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Measuring what matters: supporting cities in tackling climate and health challenges



The effects of climate change are inextricably linked with wider health and social challenges. We at C40 Cities—the network of mayors worldwide collaborating to confront the climate crisis—see daily how inequality and illness share similar root causes to the climate crisis. We work with public health teams trying to tackle the obesity and diabetes emergency; air quality officers aiming to reduce urban pollution; and city planners wanting to address traffic, fair access to services, or rising carbon emissions.

From mayors through to technical staff, everyone understands the urgent need for healthier, more sustainable cities. The challenge is how to make this a reality—what designs and policies offer the best health and climate outcomes; how can we ensure equity; and how can we measure the effects of interventions to continually learn and improve? Modelling and measuring the benefits of urban design and transport actions on climate and health remains a difficult task, and this is a barrier to making the case for good policy. This *Lancet Global Health* series on urban design, transport, and health helps address these crucial challenges.

While COVID-19 recovery funds are still going to high-carbon, high-pollution industries, it is essential to model the effects of policies to assess which options have the biggest effects on both health and climate. As C40 President, former Mayor of New York, and UN Special Envoy for Cities and Climate Change, Mike Bloomberg, says “In God we trust. Everyone else: bring data.”¹

Data enable a more holistic understanding and decision-making process. In Chennai, India, analysis showing the effect of electric buses on air quality started in the transport department, but quickly led to discussions with the health ministry and potential funding for electric vehicles given the clear evidence of the potential to improve the health of citizens.²

In addition, developing holistic indicators enables cities to effectively engage stakeholders and gain support. A recent survey on green jobs in Johannesburg, Ekurhuleni, and Tshwane (South Africa) showed that economy and safety ranked higher in public interest than climate change; indicators have to incorporate these needs alongside climate and health criteria in

order to be effective.³ Although indicators can be used by city planners and policy makers to make science-based decisions, it is essential to share the wider benefits of climate action that matter most to affected communities.

Moreover, having strong evidence can help to defend policies. In July 2019, the low emission zone in Madrid, Spain, was suspended by the city’s new administration but was ordered to be reinstated by a court of appeal due to the evidence of air pollution improvements since its implementation by its former mayor in 2018. In parallel, Spain’s 2021 climate change law made it mandatory for Spanish towns with more than 50 000 inhabitants to create a low emission zone before 2030.⁴ To comply with this law, Madrid’s new low emission zone, Madrid 360, was launched in September 2021.

However, although cities might want to model the benefits of climate actions, they face the usual capacity and data barriers. When cities have low staff and financial capacity, having a clear set of indicators can help to efficiently focus on collecting the prioritised list of data for modelling. The Pittsburgh city departments (PA, USA) developed equity indicators as part of the OnePGH Resilience Strategy, to measure progress on resilience and wellbeing, inform current and future planning efforts, and support better communication and engagement with city residents.⁵

Having clear indicators can also help to identify which communities are the most vulnerable and require priority action. In particular, spatial indicators are crucial for both adapting to climate change and ensuring equity. For example, in New York City, NY, USA, mapping the greenspace and the heat island effect enabled the council to identify which communities are the most at risk during heat waves, and target their cooling policies towards climate and vulnerability hot spots.⁶

Workers employed by city governments instinctively understand the need and opportunity of a joined-up approach. Mexico City, Mexico, analysed the climate and health benefits to create holistic policy packages. For example, cycling lanes, a bike-sharing system, bike parking facilities at major transport hubs, teaching programmes on cycling, car-free days, and traffic

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For the *Series* on urban design, transport, and health see <https://www.thelancet.com/series/urban-design>

cameras to help improve safety were all implemented in parts of Mexico City. As a result, the number of people using cycling infrastructure increased by a factor of six, reaching 300 000 cyclists per day in 2017. Shared cycle commutes represented 35% of users' weekly physical activity, and 80% of users reported improvements in their quality of life, wellbeing, and savings.⁷

Cities are on the frontline of the climate and health crises. Extreme weather events such as the drought in Cape Town, South Africa, flooding in Rio de Janeiro, Brazil and Melbourne, Australia, as well as the COVID-19 pandemic and the current energy crisis highlight our vulnerabilities and inequalities. As the opportunity to limit global heating to safe levels is rapidly vanishing, we need to urgently take ambitious action to create thriving, liveable, and sustainable communities. Measuring and modelling policy effects can help to accelerate this transition by prioritising action and maximising impact.

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