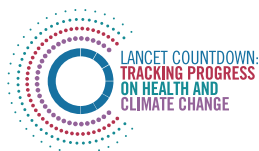


The Lancet Countdown on Health and Climate Change

Policy brief for Europe

2021



Introduction

Left unabated, the climate emergency will continue to have irreversible negative impacts on the health of present and future generations, exacerbate current inequalities and threaten to undermine the public health gains of the last half century. No country, rich or poor, is immune.¹

The 2021 *Lancet* Countdown report and its associated policy briefs coincide this year with the 26th UN Framework Convention on Climate Change Conference of the Parties (COP26), which is set to provide a clear imperative to the European Union (EU) and its Member States to realise the Paris Agreement and develop plans to keep global temperature rise below 1.5 °C.² This intergovernmental session will take place against the backdrop of the ongoing COVID-19 pandemic which has blighted the lives, livelihoods and health of millions of European citizens and their families. An aligned response to both crises could bring a unique opportunity to accelerate progress to a climate resilient, healthier Europe.

The European Green Deal is at the heart of European climate action, collating a set of policies and measures to preserve Europe's natural environment. Under this initiative, the EU increased its climate emergency efforts by adopting the new EU strategy on adaptation in February 2021 which aims to future-proof the region to be climate-resilient by 2050.³ In July 2021, the European Climate Law was passed enshrining the objective for the EU to reduce net greenhouse gas (GHG) emissions by at least 55% by 2030 and to become climate neutral by 2050.³ A legislative package put forward by the European

Commission a few weeks later proposes concrete measures and tools to deliver on this commitment.⁴ The EU and its Member States are also undertaking further steps to recognise and act on the health impacts of climate change by, among others, the EU4Health programme⁵ and the establishment of the European Climate and Health Observatory, coordinated by the European Environment Agency (EEA).⁶ In the wider European context, the WHO European Region's Environment and Health Taskforce promotes the integration of climate change and health agendas⁷, and the new *Lancet* Countdown in Europe will monitor the dimensions of climate change in different domains.⁸ However, whilst a key policy instrument for protecting human health, engagement with health in the Nationally Determined Contributions (NDCs) of the European Union is still nearly absent.⁹ There continues to be a substantial gap between the recognition of the problem at a national level and the implementation of actions addressing the health impacts of the climate emergency. A climate ambitious response that puts the health of people and the planet first is crucial to ensure a healthy future for all.¹⁰

Against the backdrop of the upcoming COP26 and the COVID-19 recovery, this briefing focuses on data and policy recommendations on three themes featured in the 2021 global *Lancet* Countdown report, namely heat and health in Europe, urban green space, and energy systems, air pollution and health.²

Recommendations

1

Protect human health from the adverse impacts of heatwaves and high temperatures by adopting appropriate adaptation strategies and implement heat-health action plans, including measures outlined in the EuroHEAT project.¹¹ This includes measures such as the implementation of meteorological early warning systems, improvement of health system preparedness and resilience, improvement of the urban and built environment, and heat-health warnings based on the temperature-health association.

2

Enhance city-level climate change adaptation and mitigation, address urbanisation challenges and promote mental and physical health by increasing urban green spaces such as parks, playgrounds and residential greenery.

3

Commit to the reduction of long-term greenhouse gas (GHG) emissions, in line with the Paris Agreement and the EU 2030 Climate Target Plan, including by the development of ambitious policies that provide short-term COVID-19 recovery, and mitigate the health impacts of climate change.

4

Fully align the revision of the EU Ambient Air Quality Directive standards with the 2021 WHO Global Air Quality Guidelines levels in a legally binding manner and further harmonise monitoring, modelling and air quality planning among the EU Member States.

5

Develop policies based on integrative thinking, aimed at tackling the sources of GHG emissions and air pollution. The energy sector is a prime example of potential co-benefits by phasing out fossil fuel and switching to renewable energy sources, as the current use of fossil fuels is directly damaging human health and aggravating climate breakdown. This transition needs to take place within this decade for the EU to reach its stated climate goals.

Heat and health in Europe

July 2021 was the hottest month globally since record keeping began 142 years ago.¹² The last decade was the warmest decade on record with global temperatures 1.2°C higher than pre-industrial levels.¹³ Over the same period, temperatures in Europe increased even faster by 1.7 to 1.9°C.^{14,15} An exceptional number of record-breaking and prolonged heatwaves were reported in the last two decades that profoundly impacted human health and well-being in Europe since the turn of the millennium. For example, the heatwave of 2003 led to 15,000 deaths in France alone.^{16,17}

Exposure to extremes of heat can lead to significant adverse health outcomes including increased morbidity and mortality from heat stress, heat exhaustion and heatstroke, and an increase of cardiovascular, respiratory and kidney disease.^{18,19} High ambient temperatures have been associated with congenital and birth complications,²⁰ negative impacts on psychological and emotional health²¹, and increased group and interpersonal violence.^{22,23} Those particularly at risk include urban populations, those with underlying health conditions and the population aged 65 years and over.^{24,2} To quantify heat vulnerability, the *Lancet* Countdown's heat vulnerability index (0-100) combines data on the proportion of people older than 65 years with the proportion of the total population living in urban areas, and the prevalence of chronic

respiratory disease, cardiovascular disease and diabetes mellitus. Following the 2021 *Lancet* Countdown report, vulnerability to heat extremes continues to increase in Europe from 1990 to 2019 with the Czech Republic seeing the biggest increase of 12% in 2019 with respect to 1990 (Figure 1).²

In terms of mortality, a 48% increase in the annual number of deaths attributable to heat was observed on average in 2015-2019 with respect to those seen on average in 2000-2004.^{2,25} Without a portfolio of mitigation and heat adaptation actions (such as meteorological early warning systems, improvement of urban planning), the climate emergency will drive further increased morbidity and mortality due to heat-related diseases in the near future. To protect citizens from the negative impacts of heat, many governments are establishing heat-health action plans (HHAPs) that integrate actions into a systematic public health response. However, only 16 of 35 countries participating in the 2019 survey of the WHO Regional Office in Europe indicated the existence of national HHAPs with a wide variation in the levels of implementation (e.g. heat-protective long-term urban planning is relatively uncommon).^{26,27}

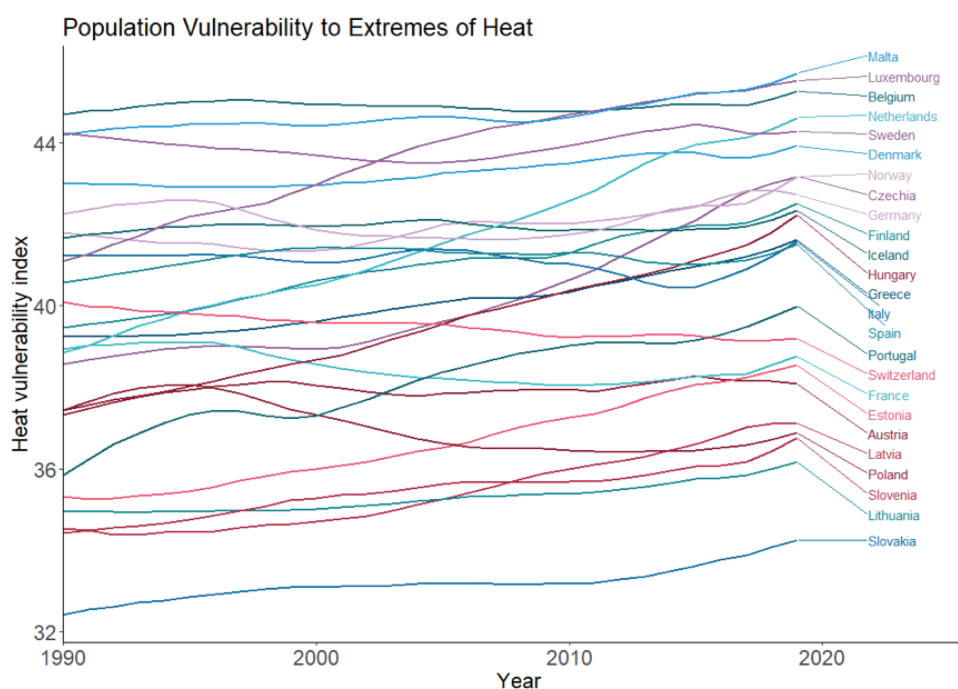


Figure 1. Vulnerability to the extremes of heat in the European Union from 1990 to 2019.² The heat vulnerability index tracks a population's vulnerability to heat using a composite index ranging from 0 to 100.

Urban green space in Europe

Almost 75% of the EU population lives in urban areas. This is expected to increase to approximately 84% by 2050.²⁸ Interlinked pressures from both urbanisation and the climate emergency affect people's health and well-being in various ways.^{29,30} Cities and urban health are particularly vulnerable to climate change due to the physical characteristics of the built environment, density of infrastructure and people and ecological interdependence with urban ecosystems.³¹ Urban residents may be exposed to higher temperatures and experience increased regional atmospheric air pollution due to the combustion of fossil fuels, compared to surrounding rural areas.³²

A growing body of evidence suggests that nature-based solutions, such as urban green spaces, can be implemented as sustainable solutions in cities to attenuate negative mental and physical health impacts from climate change in Europe.³³ The benefits include increased social interaction and physical activity, reduced exposure to air pollution, stress relief, and lower all-cause mortality risk.^{29,30} Simultaneously, urban green space contributes to tackling urbanisation related challenges, and climate change mitigation and adaptation by sequestering carbon and delivering local cooling benefits.³³ Recent evidence showed that

greening of 35% of the EU's impervious urban surface would avoid up to 55.8 megatons (Mtons) per year CO₂ equivalent of greenhouse gas emissions (or about 1.2% of the Mtons CO₂ produced in the EU every year) and could reduce summer temperatures by 2.5–6°C.³⁴ Carefully designed urban green spaces that conserve biodiversity have the potential to provide access to clean air and water, recreational space and an overall healthier living environment.^{33,2}

The 2021 global *Lancet* Countdown report assessed urban greenness in the 146 urban centres from the WHO European Region that had over 500,000 inhabitants or were the most populated cities in those countries where this threshold was not reached by any urban centre (Figure 2, 3). None of the European cities had 'very high' or 'exceptionally high' levels of green space coverage. Only 6 (Stuttgart, Donetsk, Zagreb, Ljubljana, Katowice, Sarajevo) of the 146 European cities had levels of green space coverage considered 'high'. All other 140 European cities included, home to millions of people, had moderate (57 cities), low (46 cities), very low (35 cities) and exceptionally low (2 cities) levels of urban greenness.²

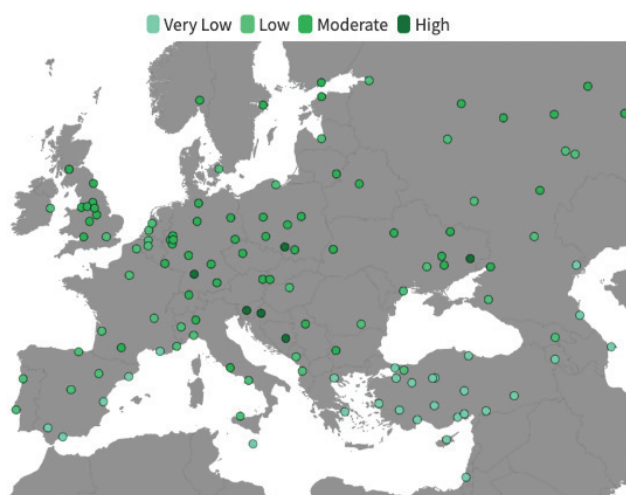


Figure 2. Level of urban greenness in European countries' most populous cities and cities over 500,000 inhabitants in 2020. 146 European cities from the WHO European Region were included. Greens space magnitude was estimated using population-weighted Normalized Difference Vegetation Index (NDVI).²

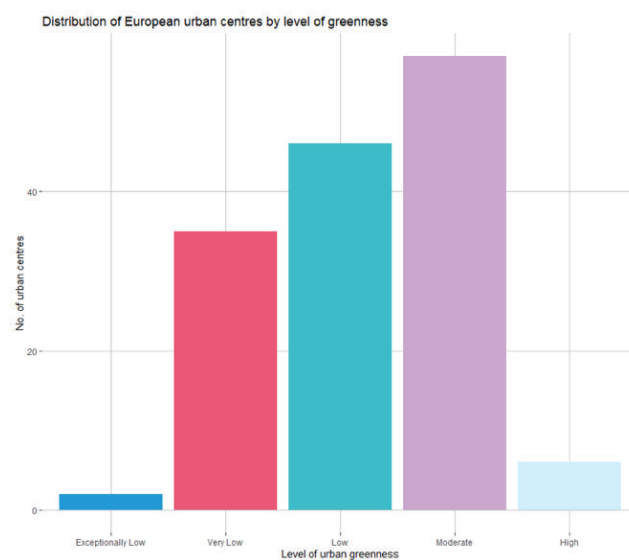


Figure 3. Number of European urban centres by level of greenness in 2020. 146 European cities were included from the WHO European Region. Green space magnitude was estimated using the Normalized Difference Vegetation Index (NDVI). This was categorized as exceptionally low (0.1-0.2), very low (0.2-0.3), low (0.3-0.4), moderate (0.4-0.5), high (0.5-0.6), very high (0.6-0.7) and exceptionally high (0.8-0.9) levels of urban greenness. All European cities fell within the range of an NDVI of 0.1-0.6.²

Energy systems, air pollution and health

The European Union releases significant quantities of air pollutants and global greenhouse gas (GHG) yearly, which damage human health and the health of the planet. Since the beginning of the industrial revolution, countries that make up the EU-27 have cumulatively been responsible for approximately 18% of global carbon dioxide emissions.³⁵ Within Europe, energy production and consumption is one of the largest sources of GHG emissions. Whilst slow, some progress has been made to reduce GHGs emissions in Europe with estimates suggesting that the EU's 2018 GHG levels were 23% lower than 1990.³⁶ This can be attributed to the implementation of different policies and measures including the improvement of the carbon intensity of energy production and consumption due to a switch from coal to less carbon intensive fossil fuels and an increase in the uptake of renewable energy.³⁶

The 2021 *Lancet* Countdown report, which draws on data from the International Energy Agency, indicates that the carbon intensity of the European energy system has fallen slightly in recent years to 51.4 tCO₂e/TJⁱ (excluding land use emissions) in Eastern Europe, 42.5 tCO₂e/TJ in Northern and Western Europe and 51.5 tCO₂e/TJ in Southern Europe in 2018 (Figure 4). Nevertheless, progress is limited with declines of only 0.9% in Southern, Western and Northern Europe and 1% in Eastern Europe compared to 2017.² Within the energy system, the combustion of fossil fuels is the largest single source of GHG emissions. Globally, coal use for all activities fell in 2019, including a fall of 21% in Europe.² To further mitigate emissions by at least 55% by 2030 it is crucial that governments commit to a phasing out of fossil fuels, and a complete shift from coal to renewable energy sources.

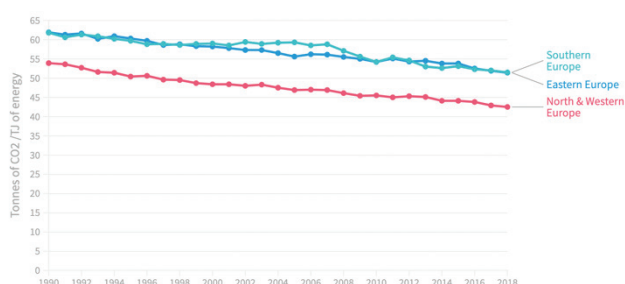


Figure 4. Carbon intensity of the Energy System in Southern Europe, Eastern Europe, and Northern & Western Europe over 1990-2018.²

Associated with fossil fuel combustion is the human exposure to air pollution. Globally, awareness of the detrimental health impacts of air pollution has increased due to developments such as the 2020 landmark ruling to list air pollution as a cause of death³⁷, the publication of the new 2021 WHO Global Air Quality Guidelines³⁸, and proposed legislation shifts in the EU Ambient Air Quality Directives aligning them more with the WHO recommendations.³⁹ Detrimental impacts include morbidity and mortality due to cardiovascular disease⁴⁰, respiratory diseases (e.g. chronic asthma)^{41,42}, adverse pregnancy outcomes⁴³ and lung cancer.⁴⁴ Following the 2021 *Lancet* Countdown in Europe report, in 2019, a total of 484,300 deaths were estimated to be attributable to anthropogenic ambient PM_{2.5} in the WHO European region of which 285,700 were directly related to biomass, coal, gas and liquid fuel use (Figure 5).²

Whilst a temporary but significant drop in GHG emissions was observed during the COVID-19 pandemic, emissions are already rebounding and leading countries to largely fail to devote recovery stimulus to low carbon and nature recovery.⁴⁵ By committing to ambitious policies that provide near-term COVID-19 recovery and build towards long-term emission reduction, Europe can form a climate-resilient society protecting the future health of citizens, our environment and economies.

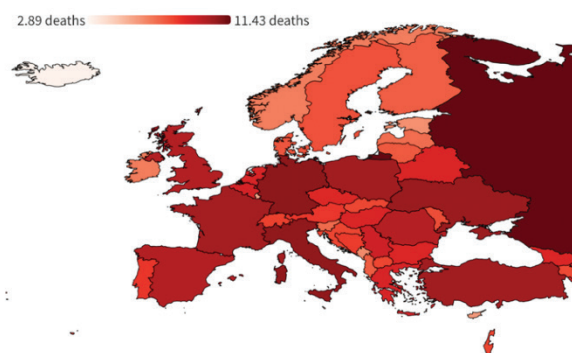


Figure 5. Premature deaths per 100,000 inhabitants from ambient PM_{2.5} air pollution in the WHO European Region.²

ⁱ Tonnes of CO₂ emitted for each unit (TJ) of primary energy supplied.

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Organisations and acknowledgements

The concept for this brief was developed by the Lancet Countdown on health and climate change. The brief was written by Kim van Daalen MPhil. Critical review was provided by Dr. Martin Balzan MD FRCP (Lond) FEFIM, Markus Kujawa MA, Cristina Pricop MA, Matteo Barisione MA. Review on behalf of the Lancet Countdown was provided by Dr. Frances McGuire PhD, and Dr. Marina Romanello PhD. Review on behalf of the Lancet Countdown in Europe was provided by Dr. Rachel Lowe PhD, Prof. Josep A. Antó and Prof. Maria Nilsson. Graphics are designed by Kim van Daalen.

THE LANCET COUNTDOWN

The Lancet Countdown: Tracking Progress on Health and Climate Change is a multi-disciplinary collaboration monitoring the links between health and climate change. It brings together lead researchers from 43 academic institutions and UN agencies in every continent, publishing annual updates of its findings to provide decision-makers with high-quality evidence-based recommendations. For its 2021 assessment, visit www.lancetcountdown.org/2021-report/

THE LANCET COUNTDOWN IN EUROPE

The Lancet Countdown in Europe is established as a research collaboration in 2021 whose mission is to monitor health and climate change in the region. Building on the work of the global Lancet Countdown and other regions, it will leverage on the wealth of data and cross disciplinary expertise in Europe, to develop high-resolution Europe-specific indicators that explore in further depth aspects of particular relevance to the region.

STANDING COMMITTEE OF EUROPEAN DOCTORS (CPME)

The Standing Committee of European Doctors (*Comité Permanent des Médecins Européens*, CPME) represents national medical associations across Europe. CPME is committed to contributing the medical profession's point of view to EU institutions and European policy-making through pro-active cooperation on a wide range of health and healthcare related issues.

EUROPEAN PUBLIC HEALTH ALLIANCE (EPHA)

The European Public Health Alliance is a member-led organisation made up of NGOs, patient groups, health professionals and disease groups working to improve health and strengthen the voice of public health in Europe. Since 1993, EPHA has built a solid network of more than 80 members dedicated to providing better health for all.