileadmin/user_upload/tx_tevprojects/library/file_1535017470.pdf

Case study: Green social prescribing



Photo credit: Greg Rosenka, Unsplash

Green social prescribing is a form of community-based support for people with physical and mental health problems that introduces nature into their lives to improve their wellbeing. During the Covid-19 pandemic, the UK Government recognised its potential to improve people's health.4 In July 2020, following the first lockdown, the UK government invested in green social prescribing at seven 'test and learn' sites in parts of England which had been the hardest hit by the pandemic.

The project will result in up to 1,000 social prescribing 'link workers'. Doctors can ask link workers to connect people to community groups and agencies for practical and emotional support, based on a 'what matters to you' conversation. Beneficiaries will include vulnerable people without easy access, or the disposable income, to discover the natural environment. It will also benefit people suffering from long-term conditions, who became isolated during the pandemic, by providing opportunities for people to come together.

The project received an initial £4 million investment, which then rose to £5.77 million thanks to additional contributions.⁵ Whilst this is a considerable sum, it is possible for municipalities across Europe to replicate it. Municipalities can capitalise on the increased recognition of the role of nature in health to support the physical and mental health of residents by bringing together health practitioners and community groups to make green social prescribing happen.

⁴ Green social prescribing: call for expressions of interest. March 2021. https://www.gov.uk/government/publications/green-social-prescribing-call-for-expressions-of-interest/greensocial-prescribing-call-for-expressions-ofinterest#:~:text=Green%20social%20prescribing%20links%20people,both%20green%20and%20blue%20envir onments

⁵ Green social prescribing. https://www.england.nhs.uk/personalisedcare/social-prescribing/green-social-prescribing/

3 What happened during the pandemic?

During the Covid-19 pandemic, many people capitalised on the benefits outlined above and research shows that the pandemic underlined the importance of local green space to people. For instance, studies in England found that 86% of respondents agreed that 'being in nature makes them happy'6 and 45% of adults said that visiting green and natural spaces has been even more important to their wellbeing since coronavirus restrictions began.⁷

Inequality of access to nature and its impact on ill health

The pandemic highlighted that nature could have an impact on the likelihood of catching Covid-19 and affect the severity of illness, bringing to light the reality about unequal access to nature. A study in England undertaken during the pandemic showed that people who live in neighbourhoods with greater amounts of green infrastructure were happier, healthier, and lived longer lives than those who lived in less green places. While it is likely that everybody benefits from green infrastructure, it suggested that more disadvantaged communities may benefit the most from investment in green infrastructure.8

As a result of the Covid-19 pandemic, a wealth of research is being pursued around equality of access to green infrastructure. Europe-wide research shows that green space is less available in lower income urban neighbourhoods than in higher income ones. Communities with a high proportion of immigrants and ethnic minorities have also been found to have less access to high-quality green and blue spaces than those with lower proportions of immigrants and ethnic minorities. While the World Health Organization recommends that all people live within 300 metres of green space, less than half of Europe's urban population does. National and local guidelines vary across Europe and guidance on how to make access equal across social groups is rare.9

A study in England highlighted a strong disparity in access to green space and a correlation between green space deprivation and ethnicity. The study shows that a person of black, Asian or minority ethnic (BAME) origin is more than twice as likely as a white person to live in an area deprived of green space. Almost 40% of people of BAME backgrounds live in England's most green space-deprived neighbourhoods, compared to 14% of white people. 10 Additionally, in England, death rates caused by Covid-19 for most ethnic minorities were higher than those of white ethnic groups. 11 The reasons for the higher death rates for those of BAME origin are manifold, including: higher exposure to people at work; living in larger households; and having

¹¹ Why have Black and South Asian people been hit hardest by COVID-19? Dec. 2020.

⁶ The People and Nature Survey. May 2022. https://www.gov.uk/government/collections/people-and-nature-surveyfor-england

⁷ https://www.gov.uk/government/statistics/the-people-and-nature-survey-for-england-monthly-indicators-for-april-2021-official-statistics/the-people-and-nature-survey-for-england-monthly-interim-indicators-for-april-2021

⁸ Enhancing England's urban green spaces. Sept. 2020. https://naturalengland.blog.gov.uk/2020/09/30/enhancingenglands-urban-green-spaces/

⁹ Who benefits from nature in cities? Social inequalities in access to urban green and blue spaces across Europe. Feb. 2022 https://www.eea.europa.eu/publications/who-benefits-from-nature-in/who-benefits-from-nature-in

¹⁰ England's green space gap. Sept. 2020. https://policy.friendsoftheearth.uk/insight/englands-green-space-gap

https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/conditionsanddiseases/articles/wh yhaveblackandsouthasianpeoplebeenhithardestbycovid19/2020-12-14

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lower incomes. But also, living in a deprived area with poorly maintained green spaces, puts people at higher risk of suffering from Covid-19.

The pandemic shone a light on the impacts of social inequality on public health and exposed the socioeconomic disparities of quality of life – those that are poor have less access to the benefits of nature. The fact that they are less likely to have access to a garden means that they suffered more from park closures. This inequality of access should be used as evidence to develop green infrastructure strategies that give equal access to all urban residents.

Case study: Increased provision of green spaces in Ljubljana as a result of the Covid-19 pandemic

In Ljubljana urban region, green infrastructure was under immense pressure during the Covid-19 pandemic. Recognising this, the city's authorities decided to increase the provision of green spaces to meet residents' demands.

The city's authorities addressed this in two ways: by changing spatial plans; and by providing additional funding for the renovation of existing infrastructure in parks. The purpose of changing spatial plans was to improve the distribution, scope, and connections to green spaces, to provide all residents with good access to them. The existing city spatial plan determines that the city should provide 32 square meters of green open spaces per person, and 356 square meters of open forest per person. Recreational areas are being expanded throughout Ljubljana in accordance with strategic guidelines, which envisage 'sport islands' within a radius of 300 meters from each settlement. The city wants to ensure even better connections to green infrastructure on the municipal, district, and local level. The city's spatial plans will be improved gradually and over the long term.

The pandemic highlighted that some of the existing infrastructure in parks needs upgrading and new green and sports areas should be built. The City of Ljubljana responded by providing supplementary funds in its 2021/2022 budget to ensure additional funding and support the renovation of the existing infrastructure.

Challenges for those with diverse needs

The pandemic highlighted that it is often the people who would benefit most from green spaces that have the least access to them. It is those suffering from social isolation, illness or who are otherwise vulnerable who faced the biggest barriers to accessing green spaces and benefiting from nature.12

It is also important to recognise, that people can be isolated from nature despite being close to it. Green spaces can be off-putting environments for those with diverse needs such as children, older people¹³ or people with mobility impairments. Things that can put people off spending time in nature include a lack information about accessibility, and physical constraints such as poor-quality paths, obstacles, or a lack of parking or toilets.¹⁴ Access to nature became even more challenging during the Covid-19 pandemic as many facilities such as toilets or cafes closed. During the peak of the pandemic, to deter people from congregating, some places even

¹² Out of Bounds: Equity in Access to Urban Nature. May 2021. https://www.groundwork.org.uk/wpcontent/uploads/2021/05/Out-of-Bounds-equity-in-access-to-urban-nature.pdf

¹³ Information on how to support an ageing population through green infrastructure https://ghia.org.uk/

¹⁴ I Would Really like to Visit the Forest, but it is Just Too Difficult: A Qualitative Study on Mobility Disability and Green Spaces. Jan. 2019. https://www.sjdr.se/articles/10.16993/sjdr.50/

banned sitting on benches and sealed them off, unintentionally making it more difficult for people with mobility difficulties to visit parks.



Photo credit: Julia Thrift

Quality is as important as quantity

The Covid-19 pandemic illustrated how world events affect people differently depending on their economic means, social backgrounds, and health. It is therefore crucial that there is a shift in policy and practice to ensure that there are plenty of accessible and good quality green spaces. If green spaces are inaccessible or poorly managed, people are deterred from using them, and so miss out on their benefits. Badly maintained green spaces, with poor sightlines, dark corners and concealed entrances, can encourage antisocial behaviour which, in turn, can intimidate local residents.¹⁵

As urban areas expand and become denser, the amount of good quality green space is likely to decline unless determined efforts are made to maintain or increase it. For example, a study in England and Wales showed that people that lived in neighbourhoods built after 2000 are almost twice as likely to not have access to a garden than those in developments dominated by housing built between 1930 to 1999. 16 Therefore, it is crucial that the remaining green spaces are of the highest quality as possible.

As there is a shift towards developer-led approaches to urban development, it is crucial that local authorities make sure that good quality public green spaces are included in projects. Many

¹⁵ Designing good mental health into cities: the next frontier for urban design. Apr. 2017.

https://www.designcouncil.org.uk/our-work/news-opinion/designing-good-mental-health-cities-next-frontierurban-design#:~:text=the%20urban%20context.-

[&]quot;City%20dwellers%20have%20an%20almost%2040%25%20increased%20risk%20of%20depression,who%20liv e%20in%20the%20countryside.

¹⁶ Exposed: the collapse of green space provision in England and Wales. May 2022. https://neweconomics.org/2022/05/exposed-the-collapse-of-green-space-provision-in-england-and-wales

municipalities have already set in place planning tools to do this, for example by setting green infrastructure targets to ensure public green space is available and to promote local biodiversity. In England, those quality standards are set through a range of frameworks and organisations like the Urban Greening Factor¹⁷, Building with Nature¹⁸ and the Green Points System.19

Case study: Biodiversity net gain policy in England



Photo credit: Jessica Fieth

The National Planning Policy Framework (NPPF) and the 25 Year Environment Plan both support biodiversity net gain, and from 2023 the Environment Act will require a minimum of 10% biodiversity net gain in all new developments.²⁰ These policies establish the importance of biodiversity for both its ecological and socio-economic value.

Some local authorities, including PERFECT partner Cornwall Council, have been piloting the biodiversity net gain requirement ahead of its introduction to national planning policy.²¹ Cornwall has required 10% net gain on larger developments since March 2020. The aim of the policy is to ensure protection and growth in the natural environment is achieved across Cornwall.

¹⁷ More information available here: https://www.london.gov.uk/what-we-do/planning/implementing-londonplan/london-plan-quidance/urban-greening-factor-ugf-quidance

¹⁸ More information available here: https://www.buildingwithnature.org.uk/

¹⁹ More information available here: https://tcpa.org.uk/wp-content/uploads/2021/11/EP6_FINAL.pdf

²⁰ Biodiversity Net Gain. https://www.local.gov.uk/pas/topics/environment/biodiversity-netgain#:~:text=Biodiversity%20net%20gain%20(BNG)%20is,state%20than%20it%20was%20beforehand

²¹ DRAFT Chief Planning Officer's Advice Note: Biodiversity Net Gain in Cornwall https://www.cornwall.gov.uk/media/gkxls2ba/draft-chief-planning-officer-note-biodiversity-net-gain.pdf

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The requirement allows for growth demands to be satisfied while also making sure that the natural environment is both protected and enhanced through a consistent and measurable gain in biodiverse habitat on site. This may be supplemented off site where there is insufficient space. This does not mean that harm is tolerated; if a proposal cannot meet biodiversity requirements or has the potential to harm biodiversity or geological conservation, it may still be refused on nature conservation grounds.²²

4 Recommendations for policymakers

Investment in green infrastructure can require up-front costs, but the benefits are likely to be in the longer term and often do not directly benefit the organisation that paid for the upfront investment. For instance, a developer might pay to create green infrastructure, but the benefits might be long-term benefits to the health of future residents. The result is that, in many cases, green infrastructure is under-funded, opportunities to improve human health and wellbeing are missed, and beneficial environmental, social and economic outcomes are forgone.

However, policymakers can make a strong case for investment in green infrastructure thanks to the wealth of studies being published post-pandemic providing quantitative and qualitative data to prove the value of green infrastructure. For instance, a Europe-wide project²³ showed that many natural-cause deaths in European cities could be prevented annually by increasing green space. This highlights the importance of policy interventions to increase people's exposure to green spaces and the benefits of green infrastructure beyond pure economics.

Interventions that increase green space in urban areas could promote better health and wellbeing and reduce natural-cause mortality of the population, while contributing to the development of sustainable and healthy cities. In England it has been estimated that £2.1 billion per year could be saved on health costs if everyone had access to green space, as this would enable higher levels of physical activity.²⁴

Below are some recommendations to help municipalities improve the quality and quantity of green spaces in their areas. Many of the recommendations outlined below have been made before, however, the experience of the pandemic has made it clear how important they are to help ensure that green spaces are designed and managed to support people's health.

Delivering green infrastructure through the planning system

Currently there is little guidance across Europe on ensuring access to and the usability of green and blue spaces for all socio-economic and demographic groups.²⁵ Municipalities and policymakers should ensure that an adequate quantity and quality of accessible open spaces is

²² Cornwall Planning for Biodiversity guide. https://www.cornwall.gov.uk/media/v1rogk0x/planning-for-biodiversity.pdf

²³ Green space and mortality in European cities: a health impact assessment study. Oct. 2021. https://www.thelancet.com/journals/lanplh/article/PIIS2542-5196(21)00229-1/fulltext

²⁴ Improving access to greenspace: 2020. March 2020.

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/904439/Impr oving access to greenspace 2020 review.pdf

²⁵ Who benefits from nature in cities? Social inequalities in access to urban green and blue spaces across Europe. Feb. 2022 https://www.eea.europa.eu/publications/who-benefits-from-nature-in/who-benefits-from-nature-in

delivered through the planning system. The planning system is a key mechanism for the delivery of new open spaces and municipalities should set high standards for its delivery by working with developers, the local community, and stakeholders. Guidelines and tools for the provision of urban green space produced by European research projects include guidance on spatial analysis for green infrastructure like ProGIred²⁶ and the BlueHealth toolbox.²⁷ Another example is the Green Infrastructure Standards Framework which will become available in England in Autumn 2022. It consists of a set of 10 principles of good green infrastructure to achieve quality and consistency in the provision, management, and stewardship of green infrastructure as an essential part of place-making and place-keeping for the benefit of people and the environment. The aim is that they are applied and used by a range of audiences, including local authorities.²⁸ Additionally, maps of all the green infrastructure in England are available which can be cross-referenced with the Index of Multiple Deprivation, so that investment in new or improved green infrastructure can be targeted at the places that need it most.

Recommendation: Planning policy should be strengthened to require high quality green infrastructure to be delivered through new housing developments, this includes specifying the quality, quantity and accessibility of green spaces and measurable quality standards. Municipalities should explore options to measure biodiversity net gain and adjust it to local needs.

Green infrastructure strategies set a long-term vision for the quantity and quality of green infrastructure in an area, and the benefits it will provide. By mapping existing green infrastructure, and comparing them with the desired long-term outcome, councils can identify areas that are lacking an adequate quantity and quality of green infrastructure and make longterm plans to address the shortfalls. Taking a long-term, strategic approach can help attract investment from the public and private sectors and involving local communities in the creation of the strategy can bring valuable local support. To ensure that the resulting strategy addresses inequality of access to green space, it is important that people from throughout the community - including the most marginalised - are actively involved in both creating the long-term vision for the future of the area's green infrastructure and in individual green space improvement projects.

Recommendation: Municipalities should work with local communities, business, schools and other partners to create green infrastructure strategies to maximise the opportunities to improve green spaces and attract new funding for them.

Engaging with the public

Case studies across Europe show that targeted actions to reduce inequalities in access to highquality green spaces can maximise the health and wellbeing benefits of nature in cities. Municipalities should undertake open space and green infrastructure assessments that involve

²⁶ More information available here: https://progireg.eu/resources/planning-implementing-nbs/

²⁷ More information available here: https://bluehealth2020.eu/resources/toolbox/

²⁸ More information available here: https://designatedsites.naturalengland.org.uk/GreenInfrastructure/Home.aspx

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public consultation and analysis of existing and projected demographics to understand future needs to deliver holistic green space planning.29

Involving local communities in the design and management of green space helps take into consideration the specific needs of different people and has been found to foster a sense of ownership and promote use.³⁰ Policymakers should address the inequalities in access to green spaces that were exposed during the pandemic.

People who feel excluded from green spaces can be encouraged to visit them by the presence of park staff, and by holding inclusive community events. Above all, in-depth consultation with both existing and potential users of green space is essential to create spaces that meet the needs of the whole community. It is particularly important to involve marginalised and isolated groups in design and management decisions.31

Recommendation: Municipalities should pursue in-depth consultation with both users and potential users to develop green and blue spaces that meet the needs of the whole community.

Case study: Metropolitný Inštitút Bratislavy (MIB) study at Sad Janka Kráľa

The Metropolitný Inštitút Bratislavy (Metropolitan Institute of Bratislava, MIB) is a research centre made up of a team of experts in architecture, urbanism, and city development which seeks to improve the quantity and quality of public spaces in Bratislava. The aim of the MIB is to support functional solutions in urban projects with a strong focus public participation. This case study demonstrates alternative ways of collecting data to monitor park use.

During the Covid-19 lockdowns MIB studied the participation of young residents in the Sad Janka Kráľa park. They monitored park attendance during the pandemic via Instagram and specific hashtags like #sadjanakrala. Using artificial intelligence tools, they were able to identify what each photo depicted and the content of the comments and hashtags. They also used data from Google maps and found that in April 2021 activity decreased by 22% compared to the period before the outbreak of the pandemic. At the same time, it increased in neighbouring areas, by up to 4% (Bratislava District II), 41% (Bratislava District III) and 20% (Bratislava District IV). The analysis by Urban Studies and Participation Section showed that Sad Janka Kráľa and Medická zahrada had the most posts, so they were visited by the most people using Instagram. So far, over 10 000 contributions have been published worldwide.

²⁹ Green Infrastructure: Why well-connected local green spaces matter more than ever during the Coronavirus pandemic, and why change is needed after the crisis. April 2020. https://landuse.co.uk/green-spacescoronavirus/

³⁰ Who benefits from nature in cities? Social inequalities in access to urban green and blue spaces across Europe. Feb. 2022 https://www.eea.europa.eu/publications/who-benefits-from-nature-in/who-benefits-from-nature-in

³¹ Out of Bounds: Equity in Access to Urban Nature. May 2021. https://www.groundwork.org.uk/wpcontent/uploads/2021/05/Out-of-Bounds-equity-in-access-to-urban-nature.pdf

Providing green infrastructure for all needs

Once green space planners and managers understand the needs of park users and how different types of people access nature differently, this should inform the design and management of their green spaces. Municipalities have the responsibility to create inclusive green spaces, and while it is impossible to create a space that is perfect for everyone, barriers to accessing green spaces should be identified and removed if possible. For instance, the Sensing Nature project developed a guide to designing green spaces with sight impairment in mind. ³² It suggested that parks could provide tactile maps with clear visual information at entrances, good lighting, and obstacles such as benches and bins should be removed from the paths. Planners and designers should also consider the areas and streets surrounding green spaces to ensure that more vulnerable visitors are able to get to them.³³

Recommendation Municipalities should create and manage green spaces so that attract and encourage use from people throughout their communities. including the most vulnerable.

Considerations include the width and layout of paths, lighting and how to provide multisensory information and experiences. Benches for rest, toilets and cafes make green spaces more accessible for those with diverse needs,³⁴ encouraging them to visit green spaces more frequently. One way to improve children's access to green infrastructure is by ensuring that schools have green play areas, for instance, by greening playgrounds as has been done in Cornwall.

³² More information available here: https://sensing-nature.com/

³³ Out of Bounds: Equity in Access to Urban Nature. May 2021. https://www.groundwork.org.uk/wp-content/uploads/2021/05/Out-of-Bounds-equity-in-access-to-urban-nature.pdf

³⁴ Improving access to greenspace: 2020. March 2020.

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/904439/Impr oving access to greenspace 2020 review.pdf

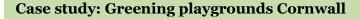




Photo credit: Jessica Fieth

Many schools lack green spaces for children to play in - and schools in Cornwall were no exception. To start to address this, Cornwall Council took inspiration from the Amsterdam Impulse Schools scheme to create a programme where each school involved received €5,000 to incorporate green infrastructure in their playgrounds.³⁵

The Eden Project – the internationally famous eco-education centre in Cornwall – worked with the council's education team and together they provided support for developing the learning programme and helping to identify additional funding. Participating schools used their funding to attract additional investment to expand their own schemes. Teachers, students, parents and other community members were consulted on the design of these green infrastructure initiatives, and children are encouraged to maintain these green spaces to create a sense of ownership.

As a result, each scheme has created bespoke new green spaces for participating schools that reflect their individual needs and preferences. A sense of pride has been fostered among the children in their playgrounds as they now have an inclusive and green environment that they played a role in creating and sustaining.

³⁵ More information available here: https://www.youtube.com/watch?v=mG_T31hsrW8&t=83s